Friends of Local Government
Policy Paper Series

EDUCATIONAL FOUNDATION, INC

THE IMPORTANCE OF LONG-TERM PLANNING IN REDUCING FLOODING VULNERABILITY

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Volume 8, Number 2
December 2016

Preface

This is the 30th paper in NJLM Foundation's "Friends of Local Government" Policy Paper series. These papers are available on the Foundation's website at www.njlmef.org

In 2011, the Federal Emergency Management Agency published its National Disaster Recovery Framework (NDRF),[i] which was based on the agency's experiences with disasters throughout the country. The NDRF acknowledges that local governments have primary responsibility to plan and manage all aspects of a community's recovery, but that local officials often become overwhelmed with the demands of disaster response and need additional leadership, staff support, and expertise to manage recovery efforts effectively. This capacity deficit is the principal reason the NDRF "… *strongly recommends that State Governors as well as local government … prepare as part of their disaster recovery plans to appoint Local Disaster Recovery Managers to lead disaster recovery for the jurisdiction*."[ii]

On December 7, 2012, a little more than one month after Hurricane Sandy, New Jersey Future and Monmouth University's Kislak Real Estate and Urban Coast institutes sponsored "Rebuilding a Resilient New Jersey Shore," a half-day conference exploring the impacts of the storm.[iii] Representatives from local, state and federal agencies, including FEMA, were among the attendees. FEMA was already building its recovery support teams. Recognizing that private philanthropy could provide funds much more quickly than federal sources and that a local nonprofit partner might be more agile and knowledgeable about the needs of local governments, FEMA representatives connected New Jersey Future with the Merck Foundation. In mid-December 2012, with FEMA's encouragement, the Merck Foundation committed the funding to support New Jersey Future's local recovery planning manager (LRPM) program.

About two months after the storm, a group of 26 charitable groups, corporations and philanthropic organizations pooled their resources to create the New Jersey Recovery Fund,[iv] led by the Geraldine R. Dodge Foundation and the Community Foundation of New Jersey. New Jersey Future proposed the LRPM program to the fund, and at the end of May 2013 the fund awarded one of its largest grants to New Jersey Future's effort. This enabled the organization to create four LRPM positions, one of which would be responsible for overall program coordination and management as well as local project-specific support, and three that would be embedded with towns for at least 18 months.

This report, adapted from *In Deep*, New Jersey Future's more extensive report on the LRPM program, summarizes the program and offers lessons learned that can inform future disaster recovery initiatives, not just in coastal areas but in all flood-vulnerable areas in New Jersey and across the country.

The opinions and recommendations offered here are those of the authors and do not necessarily represent those of the NJLM Educational Foundation.

On behalf of the Board of the NJLM Educational Foundation, we thank our partners at NJ Future for their efforts.

We would also like to note the support of the Foundation's Board for this project, as well as staff from the New Jersey State League of Municipalities.

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Founded in 1987, New Jersey Future is a nonprofit, nonpartisan organization that promotes sensible growth, redevelopment and infrastructure investments to foster vibrant cities and towns, protect natural lands and waterways, enhance transportation choices, provide access to safe, affordable and aging-friendly neighborhoods and fuel a strong economy. The organization does this through original research, innovative policy development, coalition-building, advocacy, and hands-on technical assistance. For more, please see www.njfuture.org

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[i] https://www.fema.gov/national-disaster-recovery-framework

[ii] National Disaster Recovery Framework. FEMA. September, 2011. Pg. 25.

[iii] http://www.njfuture.org/events/special-events/rebuilding-the-shore/

[iv] http://www.cfnj.org/new-jersey-recovery/

OVERVIEW

Hurricane Sandy highlighted how patterns of concentrated development along the state's coastal edge have left many people and structures dangerously vulnerable to storm damage and floods. These are in large part the same patterns that have made the Shore a successful magnet for tourism investment, making it more challenging and more complex to address the vulnerabilities, and more necessary to address them in a larger, more holistic context. To be sure, many of these challenges had existed prior to Sandy; the storm merely cast them into sharper relief.

And yet therein was a unique opportunity, if there were a way to take advantage of it. Damage in many towns was so extensive that it had the potential to provoke a more realistic acknowledgement of the vulnerability inherent in dense, intense coastal development. This realization might in turn encourage these towns to question whether they were best served by merely restoring themselves to their pre-storm state or, in light of New Jersey's history of coastal flooding and projections of rising sea levels, whether it might be more prudent to rebuild differently.

Sandy-damaged towns were so consumed with managing their immediate recovery that they had neither the time nor the resources to consider the systemic changes that would be needed to help protect against future storms. If the goal was to re-think completely how towns were planning to rebuild given their history of repetitive flood damages, towns needed more help. New Jersey Future, whose mission is specifically focused on "smart" development and redevelopment, was in a position to provide the extra assistance through local recovery planning managers (LRPMs), helping the towns to move people and assets out of harm's way and leaving them with more resources to prepare for the next storm.

The LRPM program was undertaken in six New Jersey coastal communities: Sea Bright and Highlands boroughs in Monmouth County; Little Egg Harbor Township and Tuckerton Borough in Ocean County; and Commercial and Maurice River townships in Cumberland County.

WHAT THE LOCAL RECOVERY PLANNING MANAGERS DID

Coastal Vulnerability Assessment

Increasingly frequent and intense storms along the New Jersey shoreline have made it clear that coastal communities must identify current vulnerabilities as well as future flood risk associated with rising sea levels. However, these communities are reluctant to face these challenges because acknowledging the risks might affect real estate values and community viability adversely. Recognizing this dilemma, New Jersey Future sought to devise an evaluation method that would relate directly to the concerns of local officials and residents. The organization anticipated that if it presented an analysis of risk in a sufficiently compelling manner, the information would embolden elected and appointed officials to open difficult but essential public-policy discussions with their residents about vulnerability.

Working with the environmental engineering firm Princeton Hydro, New Jersey Future developed procedures to analyze and map vulnerability and risk, in order to relate convincingly the impacts of sea-level rise. This fine-grained, parcel-based mapping analysis predicts depths of inundation throughout a community under various future scenarios, then models resulting structural damage and calculates both the property owners' financial exposure and the towns' related potential tax revenue losses. The analysis is then incorporated into a Strategic Recovery Planning Report (SRPR), which outlined goals and strategies for community recovery. Expressing potential risk in terms of its probable impact on municipal tax revenues was essential in helping community officials to appreciate the economic risks of future

flooding and sea-level rise, and to reach a realistic determination of how and where to allocate scarce personnel and financial resources to respond to risk. And describing the economic implications of sea-level rise captured and focused the attention of local officials very effectively.

Vulnerability Assessment Risk Communication

New Jersey Future provided comments and input during the drafting and after the completion of the Municipal Coastal Vulnerability Assessment (CVA) Facilitator's Guide for Pilot Municipalities (hereafter Facilitator's Guide) that was developed by Sustainable Jersey. The final version of the Facilitator's Guide was released in December 2015. New Jersey Future then worked with staff from Sustainable Jersey to undertake a community assets vulnerability assessment in two municipalities participating in the Local Recovery Planning Manager program: Little Egg Harbor Township and Tuckerton Borough. This work enabled a comparison of the assessment process the two towns followed to the process the Facilitator's Guide prescribes. Meetings with working groups assembled by each town to participate in the process culminated in a detailed Community Assets Vulnerability Assessment Report that was submitted to the New Jersey Department of Environmental Protection in July 2016. This report offers observations about which of the steps outlined in the Facilitator's Guide worked in practice; describes challenges to rigorous adherence to the process that became evident during the working group meetings; and proposes a series of recommendations for modifications to the process as it is applied "on the ground" in order to streamline it and foster more effective municipal collaboration.

An important lesson: The assets vulnerability assessment is not an abstract planning process; it is focused on existing community facilities and resources that were familiar to all participants. New Jersey Future discovered that since the members of each town's working groups were well aware of, and in all cases personally experienced, the damage the towns repeatedly suffer during many decades of storm activity, including Hurricane Sandy, they had an innate sense of the implication of risk. As a result, the working groups were uniquely qualified to relate their post-storm recovery efforts to discussions about proactively reducing or avoiding future risk. This reduced considerably the amount of time spent on evaluating risk potential.

Compilation of Response Actions

New Jersey Future staff participated in regular project partner meetings to review coastal resilience geospatial tools and to discuss approaches to assure a better fit between mapping data Rutgers University was developing and the needs of the community. In addition, New Jersey Future staff participated in a climate adaptation alliance practitioner's panel convened to consider effective methods to communicate to local officials and the general public scientifically derived projections of changing climate conditions.

'Getting to Resilience' Process

The Getting to Resilience (GTR)[1] process was conducted and completed in all six towns participating in New Jersey Future's LRPM program. In all cases, the LRPM facilitated the GTR process and staff from the Jacques Cousteau National Estuarine Research Reserve led it. This process introduced community officials to flood risks and guided them through a series of questions about the municipality's plans and regulations to determine where changes may be warranted to help reduce vulnerability. The GTR process was an invaluable method with which to start conversations with municipal representatives about risk and vulnerability - which was examined in a far greater degree of specificity under New Jersey Future's risk and vulnerability analysis procedure - and contributed to preparing them for broader community outreach and detailed discussions about risk potential.

[1] http://www.prepareyourcommunitynj.org/

Coastal Hazards Response Guide Outreach

New Jersey Future's risk analyses, which highlight the potential for significant property damage, loss of property value and declining municipal tax revenues, offer a strong argument that rebuilding in place will not make coastal communities safer. The results suggest that coastal communities will need to consider reshaping their development patterns considerably, and the state will need to rethink how the shore will contribute to its tourism economy in the future. New Jersey Future felt that making this argument as straightforwardly as possible would be key to its efforts to help communities begin both the internal and public conversations about steps they will need to take in order to make themselves more resilient to growing climate-related threats.

New Jersey Future knew it needed to craft carefully the public discussion of the impacts of future sea-level rise, in order to overcome skepticism and encourage a reasoned evaluation of risks, responses and adaptation strategies. To help make these conversations as productive as possible, the organization teamed with a psychologist from the Department of Engineering and Public Policy at Carnegie Mellon University whose specialty is communicating risk.[2] She distributed a survey to residents in all the LRPM program participating municipalities, the responses to which helped her and New Jersey Future understand how residents perceive flooding and flood risk. Among the key insights: Survey respondents acknowledged that flood risk is increasing but that long-time residents have high tolerance for flooding and would have to experience a far greater probability of risk before they would consider relocating from vulnerable coastal areas. Respondents also indicated that long-term preparation is important but some believed that such activity might create a stigma that would discourage investment in their communities. This information was instrumental in shaping the content of New Jersey Future's public presentations and the manner of communication and outreach.

In September 2014, Sea Bright Borough's mayor kicked off public meetings on vulnerability with a screening of the film *Shored Up*, an award-winning documentary about coastal development and risk in New Jersey and North Carolina. After the screening came a panel discussion and question-and-answer session featuring the film's director and three local coastal and environmental experts. Subsequent to the film-screening event, the mayor led a special town-hall meeting at which New Jersey Future presented the borough's full vulnerability and risk analysis. Although the information was difficult for residents to hear because so much of the municipality is at risk of future inundation, attendees expressed their appreciation for the opportunity for a fact-based discussion. Sea Bright held subsequent public meetings about risk and mitigation as it completed its municipal hazard mitigation plan.

The first of a series of three public meetings for residents of Little Egg Harbor Township and Tuckerton Borough, entitled "Planning for Our Coastal Future," was conducted in April 2015. Almost 70 residents from the two municipalities turned out to hear the results of the vulnerability and risk analyses that New Jersey Future prepared for both towns. A follow-up meeting in May focused on reviewing short-term adaptation strategies and recovery projects the municipalities have already started. The final meeting in the series took place on a Saturday in June in order to obtain input from seasonal as well as year-round homeowners in the area. Unlike the prior meetings, participants in the final meeting were divided into facilitated breakout groups that enabled extensive discussion about their experiences during and after the storm and the types of initiatives they thought their elected officials should undertake to reduce future risks. This meeting format proved particularly productive. At the conclusion of the meeting residents unanimously and enthusiastically agreed that community discussions regarding coastal risks, community vulnerability and mitigation and adaptation strategies should continue.

In August 2015 New Jersey Future conducted a public presentation of the risk and vulnerability analyses and the major recommendation of the SRPR for the Commercial Township Committee. The committee

[2] Gabrielle Wong-Parodi, Research Scientist, Ph.D. UC Berkeley, Energy and Resources Group. Expertise: Risk theory, Risk perceptions, Risk communications; https://www.cmu.edu/epp/people/faculty/gabrielle-wong-parodi.html.

adopted the SRPR by resolution on August 20, 2015. In September 2015 officials from Maurice River Township invited New Jersey Future to present the findings of the risk and vulnerability analysis and the SRPR prepared on behalf of the township. On October 15, 2015 the Maurice River Township committee adopted the SRPR by resolution.

Coastal Community Resiliency Planning

The GTR report and the assets vulnerability assessments prepared for communities participating in New Jersey Future's LRPM program concluded with an extensive set of recommended actions and implementation strategies specifically applicable to the needs expressed by the various community working groups.

In addition to conducting the GTR and CVA evaluations, New Jersey Future worked with each town participating in the LRPM program to develop a Strategic Recovery Planning Report in accordance with the State's Post-Sandy Planning Assistance Grant program,[3] administered by the New Jersey Department of Community Affairs. Many communities throughout New Jersey participated in the PAG program, the goal of which was to provide municipalities the necessary funding to hire professional planners to help formulate a long-term rebuilding strategy. With a completed SRPR, a community was eligible to receive additional funds for a variety of planning initiatives, including modifying or replacing existing master plans or master plan elements; preparing community development and neighborhood plans; developing strategies to improve the local development permit review process; creating new or updated design standards; developing new or updated capital improvement plans; and crafting building code standards and regulations.

At its minimum, the SRPR had to include a baseline evaluation of community impacts from Hurricane Sandy that highlighted existing and potential vulnerabilities, and an outline of strategies the community could implement to improve public safety and stimulate recovery. However, the PAG guidelines offered no guidance for conducting the evaluation of vulnerability, nor did it require any analysis of future risk. New Jersey Future deemed such analysis essential to a realistic assessment of future storm and flood-related risks and insisted on including this analysis in reports it prepared for the communities participating in the LRPM program.

[3] http://www.nj.gov/dca/services/lps/pspag.html

LESSONS LEARNED

New Jersey Future prepared a detailed report, entitled *In Deep*, documenting the accomplishments of its Local Recovery Planning Manager program and detailing how the program approached the tension between increased long-term financial risk and the urgent need to rebuild an area heavily economically dependent on its geography. While the initial work was in coastal communities, the way New Jersey Future implemented the program, and the tools it employed, make it eminently replicable in any flood-prone area of the state. The report included the following recommendations to make the process easier:

- **It takes time**. It takes at least several months, and can take up to a year, for an outside professional to earn sufficient trust and to build key relationships. The pressure to rebuild quickly made this more difficult, but it is necessary.
- **Start with the short-term**. The community needs short-term successes after a major disaster, and these help to build trust for longer-term efforts.
- **Check in regularly**. After a disaster, every available resource in a community is focused in recovery, so LRPMs had to incorporate into the engagement documents specific requirements for regular meetings and updates with key local officials.
- **Manage expectations**. A detailed scope of work with clearly defined tasks and deadlines can help a community know what to expect.
- **Become the central point of contact**. The LRPMs became the intermediaries on behalf of the towns on recovery and rebuilding matters, and were critical in evaluating offers of assistance and in coordinating with state and federal officials.
- **Build stakeholder support**. The LRPMs established steering committees that comprised a cross-section of local stakeholders, both as a way to learn about local needs and concerns and to help build support for the recovery and planning process. Have local elected officials as part of the steering committee if at all possible.
- **Have a transition plan**. The LRPM engagement in each community was finite, and it was important to articulate a detailed and straightforward handoff process to help ensure the resiliency work would continue.
- **Expand the program**. Perhaps the most significant recommendation in the report is that the LRPM program should be expanded, both to more affected towns and to allow LRPMs to stay embedded for longer than was possible under the current program. FEMA's National Disaster Recovery Framework indicates that local government has the primary role for planning all aspects of recovery, but local officials can become overwhelmed in the event of a major disaster. They will require considerable assistance to contend with clean-up and community restoration, including staffing, recovery expertise, leadership and other assistance. New Jersey Future's experience reinforces FEMA's observation that bolstering local capacity is a critical ingredient of recovery.

POLICY RECOMMENDATIONS

At all levels, policy makers need to understand the importance and benefit of local effective recovery planning management, and to establish a mechanism for replicating, expanding and supporting similar programs when and where they are needed. New Jersey Future's experience with the LRPM program has pointed to several areas at both the local and state levels where additional work is needed.

Recommendations for Municipalities

- **Consider Community Rating System (CRS) certification**. Every community that includes significant flood plain areas should explore participation in the National Flood Insurance Program's (NFIP) CRS program, which offers reduced flood insurance premiums for the town and its residents in exchange for adopting strategies that mitigate vulnerability to flooding. Both the GTR and the CVA reports highlighted activities towns could undertake to gain CRS points, but the program is complicated and requires sustained effort that most towns will have difficulty supporting without technical assistance and detailed guidance.
- **Integrate risk assessment with all other planning**. To ensure their maximum benefit, towns must embed risk and vulnerability assessments in the complete range of plans and regulations on which they rely to guide all land-use and development decisions. Specifically, towns must integrate the assessments with municipal master plans; land use, zoning and subdivision regulations; building codes; design guidelines; and capital investment plans. Towns will need a blend of model codes, technical guidance, ongoing education programs, workshops, web-based tutorials and direct guidance to help them update and revise their existing documents.
- **Continue the discussion about risk**. Successful community engagement is essential to building broad support for community recovery and resilience. A sustained effort is needed by all parties involved in recovery planning and implementation to help move those affected away from emotional and sometimes skeptical reaction and toward rational discussions, and to help set a course for necessary and fundamental changes that enable the inhabitants of vulnerable communities to live safely in those areas.

State Policy Recommendations

Confronting the reality of future flooding risks along New Jersey's coast is difficult, because the stakes are high and the prognosis is not good. New Jersey Future's analyses in the communities engaged in the LRPM program show that as sea levels rise, large areas will be under water or damaged by regular flooding. Many of these areas will no longer be viable and over time property values will decline and property tax revenues will shrink dramatically. Local officials in New Jersey find these discussions particularly difficult because (unlike in neighboring states) few of our state policies have acknowledged this issue and few voices at the state level are insisting on addressing it.

New Jersey Future's local vulnerability and risk analyses have shown that all coastal communities, and indeed all communities, need to map areas at risk, set appropriate policy – whether to fortify, accommodate or retreat – and then act accordingly. Had the state required the inclusion of projected sea-level rise in all post-Sandy project planning, or in forward-looking county hazard mitigation plans that include detailed assessments of risk for each municipality, New Jersey's coastline would have moved much further down the path of increased resilience than it is now. The state should consider the following actions that would make it easier for vulnerable communities to make difficult but necessary decisions about rebuilding:

- **Adopt official sea-level rise projections**. The state and each county and municipality should map areas likely to be flooded today and in 2050 and adopt these maps as part of their land-use plans (via either the State Development and Redevelopment Plan or county and municipal master plans) and hazard mitigation plans, in order to guide public and private investments;
- **Fund forward-looking municipal planning**. As a prerequisite to the use of any recovery planning funds available through current or future sources, the state should require risk mapping for all

vulnerable communities. For coastal areas, risk assessments are likely to be increasingly important as the effects of sea-level rise become more pronounced. Consequently, the state should establish a source of adequate funding to allow all vulnerable communities to perform risk-based mapping. In addition, to build community capacity to plan for and respond to natural disasters, the state should allocate more grant funds to enable broader implementation of such initiatives as the LRPM program.

- **Revise and coordinate hazard mitigation planning**. The state should revise its Hazard Mitigation Plan (HMP) to explain how it will upgrade state-owned infrastructure - tunnels, roads, parks, rail storage and other assets - by using vulnerability as one of the key factors in prioritizing its capital investments, and it should require local governments to do the same. Furthermore, the state HMP should require that counties consider sub-regional affiliations based on boundaries defined by common exposure to risk, and encourage the formation of inter-municipal cooperatives to address these common issues. The state should also require that municipalities participate far more actively in developing county hazard mitigation plans by ensuring representation from municipal planners, who would then work with their local planning boards to ensure hazard mitigation/master plan coordination. Finally, the state HMP should require that state agencies and county and local governments develop effective mitigation strategies. Such strategies should reduce vulnerability to the impacts of natural hazards, minimize future damages – particularly in repetitive-loss areas – and confront directly the threats that sea-level rise pose in tidally-influenced areas and that severe weather hazards pose throughout the state.

- **Increase freeboard standards**. The state's Flood Hazard Area Control Act currently mandates for all structures one foot of "freeboard," or additional clearance, above the 100-year flood level. But projections show that won't be enough in 2050 when sea levels could be significantly higher than today. The state should increase these freeboard standards for coastal areas by a minimum of two feet to a total of three feet, with a finer-grained analysis required for large public infrastructure assets and areas subject to wave action. The state should engage Rutgers University to refine the infrastructure standards and then embed them into grant programs like the new Energy Resilience Bank and into state regulations such as for water and wastewater treatment plants.

- **Revise the State Hazard Mitigation Plan**. To provide input into New Jersey's 2014 State Hazard Mitigation Plan, New Jersey Future met and communicated regularly with state officials over several months. Once the state released a draft plan, New Jersey Future coordinated a joint comment letter from state and national planning and environmental organizations. The resulting plan placed a greater emphasis on risks associated with climate change and rising sea levels than its predecessor, but did not incorporate this information into decision-making. The state also drafted the plan prior to public input, and it noted many of the comments received in the "Next Steps" chapter rather than incorporating them into the plan itself. The state is presently preparing to update its Hazard Mitigation Plan, which is anticipated in 2019. All of the April 2014 recommendations remain applicable and are still worthy of consideration.