

April 11, 2014

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**Re: Draft 2014 State Hazard Mitigation Plan Update Plan Review Comments**

Thank you for the opportunity to comment on the Draft 2014 State of New Jersey Hazard Mitigation Plan.

The undersigned organizations call on the New Jersey Office of Emergency Management (NJOEM) to amend the Draft 2014 State of New Jersey Hazard Mitigation Plan (HMP) to ensure that it addresses vulnerability and future risk adequately. Some of our organizations are submitting individual comment letters, but we are using this letter to convey our shared conviction that State HMP needs considerable modifications to ensure that state agencies, county and local governments develop effective mitigation strategies to guide development and infrastructure investments so that vulnerability to impacts of future storms is reduced.

On March 11, 2014, the NJOEM posted a notice inviting the public to provide, by April 11, 2014, input on the Draft 2014 HMP. The following comments are provided in response to that invitation. We are aware, however, that the state's plan was submitted to FEMA on March 5. Consequently, we ask that the state take one of two actions so that the comments submitted during the designated comment period can have an actual and realistic probability of influencing the plan and to allow NJOEM the opportunity to review and incorporate the comments into the HMP: 1) submit a revised draft plan to FEMA in approximately 90 days which FEMA could adopt as a subsequent update; or 2) request that FEMA delay, for a sufficient period, a final determination with respect to this plan.

Hurricanes Irene and Sandy demonstrated that New Jersey residents and businesses in communities in many areas of the state are at risk from future storms. The 2014 State HMP update provides an important opportunity to reduce their vulnerability to the impacts of natural hazards and to minimize future damage - particularly where such damage has occurred repetitively. Such a plan can not only guide state actions but also serve as a model that will help promote improved local and county plans and mitigation strategies, which in turn should be coordinated with and integrated into the state plan.

We offer several recommendations for modifications to the 2014 Draft HMP that are expressly intended to achieve these overarching objectives:

1. **Replace today's project scoring processes with an objective, criteria-based, transparent methodology that is immune from political influence.** A state hazard mitigation plan should prescribe clear, logical and rigorous standards and scoring methodologies that guide how the state prioritizes mitigation strategies and allocates limited financial resources. These standards and methodologies should be explicitly tied to reduction of risk and vulnerability, with a strong link between benefits and costs. Our comments recommend a number of modifications to the 2014 Draft HMP that are intended to help the state to allocate technical assistance and financial resources more effectively based on transparent and objective standards.
2. **Provide the guidance and technical assistance municipalities and counties need so they may adopt effective local plans in an efficient and affordable manner.** Recognizing the considerable role local governments play in hazard mitigation planning, particularly in New Jersey, it is essential that the State hazard mitigation plan encourage and, where possible, require, tight integration among the State HMP and local master plans, land use and zoning regulation and capital

investments so that all short- and long-term actions coalesce to reduce risk and vulnerability. We highlight sections of the 2014 Draft HMP that should be modified to ensure that the state plays a far more active role in shaping local hazard mitigation planning.

**Integrate our growing understanding of future risks from rising sea levels and climate change into actual decision-making about land use plans and regulations and mitigation project prioritization.** In view of the considerable threat New Jersey faces, the state has a clear and compelling obligation to address sea level rise effectively and aggressively, and it has a central role to play assisting local governments, particularly those along the coast, to plan for and, where possible, mitigate this risk. The 2014 Draft HMP represents a step forward in the state's effort to identify hazards and assess vulnerability. The state has also made significant improvements in how it addresses future risks due to climate change. But there is still much more it should be doing to incorporate what we know about the impacts of climate change and how those impacts will affect the frequency and severity of floods, hurricanes, tropical storms and other severe weather events. We recommend that the state make climate change a central focus of its risk assessment; that it work with FEMA to develop analytical tools specifically for this purpose; and that it require that the resulting analysis be incorporated into county and local hazard mitigation plans.

## DETAILED RECOMMENDATIONS

### Background

The technical definition of risk is expected future damages, based on statistical hazard data and information about vulnerabilities, which are weaknesses that result in damage when something is exposed to a natural hazard. To a great degree, risk assessment is local because expected damages are related to specific locations and particular structures, people or operations. Because of this, state hazard mitigation plans are often not the best forum for discussing risk. This is because the scope and complexity of potential damages is huge, particularly in a very dense coastal state like New Jersey. A state HMP is best used as a means to:

1. Compile, merge and interpret data from county or local plans
2. Serve as a reference for mitigation planning statewide
3. Interpret a range of information about hazards, risks and mitigation activities
4. Provide guidance on planning procedures to enhance state and local ability to mitigate risk
5. Prioritize mitigation activities at the state level

The 2014 NJ HMP update followed a standard process that included review and updates of all the various plan elements required by the DMA2K legislation, including involvement and input from a range of state agencies. As indicated in the Executive Summary and elsewhere, the state contacted more than 70 organizations to solicit participation. These organizations were mostly comprised of State agencies and academia.

### Executive Summary

The Executive Summary lists five areas of emphasis for the update:

- Enhanced natural and human-caused hazards profiles and vulnerability assessment
- Loss estimation for State buildings
- Goals, objectives, strategies and actions that will guide the State's mitigation activities
- Comprehensive evaluation of progress towards achieving goals, strategies and actions
- Most robust process for implementing and monitoring the Plan

The Executive Summary also spells out the State's mitigation goals:

Goal 1: Protect life

Goal 2: Protect property

Goal 3: Increase public preparedness and awareness

Goal 4: Develop and maintain an understanding of risks from hazards

Goal 5: Enhance State and local mitigation capabilities to reduce hazard vulnerabilities

Goal 6: Support continuity of operations pre-, during- and post-hazard events (new in 2014)

**ES 1 Recommendation:** Use the State plan as a tool to evaluate and report on the prevalence and effectiveness of building codes and floodplain regulations in terms of hazard reduction. Include measures of progress that can be incorporated into future versions of the State mitigation plan. While it is very difficult to gauge effectiveness using damage reduction data (such as changes in NFIP flood insurance and FEMA public assistance payments), there are other ways to measure progress. The State HMP is a good platform to compile and report on how well county and local jurisdictions are using processes and regulations to reduce losses from natural hazards. These tools include codes and regulations, policies and priorities, and more tangible means like seeking grants and carrying out mitigation activities. Some of these elements are discussed in county and local plans, but two changes in the State HMP could enhance the impact of the local documents. The State has the authority to review and approve county and local hazard mitigation plans before they are sent to FEMA for consideration and final approval. As such, the State also has the prerogative to develop additional standards for county and local plans. These standards could include:

- Processes by which certain technical elements must be developed and reported. For example, securing and analyzing NFIP data, numbers of building permits in floodplains, risk assessments, and benefit-cost analysis of hazard mitigation measures.
- Specific reporting requirements, i.e. subject areas such as NFIP, mitigation etc. that must be reported in pre-established formats (and must be current).

### Section 1 – Introduction

No comment.

### Section 2 – Planning Process

The planning process section is typical for a State mitigation plan. It describes how the plan was reviewed, and what agencies participated. The process was carried out by the Mitigation Core Team (MCT), with close participation of the State Hazard Mitigation Team (SHMT). The SHMT was established in an oversight role by Governor's Executive Order #115. The group is comprised entirely of State departments and agencies (including Rutgers University, which houses the State Climatologist). Page 2-6 includes a list of other organizations that were "relied on" in the plan update process. These include more State agencies, FEMA, and a few other academic organizations. Table 2-4 summarizes "Plan Participants", showing all the various organizations (including members of the MCT and SHMT), with columns indicating their roles. This table includes a number of organizations that are not part of the MCT or SHMT – these are mostly quasi-State organizations, including the Delaware River Basin Commission, the Meadowlands Commission, and the Pinelands Commission, among others. The plan does not describe how these organizations were involved in the plan update process. The last column in the table, titled "Information Requested" shows Xs for these kinds of organizations, but it is not clear what this means. The plan does not explain how these organizations were selected, what information was requested from them, or if they were allowed to review and comment on the plan update.

Subsection 2.2.3 (Coordination with Other Interested Groups), says that NJOEM and NJDEP “work closely with various organizations that address mitigation on a regional level”. According to this section, “(t)hose organizations that are not directly represented on the MCT and the SHMT were requested to provide documentation of their capabilities and will be notified when the plan is available for review.” Table 2-5 (Organizations with Ongoing Mitigation Collaboration) lists all these agencies and describes their missions and memberships. The table does not indicate how the organizations were involved in the plan update process.

Although FEMA does not prescribe specific organizations to meet planning requirements, the Agency has long promoted inclusive and transparent processes. In developing the 2014 State HMP update, New Jersey has not made an adequate effort to involve organizations other than governmental and quasi-governmental ones. One of the most important aspects of a planning process occurs when parties that don’t normally cooperate or interact begin to exchange ideas. There is great potential for collaboration and information sharing in developing a mitigation plan, and the State has missed this opportunity by limiting participation to organizations related to the State. Clearly, including “outside” organizations would complicate the process, but it would also introduce a much wider range of views, and might also create opportunities for technology transfer and sharing information. If the State does decide to expand participation, there should be some general guidance about what organizations may become involved, and how input will be gathered and incorporated into the overall process.

**2.1 Recommendation:** Expand the State Hazard Mitigation Team to include a much wider range of participants. Establish general guidance about what organizations may participate, how they participate, and how their input will be used.

**2.2 Recommendation:** Solicit and publish on the State web site all comments on draft versions of the HMP update.

Recommendation: Establish and adhere to funding priorities in the plan when grant funds are available. This gives clear incentives to local and regional authorities to focus on State mitigation priorities. Funding priorities should be harmonized as part of the overall local-State plan integration process.

### **Section 3 – Coordination of Local Planning**

This section describes how the State works with local governments and counties as they develop and implement their mitigation plans. The section includes a good county and local hazard mitigation plan status table (and maps). There is also a useful table of mitigation projects by county, indicating status.

Page 3-29 notes “(in general) local plans did not offer a detailed description of local capabilities that was conducive to data collection on the State level.”

Page 3-29 paragraphs 3 and 4 discuss State efforts to create a database to better capture and compile information about local capabilities. The section includes a list of data that will be compiled, including:

- Local legal and regulatory capabilities
- Local plan goals and objectives
- Ranking of hazards of concern by municipality
- Progress on mitigation actions
- Names and positions of local floodplain administrators
- Degree of integration of local HMP into land use processes and procedures

Page 3-30 notes that “overall, no consistent methodology was used to assess vulnerability across local HMPs.” This is probably the most critical element in local plans, and has consistently been a weakness since the original State HMP was developed about ten years ago. This is an area where the State could develop a standard methodology, but there is no evidence that this has been accomplished or even seriously considered. Page 3-31 (Section 3.2.1 Plan Review) indicates that local mitigation plans “serve as the basis for the state to provide technical assistance and prioritize project funding.” As noted elsewhere in this analysis, the State plan does not contain any significant local risk information that could be used as a solid basis for prioritizing project grants or other activities. The State could use local plans for this purpose, compiling risk information from this source and using it in its own analyses and decision-making. Unfortunately, this still is not an option, as there appears to have been little progress in this area.

The section explains that there is no explicit role for the State to approve local HMPs, therefore the State Hazard Mitigation Officer’s role is defined as reviewing local Plans and making findings as to (1) compliance with required elements from 44 CFR, (2) addressing all required planning elements in FEMA guidance (in addition to 44 CFR), and (3) the local Plan not conflicting with the State HMP (or that the local document “defines reasonable measures by which to be reconciled with the HMP at the next HMP update”).

Page 3-44 (Section 3.3 Criteria for Prioritizing Mitigation Planning and Project Grants).

The disaster-specific HMGP Administrative Plan establishes how local FEMA grants will be prioritized, and the Administrative Plan is included as an annex to the State HMP. There is a brief assessment of the document below.

Among other criteria/priorities in this section is that “communities identified as having higher vulnerability through local and State HMPs”. As the HMP itself indicates, there is little consistency how vulnerabilities are discussed and analyzed in local/county plans, so it is not clear how the State could use this kind of information in prioritizing grants. The State also uses Repetitive Loss and Severe Repetitive Loss data as a means of prioritizing grants, in accordance with FEMA

The subsection lists all the criteria for prioritizing grants, and there is a table (3-11) that shows a sample New Jersey State Mitigation Project Priority Score Sheet. However, this section does not explain how the scores are assigned to the various criteria, or who does the scoring. (Language in text suggests that there may be some statutory or regulatory limits on NJOEM’s authority to prioritize grant funding, but this is not fully explained.). Furthermore, the HMP does not indicate the potential ranges in scores for the criteria, nor how decisions are made about scores. There is also no “positive” criterion, i.e. ones that reward or encourage jurisdictions that are performing well in mitigating hazards and risk reduction. There is also an explicit preference for elevations and acquisitions, “flood water management”, retrofits and warning and information systems. These projects receive extra points. The scoring table currently provides points for a benefit-cost analysis with a ratio greater than 1.0, and negative points for a “weak” BCA. The “weak BCA” criterion is too subjective to be useful, unless there is some guidance describing how someone scoring a project would come to this conclusion. The paragraph immediately below the table adds additional comments about prioritization preferences, including “the communities with the highest risks”, but it is not clear how this is determined in the scoring process. As such, this measure has little meaning. The section also mentions that priorities are also in part based on communities with “the most intense pressures for future development or redevelopment”. The HMP provides a reference to the current New Jersey State Development and Redevelopment Plan. It is not clear from this section how exactly the criterion would be applied, nor if it is actually a criterion at all (or merely a consideration) since it is not in the scoring table.

Page 3-48 includes a short discussion of the post-disaster Administrative Plan for DR-4086-NJ (Hurricane Sandy). An administrative Plan is a requirement to participate in FEMA programs such as the HMGP, and there is a separate Plan for each disaster in which mitigation funds are available. Among other features, the Administrative Plan establishes State priorities for mitigation projects. It is not clear why the draft State HMP includes a discussion of a specific Administrative Plan, although clearly Hurricane Sandy and associated HMGP funds are very significant to the State and its citizens. Furthermore, there is only a very general alignment between the State's project scoring criteria and the priority projects in the Administrative Plan. The end of this subsection includes a second list of "eligible" project types that includes a wider range of activities, although the language does not indicate these are priorities for the State.

**3.1 Recommendation:** As part of the State HMP process, NJOEM should develop and implement very specific requirements for the risk and vulnerability elements in local and county mitigation plans. The State could provide a reporting template and give technical training to planners at the local level, and could also help with data collection and analysis to encourage, or preferably require, consistency. For example, the State could provide local jurisdictions with NFIP data, and show local jurisdictions how the information can be used in a risk assessment. A similar process could be applied to the use of sea level rise data.

**3.2 Recommendation:** The State should develop and implement a more logical and rigorous system for prioritizing mitigation grants, and this system should be used for both pre-disaster and post-disaster mitigation programs. Such a system could include incentives and disincentives for risk-reduction activities at the local level, including implementing land use or building regulations, improving CRS ratings, increasing participation in the NFIP, effectiveness in seeking and implementing mitigation actions, and many others. As part of such an effort, the State should refine and explain the scoring methodology, and consider adding other preferred categories that recognize the importance of land use regulation and other risk-reduction efforts that are not site-specific. This should include climate change and sea level rise elements. Over time, the State should also begin to emphasize the use of benefit-cost analysis and other statistical risk estimation methodologies as a way to prioritize projects.

#### **Section 4 – State of New Jersey Profile**

No comment

#### **Section 5 – State Risk Assessment**

The purpose of hazard mitigation planning is to rationalize decisions about what mitigation efforts should be undertaken and how funds should be used to reduce risks. Ever since the introduction of the Disaster Mitigation Act of 2000 legislation there has been confusion about the meaning of the term "risk". The technical definition is expected future losses, but the concept is very often confused with vulnerability (the tendency of something to be damaged when exposed to a hazard) and exposure (the value of elements exposed to hazards). Although this section of the HMP is called risk assessment, there is little or no information in it that conforms to the correct definition. Based on this review, there has been little or no progress in carrying out real risk assessments since the original HMP was developed around 2004.

The hazard-specific sections include a typical range of information about past hazard events (a FEMA requirement), measures of exposure (numbers of people and buildings in the 100-year floodplain for example), NFIP statistics, and so on. Some of the sections also include general calculations of risk (flood and wind primarily) using the FEMA HAZUS tool. FEMA encourages the use of this methodology since the agency has funded its development for more than a decade, but the results are usually considered very general because of the nature of the underlying data, which is often incomplete and out of date. While HAZUS analysis is sufficient to meet FEMA requirements for a State HMP, it is unclear if the output is

useful or reliable as a way to prioritize mitigation activities. For example, communities with more building stock are by definition at more wind risk because of the exposure, i.e. the value of structures that could be affected. This information is not especially useful when the State is deciding how to use mitigation funds. Similarly, the flood section includes estimated future flood losses based on the value of structures in the floodplain. This methodology was used in the second generation of the State HMP because of a lack of detailed information to support a more rigorous analysis. Seven years have passed since then, and the HMP does not appear to have any more detailed information about potential flood losses.

Furthermore, the State HMP does not include any information gathered from county plans, which are supposed to be more focused and include more detailed information about risks and vulnerabilities. Although information about past flood insurance claims and floodplain exposure (which are now part of the plan) could form part of the basis for risk projections, this information on its own has very limited utility.

The section includes some fairly detailed information about natural hazard risks to State facilities, although the information is of limited use since almost none of the facilities have any apparent risk. There is little or no meaningful information about risks from local or county plans, even though the State plan is now in its fourth generation. FEMA requires the use of benefit-cost analysis as a way to prioritize mitigation actions in hazard mitigation plans, and this should be a source of useful data to inform the State HMP. In fact county plans probably do not include much information about risk (by its technical definition) or benefit-cost analysis

**5.1 Recommendation:** Use the State Plan update process (and the State's process for reviewing local and county mitigation plans) as a tool to compel local jurisdictions to standardize how they do risk assessments in their own mitigation plans.

**5.2 Recommendation:** Include much more detailed information about local risks in the State plan, using the county plans as a source of information.

**5.3 Recommendation:** Work with local and county jurisdictions to complete detailed risk assessments, using mitigation grant funds or FEMA technical assistance contracts if necessary.

**5.4 Recommendation:** Consider initiating a process whereby mitigation grants to local and county governments are preconditioned on having quality risk assessments in their mitigation plans.

## **Section 6 – Mitigation Strategy**

This section uses a standard structure that includes goals and objectives, State capability assessment, local capability assessment, and mitigation strategy. There are various subsections that address FEMA planning requirements.

The goals and objectives subsection is standard for a State HMP, and includes a table showing how goals and objectives from the State document align with those in county plans. Each goal also has a series of related objectives, which are also listed in a table. There appears to be a minor mismatch between the goals listed in the Executive Summary and the new Goal 6 described in this section. Goal 6 from Executive Summary: Support continuity of operations pre-, during- and post-hazard events (new in 2014). Goal 6 from Section 6 (Risk Assessment): Continue to enhance and strengthen local mitigation capabilities. The latter goal seems very similar to Goal 5 from the Executive Summary (Enhance State and local mitigation capabilities to reduce hazard vulnerabilities), and these could probably be merged.

There are subsections on the State Capability Assessment, including a detailed summary of pre- and post-disaster hazard management policies, programs and capabilities, a description of the State organizations with respect to emergency management and hazard mitigation, summaries of federal and State mitigation laws and regulations that impact development in hazard prone areas, discussions of capabilities by hazard, local capabilities assessments, etc. FEMA's capability assessment requirement for State hazard mitigation plans is intended not only to list and discuss capabilities, but to provide the State a reason and a platform for self-evaluation. There is almost no evaluation of any kind in this section.

**6.1 Recommendation:** This section should be re-evaluated and re-written to include evaluations of the State's performance in a range of mitigation-related areas.

The subsection on local capability assessments is particularly weak. The federal regulation requiring this plan element states that the State mitigation strategy shall include "...a general description and analysis of the effectiveness of local mitigation policies, programs and capabilities." However, this section of the 2014 State HMP update includes only a very general discussion regarding "home rule" and the fact that local plans include more detailed explanations of policies at this level. There is no detailed discussion or analysis of local plans in this section. The section includes a table describing State policies that impact local mitigation efforts, and a subsection on project awards and implementation that is presumably intended to address the requirement for describing local mitigation programs and capabilities.

**6.2 Recommendation:** This subsection should be an area of emphasis in the State HMP for several reasons. First, the planning process offers a means for the State to gather and analyze data about local mitigation. FEMA provides grant funding for nearly all mitigation plans and plan updates, and part of the effort should include more robust efforts to collect and assess this kind of information. Such data and analysis would give the State a great deal more insight into how local activities are influencing risk reduction efforts. Second, this subject area provides a good platform for the State to assess local mitigation efforts. Detailed analysis could form the basis for decisions about where to direct technical assistance and grant funds, and might also become part of the grant prioritization process. For example, the State could make it a policy to reward counties with particularly strong mitigation programs and policies (or those that are making good progress) – this could be done in part by giving priority to jurisdictions that are particularly effective. Third, undertaking more thorough data collection and analysis could give the State ideas about how it could better serve its constituents at the local level. For example, if the State determined that a particular jurisdiction was particularly weak in the area of risk assessment (which should form the basis of many mitigation policies), a county could be encouraged to seek additional grant funds to do such an activity, and the State could make this a priority. There are many similar examples.

At the end of Subsection 6.3, the State includes a short statement that indicates that Hurricane Sandy project awards are still pending "at this time", and gives a short list of "funding allocation categories", including planning, retail fuel, energy, local infrastructure, acquisitions, and elevations. It is not clear why a State mitigation plan would include disaster-specific information such as this. The language in this subsection is too ambiguous to be very useful to potential end users (and this information is presumably published somewhere else, as the Sandy mitigation grant process is already well underway), and does not indicate what specific mitigation activities the State considers priorities, except for a preference for acquisitions and elevations. The list does not indicate what activities are considered priorities for retail fuel, energy, and local infrastructure.

**6.3 Recommendation:** This list probably does not belong in a State HMP, but if the State retains it here, it should do more than list generalities, and there should be a clear connection to the goals and objectives

in the plan. Also, the State should ensure that these “activities” align with the implied priorities elsewhere in the document (for example in the project scoring table).

The end of this section includes an extensive table showing the current status of mitigation strategies and actions from the 2011 version of the HMP, as well as a table of new actions and initiatives. There is also a table indicating STAPLEE scores for all the activities that are new to the 2014 plan. The table showing current status doubles as the overall strategy table. It is typical of State HMPs in that the strategies and actions are mostly at a fairly high level, and many of them are somewhat vague.

**6.4 Recommendation:** There should be more (and more specific) mitigation actions and strategies in this section. Although the State probably has little direct authority over land use decisions and other county/local policies, this is another area of the HMP that could at least be used to establish some State-level preferences and priorities regarding hazard mitigation at the local or regional level.

Subsection 6.4.2 provides a required list of projects from the prior version of the plan, including a brief status report on each. Although FEMA does not require a specific level of detail for this element, this section should be much more robust in terms of explaining what exactly the State has done to carry out the strategies (projects) and meet its goals. For example, the very first item in Table 6-8 is “2009 Action 252. Undertake detailed vulnerability assessments and develop mitigation options for critical facilities in V and VE zones.” Note that this is listed as a responsibility of local/regional authorities, not the State. However, this is a particularly important activity, and as for status, the 2014 plan update says only “On-going. This action will continue to be addressed during in-house annual mitigation plan updates and during five year FEMA required updates.” This is an example of a subject area where the State could be influential in helping regions and localities initiate vulnerability assessments (through grants or direct technical assistance), and could help to normalize how such assessments are done (by establishing specific requirements). The HMP would benefit from having more detailed status reports on key actions, and also from more detailed evaluation and criticism. The State HMP could also be used as a platform for open evaluation and cross-comparisons of local hazard mitigation plans.

**6.5 Recommendation:** For a subset of particularly critical strategies and actions, the State should provide much more detailed status reports, listing specific activities that show progress.

**6.6 Recommendation:** Use the State HMP as a way to report on and evaluate local and county hazard mitigation plans.

Subsection 6.4.2 includes a list and short discussion of a few mitigation “projects/initiatives” that were recommended for inclusion in the State HMP by Federal and State agencies. The three items listed in this section are not mitigation projects so much as possible actions related to The Flood Hazard Area Control Act, Model Flood Damage Prevention Ordinance and Need for Amendments to the New Jersey UCC. As noted elsewhere in this analysis, the State has not solicited input from organizations outside the State government and academia, and has thus missed an opportunity to get a much greater range of interests in the State.

**6.7 Recommendation:** Increase the number of organizations that review and comment on the HMP and are allowed to provide suggestions on strategies and actions.

## **Section 7 – Plan Maintenance**

This section is typical of State HMPs and appears to include all the required elements. One of the subsections notes that the State intends to initiate a “local mitigation property protection and structural project tracking system” to monitor mitigation projects as they move through the administrative process

and to track project effectiveness after hazard events. Setting up and operating such a system is difficult, but the State is wise to begin the process. There is also a subsection on documenting the effectiveness of mitigation projects. Few if any State mitigation plans include any detailed discussion of this subject because it is widely misunderstood. Like many other State plans, this one includes vague discussions about studies of mitigation effectiveness and post-hazard evaluations. In fact, there is a mechanism for determining project effectiveness that is already required by FEMA as part of the agency's grant application process – benefit cost analysis (BCA). Although BCAs are not required for every mitigation grant project, they are in many cases, and this information could be used in this section. Correctly done, BCAs show the expected future losses avoided (mitigation) by the project. Note that the 2005 study cited in this section has no specific applicability to anything in New Jersey, and in fact was methodologically flawed with respect to the range of mitigation benefits that can be counted (these are generally described in OMB Circular A-94).

**7.1 Recommendation:** Proceed with development of a mitigation project tracking system, and consider incorporating other mitigation-related elements if possible. Develop a process for including the results of BC analysis into the tracking system.

### **Section 8 Repetitive Loss Strategy**

Recent legislation (the Biggert-Waters Act of 2013) provides an increased federal cost share for mitigation activities involving National Flood Insurance Program repetitive loss properties, provided a State has a mitigation plan that addresses such properties. This section of the New Jersey HMP is intended to meet that requirement. The section includes background on the legislation and program, the State's strategy for addressing repetitive loss properties, and a description of State and local capabilities for implementing mitigation actions.

This part of the plan is thorough in addressing the issue of repetitive loss properties in the State, and in summarizing the kinds of assistance that the State provides (or intends to provide). The plan notes that FEMA provides actuarial calculations of 30- and 100-year flood losses for RL properties, but that "distribution of FEMA actuarial data regarding avoided damages has not been consistently applied." The meaning of this statement is not entirely clear, but presumably the State is indicating that it has not been effective in distributing the potential loss information to counties localities. This information is used in part to determine the potential amounts of grants for elevations (30-year project life) and acquisitions (100-year project life) of repetitive loss properties, while meeting the requirement for cost effectiveness. Table 8-10 indicates that providing up-to-date lists of RL properties and the FEMA-calculated avoided damages is the highest priority mitigation action related to repetitive loss properties.

Sea level rise is discussed in other parts of this paper, but is important in the context of repetitive flood loss properties because presumably many of them are subject to coastal or tidal flooding that will be exacerbated by increased sea levels. FEMA has recently issued guidance on incorporating sea level rise estimates into risk calculations, and the agency is encouraging users of its grant programs to begin considering sea level rise in the context of all its programs. This presents an opportunity for New Jersey to update loss estimates for repetitive loss properties based on increases in sea level rise – this could greatly increase the benefits of mitigated RL properties and make acquisitions and elevations much more attractive to communities because more funding would potentially be available for property owners. Properties in this area of the country are often very expensive to mitigate, and increases in statistical risk may mean more money could be spent while projects remain cost effective (a key programmatic requirement).

**8.1 Recommendation:** Develop and implement a more structured approach to working with counties and localities, particularly when trying to disseminate and use technical information such as the FEMA RL losses avoided calculations.

**8.2 Recommendation:** Work toward developing better risk calculations for repetitive loss properties based on estimated sea level rise. Although this is technically complex, it could allow many more properties to be considered for elevation and acquisition through FEMA mitigation programs, while still meeting the eligibility requirement for cost effectiveness.

### Section 9 – EMAP Accreditation

No comment.

### Annexes and Appendices

Annex A – HMGP Sandy Administrative Plan. The “Types of Projects” subsection (C) of Section VI. Eligibility Requirements, includes a list of potential mitigation project types, but does not match the list in Subsection 6.4.2 in the body of the plan, and establishes no priorities or preferences, except insofar as acquisitions and elevations are included in a separate, prior subsection.

### A Note on Sea Level Rise and Risk

There is a great deal of history and recent evidence (Hurricane Sandy) to suggest that New Jersey is among the States that is at the most risk from the effects of sea level rise, due to its highly developed coast lines. Although there will always be uncertainty in estimating future events, there is strong consensus emerging in the scientific community that sea level rise will continue and likely accelerate. The New Jersey State HMP includes a section (5-2, Coastal Erosion and Sea Level Rise) that addresses some aspects of this hazard. The section includes background information, maps and references to studies, and estimates of potential damage to State-owned and –operated facilities. These elements are reasonably good and appear to use current information, but there is not enough specificity for the information to be of any use, particularly in the sea level rise element.

Although it is not a requirement for a State plan to include detailed county or local risk projections, the document offers a good way to establish such a process and provide guidance to these jurisdictions on how this could be accomplished. The State could also provide incentives to counties and local jurisdictions for including sea level rise estimates (where applicable) in their plans. There are likely many studies and risk assessments in progress and these should be fully incorporated into the State plan wherever possible.

**SLR 1 Recommendation:** In this and future versions of the State HMP, include a separate and much more robust section on sea level rise and its potential effects on not only State facilities, but on county, local and privately-owned facilities as well. This will be a long-term process to assemble information, standardize it, and determine how to complete the assessments. For this reason it should be started now. The State should either create an open-access database to share information or work to encourage other organizations to establish one. This could potentially be accomplished through a FEMA mitigation grant.

**SLR 2 Recommendation:** Change the State mitigation project scoring process to include additional points for jurisdictions that have incorporated sea level rise projections either in their plan(s) or as part of grant applications.

**SLR 3 Recommendation:** Fund risk studies through FEMA grant programs to the extent possible, with an emphasis on studies that include sea level rise and have direct links and influences on FEMA grant program projects. This could easily be done through expanded funding and increased standards for mitigation plans.

**SLR 4 Recommendation:** Initiate a thorough review and analysis of current literature and studies on sea level rise, with emphasis on those that include New Jersey elements. Determine how these studies can best be incorporated into the state plan, with a particular focus on practical implications, i.e. how increases in risk affect the State (and jurisdictions), and what specific programs and activities should be implemented.

**SLR 5 Recommendation:** The State should include a strategy to work directly with counties and local jurisdictions to help them incorporate sea level rise risk into their mitigation plans. The State can also use its resources to determine how best to unify information about sea level rise between State and local planning guidance.

**SLR 6 Recommendation:** Where applicable, require any benefit-cost analysis submitted as part of a FEMA mitigation grant to include sea level rise components. FEMA has recently issued guidance on this subject.

**SLR 7 Recommendation:** Sea level rise elements (especially potential inundation mapping) should be included in the State HMP as a reference for local and regional planners, to inform land use decisions.

### **A Note on Climate Change**

The draft HMP represents a step forward in how the state is identifying hazard risks and assessing the potential for damages. While the state has also made significant improvements in how it addresses future risks due to climate change, there is still much more the state should be doing to incorporate what we know about the impacts of climate change and how those impacts will affect the frequency and severity of floods, hurricanes and tropical storms, severe weather, and other events.

New Jersey, like all states, must adequately address climate change considerations in hazard mitigation plans as a condition of receiving non-emergency disaster mitigation assistance under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S. C. §§ 5121-5207.<sup>1</sup> For a state to be eligible for hazard mitigation funding, FEMA is required to approve its mitigation plan.<sup>2</sup> As part of this requirement, FEMA mandates an analysis of the probability of future hazard events.<sup>3</sup> This means that state plans must analyze and plan for the state's vulnerability, present and future, to all natural hazards that can affect the state, including the increased risks presented by climate change impacts.

As such, New Jersey should ensure that its risk analysis takes into account both the historical record of hazard events as well as the projected future impacts, because climate change is already resulting in the rise of sea levels, changing precipitation patterns, and increased risk of droughts and floods. The HMP points out these observed effects in many places, although it does not always attribute the increased likelihood to climate change.

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<sup>1</sup> Natural Resources Defense Council and National Wildlife Federation, *Petition Requesting That the Federal Emergency Management Agency Comply with the Stafford Act and Disaster Mitigation Act of 2000 By Approving Only State Hazard Mitigation Plans That Adequately Address Climate Change; Amend Its Regulations to Confirm that Climate Change Must Be Addressed in Hazard Mitigation Plans; and Provide Agency Guidance to States Regarding How to Address Climate Change in Hazard Mitigation Plans* (Oct. 2012), available at: <http://switchboard.nrdc.org/blogs/rhammer/FEMA%20Petition%20-%20FINAL%20-%2010-2-12.pdf>

<sup>2</sup> Robert T. Stafford Disaster Relief and Emergency Assistance Act (amended by the Disaster Mitigation Act of 2000), 42 U.S.C. §§ 5121-5207 (2006)

<sup>3</sup> 44 C.F.R. §201.4(c)(2)(i) (2012)

New Jersey deserves recognition for the improvements it has made in the HMP overall, and its acknowledgement of climate impacts. New Jersey is among a small, but growing, number of states that have started to integrate what we know about climate change impacts into hazard mitigation planning. The Plan states succinctly in its Executive Summary, "There is little doubt that many of these hazard events will continue to occur, perhaps with greater frequency and severity."<sup>4</sup>

But in general, the HMP assesses climate risks in a qualitative way. While potential climate impacts are recognized, they are not factored into quantitative estimates of future risks.

The notable exception to this shortcoming is the section on Coastal Erosion (Section 5.2), where the Plan recognizes that climate change is occurring and includes a future-oriented analysis of the risks associated with sea level rise and the resulting effect on coastal erosion rates.

In other sections there is explicit recognition of the impact of climate change on specific hazards.

- **Increased risk of dam failure:**

*"Changes in weather patterns can have significant effects on the hydrograph used for the design of a dam. If the hydrograph changes, it is conceivable that the dam can lose some or its entire designed margin of safety, also known as freeboard. Loss of designed margin of safety may cause floodwaters more readily to overtop the dam or create unintended loads. Such situations could lead to a dam failure."*<sup>5</sup>

- **Increased risk of levee failure:**

*"Levees in New Jersey may be affected by the impacts of climate change. Of particular concern may be the stress that a rising sea level could have on levee systems. As the seas rise there may be additional hydrostatic pressure placed on coastal and tidal river levee systems, thus increasing the potential for failure. Additionally, climatologists predict an increase in the intensity and frequency of coastal storms such as hurricanes and tropical storms. The increase of coastal storms could also place additional burdens on levee systems, thus testing their structural integrity."*<sup>6</sup>

- **Increased risk of drought:**

*"In addition, as projected temperatures increase (see climate change impacts), the probability for future droughts will likely increase as well. Therefore it is likely that droughts will occur in New Jersey of varied severity in the future"*<sup>7</sup>

But in each example above, the recognition of climate impacts is not translated into the risk assessment. Nor does the HMP consider the projected effects of climate change in the section on mitigation strategies. The fact that climate change will affect the frequency and severity of future hazards should lead to the development of mitigation actions that will address likely future scenarios, rather than simply responding to the natural hazard threats of the past.

In other sections, the HMP recognizes a change in some other parameter that is influenced by climate change and will affect the likelihood of a hazard event, but this is not then factored into estimates of future risks and vulnerabilities. This is the case with many sections including those on floods where there is some discussion of climate impacts<sup>8</sup> and recognition that the frequency of heavy precipitation events is likely to increase<sup>9</sup>; hurricanes<sup>10</sup>; severe weather<sup>11</sup>; and severe winter weather.<sup>12</sup>

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<sup>4</sup> New Jersey State Hazard Mitigation Plan (2014), Page ES-1 (hereafter NJSHMP)

<sup>5</sup> NJSHMP, p. 5.3-25

<sup>6</sup> Ibid, p. 5.3-26

<sup>7</sup> Ibid, p. 5.4-17

<sup>8</sup> NJSHMP, p 5.6-45

<sup>9</sup> Ibid, p 5.6-46

Every section that deals with meteorological or hydrological hazard events includes at least a brief discussion of climate impacts. Many sections have more in depth information provided on how climate change may affect the severity or frequency of a particular hazard event. Some provide information on how historical trends are detectable that may continue into the future.

**CC 1 Recommendation:** While we are pleased to see the addition of climate impacts in the New Jersey HMP, a significant addition and improvement over the 2011 Plan, we urge the state to take its analysis another step and actually factor anticipated climate impacts into its risk and vulnerability analyses and its mitigation strategies as well, and require that such analysis be incorporated into local and county hazard mitigation plans. We recognize the challenges of doing this and further call on FEMA to develop analytical tools to aid states in doing so.

Thank you for your consideration. We'd welcome the opportunity to meet with you to discuss our recommendations to improve the State HMP. We would also be happy to provide more detailed recommendations if requested. If you have any questions or require additional information, please contact Chris Sturm at 609-393-0008, x114 or [csturm@njfuture.org](mailto:csturm@njfuture.org), or David Kutner at 609-393-0008 x105 or [dkutner@njfuture.org](mailto:dkutner@njfuture.org).

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<sup>10</sup> Ibid, p 5.8-29

<sup>11</sup> Ibid, p 5.10-66

<sup>12</sup> Ibid, p 5.11-15