

PLACE-BASED APPROACHES TO COMMUNITY RESILIENCE THROUGH
RESPONSE, RECOVERY, AND PREPAREDNESS

by

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Introduction:

As the impacts of climate change continue to manifest throughout the world with greater frequency, the question of how to best prepare for and recover from natural disasters is more crucial than ever. Evidence shows that beyond ripping through physical infrastructure and claiming lives, natural disasters damage social networks and community bonds, making the impacts perceptible long after houses are rebuilt. The importance of social infrastructure in disaster planning is becoming more widely researched and considered, and it is proven that communities with strong social ties are better prepared for the inevitable effects of climate change (Aldrich, 2015). Recognizing this, New York City Emergency Management (NYCEM) is working to put together a Community Emergency Toolkit in order to support the creation of preparedness plans at a community level.

Public space is a crucial tool in determining how to build more socially resilient communities. There has been significant research proving that connection to place and neighborhood contributes to increased civic participation, better social bonds, and higher Gross Domestic Product (Johnston, 2015). Researchers and government officials are already exploring the ways that public space can be used to build social capital before disaster strikes, by connecting communities and improving neighborhood ties. Additionally, public space has long been used as an organizing tool in wake of disaster. This study aims to better understand the importance and the uses of public spaces in all stages of disaster: response, recovery, and preparedness.

Goal and Objectives:

The goal of this research is to develop recommendations for the NYCEM Community Emergency Toolkit. Recommendations will focus specifically on the ways that public and shared community spaces can best be utilized in order to strengthen communities, both in disaster preparedness planning and ongoing resilience efforts. Recommendations will be based on the response efforts of Occupy Sandy, the long-term recovery work of the

US Forest Service, the Seattle Office of Emergency Management's Hub preparedness plan, and various community-based efforts. Research objectives are as follows:

- Review existing literature and define key terms
- Examine linkages in the existing research on social resiliency and public space to argue the importance of place-based disaster responses
- Analyze examples of how space is used in response, longer-term recovery, and preparedness
- Evaluate NYCEM Community Toolkit and provide recommendations on how to better utilize community spaces to foster resilience pre- and post-disaster

Literature Review

Background:

The evidence for the rise in frequency and severity of climate-related natural disasters is irrefutable. In the year 2014 alone, the US experienced eight severe weather events including tornados, hurricanes, and wildfires. Between 1980 and 2009, climate researchers saw an 80 percent increase in climate-related disasters (Weibgen, 2015). The rate of similar events is only projected to increase, particularly in coastal areas. A 2015 study by researchers at Rutgers University found that major storms, which were previously considered to have a likelihood of occurring every 500 years, are now projected to occur as often as every 25 years (Reed et al., 2015). This noteworthy rise in disasters has led to many important conversations among community leaders and politicians on mitigation and resiliency.

Over time, the way people think about natural disaster has gone from an understanding of disasters as catastrophic acts of God, to a view of disasters as a consequence of human impact on the environment. While some disaster triggers are unknown, many weather-related disasters can be anticipated and predicted. Beyond physical destruction, disasters become disastrous because of how they are managed politically, institutionally, and socially. In this way, disasters are a social construct: areas that are equally affected geographically will differ in their recovery based on environmental, economic, and community vulnerability. This knowledge and the ability to plan ahead have led to a shift in the way policy-makers think about disaster management. Understanding that disasters such as hurricanes and tsunamis do not happen at random, but rather can be anticipated and mitigated through early warning systems, has helped the focus of disaster planning trend more toward proactive, rather than reactive measures. Successful proactive policy can help to lessen the impact of a disaster and also save significant costs in providing aid (Clary, 1985).

Within the realm of proactive policy, efforts are still largely focused on physical infrastructure. Building sea walls and following base flood elevation codes in construction are two important efforts in mitigating the harm that is caused by natural disaster, but they ignore the importance of social infrastructure (Klinenberg, 2016). According to Daniel Aldrich, director of the Security and Resilience Studies Program at Northeastern University, one of the greatest threats of disaster is the displacement and broken social networks they cause (Aldrich, 2015). Eric Klinenberg's book *Heat Wave: A Social Autopsy of Disaster in Chicago*, addresses the importance of social networks in the outcome of the 1995 heat wave. In addition to the expected inverse correlation between neighborhood median income and damage suffered in a disaster, he points to the crucial role of social infrastructure. During the Chicago heat wave of 1995, communities with more social ties—fostered by active commercial corridors and social networks such as block clubs—fared much better than neighborhoods with similar demographics that were suffering from disinvestment and broken social networks (Klinenberg, 2013).

This concept applies to recent disasters as well. Researchers from John Jay College and the Institute for Environmental Sciences and Technology found that between the Lower East Side and the Rockaways, neighborhoods with similar levels of physical damage from Superstorm Sandy, the Lower East Side was at an advantage because of its pre-existing civic infrastructure. Both neighborhoods had a high concentration of public housing and poverty, but the Lower East Side had stronger social cohesion due to the number of community organizations that had worked together in the past, primarily on anti-gentrification activism. The history of community involvement on the Lower East Side allowed for a more effective response and recovery process after the storm (Graham et al., 2016).

Since Superstorm Sandy, the idea of incorporating social resources into disaster planning has become widely recognized, but has not yet been fully realized. The Federal Emergency Management Agency (FEMA) has even included recommendations for increasing civic activity as a part of emergency preparedness, and has suggested that local and national responders connect to community-level organizations and build

partnerships to strengthen social infrastructure (FEMA, 2015). On a municipal level, the NYC Mayor's Office of Recovery and Resiliency recognizes the importance of community based and grassroots organizations in their community preparedness plan, noting that community members are the first to provide on the ground support and communication (PlaNYC, 2014).

Sandy was a major turning point for the way New York City viewed its emergency preparedness. The damage from the storm was devastating.¹ One of the ways that New York City saw social networks combat the impact of the storm was through Occupy Sandy, a grassroots disaster relief network that was started by Occupy Wall Street organizers. Since the storm, neighborhoods in New York, particularly those hit hardest by Sandy, have united around a common goal of strengthening their networks around climate change mitigation, and have built coalitions, partnerships, and entire organizations to support stronger communities that are prepared for the next major storm.

The connection between social networks, physical space, and disaster relief is crucial in planning for more resilient cities. This thesis attempts to frame these connections in order to form a set of recommendations regarding public and community space for the upcoming NYCCEM community toolkit. It argues that place-based preparedness and response efforts can strengthen communities by improving response, long-term recovery, and community preparedness. The following sections outline some key terms in three major bodies of research: disaster resilience, social capital and cohesion, and place attachment. Successful place-based resilience efforts pull from theories in each of these, showing that strong social networks that are rooted in place have improved resilience and will fare better after a disaster.

¹ See Chapter 2 for more on Superstorm Sandy

Community Resilience:

Planning for disaster requires an understanding of the resources and the capacity of the community in question. Many have attempted to define resilience, and the appropriate use of the term is still debated. The UN defines resilience as “the ability of social units (government, local administrations, organizations, communities) to mitigate disasters and implement recovery activities while minimizing social cost and preventing future disasters” (Shamida, 2015, p.373). Resilience at the community level can be defined as “the collective ability of a neighborhood or geographically defined area to deal with stressors and efficiently resume the rhythms of daily life through cooperation following shocks” (Aldrich, 2015, p.255). It can be further broken down as a combination of economic development, social capital, information and communication, and community competence (Sherrieb and Norris, 2010, p.228).

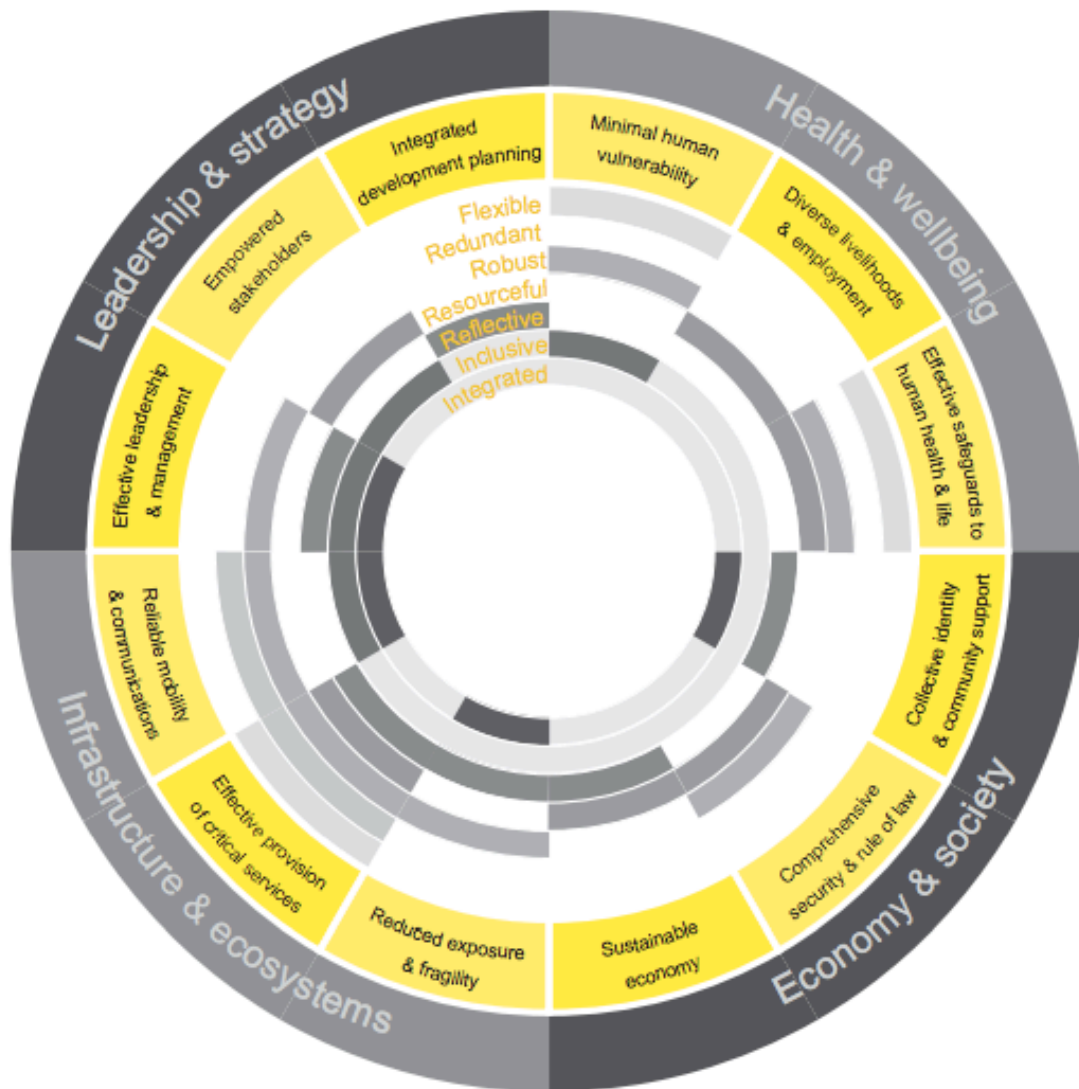


Figure 1.1: Rockefeller Foundation (2014).

The Rockefeller Foundation's City Resilience Framework takes into consideration social as well as physical resilience and includes 12 goals for resilient cities, each with its own indicators (see figure 1.1). Goals are divided into categories of economy and society, health and wellbeing, leadership and strategy, and infrastructure and ecosystems. The goal of collective identity is operationalized by active community engagement, strong social networks, and social integration (Rockefeller Foundation, 2014). Traditional indicators such as Gross Domestic Product (GDP) and the Gini Coefficient can help quantify some of these goals. The Human Development Index, the Social Health Index, and the Social Vulnerability Index (SOVI) have also been developed to create a better picture of a community's resources. SOVI contains 11 factors that cover demographics, economics, and infrastructure. In a study of 82 counties in Mississippi, it was found that the SOVI was significantly negatively correlated with both community resilience and social capital (Sherrieb and Norris, 2010, p.238). As community resilience and social capital increase, a community becomes less vulnerable to disaster.

It is also key to understand that community resilience looks different from one community to the next. The variables used to measure potential resilience indicators, such as the number of civic organizations per block, are dependent on each geographic space and the people who live there. Across the board, vulnerable communities have a harder time returning to their previous state following a disaster or stressor. Community resilience plays a large role in disaster recovery, which can be divided into multiple phases of impact, recovery, and reconstruction (Shamida, 2015, p.373), or readiness, response, and recovery (US Forest Service, 2016). Figure 1.2 below depicts how the baseline of social function impacts a community's ability to recover after a disaster. This image shows a linear understanding of resiliency, suggesting that the goal is to return to the pre-disaster level of function.

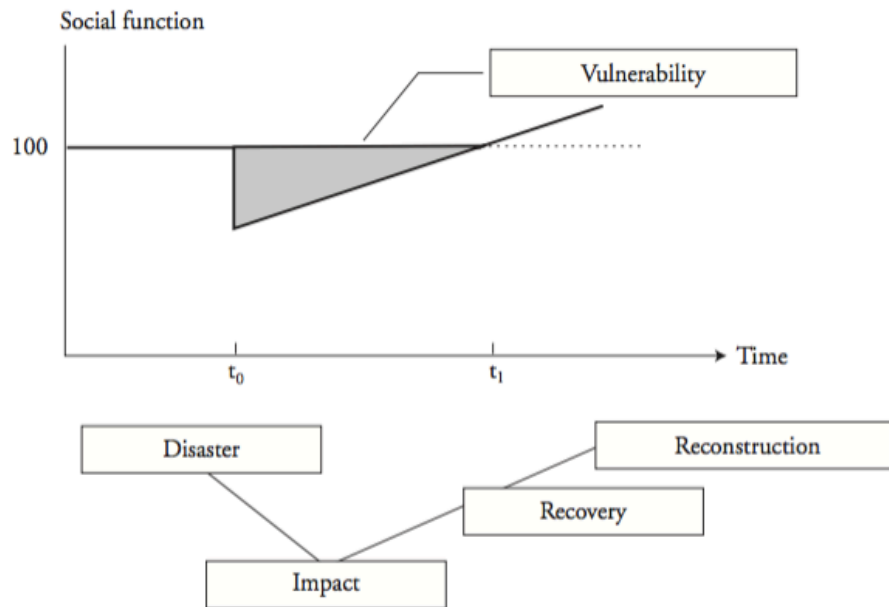


Figure 1.2: Social Function and the Recovery Process. (Shamida 2012)

Other authors talk about resilience as more of an ongoing cycle, rather than a process with distinct phases and outcomes. Figure 1.3 shows that there are many aspects that go into community resilience. Each of these branches is a distinct but interrelated process, and many are also indicators of social cohesion. Agency and self-organizing are at the center of the spiral, showing that self-sufficiency is essential in resilient communities. The inclusion of values and beliefs, people-place relationships, and community infrastructure reflects the kind of holistic view of resilience that this research aims to support.

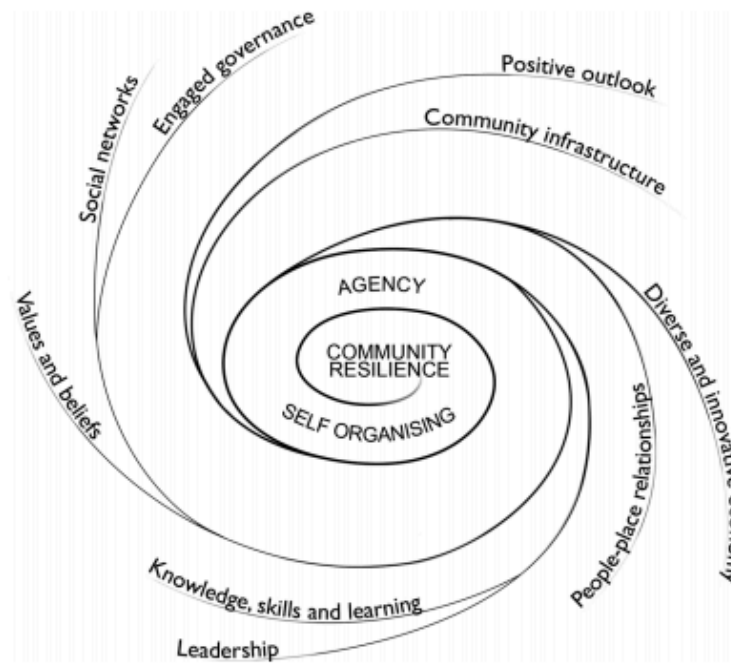


Figure 1.3: Community Resilience. This image shows an ongoing model of resilience (Berkes and Ross 2013).

With the growing threat of climate change, the term “resilience” has become a buzzword and a popular concept, one that continues to be broadened. Resilience has emerged as an attractive term and is often seen as an end-goal for cities, yet when overused, the term resilience lacks nuance and meaning. In order to clarify, it is important to ask the following questions: Resilient for whom? And resilience of what? (Berkes and Ross, 2013). More recently, the idea of resilience as simply bouncing back to a previous state has been criticized and dropped in favor of the more holistic view of resilience as a process resulting in stronger communities.

Compiling decades of research on urban resilience, Meerow, Newell, and Stults found 25 different definitions of urban resilience, proving that the term is contested and inconsistent. Using this research, they formed an updated definition that acknowledges the many tensions inherent in the term:

Urban resilience refers to the ability of an urban system – and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales – to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity (Meerow et al., 2015, p.39)

This definition, which will be used for the purpose of this thesis, accounts for the different pathways to resilience and the varied shapes it can take in different communities, and takes into account the importance of social systems.

Social Capital, Social Cohesion, and Asset-Based Community Development:

The term social capital is primarily used to discuss the potential and the actual social networks that can be relied on in times of stress. In 1915, Louis Hanifen defined social capital as “the good will, fellowship, mutual sympathy, and social intercourse among a group of individuals and families who make up a social unit” (Aldrich, 2015, p.256). It can be broadly understood as the “community/network relations that affect individual behavior” (Shamida, 2015, p.378). Sociologist Robert Putnam, author of *Bowling Alone*, explains social capital in the terms of networks and norms that have value in their social reciprocity (Putnam, 2001). It is typically measured in community involvement (volunteer engagement, registered voters, etc.), as well as through surveys that inquire the level of trust among neighbors. Aldrich has done extensive research on the importance of social capital within the context of disaster planning and recovery. Social capital is crucial in communities that face disaster because the most frequent first-responders are not national aid groups or police, but rather neighbors and friends (Aldrich, 2015).

Aldrich, Putnam, and other researchers of social capital identify multiple forms that can and should be utilized in disaster relief work. The first and most essential form

according to Aldrich is *bonding social capital*, which refers to the closest social groups (family and close friends) and is often formed based on similarity of location, race, and income. This is the most helpful in disaster situations because so many people rely on family and close friends as their primary networks in the case of emergencies. Next is *bridging social capital*, which connects people at an organizational level. Examples include schools and places of worship, which have the possibility of also bridging differences in race and class. Finally, *linking social capital* connects regular citizens to people in positions of power, such as elected officials and traditional first responders. Connections to people in power act as kind of social insurance, as communities with strong ties to leaders are less likely to be overlooked following disaster. All three forms of social capital play an important role in reducing the impact of disaster, both before and after the event (Aldrich, 2015).

Social capital has been studied extensively in relation to natural disasters. One of the clear negative impacts of disaster is displacement, which depletes social capital. When disaster occurs, areas with strong social capital are more likely to have high resident retention, an important factor in recovery (Shamida, 2015). The ninth ward in New Orleans is an example of a community with strong bonding social capital, but the lack of linking social capital there contributed to overwhelming displacement following Hurricane Katrina. Without support from the government, decision-makers saw the neighborhood as low priority; housing was torn down and left in disrepair, preventing residents from returning to their homes. Those forced to move following Katrina lost their main networks, depleting the original social strength of the neighborhood (Bier, 243). In the aftermath, it became clear that the bureaucratic nightmare that was the response to Katrina was not the fault of any one organization or person, but rather the lack of coordination between the many players, from communities to every level of government. The cyclical relationship of social capital, community cohesion, and resilience shows the importance of building networks and improving lines of communication as part of disaster planning.

Robert Sampson's research on social capital goes even further to show the connection between social capital and public health and well-being in communities. He uses the term "collective efficacy" to refer to a neighborhood's ability to achieve social control over the environment and to engage in collective action toward a common good (Sampson, 2003, p.58). Seeing social capital as part of a larger context for social change, where social ties can have their own inherent value, emphasizes the importance of the communal over the personal. Sampson's research supports the need for not-for-profit and community-based organizations that can transform social ties into collective civic action (Sampson et al., 2005). He also refers to social cohesion, a similar term that places less emphasis on the transactional role of "capital." In this thesis, both terms will be used to refer to the enormous importance of social networks.

Social capital is also seen as an asset in community planning. Asset-based community development (ABCD) emerged out of a response to the needs-based development that focused on what communities were lacking, rather than a more positive approach of looking at their strengths. ABCD encourages communities to search for unrecognized assets; anything from specific skills community members can offer to the very relationships that form that community (Mathie and Cunningham, 2003, p.476). A common exercise to identify community assets is Asset Mapping. Geographically mapping community assets helps residents to visualize the strengths of their neighborhood and identify the places, including open and green spaces, which can be used to their advantage. Figuring out how to use these public spaces can begin to answer the question of how to build social capital and resilient communities.

Place Attachment and Placemaking:

Place attachment, or the importance of psychological ties to place, primarily looks at the relationship between people and their residences or neighborhoods. Place

attachment can be defined as an effective bond between people and places (Altman and Low, 1992). At an individual level, it is affected by a combination of the memories connected to a specific place and the extent to which a person's values are reflected in the spaces around them. It can also be applied at the community level, suggesting that communities with stronger attachment to place benefit from higher social cohesion (Brown, Perkins, and Brown 2003). Place attachment has also been linked to neighborhood cleanup and revitalization (Manzo and Perkins, 2006, p.337), suggesting that individuals in communities with higher place attachment invest more time and energy in their neighborhoods.

The development of place attachment has helped explain the importance of community investment in disaster recovery. Resident attachment to place is correlated with higher economic outcomes and civic engagement. Loflin explains, "There is an important and significant correlation between how attached people feel to where they live and local GDP growth...What most drives people to love where they live (their attachment) is their perception of aesthetics, social offerings, and openness of a place" (Loflin, 2013). People who feel connection to and investment in their communities are more likely to form strong social ties and be civically engaged, subsequently creating resilient communities.

One of the ways that place attachment can be strengthened both before and after disaster is through the use of public space and placemaking. Project for Public Spaces, a non-profit organization dedicated to educating about the importance of placemaking, has supported extensive research on the connection between placemaking and resilience. Investment in place is crucial to community cohesion, a potential indicator of resilience, and placemaking can be a tool to build this investment (Project for Public Spaces, 2015). Placemaking can be anything from community involvement in traditional infrastructure projects, such as transportation or parks, to more creative forms, including public art and theater (National Endowment for the Arts, 2016).

This thesis uses a broad definition of public space, and focuses on physical spaces that are used for public needs, whether those spaces are publicly or privately owned. These community spaces can be thought of as community assets, public facilities and institutions², or even as a contemporary form of "commons".³ Sheila Foster of Fordham University writes:

These urban commons can include a range of resources in cities—including parks, community gardens, streets, neighborhood infrastructure, vacant lots, and abandoned buildings. The urban commons also include the intangible aspects of city living, such as culture and heritage. Characterizing these resources as urban commons re-imagines the city as a collection of shared resources and its residents as potential collaborators in generating, utilizing, and managing these resources (Foster, 2016).

These spaces are needed for their ability to strengthen social ties in communities, and can serve as access points for residents to shape their own spaces. Further, green spaces in particular are linked to psychological benefits. Research shows that access to nature can have a calming and de-stressing benefit on people, and even help speed recoveries in hospital settings (Ulrich, 1984; Karden et al., 2015). The healing impact of nature works on both the individual and the community level, and is particularly useful following disaster or trauma.

² The New York City Community Board profiles categorize schools, community organization sites, and various other spaces in this way (nyc.gov).

³ "The goods, tangible, intangible, and digital, that citizens and the Administration, [through] participative and deliberative procedures, recognize to be functional to the individual and collective wellbeing...to share the responsibility with the Administration of their care or regeneration in order to improve [their] collective enjoyment" ("Regulation On the Collaboration Among Citizens and The City for The Care and Regeneration Of Urban Commons", City of Bologna, Italy).

Social-Ecological Systems and Environmental Stewardship:

As of 2010, over three quarters of the US population and half of the world's population live in cities (UN, 2014). Along with this increase has come a shift in the way researchers understand the relationship between people and their environments. Rather than viewing the social sphere as separate from natural ecosystems, newer theories examine the exchange between the two (Svendsen et al., 2016, p.5). This framework considers biophysical, cultural, and socio-economic resources, and looks at the interplay between them. Understanding the relationship between each of these resources is especially important in the context of disaster. Because vulnerabilities come from a combination of physical environmental risks and societal factors, "we require an analysis of integrated social environmental systems to improve our ability to forecast and respond to change" (Starzomski et al., 2003). One of the ways social-environmental systems are maintained in an ongoing manner is through the practice of environmental stewardship.

Environmental stewardship is a crucial element of effectively using public and shared spaces in resiliency work, and embodies the intersection between social cohesion and public space. Urban stewards work to conserve, manage, monitor, and advocate for the local environment (Svendsen et al., 2016, p.5). As government funded ecological groups such as parks departments lose their funding, stewardship efforts by individuals and groups are becoming increasingly important. These groups, whether independent or government agencies, offer community members a way to directly contribute to their neighborhood's resilience. Stewardship groups can be non-profit organizations, community groups, urban gardeners, or any other group of people who come together to maintain and beautify open space (Svendsen et al., 2016, p.5). Although they are rooted in place, the social ties created by these groups magnify their importance. Stewardship organizations are essential precisely because they play a unique role in bridging biophysical resources and the social sphere of the human ecosystem (Svendsen and Campbell, 2008, p.2).

In order to visualize the impact of environmental stewardship, the US Forest Service mapped the geographic locations of all stewardship groups in New York for their STEW-MAP project. The resulting map, shown in Figure 1.4, shows where stewardship is highest and where it is lacking. The STEW-MAP project aims to compile all examples of environmental stewardship efforts, from environmental justice advocacy groups to community centers or churches that host an annual tree-planting day. The purpose of STEW-MAP is to consider civic environmental resources as a part of a community's assets (Svendsen et al., 2016).

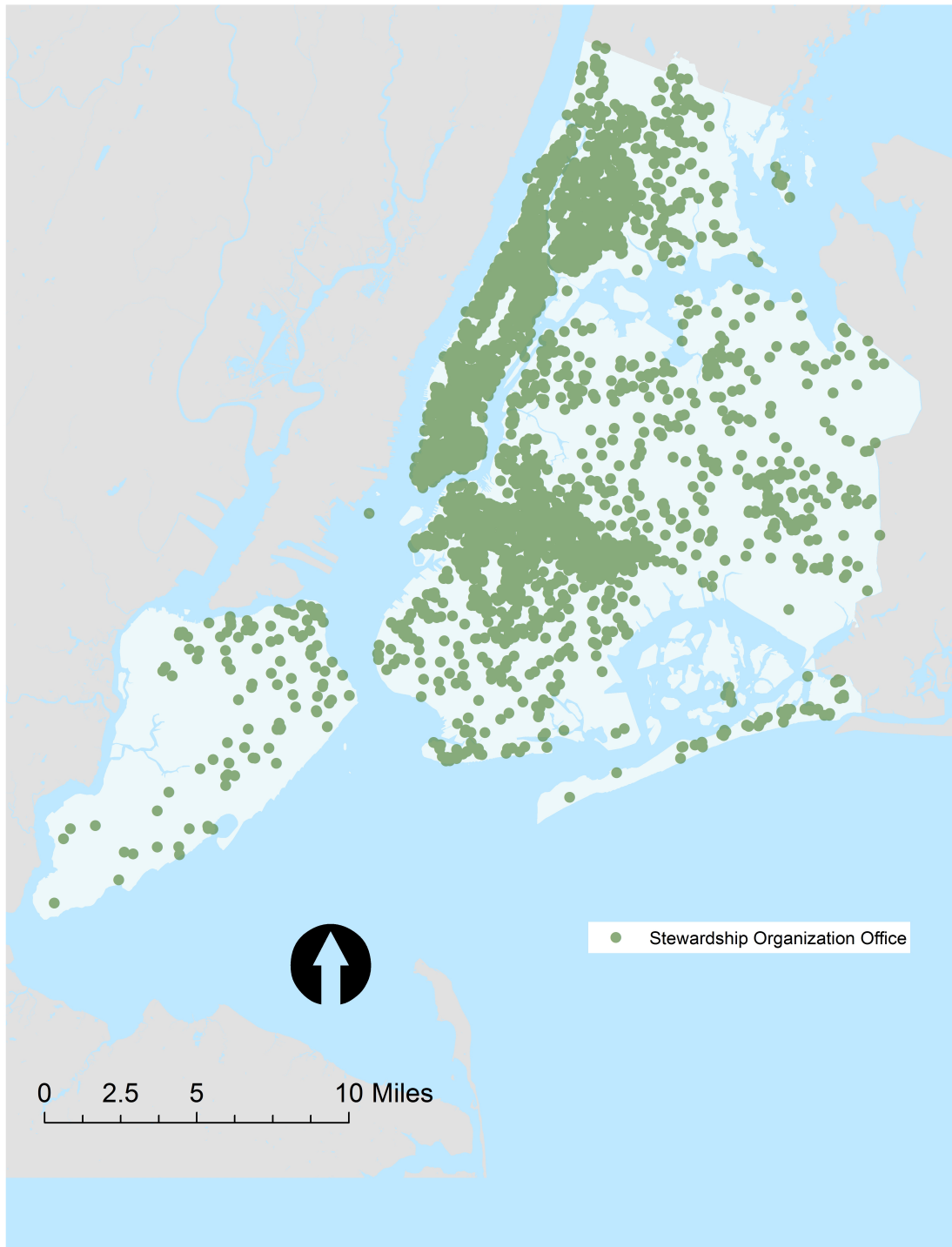


Figure 1.4: STEW-MAP (Michelle Johnson, US Forest Service, 2007).

Environmental stewardship has often been used as a direct response to natural disasters caused by climate change. Following the tornado in Joplin, MO, and Superstorm Sandy in NY, researchers looked at how urban greening can be recognized as a component of social resiliency, and found that "Community members considered their parks to be a refuge that provided them with a buffer when the physical qualities of the city threatened to overwhelm their senses—the noise, traffic and development—and from social and emotional realities, too" (Svendsen et al., 2014, p.581). Looking at parks as places of refuge and opportunities to build place attachment, it follows that environmental stewardship leads to social cohesion and community strength.

Perhaps the most obvious examples of environmental stewardship as a response to external stress and disaster are community gardens. Community gardens have a history of acting as tools of reclamation of land around all kinds of disaster: from victory gardens during WWII to community gardens in neighborhoods of disinvestment during urban decline (Lawson, 2005). The economic surge following disinvestment led to a growth of community gardens in NYC, and created natural spaces to engage community members in stewardship practices. Following Superstorm Sandy, community gardens across the city involved members in environmental stewardship to foster community practice, meaning, memory, and learning (Chan et al., 2015).

Another example of disaster response using stewardship is tree planting. Following 9/11 in New York City, the US Forest Service oversaw extensive research and programming related to the ways that environmental stewardship in public spaces acts as a tool for post-disaster recovery. The Living Memorial Project that came out of this research used tree planting and other forms of greening to honor and memorialize victims while also forging a stronger connection between survivors and their physical environments. Environmental stewardship brings people together to connect to the environment and to one another, making the act of planting trees a natural reaction to the

disruption of cycles that disaster brings (Svendsen and Campbell, 2006). In this way, public space is a tool that restores environmental and social ties post-disaster, creating more resilient communities (McMillen et al., 2016).

The community-based environmental response to natural disaster discussed can be explained through the concept of *greening in the red zone*, which “...refers to post-catastrophe, community based stewardship of nature, and how these often spontaneous, local stewardship actions serve as a source of social-ecological resilience in the face of severe hardship” (Tidball and Kransy, 2014). This concept works to bring together the ideas of social cohesion, social-environmental systems, and community resilience. Greening in the red zone is one example of post-disaster environmental stewardship, but environmental stewardship encompasses a broader range of efforts, even those that are not explicitly related to disturbance.

Whether through gardening, art, or simply coming together to tend to the spaces they inhabit, stewardship groups foster strong community ties that lead to more resilient neighborhoods. The structure of these groups allows them to build resilience through a consistent community, and also offers a space and a network that can be relied on for disaster preparedness and response. Environmental stewardship is therefore a crucial tool to keep in mind when considering best practices in place-based community resilience, recovery, and emergency preparedness.

Conclusion:

Social infrastructure is just as important as physical infrastructure when it comes to resilience, and public spaces offer resources to build on place capital and social cohesion simultaneously. Communities that have connected to their public spaces through community gardens, block associations, and other stewardship organizations have benefitted immensely from an increase in community engagement, and serve as a

model for how to best foster resilience moving forward. The aftermath of Superstorm Sandy showed the power of utilizing existing public spaces, as well as using private spaces as shared community assets post-disaster. The following chapters will look into successful uses of these spaces, and will be approached according to three levels of resilience work: readiness, response, and recovery. For the purpose of this paper, “readiness” will be termed “preparedness,” and will be discussed last, in order to lead into the NYCEM Community Emergency Toolkit. Best practices from each level will be combined to create a set of recommendations for the Toolkit.

Methodology:

The ultimate aim of this work is to contribute to the growing conversation about community-based disaster response, recovery, and preparedness, in order to strengthen the NYCEM toolkit through recommendations that encourage the incorporation of public and community space. Most of the research in this paper will focus on climate related “natural” disasters, but it is important to note that other threats such as terrorism and technology related events (blackouts and communication system failures) can lead to similar risks and require additional advanced planning and recovery work.

The research for this thesis was conducted on multiple levels. The above literature review addresses the first two objectives of reviewing existing literature and looking for links between public space and disaster resilience. In order to address the third objective of analyzing examples of response, recovery, and preparedness, data were collected through a combination of personal interviews and geospatial analysis. Finally, document analysis was used to evaluate the NYCEM Community Emergency Toolkit and other existing preparedness plans. Best practices from each of these steps were taken into consideration in the final recommendations.

Organization of Study

The remainder of this thesis is divided into three chapters. Chapter two looks at the stages of response and long-term recovery, using examples from Occupy Sandy and various community groups, focusing on the spaces they used in their efforts. Chapter three analyzes emergency preparedness plans at the community and city level, with particular attention paid to the Seattle OEM Community Hub model as a precedent and success story. The NYCEM Community Emergency Toolkit is also outlined and analyzed in chapter three. Finally, chapter four offers a series of recommendations for the NYCEM toolkit, both on general structure and content, and on specific ways to incorporate public space use into it.

Chapter 2: Response and Recovery

When Superstorm Sandy hit, New Yorkers were poorly prepared for the devastation that would follow. In New York City alone, the storm surge reached 300,000 homes, resulting in 43 deaths and 19 billion dollars in damage (NYC Mayor's Office, 2013). Millions of people lost power, and almost every New Yorker was impacted by the systems that struggled as a result of the flooding. Transit, healthcare, and telecommunications were just some of the infrastructure systems that were hurt by the storm (NYC Mayor's Office 2013, p.14). The most vulnerable New Yorkers felt the maximum impact. Many elderly and disabled residents were left stranded in their homes, unable to leave due to flooding, and unable to re-stock their necessary supplies and medications. There was a severe demand for aid, and it needed to be delivered quickly. Various efforts came from federal government, State and City administration, community-based organizations, even individuals. This chapter will review a portion of the groups who responded at the community level after Sandy in order to evaluate the efficacy of their work and determine best practices for disaster response and long-term recovery.

The first section of this chapter will focus on the immediate responses following Superstorm Sandy, both large-scale relief and community level reactions. The second half will look more broadly at long-term recovery efforts that are rooted in space and contribute to more ongoing resilience. Both levels are extremely important in developing recommendations on how to best create strong and prepared communities.

Superstorm Sandy Response:

Occupy Sandy

This section examines Occupy Sandy, a self-defined grassroots disaster relief network that emerged following the storm, as a large-scale example of post-disaster recovery in New York City⁴. The Occupy Sandy response was shaped significantly by Occupy Wall Street, a progressive protest movement that was rooted in public space. Hours after Superstorm Sandy hit New York City, Occupy Wall Street members tapped into their networks through social media, and began to grow a grassroots movement comprised primarily of young social activists. The volunteers worked with existing community groups and plugged into networks in a way that allowed them to fill the gaps and expand upon the already established community responses (Ambinder and Jennings, 2013, p.2). In the following weeks, Occupy Sandy grew into a movement of 60,000 dedicated volunteers, far surpassing the number of volunteers deployed by the American Red Cross (Ambinder and Jennings, 2013, p.1).

In 2013, Homeland Security published a report on Occupy Sandy. Data for this section comes primarily from the Homeland Security report and from personal interviews conducted with individuals involved with Occupy Sandy as volunteers and organizers. The scope of the Homeland Security report was broad, but among the results was a list of factors that led to the success of the Occupy Sandy movement. One of the determined successes was the way in which “Occupy Sandy leveraged existing community infrastructure to address needs, establish trust relationships, and build local capacity.” (Ambinder and Jennings, 2013, p.3) This section focuses on these neighborhood networks, and the public and community spaces that enabled such a response to take place.

⁴ There was also an Occupy Sandy contingent in New Jersey, OSNJ, that coordinated similar efforts. Because of the scope of this research, Occupy Sandy will refer only to the response in NYC.

History and origins of Occupy Sandy:

The story of Occupy Sandy begins on September 17th 2011 in Zuccotti Park in Lower Manhattan, two years before Superstorm Sandy hit. Occupy Wall Street, a resistance movement that represents the interests of the 99%, is best known for their months-long takeover of the privately owned public space, Zuccotti Park, commonly referred to as Liberty Square (Occupy Wall Street). While taking a stand against political corruption and the power given to financial institutions in the US, occupiers created a social system that reflected their beliefs and sustained their community. Through this process, they developed a horizontal leadership model, a consensus-based decision-making process, and a vast communication network. Even after the park was vacated, Occupy Wall Street remained active as a “low risk social change laboratory” (Manilov, 2013, p.207). The social organizing that made the movement function played an important role in the founding and structure of the response post-Sandy. With efforts on the ground happening so quickly, volunteers relied heavily on institutional memory to get things done (Timothy Garvey, Personal Communication, September 11, 2016).

While the first Occupy Sandy responders were affiliated with Occupy Wall Street, the movement quickly spread to include people of all backgrounds and political leanings. Through Occupy Wall Street, volunteers learned how to rely on social media to garner the support and attention they needed to become a success. Within a day of the storm, volunteers had set up several websites, as well as accounts on Twitter, Facebook, and Flickr to spread awareness of the work they had begun. In addition, they set up registries on Amazon and WePay to collect and distribute donations (Ambinder and Jennings, 2013, p.33).

The existing network of Occupy Wall Street affiliates led to a large response to the request for aid. One of the things that made Occupy Sandy unique in its response was the number of educated and tech-savvy organizers. Occupy Sandy had a vast network and its members knew how to reach volunteers. In addition to allowing for a sophisticated

and up-to-date website with relevant information about donation collections and drop-offs, the knowledge in the group helped in longer-term strategies and brainstorming. The fluidity and adaptive nature of Occupy Sandy meant that systems could continually change and be updated. Information was kept in many different forms, including spreadsheets, documents, and maps. The information used in this thesis was compiled from many of these sources, but there is no one master file or document with all of the information. Instead, each document was created and updated by different organizers and volunteers, and as a result, much of the information is duplicated or incomplete.

Occupy Sandy volunteers were on the ground before there was even a chance for organizers to meet and create a plan. True to their Occupy Wall Street roots, Occupy Sandy organizers were more concerned with making an impact than with spending time debating the best approach. In the immediate aftermath of the storm, the effort began organically; Occupy Wall Street organizer Goldi Guerra wandered around his neighborhood on Manhattan's Lower East Side, looking for people to join forces in a response. He came across Damaris Reyes, the director of Good Old Lower East Side, a community-based housing and preservation organization. She needed help checking on residents who were stuck in their buildings without resources. Text messages were sent through a phone tree system from the Occupy Wall Street days, and overnight 500 volunteers appeared to knock on doors with snacks and water for elderly and disabled residents unable to leave their homes (Goldi Guerra, personal communication, September 18, 2016). The next day, more than one thousand volunteers showed up, so many that they had to move to Tompkins Square Park, a park with a fitting history of protest and organizing (Mitchell, 2003).

Structure of Occupy Sandy:

Traditional government disaster aid is organized in a fixed hierarchy. Affected communities without adequate resources can request additional funds from their state when necessary. If state funding is insufficient, they may also request funding from

another state through established mutual aid agreements. For severe disasters, states can declare a state of emergency and request federal funding from FEMA (Ambinder and Jennings, 2013, p.15). Gaps left from government aid limitations are often filled by community-based organizations and humanitarian aid forces, collectively known as VOADs, or Voluntary Organizations Active in Disaster. These organizations help fill the immediate needs of survivors including providing shelter, medicine, and food (Ambinder and Jennings, 2013, p.20). VOADs are often able to be on the ground helping while the government is still strategizing a response, but as independent organizations, they also have interior hierarchies and limits. For example, the Red Cross does not accept donations of necessary items; they collect monetary donations only. Occupy Sandy had the flexibility to do things their own way and developed new systems for collecting and redistributing objects (MacFarquhar, 2012).

Other models for disaster recovery include “Spontaneous citizen aid” and “emergent response groups,” which have been seen in response to disasters everywhere from New York City to Japan (Ambinder and Jennings, 2013, p.9). Emergent response groups are categorized by their lack of existence prior to the disaster, and are often fluid in nature. Although there are many overlapping qualities, Occupy Sandy does not perfectly fit this description as it existed in another format prior to the storm, and many of the organizers already knew one another (Ambinder and Jennings, 2013, p.13). Occupy Sandy instead categorizes itself as a “grassroots disaster relief network” that worked within communities rather than through collaboration with government. As such, they were able to earn the support and trust of many of the communities that were impacted the most by the storm, and they were therefore enabled to connect people in need to the resources they required.

One of the things that made Occupy Sandy stand out as a different form of disaster response was their horizontal organization structure. This meant that no one member held sole decision-making power. Rather, each member was empowered to be a leader. “In spite of public pronouncements that Occupy had no lack of captains and

generals as it was “leaderful” (i.e., each and every member could step up to a leadership role), there were key people who more capably assumed that mantle and were essential in that role.” (Ashton 2013) Rather than go through an official organizational training, new volunteers were trained by existing volunteers according to loose protocol outlined in Occupy Sandy resource sheets. Without official budget oversight, Occupy Sandy was not held back by liability concerns or waiting on approval. The message to Occupiers was “go out, do the right thing, and you’ll get supported by the network.” (Goldi Guerra, Personal Communication, September 18, 2016).

Occupy Sandy Hubs and sites:

While the Lower East Side was being inundated with volunteers, another group of Occupiers were investigating the situation in Red Hook, Brooklyn. There, they had connections to another Community-based organization, the Red Hook Initiative, where they were able to secure temporary space for their operation. Occupy Sandy very quickly out-grew the Red Hook space, and once again used Occupy Wall Street connections to open their first official distribution hub in Sunset Park at St Jacobi Evangelical Lutheran Church.



Figure 2.1: <http://interoccupy.net/sandystaging/map/>

As efforts grew, Occupy Sandy expanded to a second distribution hub, The Church of St. Luke and St. Matthew in Clinton Hill. More hubs opened shortly after, each with its own system to track incoming donations and call for volunteers (Ambinder and Jennings, 2013, p.30). In addition to the hubs, Occupy Sandy had many points of contact, which will be referred to as “sites” in this thesis. Volunteers recorded all locations, from private homes where food and supplies were delivered to office buildings that held excess donations. The organizing that occurred in physical space was often recorded and overseen in virtual space, using Facebook and various Google spreadsheets.

Sites were located across all five boroughs, in the neighborhoods that were hit hardest by the storm as well as in those that had avoided all impact. The initial hubs and sites served primarily as distribution places for donations (e.g. food, baby supplies, clothing, medicine, and other necessities) and as makeshift soup kitchens, making and delivering food to neighborhoods that were still struggling. Eventually, flooded areas dried up and found spaces to use as collection points, bringing supplies closer to the people who needed them. Figure 2.1 above is an interactive Google map created by Occupy Sandy volunteers that was used in real time to keep track of site locations, contacts, and capabilities. It divided sites into categories of hub, volunteer only, drop off only, volunteer and drop off, food, and unknown.

Occupy Sandy sites filled a wide range of needs. Some served as kitchens, some as donation collection points or donation drop-off points, and some filled more specific needs, such as providing medical and legal help to residents. Existing relationships were crucial in opening new sites; volunteers relied on the reputation and networks of Occupy Wall Street to convince leaders to use their spaces for the cause. Sites included houses of worship, schools, community spaces, and even private businesses.

Geo-Spatial Analysis

A series of maps were created by the author in order to look for possible patterns in the locations used as Occupy Sandy hubs and sites. The maps serve to help clarify the kinds of spaces used by Occupy Sandy volunteers, and they graphically display the proximity of sites to certain assets (public space) and vulnerabilities (flooding). The first map (figure 2.2) uses data from Occupy Sandy Google spreadsheets and divides sites into 12 categories: Private business, existing Community Center, Community Pop-up site, Distribution Center, Elected Official Office, Government Facility, House of Worship, Non-profit or Social Service Organization, Public Space and Facilities, Recovery

Organization, Residential Building, and School. Each type is color-coded, and not unexpectedly, Houses of Worship and Community Organizations dominate. These sites were easily accessible for Occupy Sandy because of their connections to social networks. The presence of both houses of worship and community centers can be seen as indicators of social capital. One Occupy Sandy volunteer, Tim Garvey, expressed surprise at how effective churches were in this effort. They played a specific role because they knew their neighbors and already operated in line with the community's needs and mission. As such, they had existing buy-in from members, and Occupiers working with these churches did not have to start at zero by building rapport with the community. "In an ideal world," Tim said, "people would know their neighbors and there wouldn't be a trust barrier." (Timothy Garvey, Personal Communication, September 11, 2016).

The second map (figure 2.3) shows that 119 of the sites were located within 500 feet of a public park. Most of the spaces used were indoors, but the proximity to parks presents a possibly underused resource for growth. Sites that were over-crowded may have considered expanding into public parks in order to make themselves both more visible and more accessible. In the case of extreme weather, mobile trailers and temporary shelters could help make outdoor space more functional. Finally, figure 2.4 shows that 106 sites were located in the Sandy storm area, and many more were located within New York State's designated storm surge zones.

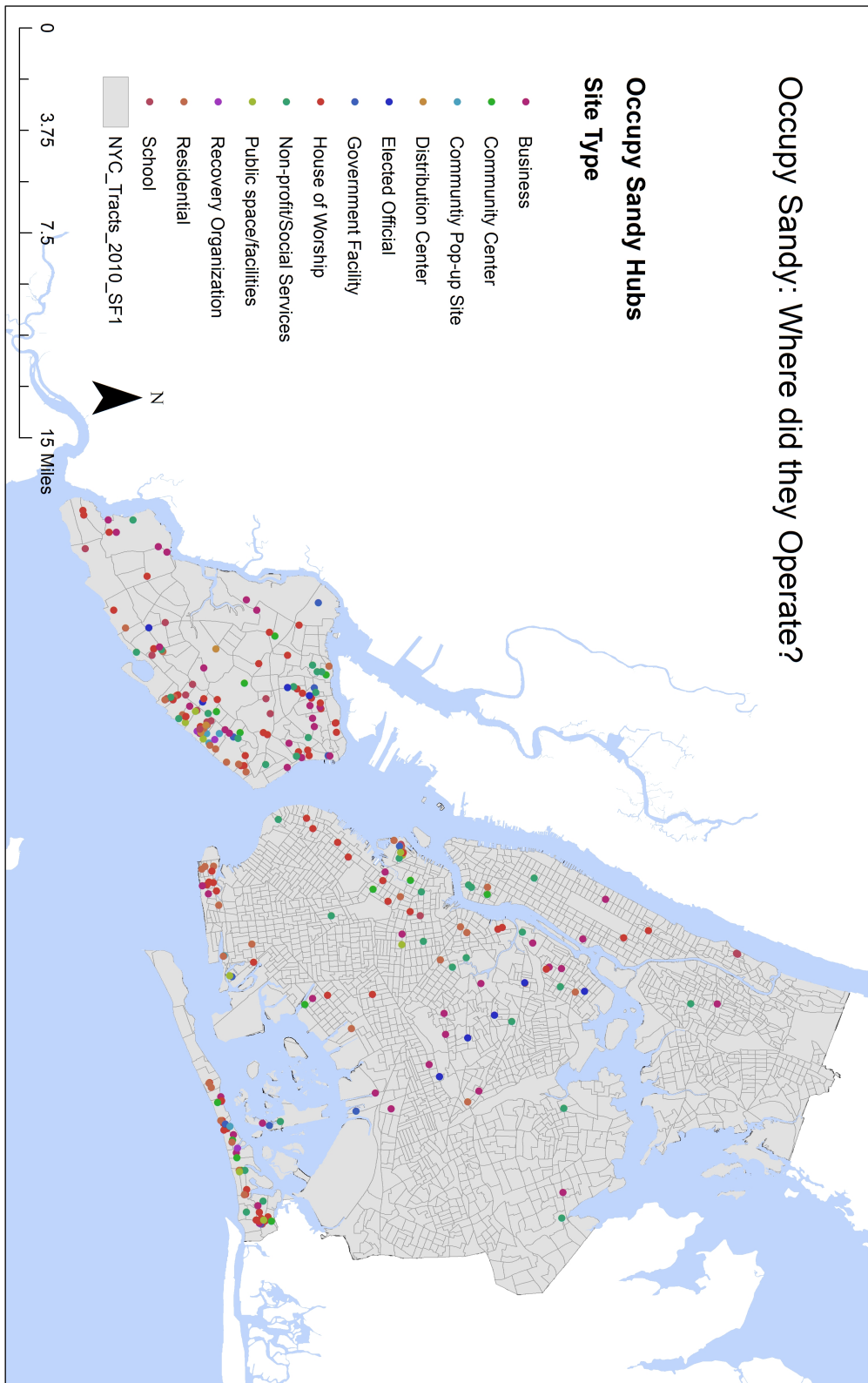
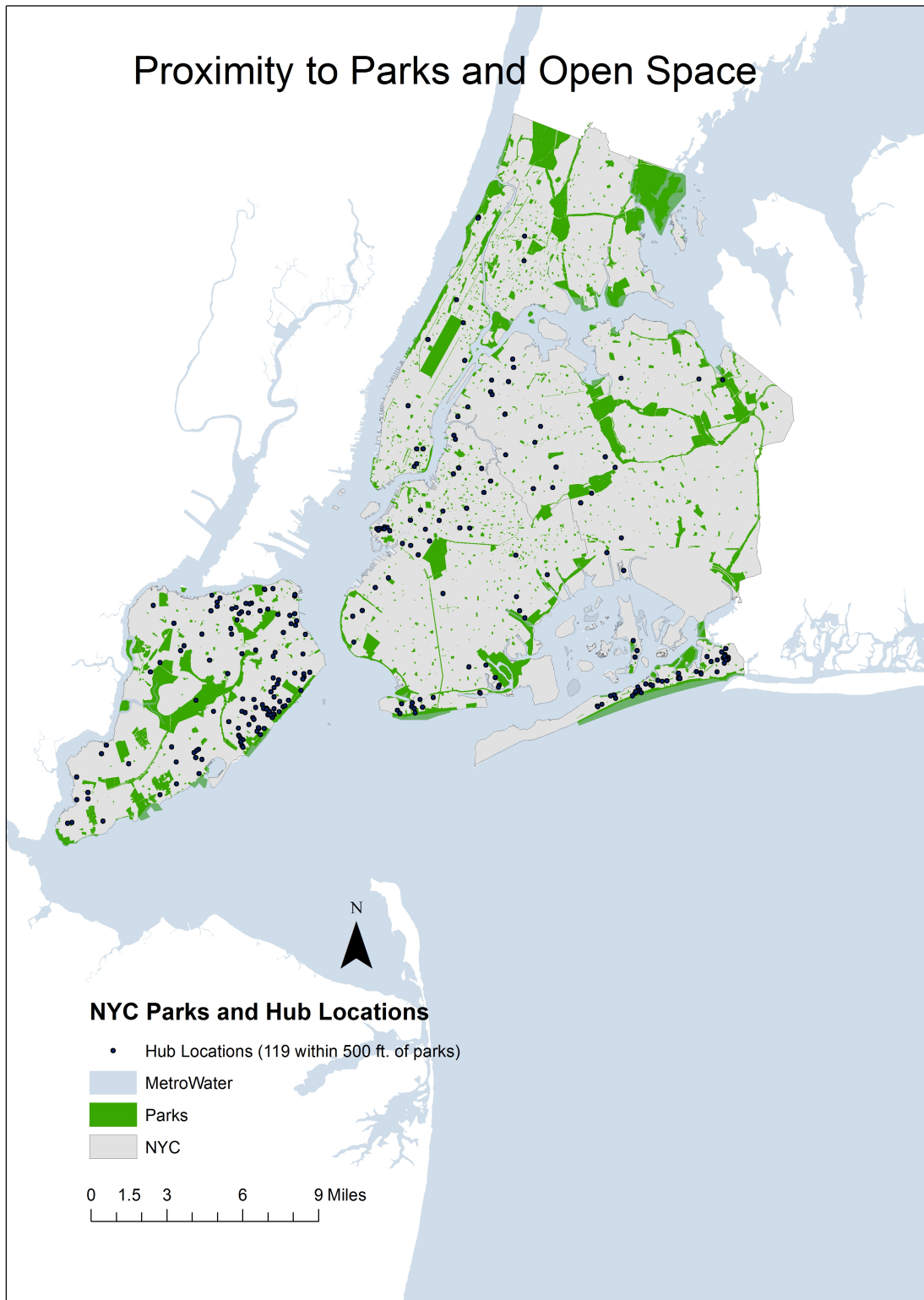


Figure 2.2: Occupy Sandy Sites by Type (Landau, 2016).

Proximity to Parks and Open Space



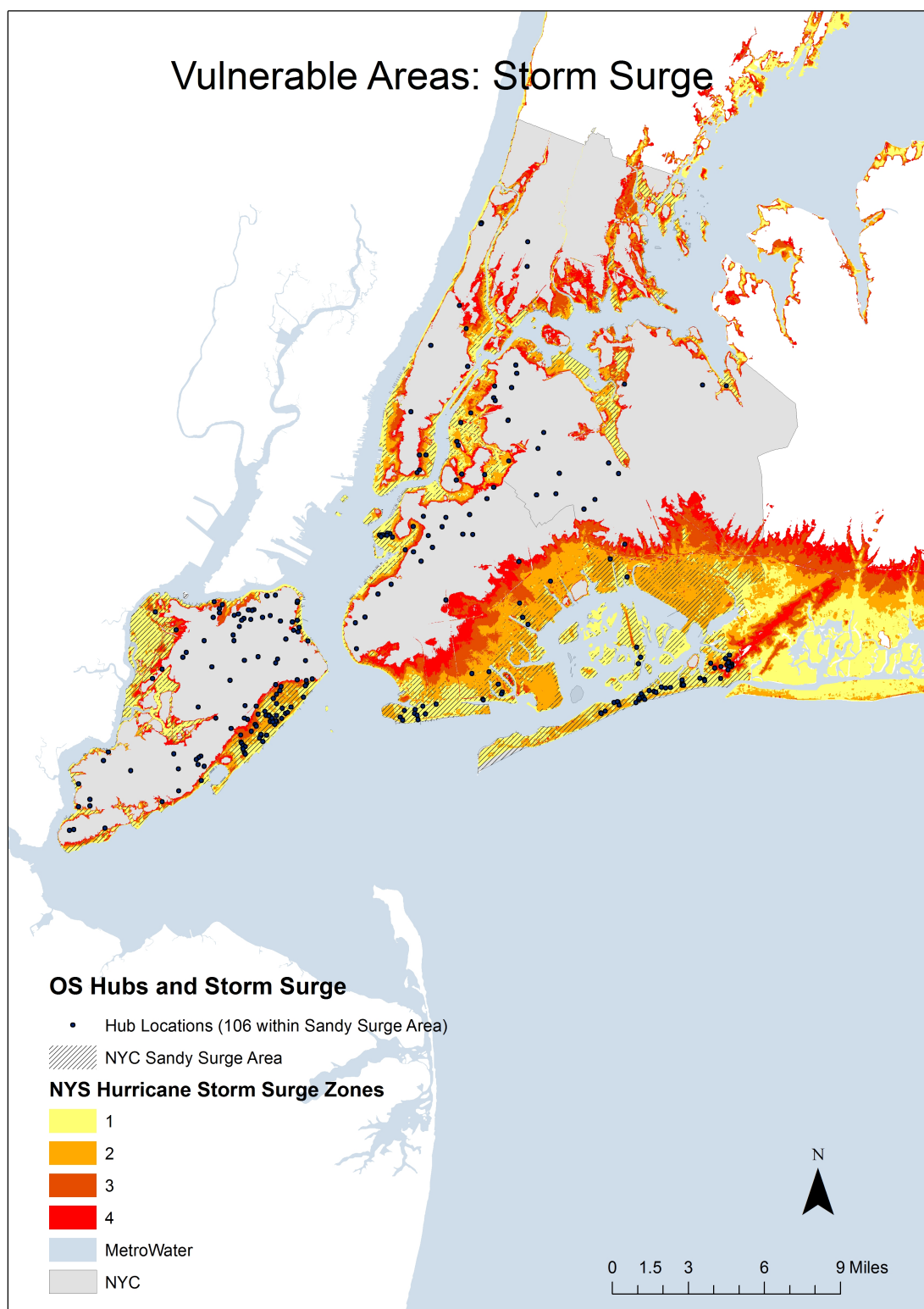


Figure 2.4: Occupy Sandy Sites and Flooding (Landau, 2016).

There does not seem to be a consistent pattern associated with site location in relation to flood zones. This is likely due to the fact that sites existed both in the areas with the worst flooding and the highest need, and in the areas that were relatively well protected from flooding and could offer undamaged spaces for collection and storage of donations.

Outcomes and Community Response:

The ability for Occupy Sandy to function was due in large part to the community organizations that gave them space, volunteers, and capacity to carry out their work. A few communities in particular worked well with Occupy Sandy and were able to form ongoing preparedness groups as a result. In the Rockaways, Queens, a peninsula that is entirely within the level 1 flood zone (see map 4), a huge response effort formed out of sheer necessity. Existing social infrastructure played a role in the immediate aftermath of the storm before volunteers were able to reach the affected area. YANA, a social services center whose acronym stands for “You Are Never Alone,” was one of the only spaces both willing and able to host volunteers after the storm. While it was spared from the fire that destroyed two nearby buildings, YANA was flooded with six feet of water. Greenpeace, a non-governmental organization, connected them to power with a mobile unit allowing Rockaway residents to charge their phones (McVeigh 2012). Sal Lopizzo, the director of YANA, welcomed Occupy Sandy to come in and use his office as a distribution center. The volunteers, too many for him to count, came in with a phenomenal supply of food, clothing, and toiletries. Donations were pouring in to YANA. “My office looked like Target, you could have gotten anything you needed” (Salvatore Lopizzo, Personal Communication, September 10, 2016).

Volunteer Jill Cornell connected to Occupy Sandy through some initial response work with the Red Cross. She traveled with a friend to the Rockaways with just a paper

map and no clear direction on how to help, but found that Occupy Sandy's communication network through social media played a large role in streamlining the response. One of the efforts she worked on involved redistributing a giant donation from Patagonia that was too large for any one hub. Through the Occupy Sandy network, she found hubs all across the city in need of these donations (Jill Cornell, Personal Communication, May 31, 2016). Jill had some previous social ties to the Rockaways, but noticed that Occupy Sandy was working primarily with lower income areas than those that she had previously visited. Low income New Yorkers—especially those in high-rise buildings—were particularly vulnerable to the impacts of Sandy, and YANA's location, between a two communities with very different income levels, allowed access to a sharing of resources that was crucial in recovery.

The center also served as a medical clinic with help from Doctors Without Borders⁵ and the Red Cross. Without operating pharmacies, residents relied on the center for their prescriptions for months. Sal recalls that the government took a list of residents who were eligible for Medicaid and Medicare, but nothing came of it. He expressed frustration with the lack of support from the government, explaining that while swarms of volunteers were bringing in food and supplies, “the city didn't show up with a potato chip” (Salvatore Lopizzo, Personal Communication, September 10, 2016).

Thinking about the future, Sal worries about Rockaway residents, particularly undocumented people who will not be able to get FEMA checks and other government support. The impression that he and some other Rockaway residents have is that the government does not quite know what to do with them. According to Sal, some experts recommend evacuating the entire peninsula and turning it into marshland, but despite the high risk of building in a flood zone, six new hotels are being built in the area and property values in some neighborhoods are increasing. With these mixed messages, it is

⁵ The organization Doctors of the World also played a key role in developing the clinic

difficult for residents to know how to best prepare for a future disaster (Salvatore Lopizzo, Personal Communication, September 10, 2016).

Long-term Recovery:

Stewardship as a Long-Term Recovery Model:

Since Sandy, Rockaway residents have learned about the importance of self-sufficiency after a disaster. Sal is now working on building a passive house demonstration site on a vacant lot near the original YANA building, with the hope of educating people on how to combat environmental risk. Edgemere Farm, Rockaway Waterfront Alliance, and the Rockaway Youth Task Force have also emerged as environmental education hubs to engage residents with the environment. These organizations, working to manage and educate on the local environment, are effectively environmental stewardship groups that either emerged or grew as a direct result of Sandy.

Research on environmental stewardship draws a clear connection between stewardship and resilience. However, there is less conclusive research on how to develop stewardship practices that support social resilience in urban settings (McMillen et al., 2016). Urban environmental stewardship is a process that can contribute to sense of place, social networks, and collective identity. Recent research provides strong examples of practices that increase resilience at a community level. Two notable models of this work are “greening” responses to 9/11 in the form of tree and flower planting in the living memorials project, and a community garden at the Beach 41st St. public houses in the Rockaways following Superstorm Sandy (McMillen et al., 2016).

In addition to these examples of greening practices, there is an increased recognition of the role of stewardship organizations in improving urban quality of life.

Many neighborhood institutions, even those that do not include the environment in their mission, contribute to stewardship projects by expanding networks and taking part in communication and resource pooling (McMillen et al., 2016, p.3). Institutional stock in communities can contribute both to long-term resilience and to more specific disaster preparedness. The US Forest Service is currently working on a technical report entitled *Green Readiness, Response, and Recovery: A Collaborative Synthesis*, designed to share best practices in how community stewardship can contribute to disaster preparedness and response. The report, which will be available both online and in print form, recognizes the power that community groups, non-governmental organizations, civic groups, and community leaders have in preparing for and responding to disturbances through greening. It will include case studies to provide examples of how stewardship has been used following a variety of disasters divided into the stages of readiness, response, and recovery, and will serve as a toolkit for communities looking to increase stewardship efforts in the context of disaster planning. This document is an important piece of evidence that shows a broader understanding of urban environmental stewardship; one which recognizes a range of community work.

Community-based Recovery and Resilience:

Since the immediate threat of the storm dissipated, efforts have moved into the longer-term recovery phase. Occupy Sandy dissolved into multiple smaller efforts without official connections to the original organization. Many Occupy Sandy volunteers went on to help in community and city-based efforts that emerged after Sandy to focus on long-term recovery and resilience. In January 2013, Jill Cornell connected to a group of stakeholders working to create a Brooklyn Long Term Recovery Group. That group, which was supported by funding from the city's Build it Back program, works to continue to address outstanding needs of Brooklyn residents in the wake of Sandy, and to work with local community-based organizations, non-governmental organizations, and faith-based organizations in preparedness planning.

In March of 2013, GOLES, the Lower East Side's chief community group, birthed their own long-term recovery group, LES Ready. The density of community organizations in the area aided in the creation of a coalition that works for improved preparedness, communication, community response, and long- and short-term resiliency. The group recently put together a complete plan outlining the specific roles and responsibilities for everyone involved leading up to, and in the aftermath of a future disaster (LES Ready Resiliency Plan, 2016).

Goldi Guerra, the Occupy Sandy volunteer who was on the ground in the Lower East Side immediately following the storm, eventually became connected to longer-term recovery efforts in Staten Island. In the immediate aftermath, Staten Island had an advantage in working with Occupy Sandy because of the many churches that lent themselves as hubs, both in the flooded and the dry areas. Ultimately, these groups evolved as the Staten Island Interfaith and Community Long Term Recovery Organization, a coalition of organizations dedicated to recovery and preparedness (Goldi Guerra, personal communication, September 18, 2016).

Another strong example of a stewardship organization forming in the wake of the storm is the Coney Island Beautification Project. Pamela Pettyjohn, the President of the civic organization dedicated to resilience, explains that the whole idea for the project began by looking at the devastation in Coney Island following Sandy. Pamela started out by assessing the community's most immediate needs and found that the physical impact of Sandy was most apparent in the decimation of the neighborhood's tree population. She got some volunteers together to begin a planting project, and soon saw the opportunity for partnership with local schools. The schoolchildren took the planting project and showed Pamela that there was potential for more than just one-off planting days. They teamed up with schools in the area in a block adoption project, so that each school focused on cleaning, planting, signage, and other stewardship efforts. Soon, the aim of

the Beautification Project broadened to include general education about the environment, particularly pertaining to the unique Coney Island landscape. In an interview, Pamela explained that the children of Coney Island were traumatized by the extreme conditions of Sandy, and became skittish about the water. As a result, the Coney Island Beautification Project partnered with the Coney Island Boathouse to give children swim lessons and education about the waterfront. Since Sandy, the organization has created a variety of partnerships with other stewardship groups, community stakeholders, and elected officials. They host greening events, participate in the city's Greenest Block in Brooklyn initiative, and have received attention from Rebuild by Design. All of the Beautification Project efforts are led by volunteers working from home. For communication, Pamela was inspired by the way Occupy Sandy employed social media, and is hoping to expand their social media reach (Pamela Pettyjohn, personal communication, June 10, 2016).

The Rockaway Waterfront Alliance is another community-based stewardship organization that works to engage community members and youth. The mission of RWA is to “foster a greater understanding and connection between the community and our waterfront” (Rockaway Waterfront Alliance). Through environmental stewardship days, RWA aims to increase understanding of the natural environment and create a group of engaged community members who actively participate in neighborhood planning decisions. At the same time, the organization offer multiple educational and work opportunities for students of all ages, through which RWA gives back to the community while also building a volunteer base.

In response to Superstorm Sandy, RWA worked with the Rockaway Youth Task Force to provide aid to the community out of the decommissioned Fire House on Beach 59th St. At the time of the storm, RWA was in the process of reclaiming the building as a community center. It also used the adjacent Hip Hop Garden as a relief distribution center immediately after Sandy. Since the storm, the organization has continued to focus on the

importance of green infrastructure, and has also begun initiatives to improve communication on the Rockaway Peninsula in order to be better prepared in the event of another emergency. Students can now sign up as Rockspot WIFI Stewards, to participate in the development of a community WIFI network that can be used year-round and during emergencies. In addition, young people are working to train older Rockaway residents in technology use in their Firstwave Intergen Tech Program. In the wake of disaster, communities engage in a variety of different types of stewardship. Whether directly through greening work, or through increasing communication systems such as the RWA WIFI network, these efforts contribute to stronger and more resilient communities (Rockaway Waterfront Alliance).

As discussed in the literature review, art is another common form of stewardship in response to disaster. In Red Hook, residents gathered on the first anniversary of Sandy for the first annual Barnacle Parade, remembering the impact of the storm and celebrating the strength of the community in a time of hardship. People celebrated with creative costumes and floats, and each year the parade grew to include more community members and participants. To date, there have been four Red Hook Barnacle Parades. Events like these help bring the community together around a shared experience, foster social cohesion, and provide both physical and conceptual space to process and respond to shared trauma.

Conclusion:

After a major disaster or emergency, efforts must focus on immediate response to assessed needs. Sometime this happens spontaneously, as with Occupy Sandy, where urgency brought people together to form a massive network of responders. Other times, communities rely on their own resources, networks, and assets to support themselves. Regardless of where the response comes from, communities work to return things to as close to normal as possible. Following the first stage of response, strategic thinking is

required in order to maintain communities that are strong in the face of disaster, and long-term recovery groups can help ensure a higher level of resilience. Urban Environmental Stewardship can also serve as a tool for healing and recovery, while strengthening the fabric of community. Superstorm Sandy caused unprecedented damage to communities in New York City, but also made way for impressive reactions at many levels. Connecting community-based actions to larger spontaneous networks and incorporating environmental stewardship into response and recovery can help to build holistic and resilient communities.

Chapter 3: Emergency Preparedness Planning

As communities begin to recover from past disturbances, they need to continuously anticipate future emergencies and disasters. Alongside community-based attempts to bolster disaster response, cities across the world are creating plans and policies to help build preparedness at the neighborhood level. The goal of these plans is to help communities become better prepared in the event of future disasters, so that emergent responses such as Occupy Sandy can be amplified by existing community structures. NYCEM is creating a community toolkit that focuses on helping communities become more self-sufficient by building social networks and creating a plan and a support network to rely on in the event of an emergency. First, existing community preparedness plans in Red Hook and the Lower East Side are outlined, with particular focus on the spaces incorporated into each plan. Next, the Seattle Community Emergency Hub model is introduced as a city-level preparedness precedent. This chapter analyzes each of these plans in order to compile a set of best practices on which to build recommendations for NYCEM.

Community Plans:

Some neighborhoods in New York City have already put together plans for their community's immediate response to emergencies and disasters. Many of these plans share the goals of Occupy Sandy and strive to adapt their communication and distribution models to meet the specific needs of the community. Ready Red Hook, a response that emerged after Superstorm Sandy, was informed by a wide network of contributors, including elected officials and volunteers, and was entirely community-led. Their Community Emergency Readiness Plan addresses what will happen in the 72 hours before and after an emergency, before government first responders are likely to be able to reach Red Hook. Support services are divided into Food and Shelter, Communications, Health and Medical, Community Response Team, Utilities, and Coordination. Each

service is run by trained volunteers and stationed in a pre-determined partnering space in the community: a church, a community center in NYCHA housing, a community-based organization space, and the nearby Ikea. Their website also provides steps for individuals to take to improve their personal disaster plans, such as preparing a Go Bag and identifying their nearest evacuation center. Ready Red Hook is an important success story because it incorporates the existing strengths and assets of the community, including strong social capital and a highly relied upon online communication system, the Red Hook Hub.

LES Ready also completed a neighborhood disaster plan that complements the services provided by the government and helps amplify community self-sufficiency. Their plan addresses Preparedness, Communication, Community Response, and Long- and Short-Term Resiliency. It includes what to do leading up to an emergency, how to assess needs immediately after, and how to respond in the 24 hours following disaster. Different roles are outlined, and templates are provided to record information in real-time. Additionally, the plan describes four operating sites that will be activated in the event of a disaster: the disaster resource center (DRC), point of distribution (POD), public information center (PIC), and the volunteer reception center (VRC). Each plays a unique role in the response effort, and together they allow for the training of volunteers and the resource-distribution that Occupy Sandy did so well. Potential locations for each of these spaces were recommended by the fall 2013 Pratt Fundamentals of Planning studio and are shown on the map in Figure 3.1.

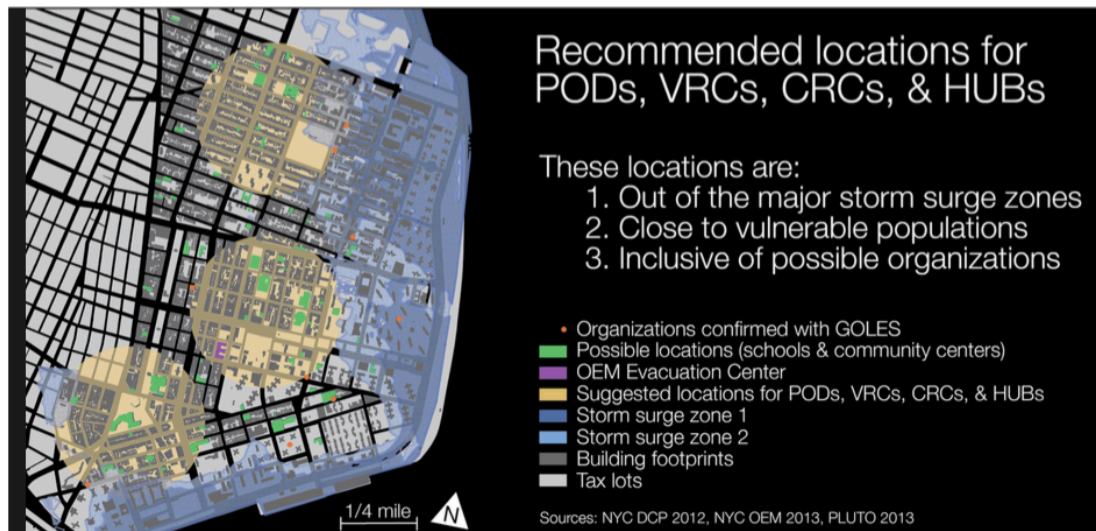


Figure 3.1: Recommended Locations for PODs, VRCs, CRCs, & HUBs (Chelsea Kelley, Pratt Fundamentals Planning Studio 2013).

The LES Ready coalition includes people and organizations with various backgrounds and skill sets, from organizing to communication. Their plan begins with a set of steps to take during the 72 hours leading up to a disaster, and provides contingency plans for the various ways the initial 12 hours following the disaster might unfold. One of the strengths in their plan is the emphasis on working with the city. They outline a role for a government liaison from NYCCEM to help bridge the communication gap between government and on the ground response. It also encourages members to take part in existing City programs, such as Community Emergency Response Teams (CERT) in order to maintain an ongoing relationship with NYCCEM. This government/community relationship is important in ensuring that the multiple levels of emergency response work together, rather than duplicate efforts.

Seattle OEM Community Emergency Hub Program:

In 2015, an article was published in the *New Yorker* that confronted the entire country with the inevitability of a major earthquake on the west coast some time in the future. The Cascadia fault line, running from Cape Mendocino, California, all the way to

Vancouver, Canada is due for a full-margin rupture, an event that will lead to the worst natural disaster in the history of North America, and which FEMA predicts will lead to 1,300 deaths (Schulz, 2015). In Seattle, emergency responders are preparing for this and many other potential disasters. The Office of Emergency Management (OEM) in Seattle attempts to address the gap between community and city response by allowing for more grassroots efforts that are informed, rather than dictated by, the city government. They are working to build communities that are better prepared for any number of emergencies that could hit, from low-level flooding to the impending earthquake. The idea for community emergency hubs developed after the major snowstorm in Seattle in 2009, nicknamed “snowmageddon” (Debbie Goetz, Personal Communication, April 15, 2016). The city had no recent experience or plans in place to handle that much snow, and subsequently, the storm led to traffic issues and stranded some Seattleites in their homes.

Seattle OEM consistently teaches community members to prepare to support themselves and each other for 7-10 days before a government response will be in place to provide disaster assistance. Community emergency hubs are an effort to ensure that neighborhoods at least have a basic starting point to create this important layer of preparedness. The Community Emergency Hub program in Seattle is a strong example of a place-based model that centers on a specified location to activate in the case of an emergency. Hubs are simply predetermined “places where people go after an emergency to help each other” (Seattle OEM 2016). Hubs fit in to a larger community emergency planning effort across Seattle, called Seattle Neighborhoods Actively Prepare (SNAP). Communities are self-defined by residents. Those looking to become a SNAP neighborhood have access to resources, such as toolkits, trainings, and direct communication with OEM, and complete a step-by-step process to organize and test a disaster plan.

Community Emergency Hub locations can be defined within the context of SNAP neighborhoods, or independent from SNAP as a separate effort. As of November 2016,

there are 67 designated community emergency hubs across Seattle (figure 3.2). Two factors make this program stand out among other community preparedness plans: first, community hubs are space-based, beginning with a physical point of connection. This ensures that there is a base expectation of what will occur in a response: regardless of the plan details, people will have a place to go to meet with others. Second, community hubs are entirely determined and governed by community members. Each hub represents a different community, and therefore has a different mission and process to achieve its unique goals. Becoming a hub is easy and straightforward – it simply requires a community to designate a location and submit an online registration to be added to the hub map (See “Your Community, Your Hub” flyer in appendix). Hub members, along with all Seattle residents, have access to community trainings and information material, and are eligible to apply for grants if they want to begin organizing together as a group.

Additionally, volunteers have created a Hub Captain's Network, separate from OEM, which shares best practices, resources, and communication. Because of the success of the program, there is an effort to establish community hubs in neighboring King County organized by Seattle-King County Public Health, and using Medical Reserve Corps volunteers. This effort is similar, but more driven by the organization than the Seattle model.

One important tactic the hub program employs is the leveraging of existing community organizational structures. The idea is to not create an unrealistic amount of work for communities or to replicate work that has already been done, so using these structures is key. Hubs are sometimes centered on existing communities that are looking for a way to be better prepared in the event of an emergency. Examples of these are churches and faith-based communities, ethnic community groups, and even community gardens. Other times, designating a hub actually helps build social capital and better establish social cohesion, like when a group of neighbors decides that their local park or playground can serve as a hub, and then reaches out to others to increase involvement and build social ties.

While hubs are highly varied in their structure and goals, a few examples demonstrate the range of potential successful outcomes. The volunteer-led online Hub Captain's Network in Seattle manages an online information board that helps streamline communication and creates a resource sharing culture similar to the one created by Occupy Sandy in New York. They also keep a list of contacts for hub captains and continually update an online map that shows all hubs, and delineates which are connected through the captain network and which are part of larger neighborhood efforts (see figure 3.3). Cindi Barker, the head of the Hub Captain's Network, keeps in close communication with OEM through Community Planning Coordinator Debbie Goetz. This helps simplify communication between government and constituents, and helps to

close the gap between what is happening from the top down and more grassroots, bottom-up efforts.

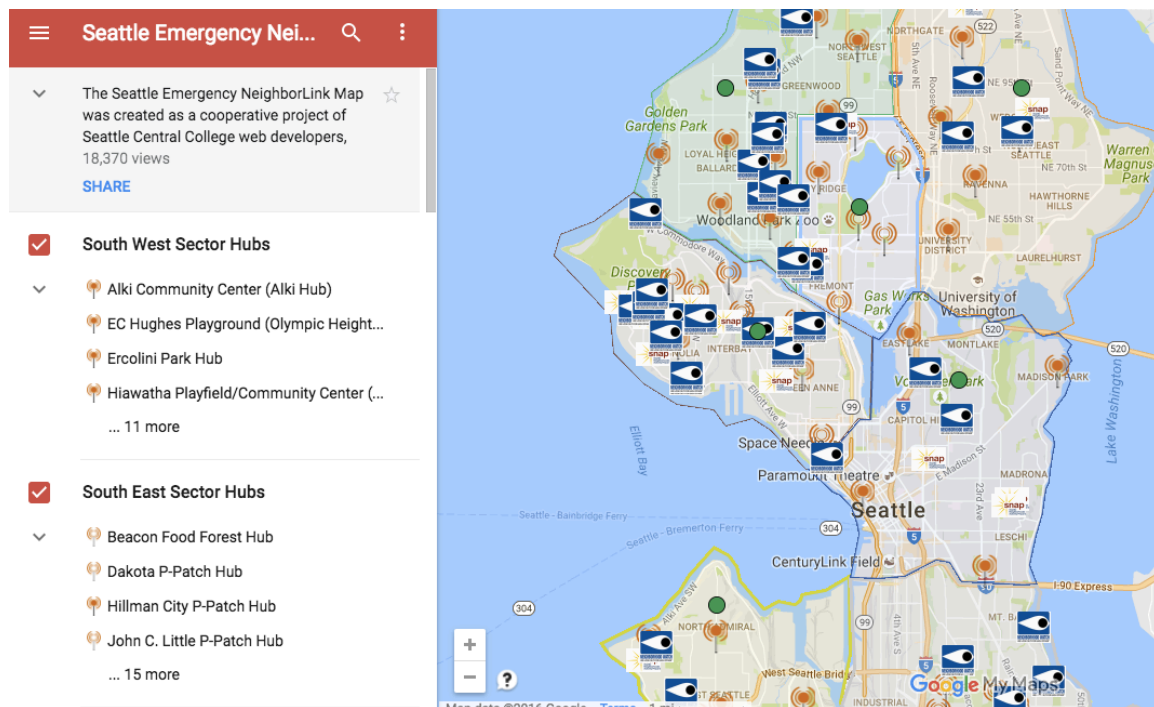


Figure 3.3: Seattle Emergency NeighborLink Map (Seattle Central College web developers, Seattle OEM, and Emergency Preparedness Leaders, last updated 2016).

New York City Emergency Management Community Toolkit:

New York City Emergency Management (NYCEM; formerly known as the Office of Emergency Management, or OEM) was established in 1996. NYCEM serves as the coordinating agency in New York City for all large-scale disasters. Comprised of a mix of responders, planners, and other emergency management personnel, NYCEM works with multiple city agencies to coordinate the response and recovery from various hazards (NYCEM 2016). In addition to their ongoing responsibilities of communication and community outreach, NYCEM hosts the New York City Emergency Operations Center (EOC), which is a central location activated in the case of disasters, and staffed by representatives from multiple city agencies. One of the more recent goals of NYCEM is

to educate the public on disaster preparedness. Multiple initiatives, such as Ready New York, NYC Citizen Corps, and CERT, aim to increase community involvement in disaster preparedness through education, training, and improved government communication.

In the wake of Superstorm Sandy, NYCEM began to see more community groups engaging in local preparedness planning, which sometimes included the creation of feeding and sheltering programs. NYCEM wanted to support this community work and prevent interested communities from having to begin at square one or replicating services the city already offered. The idea for a community toolkit emerged as a way to better incorporate the city's resources and goals with grassroots efforts. Emily Accamando, the Program Manager for NYC Citizen Corps, developed the toolkit to bring together best practices and streamline existing planning (Emily Accamando, Personal Communication, June 14, 2016). The explanation and evaluation of the toolkit below is based on a draft of the toolkit, and not the final version.

NYCEM Toolkit Purpose, Structure, and Content:

The main function of the Community Toolkit is to increase preparedness. Jill Cornell, a former Occupy Sandy volunteer who now works for NYCEM, explained that the toolkit encourages users to create a commodity distribution point and communication plan. It also lays a path for community members to identify vulnerable populations who may have increased risk in the event of another emergency, not unlike the work that Occupy Sandy supported (Jill Cornell, Personal Communication, May 31, 2016). Functionally, the 35-page toolkit covers many steps of preparedness planning. It comes with an accompanying 28-page workbook, divided into “preparedness” and “response” sections, which allows communities to document their plan as they work through the toolkit. In addition to the main content, it includes a comprehensive overview of the

various types of disasters that could impact communities in NYC, the risks of each, the general steps to take in response, and the resources offered by the city government.

The toolkit itself is divided into six “preparedness” modules, four “response” modules, and one practice section, each corresponding with a section in the accompanying workbook. These sections can be filled out all at once, or one at a time, using each as a separate meeting agenda. The process begins with building social capital. The first module is defining the community (1) and creating a community map and resource directory (2). In contrast to the Seattle Hub’s place-first approach, the NYCEM toolkit is people-first, designed to address general community vulnerabilities before specific needs, which can change from emergency to emergency (Emily Accamando, Personal Communication, September 21, 2016). It goes on to urge communities to identify key partners (3), organize their network (4), and develop a system to educate and inform individual members (5). Module 6 encourages the users to focus on inclusivity, identifying the various needs of vulnerable community members (senior citizens, non-native English speakers, people with disabilities, etc). The first six sections are peppered with “success stories” of existing community plans, including those made by Ready Red Hook and LES Ready. Links in the margin of the plan provide information about additional resources, such as a map of local evacuation shelters.

The “response” portion of the toolkit outlines the steps to take in the event of an emergency, including creating a communication plan (7), assessing needs and resources (8 and 9), and making a disaster personnel chart (10). Module 11 provides three sample scenarios, each based on a real New York City emergency, with prompts to answer questions based on the information in the toolkit.

NYCEM Toolkit Distribution and Use:

Participants of the toolkit program will be offered NYCEM consultant support, and will have more personal support and communication from the city in the event of an emergency. As with the Seattle Emergency Hub program, the toolkit can be applied to any existing community group or organization looking to create an emergency plan, or used as a starting point for communities looking to organize specifically around emergency planning. Pilot groups, including CERT participants, COADs and VOADs, as well as outside community groups with a relationship to NYCEM, will be encouraged to use the toolkit during its early stages. Community emergency plans have emerged from a variety of organizations with related initiatives, including public health and environmental justice efforts (Emily Accamando, Personal Communication, September 21, 2016).

NYCEM Toolkit Evaluation:

The current NYCEM toolkit is a comprehensive resource and planning guide that walks users through each important step of preparedness planning. One of the toolkit's strengths is the emergency management section, which gives an extensive overview of NYC threats and hazards, with information on the role of the city, state, and federal government, as well as actions for individuals to take. It is a rich resource that could help narrow the gap between government and community groups by informing the latter of the services offered by the city and services they should compile themselves. Different services and responses, from food and commodity distribution to power disruption, are broken down with highlighted triggers and resources. Considering the city's desire to minimize duplication of efforts, this section is a valuable asset. Additionally, the toolkit excels in emphasizing inclusive planning as a need, and prioritizing populations with vulnerabilities such as language barriers, disability, and poverty. This is especially

important considering the 2013 court ruling against the city for failing to accommodate people with disabilities following Sandy (Santora and Weiser 2013).

The NYCEM toolkit highlights the importance of social capital and public space from the very beginning. Social capital is defined in the toolkit as “The networks of relationships among people who live and work in a particular society, enabling that society to function effectively” (NYCEM Toolkit draft September 2016). In the first section, users are encouraged to think about what kind of community they are planning for (Community district, housing complex, etc.) and whether there are existing networks within that community already. In the next section, an asset-mapping exercise is outlined which asks users to think about existing public spaces in their communities. This is a natural link to stewardship, and should encourage users to begin to connect environmental efforts to their disaster preparedness and response plans. These two tools, as discussed in chapter 1, are strong and important first modules in considering a preparedness plan.

As discussed above, environmental stewardship is both a result of and a catalyst of greater social capital. Because of this, not only does the presence of environmental stewardship efforts improve resiliency and community response, it also helps to mitigate a common problem in disaster preparedness plans: the failure to incorporate longer-term recovery into the response. Ensuring that public and community spaces are at the center of preparedness plans can help facilitate stewardship as well as support long-term social cohesion, fostering communities that are resilient in the face of disaster. The next chapter considers the best practices in the phases of readiness, response, and recovery, in order to strengthen the NYCEM Community Emergency Toolkit.

Chapter 4: Recommendations for NYCEM Community Emergency Toolkit:

The NYCEM Community Emergency Toolkit is an attempt to encourage communities to put together preparedness plans and coordinate with the city's existing plans and resources. The goal of the toolkit is to build community self-sufficiency and reduce the duplication of efforts that the city has seen in the past in order to create more informed and resilient communities. The toolkit is broad and comprehensive, and contains a plethora of information and resources, as described in chapter three. Though the toolkit excels in compiling information, it lacks clarity. In the introduction, the toolkit outlines two objectives: to form a lead team and to develop a plan that uses the considerations, success stories, and resources throughout the toolkit. The following recommendations are informed by the various examples discussed in this thesis, and aim to connect the content of the toolkit to the objectives outlined. Many of the recommendations look to the Seattle Hub model for inspiration. Although the scope of the NYCEM Toolkit is different from the Seattle Hub model, there are definite parallels that can be drawn, and lessons that can be learned from each. Recommendations include suggested revisions of the toolkit itself, as well as on the further incorporation of public and community space into the program.

Recommendations on Structure, Content and Use:

1. Streamline and Condense Toolkit:

The first three recommendations focus on increasing the use of the Toolkit as well as participation in related NYCEM programming. One of the challenges of the Toolkit is the size of the booklet. At 35 pages, not including the 28-page accompanying workbook, working through the Toolkit is a large undertaking. The Seattle Hub model, in contrast,

simply asks people to identify a place where they will go to meet with others following a disaster. The Seattle Neighborhoods Actively Prepare (SNAP) program, which is similar in scope to the NYCCEM Toolkit, has limited appeal, and is primarily taken on only by homeowners in well-established neighborhoods with greater time and resources (Debbie Goetz, Personal Communication October 21, 2016). While many communities or community groups don't have the time or interest needed to build entire ground-up preparedness plans, most can at least point to a gathering place and commit to working together from that hub in the event of a disaster. Generating buy-in to the hub program has been much easier due to the low bar of entry, and the NYCCEM Toolkit can learn from the Seattle experience in order to create a more clear and accessible program.

In the NYCCEM toolkit, each module has a different focus and goal to complete in order to arrive at the final preparedness plan, but much of the content is repeated section to section. For example, Section 3, "Disaster Network Directory," goes over the potential partners in community preparedness planning, and provides space in the workbook to identify team leaders. Section 4, entitled "Plan Maintenance," asks users to develop a structure of roles and responsibilities within their plan, and to determine how preparedness communication will work throughout the year. The following section, "Preparedness Education," discusses communication further, for the purposes of developing a plan to educate community members (Sections 3-5 in toolkit, pages 11-17 in workbook). These three steps are each important, but essentially center around the same thing: how the group will structure leadership and communication. Combining the three sections into one would allow users to think about how their particular group can best organize without bombarding them with information. The workbook could have one section where users fill out appointed leaders, communication tools, and outreach strategies. The resulting section would allow for more community agency and would create a more manageable task.

In the “Response” half of the booklet, users are once again asked to create a communication plan, this time one that can be used in the aftermath of a specific emergency or hazard (Section 7 in the Toolkit and workbook). This step is slightly repetitive, and ideally the communication plan created in the “Preparedness” planning section will be usable regardless of the specifics of the disaster. One of the takeaways from Occupy Sandy is that strong communication networks can be utilized for a variety of needs. Because the response to disaster is often spontaneous and immediate, a group might not realistically be able to come together directly following an emergency event. Rather, they should communicate via their established system in order to determine next steps. Needs and resources can still be assessed in the moment (Sections 8 and 9), but both the toolkit and the preparedness plan itself will benefit from limiting the communication and disaster personnel planning to the preparedness stages.

2. Clarify and Minimize Participation Requirements:

Clarifying the requirements of the Toolkit will also help lower potential barriers of participation. NYCCEM has offered to act as a consultant to groups who use the Toolkit to create preparedness plans, but it is unclear at this point where the bar for entry exists for this program. If users need to complete and submit the entire workbook in order to be considered participants, it could deter potential community groups, especially those who do not have the capacity to build a plan from the ground up, or who have existing plans that do not fit the mold of the NYCCEM toolkit. For example, the LES Ready plan outlines position descriptions for a variety of roles, from Disaster Coordination Team members to Community Point of Distribution Manager. These roles cover the responsibilities outlined in the NYCCEM toolkit, but do not exactly match the structure offered by NYCCEM (Pages 24-25 of the workbook). It is unclear from the Toolkit and Workbook materials whether the LES Ready plan would qualify the organization for additional communication and assistance from NYCCEM.

In order to broaden the number and the types of groups making use of the Toolkit, participation requirements should be both minimized and clarified. In contrast to the Seattle Hub model, which simply requires the completion of an online form containing fields for hub location and a point of contact, NYCEM requires Toolkit users to complete a lot of work. This could be improved with an introduction to the toolkit and an explanation of what pieces of the workbook are necessary to complete before a plan can be recognized, ideally as a two or three step opt-in or registration process, that would then allow users the option of more in-depth engagement through the multiple modules.

3. Create Incentives:

One of the goals in creating preparedness plans such as the ones outlined in the NYCEM Toolkit is to establish a strategy for how to handle the unknown disasters and emergencies that could occur at any time. It is crucial to think about these plans before a disaster occurs, however the unknown and intangible aspects of these disasters pose a challenge for many community groups who are busy organizing around existing stressors, and do not feel the immediacy of another Superstorm Sandy. In order to get community members, leaders, and organizations to prioritize emergency planning, NYCEM should consider incentivizing the Toolkit program.

In 2016, Seattle OEM provided people interested in starting a hub with a link to an application for their “Hub in a Box” application. By completing the form, applicants are entitled to up to \$1,500 in mini-grants to support their efforts. The only project requirements for proposed hubs are a designated meeting location, a primary contact and 3-5-person core workgroup, a commitment to display a plaque marking the location as a hub, and attendance at one Hub Orientation offered by OEM. Priorities are given to proposed Hubs within the “emergency hub desert area” that will commit to networking within the local community (see Hub in a Box Application in Appendix). In addition, \$1,000 “Small Sparks” neighborhood matching fund mini-grants are always available to

hub groups. These incentives are mutually beneficial: they help new hubs get started while also helping OEM expand the hub program on their terms. NYCEM should consider creating financial incentives during the early stages of Toolkit distribution. If no resources for grants are available, they could compile information about other grant opportunities for community projects or even build a relationship with a private partner such as the Citizen's Committee for New York City for funding, in order to attract more potential Toolkit users.

4. Rearrange the Emergency Management Resource Section:

As discussed in chapter three, one of the toolkit's strengths is the emergency management resources section, which gives an extensive overview of NYC threats and hazards, including information on the roles of the city, state, and federal governments. It is a rich resource that could help narrow the gap between government and community groups by informing the latter of what services are offered by the city and what services they need to compile themselves. Different emergency responses, from food and commodity distribution to power disruption, are broken down with highlighted triggers and resources. Considering the city's desire to minimize duplication of efforts, this section is a valuable asset.

The placement of the information packet between the "Preparedness" and "Response" sections, however, adds to the bulkiness of the toolkit. Further, the "Preparedness Resources" and "Disaster Response" sections in the workbook repeat a significant portion of the information outlined in the Toolkit. These sections should be combined and made into a new packet at the end of the workbook, ideally one that can also be made available online and distributed independently from the Toolkit. This way, community groups who already have preparedness plans or who are unlikely to create plans from scratch can still have access to this information, and will be better informed

on how to work with the city. This section could be clarified and strengthened by imagining it as a stand-alone resource.

5. Allow More Room for Community Agency and Spontaneity:

One of the lessons learned from the Occupy Sandy movement was the incredible power of spontaneous action. Beginning with only a loose network and a communication system, Occupy Sandy was able to reach affected people all across the city and work with communities to identify and mitigate a host of problems caused by the storm. The intensity of the damage from Sandy acted as a catalyst that revealed the capabilities of post-disaster recovery networks, and proved that people can take initiative in times of distress. In a phone conversation, Debbie Goetz of Seattle OEM revealed that when thinking about what could happen in the event of an emergency, she is less concerned than she used to be. “It will be chaotic, for sure, but people are capable of amazing things when faced with extraordinary circumstances. We’ve seen entire movements emerge...all the crowd sourcing that happens in disaster will happen. People do come together.” (Debbie Goetz, Personal Communication, October 21, 2016). Responses will vary considerably depending on the specific needs and vulnerabilities within a community. The Seattle Hub program simply provides a head start for the organizing that will inevitably happen in the aftermath of disaster, and allows response plans to reflect the nature of their community.

The NYCCEM toolkit aims to go one step further and encourage communities to have plans ready to go in the event of a disaster. This kind of planning is helpful because certain disaster-related problems can be anticipated, and a planned response can help speed the recovery process. However, it is important that plans still allow room for spontaneity. Relying too heavily on one person or lead team could backfire if designated point-people are inaccessible in the event of an emergency. Ensuring that the basic communication structure and pre-determined meeting spots are in place creates a

framework from which to build a more in-depth plan for a specific event. In order to allow for this kind of spontaneity and community agency, the NYCEM Toolkit should include more open-ended prompt questions in the workbook, and focus less on specific outcomes. Examples of open-ended questions that are in-line with the goals of the toolkit include:

- Where do people naturally congregate in your neighborhood?
- What people or organizations in your community have connections to government?
- What resources exist in your community for people who are vulnerable?

By asking these questions, users may be more likely to think creatively about their community's strengths, which may or may not fall into the specific categories currently outlined in the toolkit.

6. Expand Focus to Include Long-Term Recovery:

The best-prepared communities have strong social capital and a rich network of assets. In order to ensure that communities build resilience, rather than just a stand-alone preparedness plan, the NYCEM Toolkit should expand its focus to include long-term recovery efforts. Understanding the role that stewardship plays in resiliency helps to illuminate this need. Stewardship practices help communities heal and adapt post-disaster, and contribute to stronger social networks. One example of this is the Coney Island Beautification Project, discussed in chapter two, which participated in flower-planting to restore the physical environment after Superstorm Sandy. This practice fosters social relationships and promotes resilience (McMillen et al., 2016). Following the flower-planting project, involved community members became more interested in their connection to the natural environment, and developed a stewardship organization, advocating for environmental justice in their neighborhood. The efforts of the Coney Island Beautification Project strengthened the community and set them up to become more resilient in the event of another disaster.

NYCEM can encourage communities to engage in long-term recovery work through environmental stewardship, in addition to focusing on a tangible preparedness network and plan. One way of accomplishing this through the Toolkit would be to add more “success stories” about urban environmental stewardship organizations and achievements, in order to expose readers to the variety of long-term recovery tools that exist. In section 5 of the Toolkit, “Preparedness Education,” readers are encouraged to reach out to “force multipliers,” defined as organizations, businesses, and faith-based groups who can amplify outreach efforts and reach the largest audience. Stewardship groups are especially well suited to fill the role of force multipliers in the case of disaster recovery. By plugging in to the efforts of these organizations, preparedness planning could reach beyond the emergency itself and become an ongoing pursuit.

Recommendations on Incorporating Public and Shared Space:

7. Incorporate the NYCEM “Share Your Space” survey into the toolkit:

The NYCEM “Share Your Space” survey asks communities to identify spaces that could become potential sites for the city’s emergency operations or community outreach. By filling in an online survey with an address, contact information, and building details, including capacity, ADA accessibility, and resources such as Internet access, kitchens, and power generators, community members can offer their space up for consideration for use in a number of emergency-related events. The information is stored in a database of community spaces, which NYCEM can then reference and consider in their preparedness planning. This is a positive step in beginning to incorporate physical space into preparedness planning, but it could be further strengthened by connecting the survey to the Toolkit and pushing users to identify their own community hubs. Currently,

the survey is mentioned in section two of the toolkit among other additional resources. Instead, NYCEM could place the actual survey in the workbook and accept submissions along with the community plan. This would push community members to consider a central meeting place in the event of an emergency.

While different emergencies may call for different kinds of facilities, having at least a tentative meet-up point can make preparedness plans more accessible to community members who were not able to take part in the entire planning process. Cindi Barker, a volunteer and hub captain with the Seattle Emergency Hub program, suggested that the best approach to emergency preparedness is a combination between place-based and community-based. A place is an important first step to organize around, but without community support, a place is not going to be able to accomplish anything. Likewise, a community without a meeting place will have trouble attracting people and getting their efforts off the ground (Cindi Barker, Personal Communication, October 29, 2016). Incorporating the Share Your Space Survey into the Toolkit could help NYCEM find the right balance between place-based and people-based preparedness approaches.

8. *Create a City-Wide Preparedness Map:*

One of the most essential outcomes of the Seattle Hub program is the Community Hub Locations Map. Two versions of this map exist: the Seattle OEM map, which exists as a PDF and is updated annually, and the Interactive Seattle Emergency NeighborLink Map, jointly created with Seattle OEM and maintained by hub captains and volunteers. The NeighborLink Map shows more than just community hubs. It features SNAP groups, Block Watch groups, Community Emergency Response Teams (CERT), and community members with Disaster Skills Training. Each group type has its own symbol on the map, and clicking on any plotted point will provide users with contact information and a group description. This tool is valuable to hub leaders and volunteers who want to know which groups near them are possible collaborators. It is also valuable to Seattle residents who

have never participated in preparedness planning and want to know where to go in the event of an emergency. The maps also help the city to identify “hub deserts,” areas where hubs have not formed, in order to figure out potential barriers to the program in specific neighborhoods and provide extra support to those communities. NYCCEM should look to this model as motivation to compile any place-based information they get from Toolkit participants into a master map that can be available on their website and distributed along with future renditions of the Toolkit.

9. Incorporate Community Gardens:

The Seattle OEM Community Hub Map provides a clear depiction of where hubs have developed and where they have not. A closer look at known demographics in Central Seattle provides a few theories as to why hubs have not been established in the same quantity there as in other neighborhoods. Goetz suggested the following possibilities: First, these neighborhoods tend to have more renters versus homeowners. There are also more young people in central Seattle, who may connect more on social media than in person. Finally, some of the neighborhoods in central Seattle have less social cohesion, or have less trust in government and are thus less likely to self-identify with city programs (Debbie Goetz, Personal Communication, October 25, 2016). In order to rectify this and ensure that Hubs are available to residents in every neighborhood, OEM looked to the P-Patch community gardens. P-Patch community gardens are overseen by the Seattle Department of Neighborhoods, and encourage communities to engage in urban environmental stewardship through community gardening, market gardening, youth gardening, and community food security programs. They are natural Hub locations because they already have both social networks and established ties to place, and many are located within the Hub desert. Currently, the 90 P-Patch gardens are in the process of becoming Hubs, bringing the Hub count up to 157.

Through their GreenThumb program, New York City Parks helps support more than 600 community gardens across the five boroughs. GreenThumb already has a map of these gardens to help people identify their closest community garden. In addition to community groups and CERT teams, community gardens should be targets for the NYCEM Toolkit pilot. This is especially important because community gardens are often located in low-income neighborhoods that may not have the financial resources that are found in communities with wealthier populations. By engaging community gardens from the beginning, NYCEM can ensure that at-risk neighborhoods are able use their existing resources to become better prepared, more resilient communities. Further, ongoing programming in community gardens can build social cohesion through practicing environmental stewardship.

One way of making community gardens more resilient to environmental disaster is to create small modular sheds, or *casitas*, to serve as multipurpose spaces to be utilized in the event of an emergency and in the day-to-day. New York Restoration Project, in partnership with Urban Air, Ten Arquitectos, and Buro Happold, developed a kit of scalable parts in order to build a casita in each of their community gardens. The casitas can serve as a meeting spot, storage space, shaded area, food prep station, and even as a performance stage. They can also be outfitted with solar paneling, phone charging stations, and free wifi (NYRP 2014). These amenities are especially important in times of need, and can foster efficient communication and planning post-disaster.

Conclusion:

Strengthening resilience in communities happens at multiple levels. Readiness, response, and recovery are all important phases to focus on, and each provides unique opportunities to build capacity. By bridging each of these phases with a thread of environmental stewardship, communities can continuously connect to the urban

landscape and to one another, bolstering their ability to mitigate the impact of emergency and disaster.

Examples of disaster response can be seen at a variety of levels, from community-based organizations to online volunteer networks. In order to best fuse these efforts, some cities are creating plans that outline the specific roles of government and constituents. The NYCCEM Community Emergency Toolkit is a prime example of a plan that encourages communities to work alongside the city, offering resources and suggestions on how to best approach a preparedness plan. By analyzing various response, recovery, and preparedness efforts, NYCCEM can draw from best practices in order to create the strongest toolkit possible.

Throughout this research, a few general themes have emerged. First, communities are strongest when they have high levels of social capital and cohesion, allowing community members to look out for one another and work collaboratively in the case of an emergency. Second, place-based approaches to disaster response can help ensure that in the event of a disaster, people will be able to come together and assess their needs and resources in real-time. Third, plans that provide a structure of connectivity, space, and communication strengthen the spontaneous efforts that are bound to emerge after an emergency. Finally, environmental stewardship can be used as a tool at every stage of the resilience cycle to extend the recovery timeline and make resilience an ongoing process. Using these principles and the recommendations above, the NYCCEM toolkit has the potential to become a prototype for collaborative disaster response and resilience.

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BECOME A COMMUNITY EMERGENCY HUB

Your Community, Your Hub



Seattle Office
of Emergency
Management

After a major disaster, first responders may not be able to help you for 7 to 10 days - you are on your own. Hubs are natural gathering places in the community where people meet to help each other until City systems are restored.

Step 1: Designate a Hub location

- Hubs are pre-determined locations designated by community members
- Community Emergency Hubs will look different depending on the particular needs of the people who live in the area
- Hubs cannot be in a City-owned facility
- Examples of Hubs include parks, community gardens, faith-based centers, small business locations, etc.



Step 2: Fill out the online form

- Identify a primary and alternate contact
- Go to the Emergency Neighborlink Map online at www.seattleemergencyhubs.org and fill out the 'Seattle Emergency Hub Entry Form'
- Begin receiving information about preparedness, training and networking opportunities



Step 3: Be a Hub during the next disaster!

- Spread the word in the community about the Hub location
 - Immediately after a disaster, people will have to rely on each other for help
 - Identifying locations ahead of time lets people know where to go to get or give help



**For more information, contact OEM's Community Planner,
Debbie Goetz, at Debbie.Goetz@seattle.gov or 206-684-0517.**



2016 HUB IN A BOX APPLICATION

Get up to \$1,500 to start a Community Emergency Hub

In partnership with the Department of Neighborhoods, the Seattle Office of Emergency Management is offering up to \$1,500 in mini-grants for up to 12 neighborhoods to support Community Emergency Hub development.

Important Dates

- ✖ Monday, August 22, 2016 **Application Open**
- ✖ Friday, October 28, 2016 **Application Deadline**

What is a Community Emergency Hub?

- ✖ A gathering place designated by community residents
- ✖ Organized and managed by local neighbors
- ✖ A way to coordinate information and resources after disaster
- ✖ An important part of how people could help each other when City resources are overwhelmed
- ✖ A way to encourage emergency preparedness in your neighborhood
- ✖ A way to connect and train with others
- ✖ And so much more!

Project Requirements

Proposed Hub projects must:

- ✖ Maintain a primary contact (and backup, if possible) with Seattle Office of Emergency Management
- ✖ Have at least 3 to 5 people as a core workgroup. Agree to exchange information and meet at a designated location.
- ✖ Designate a meeting location – not inside a City-owned building.
- ✖ Attend a Hub Orientation offered by the Seattle Office of Emergency Management
- ✖ Display placard, signage or other designator stating this is a Community Emergency Hub



Community Emergency Hubs

2016 HUB IN A BOX GRANT APPLICATION

Preference

Preference will be given to projects that:

- ✖ are located in a current “emergency hub desert area” (Downtown, Capitol Hill, Central, East, Beacon Hill and NE Seattle)
- ✖ recruit neighbors as volunteers (e.g. community members who live or work close to the project site)
- ✖ partner with neighborhood organizations, nonprofits, and/or businesses
- ✖ take advantage of City programs (e.g., [Adopt-a-Street](#), [Summer Paint Out](#), [Tree Ambassador](#), [Night Out](#), etc.)
- ✖ improve the safety and/or appearance of a public space or structure

Instructions

Please type or print your answers to **all** sections (1 through 5) in the spaces provided. In Section 6, include photos or links to photos of the proposed project area. **Incomplete applications will delay grant awards.**

Note: Please attach additional pages if necessary. Paper applications available on request.

Completed applications must be submitted **no later than 5:00 p.m. PST on Friday, Oct 28, 2016**. Applications can be submitted via email or in person to the address below. **Please note, applications cannot be mailed in to the Office of Emergency Management or the Department of Neighborhoods.**

Please submit applications in person to:

Seattle Office of Emergency Management
Attn: Hub in a Box
105 5th Avenue, Suite 300
Seattle, WA 98104

Or submit them via email to debbie.goetz@seattle.gov

If you missed the application deadline or you have general questions:

Please contact Debbie Goetz, Community Planning Coordinator, at the above email or call (206) 684-0517.

Visit www.seattle.gov/emergency to learn more about Community Emergency Hubs and what local Hub Captains are doing in their own neighborhoods.

Community Emergency Hubs

2016 HUB IN A BOX GRANT APPLICATION

Section 1: *Applicant Information*

Organization Name:	
Project Contact Person:	
Phone Number:	
Email Address:	
Project Address:	

Section 2: *Project Information*

Please provide a general overview of your Hub and how it will be set up in your neighborhood:
Describe your plan for ensuring proper care and secure access to the Hub box (Examples: schedule a routine Hub check, distribute keys or codes, etc.):
Describe where your Hub is located. Please include intersections and landmarks if possible:

Community Emergency Hubs

2016 HUB IN A BOX GRANT APPLICATION

Name who you are coordinating with to place the Hub box in the above-listed location. Include any partner organization(s) and their role. Property owner permission is required before any purchases will be made. If your proposed hub is located on Parks or City property, the relevant department must have approved before an application is submitted. If you have a Memorandum of Understanding (MOU), please attach.

Section 3: *Volunteer Information & Sustainability*

Please check the box with the number of volunteers you expect to be involved:

☐ 5 ☐ 10 ☐ 20 ☐ 30 ☐ 50+ ☐ Other: _____

Describe the specific ways you will recruit and engage community members. Describe who you will reach (e.g. school, service, faith-based or youth group members, etc.) and how you will contact them:

How do you hope to maintain your Hub after it is established? Please check all that apply:

I plan to:

- ☐ Establish a core group who will maintain primary responsibility for setting up the Hub
- ☐ Encourage other resident groups and neighbors to get involved in emergency preparedness
- ☐ Work with other Hub groups to share contact information and training ideas
- ☐ Organize this as a one-time volunteer effort, but I recognize the need for ongoing community support
- ☐ Other: (please describe)

Community Emergency Hubs

2016 HUB IN A BOX GRANT APPLICATION

Section 4: Budget (up to \$1,500 total available per hub)

Complete a budget by listing each item you intend to purchase, how it will be used for the project, and the cost of each item including taxes. Costs should consist of one-time expenses such as supplies and/or services including tool rental. The grant cannot compensate individuals for labor (that is where community volunteers come in).

The Department of Neighborhoods will order all items based on your budget and have them shipped to the project address. Every project budget must include a box.

Example:

Item	Description of Use	Cost
3 gallons of paint	To paint the walls surrounding the community garden	\$50.00
6 paint brushes	Needed to paint the walls of the community garden	\$18.00
Total		\$68.00

Proposed Budget:

Item	Description of Use	Cost
Total	Total price must include the cost of a box and all shipping/taxes.	\$1,500.00

Community Emergency Hubs

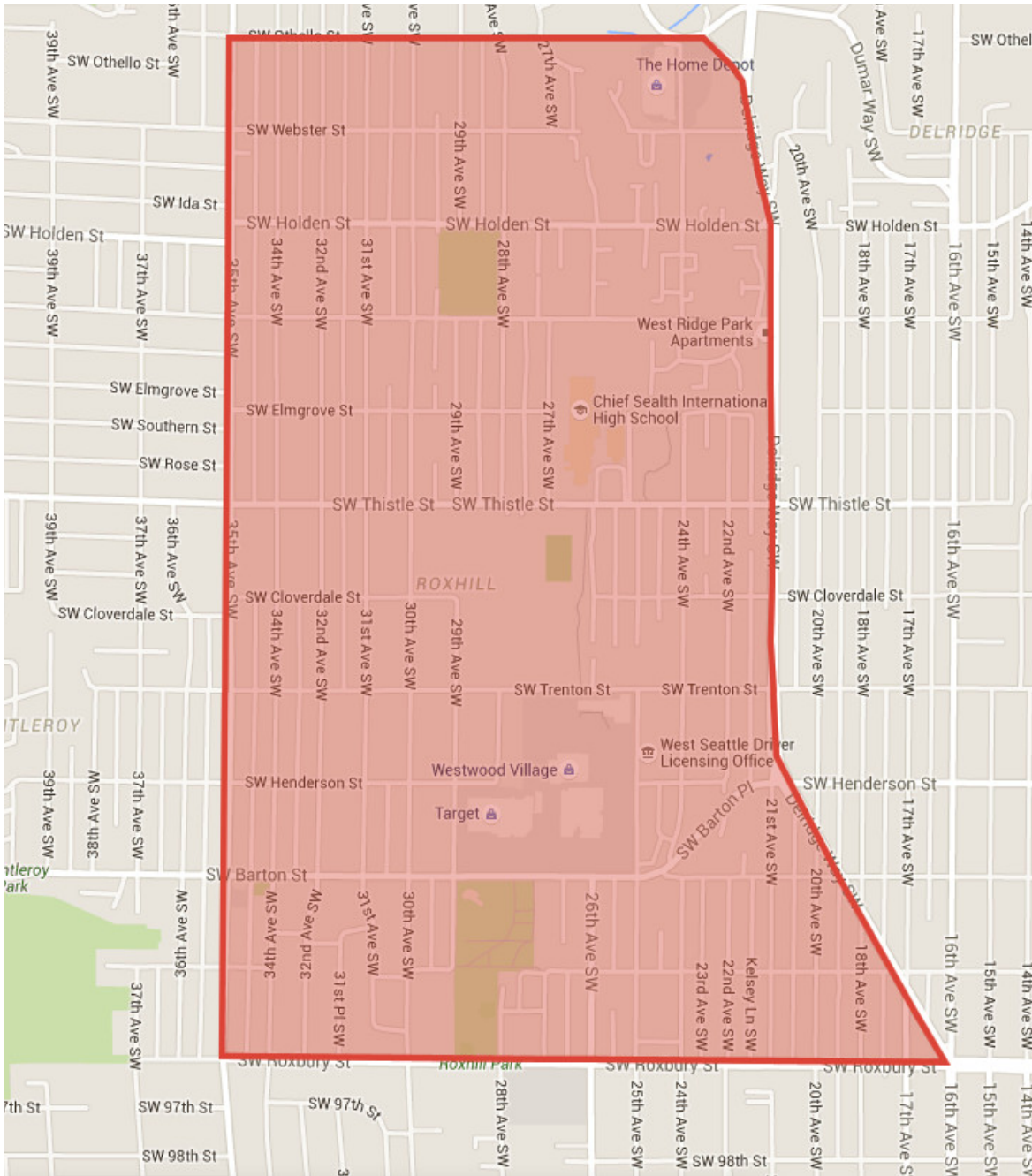
2016 HUB IN A BOX GRANT APPLICATION

Section 5: *Photographs of Proposed Project Area*

Please attach photos or links to photos (via email attachment or hard copy) of the proposed project area to show its current state. You can also email JPEG format photos or photo-related questions to:

debbie.goetz@seattle.gov

Roxhill/Westwood Community Project Grant Boundary (example)



The Roxhill/Westwood boundary is defined with red outline and fill.