

Post-Sandy Municipal Needs Assessment for Long-Term Recovery and Resiliency Planning

EXECUTIVE SUMMARY

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for the

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Executive Summary

The New Jersey Resiliency Network was formed in 2013, as a program of Sustainable Jersey to provide New Jersey municipalities with direct access to resiliency tools and resources provided by government, private, non-profit and academic organizations. In service to its mission of “helping to build stronger, more resilient communities,” the NJ Resiliency Network conducted targeted outreach to municipalities across New Jersey’s coastal area in the spring and summer of 2014.

The “Post-Sandy Municipal Needs Assessment for Long-Term Recovery and Resiliency Planning” (hereinafter “survey”) was designed as a brief, online survey instrument to quickly and efficiently collect insights from local officials. Through a combination of open-ended and multiple choice responses, local officials were asked to provide examples of their top recovery and resilience issues and to identify their level of interest in support services available for a range of commonly cited municipal recovery and resilience issues. Survey responses were collected from local officials in New Jersey’s coastal and tidal communities in March – October 2014.

This summary report reviews the methodology and responses to the survey, provides an overview of the most commonly cited concerns reported by respondents, and offers an interpretative analysis of the findings that is augmented by the NJ Resiliency Network staff insights, expertise and research conducted in consultation with its partners and a diverse set of county, state and regional stakeholders. In response to the needs identified, the report closes by listing several key tasks and initiatives to further assist municipal officials in their journey towards building stronger, more resilient communities.

Key findings point to three challenges for New Jersey municipalities:

1) The need to improve the rigor and quality of municipal risk and vulnerability assessments

2) The need to expand and deepen local flood hazard risk reduction and resilience efforts

3) The need to harden critical public infrastructure, particularly energy systems, to withstand shocks and stresses.

Municipal Needs for Recovery and Resilience - Key Findings

The survey indicated a wide variety of municipal needs and interests, corresponding to the municipality’s extent of damage from Sandy, stage of recovery and capacity to plan, and capacity to fund and implement mitigation strategies and projects. An analysis of the most prevalent municipal needs for technical assistance and funding for disaster recovery and resilience initiatives revealed the following four key findings:

1. *Most at risk municipalities have not adequately assessed their vulnerability, and there is wide variability in the approach and depth of analysis municipalities use when conducting risk and vulnerability assessments.*

Approximately one third (35 percent) of participating municipalities indicated “[they] have identified future risks and have taken measures to minimize them through mitigation projects and land use planning” with another 41 percent responding they are “now considering measures to minimize” risks. Together, these responses suggest that 76 percent of the coastal and tidal, at-risk municipalities have assessed their risks and vulnerabilities and have pivoted toward developing solutions to reduce them. However, based upon the NJ Resiliency Network staff’s outreach with local officials and knowledge of local planning initiatives, the respondents’ definition of “assessing future risks and taking actions to minimize them” differs widely. While a handful of municipalities

have conducted comprehensive vulnerability assessments, a much larger number used an inventory of Sandy-incurred damages to identify mitigation projects, without analyzing projected flooding impacts. This is concerning because the best practices for risk and vulnerability assessments—both nationally and globally—stress the criticality of understanding current and future risks before identifying mitigation and adaptation strategies to protect lives and property.

2. *Municipalities seek technical expertise in all areas of flood resilience planning and projects, requiring multiple layers of expertise, facilitators to assist them with the bureaucracy and funding to construct the projects.*

Municipal needs for technical assistance run the gamut in flood resilience from planning, programs and policy development, to expert advice in hardening critical infrastructure to better withstand flood hazard impacts, to securing the necessary funding for all stages in the process.

The most commonly cited municipal need for technical assistance was for guidance and support in flood-related planning, programs and policy support. This was closely followed by technical assistance requests for hardening critical facilities and infrastructure, and support with securing the necessary funding or financial assistance to accomplish short- and long-term recovery objectives. Responses included general requests for support with flood-related policies and programs, such as model ordinances for increased freeboard, general assistance with hazard mitigation strategies and assistance with Federal Emergency Management Agency (FEMA) National Flood Insurance Program's Community Rating System. More specific responses focused on engineering and design assistance for local projects, such as beach studies, feasibility assessment, analysis of flood mitigation alternatives, and guidelines for new building and reconstruction.

The data affirm a commonly held understanding among NJ Resiliency Network staff and partners that the complexity of flood resilience issues necessitates expertise in various fields, including: municipal planning, coastal and tidal zone management, flood hazard mitigation, engineering, flood insurance policy, innovative infrastructure financing, and climate change adaptation. Additionally, some of the most popular strategies identified to address coastal flood risks, such as elevating structures or increasing freeboard, often require an extensive process of navigating through layers of newly adopted guidance documents and/or regulatory standards—available from a plethora of entities at multiple levels of governance and within several nonprofit and academic organizations—and an unprecedented labyrinth of grants programs for covering the costs of these kinds of municipal activities. Local staff and elected officials, particularly those overwhelmed with the nuts and bolts of long-term recovery, and arguably the ones with the greatest need for this kind of support, are understandably overwhelmed and are in need of assistance.

3. *Municipalities prioritize funding needs for resilience of critical infrastructure, as opposed to flood protection measures that will aid in future events.*

When posed with an open-ended question on funding needs, municipal respondents focused more on repairing and hardening critical community infrastructure than repairing or developing flood protection structures such as sea walls, revetments, bulkheads, etc. Critical infrastructure is defined here as roads, bridges, utilities and other infrastructure that perform essential municipal services. Examples of projects in need of funding included the repair, reconstruction and elevation of roads; overall improvements to water, stormwater and wastewater systems; and utility repair and hardening. Municipalities also made reference to critical community structures which serve essential functions in the days and weeks immediately following a disaster, such as police and fire stations, shelters, the municipal building and key medical facilities, although these funding requests were not as frequently cited as those for the infrastructure that services and undergirds community life on a daily basis.

The funding focus for critical infrastructure, as opposed to area flood protection and mitigation, is understandable because these facilities and systems provide essential services municipalities are responsible for providing. Also, repairs and funding for critical infrastructure typically fall under municipal jurisdiction (or quasi-municipal authorities) and rely upon municipal and/or regional funding, whereas large scale flood mitigation projects, e.g. dunes, sea walls and revetments, often include regional and federal oversight, and municipalities can count on, at least in part, some level of federal funding and oversight, e.g. the US Army Corps of Engineers. Lastly, the overall condition of New Jersey's core infrastructure systems is not unlike that of the rest of the nation where outdated facilities may well have required extensive repair, or even replacement well before Superstorm Sandy made landfall. This most recent coastal storm experience and the knowledge of projected future storms and coastal flood risks have accelerated the need for local government officials to repair, upgrade or replace their infrastructure.

4. *Municipalities prioritize needed improvements to energy supply and back-up power, but are not looking at long-term resilient strategies.*

In the multiple-choice questions, respondents considered the category of energy resilience a high priority for assistance, but a much smaller percentage seemed interested in the example offered for decreasing local dependence on fossil fuels as compared to options focused on securing immediate, post-disaster access to emergency energy sources. Also, the open-ended responses primarily focused on improved energy system reliability through grid-level investments, rather than making strategic local facilities better able to operate independently, even in the case of a broader grid failure. None of the 700+ unique responses given to the open-ended questions in the survey referenced a local interest in technical assistance or funding support for making critical infrastructure able to operate independently, or consideration of more strategic solutions such as solar with storage, combined heat and power systems for distributed energy generation, and microgrids that can separate ("island") from the grid and operate independently. When taken together, the multiple-choice and open-ended questions reflected a dichotomy of perspectives: interest in simple back-up generators with little understanding of the limitations to that technology as a resilience solution, and a lack of interest in or awareness of more strategic solutions that would enable critical facilities to operate independent of the grid indefinitely. These responses suggest that energy-supply is one of the most important areas for building local resilience, but that there is poor understanding of the strategic opportunities for making those improvements.

The focus on post-disaster energy supply is understandable given that virtually every municipality in New Jersey lost power after Sandy for some time, in some cases several weeks. The loss of power interrupted the ability of local entities to provide essential public services, resulting in failures in waste water treatment, health care provision, first responder capabilities, and the operation of other emergency facilities. Considering this backdrop, local officials are understandably eager to become better prepared for the next big storm by ensuring local energy supplies. For the most part, local officials are focused on more familiar solutions—typically, diesel generators. The experience after Sandy demonstrates, however, that those simple solutions are not necessarily effective. While many strategic facilities suffered from not having a backup generator, even those facilities that did have generators were not resilient due to shortages of fuel, failures of poor maintenance or preparation, and a general inability to operate over an extended grid-outage period. Improving back-up power is clearly a critical need, but also a huge strategic opportunity to make investments that have broader energy resiliency value. NJ Resiliency Network staff and core partners are concerned that municipalities are not looking at more effective and strategic approaches to ensuring energy supply. Municipalities are regularly requesting funding to purchase back-up diesel generators, when many could be developing islanded renewable energy systems with battery

storage, combined heat and power solutions, and micro-grid technologies. These solutions are not only better at providing back-up power than a simple diesel generator, but also reduce fuel use and greenhouse gas emissions.

Next Steps to Meeting Municipal Resilience Needs

The results of the survey and the summary report will be circulated to partners and collaborators in state and regional government agencies, nonprofit organizations and academic institutions who are involved at some level in municipal resilience. The findings will be of interest to policy and decision-makers, program administrators, funders, professional organizations, and environmental, land use and municipal organizations. The NJ Resiliency Network will collaborate with these entities to promote and encourage new resources and technical assistance to respond to the four key findings as well as other unique needs expressed by survey respondents and outlined in this summary report.

The NJ Resiliency Network will also continue to work closely with its core partners and Advisory Board to develop resources that will help address municipal needs and provide a clear path to resiliency. To begin with, the NJ Resiliency Network is promoting a definition of municipal resilience that extends beyond natural disasters to include a broader set of conditions that enable communities to adapt and thrive in the face of extreme events and stresses. The definition is accompanied by a “cycle” (see Appendix III) of local resilience that offers the steps or phases in local resilience, and the tools and strategies that accompany them.

In direct response to the key findings of the survey, the NJ Resiliency Network will promote the continuation, development and improvement of the following strategies and approaches:

- A central hub of municipal resilience resources
- Risk and vulnerability assessment assistance
- Energy resilience tools and trainings
- Flood hazard mitigation engineering and design assistance
- On-going municipal outreach and synthesis of local funding needs