



## Executive Summary

### Acknowledgements

The State of New Jersey 2014 Hazard Mitigation Plan (HMP or Plan) was a collective effort of the New Jersey Office of Emergency Management – Recovery Bureau (NJOEM), the Mitigation Core Team (MCT), the State Hazard Mitigation Team (SHMT), and newly formed Cross-Agency Leadership Team, supported by numerous state agencies/departments and academia throughout the State. Further, the Federal Emergency Management Agency (FEMA) Region II provided technical support for this Plan update.

This update process expanded the involvement of State agencies and academia with an interest in mitigation within the State (Appendix F). The data and information, guidance and input of these participants was invaluable and has made this Plan a much stronger mechanism to promote mitigation statewide at all levels of government.

### Background

The recent events of Hurricane Irene, Tropical Storm Lee and Superstorm Sandy, and also the September 11, 2001 World Trade Center attacks that occurred adjacent to our shores, continue to underscore our State's exposure and vulnerability to both natural and human-caused hazards. There is little doubt that many of these hazard events will continue to occur, perhaps with greater frequency and severity. While we cannot prevent or alter many of the forces of nature, we can take measures to reduce the damages, losses and suffering that have historically occurred. Hazard mitigation distinguishes actions that have a long-term impact from those that are more closely associated with pre-disaster preparedness, response to an event, and recovery from an incident. Hazard mitigation is specifically meant to break the cycle of damage, reconstruction, and repeated damage.

In 2000, Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) and promulgated subsequent regulations to promote state and local planning focused on reducing our exposure and vulnerability to natural hazards. Further, Congress designated funding sources to support state and local implementation of the mitigation strategies identified in these plans. According to the federal regulations outlined in DMA 2000, state HMPs are required to be updated and re-approved by the Federal Emergency Management Agency (FEMA) every three years; local HMPs must be updated every five years. The New Jersey Standard HMP was initially adopted in April 2005 and updated every three years as outlined below:

- Initial adoption - April 2005
- First update - April 2008
- Second update - April 2011 with minor revisions and updates as of November 2011

This Plan update fulfills the State's three-year update cycle obligation established under DMA 2000.

### Planning Process

The 2014 Plan is a comprehensive update of the 2011 HMP. The 2014 Plan update has been reformatted and organized to be more readable while paralleling the structure of the requirements outlined in **44CFR 201.4** and elements in FEMA's Plan Review Tool. All information previously contained in the 2011 Plan has been incorporated. In addition, the 2014 Plan has been updated and enhanced to include best available information and data.



For the 2014 Plan update, NJOEM contracted a planning consultant to facilitate and lead the planning process with the MCT, SHMT and newly formed Cross-Agency Leadership Team. The MCT membership was expanded and tasked with leading the development of the Plan in conjunction with the State Hazard Mitigation Officer. Collectively the MCT, SHMT and Cross-Agency Leadership Team involved in this plan update effort included the following agencies:

- New Jersey Office of Emergency Management (NJOEM)
- New Jersey Department of State
- New Jersey Office of the Attorney General (NJOAG)
- New Jersey Department of Agriculture
- New Jersey Department of Environmental Protection (NJDEP)
- New Jersey Department of the Treasury
- New Jersey Department of Transportation (NJDOT)
- New Jersey Office of the State Climatologist
- New Jersey Office of the Governor
- New Jersey Governor's Office of Recovery and Rebuilding
- New Jersey Department of Community Affairs
- New Jersey Department of Banking and Insurance
- New Jersey Department of Education
- New Jersey Board of Public Utilities
- New Jersey Office of Homeland Security and Preparedness
- New Jersey Office of Information Technology

Throughout the development of the 2014 Plan update, the NJOEM Mitigation Unit, the State Hazard Mitigation Officer, members of the MCT and SHMT, and the planning consultant reached out to State agencies and academia and encouraged active participation in this update. State agencies shared inventories of State facilities, shared spatial layers identifying risk to structures from various hazards, participated in the refinement of the 2014 mitigation goals, and helped develop the 2014 mitigation actions. Overall, more than 70 participants were invited to participate in the planning process. Most notably, the Governor's Office of Recovery and Rebuilding provided guidance and assistance with coordination among state agencies as they were the lead for the recovery efforts after Superstorm Sandy.

In summary, the 2014 Plan includes:

- 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 stated goals, strategies and actions
- More robust process for implementing and monitoring the Plan

## **Hazard Risks and Disasters in the State**

Located in the "roaring 40s" (latitude), with such a great diversity in geography, demographics and the built environment, it is little surprise that the State of New Jersey is vulnerable to a wide variety of risks, both natural and human-caused. As required under DMA 2000, this Plan focuses on those natural hazards that pose greatest risk to the state including flooding (riverine and coastal), hurricanes and tropical storms and accompanying wind and storm surge, severe winter storms, wildfire and earthquake. Since the 2011 Plan was



submitted to FEMA for review and approval, New Jersey has experienced seven Federal Disaster Declarations, one of which has been the most severe the State has experienced in recent history.

The following summaries of Hurricane Irene and Superstorm Sandy help to underscore the State's pronounced vulnerability, and to set the disaster recovery and mitigation context under which the State has to operate since the 2011 plan was completed.

## **Hurricane Irene**

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Hurricane Irene struck the State of New Jersey between August 27 and 28, 2011 and moved up the coast, bringing hurricane-force winds and torrential rainfall. Irene was reclassified as a tropical storm prior to making landfall in New Jersey. The storm caused the largest coastal evacuation in State history, record flooding on many rivers, power outages affecting over 700,000 residents, and at least 12 fatalities.

At least one million residents and visitors were evacuated from coastal counties, from Cape May County to Monmouth County. During the storm, rainfall rates exceeded over one inch per hour, with flash flooding becoming a dangerous hazard. Tropical storm force winds throughout New Jersey brought down numerous trees and power lines, resulting in power outages and structural damages.

The torrential rains flooded both major and local roadways, causing hundreds of road closures and impeded travel. Portions of State Route 3 in Bergen County; U.S. 46 in Essex County; and I-80, State Route 20, State Route 23, U.S. 202 and U.S. 64 in Passaic County, all remained flooded into early September. In Morris County, a portion of I-287 collapsed.

An aerial survey of Bergen, Essex, Morris, Passaic, and Somerset Counties, performed on August 30, 2011, found that at least 2,080 homes suffered major damage, including damage to homes in areas not impacted by past flood events. Overall, Hurricane Irene resulted over \$760 million in property damages (ONJSC 2013).

On August 31, 2011, FEMA declared a major disaster declaration (DR-4021) for New Jersey, which included all 21 counties in the State. FEMA received a total of 49,280 individual assistance (IA) applications and approved a total of nearly \$180 million for IA. FEMA obligated a total of \$115 million in public assistance (PA) grants.

## **Superstorm Sandy**

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On Monday, October 29, 2012, Superstorm Sandy made landfall near Atlantic City, New Jersey, resulting in the most disruptive natural disaster to hit New Jersey in recent history (Rutgers University 2013). High winds and precipitation, as well as overflowing rivers and bays, caused direct damage to homes, businesses and town facilities, including fallen trees, blown off roofs, and flooding of critical infrastructure. Tidal surges caused flooding and excessive damage to coastal protective barriers (dunes, bulk heads, and jetties).

The storm surge associated with Superstorm Sandy, which measured 8.9 feet at its highpoint in Sandy Hook, inundated and severely affected regions of the State's shore from Cape May to Raritan Bay, including the barrier islands and many areas along the Hudson River. Water levels were highest along the northern portion of the Jersey Shore in Monmouth and Ocean Counties (Blake et al. 2013), with the deepest water occurring in areas that border Lower New York Bay, Raritan Bay, and the Raritan River. A high-water mark of 7.9 feet above ground level was measured in Keyport on the southern side of Raritan Bay and 7.7 feet above ground level was measured in Sayreville near the Raritan River. Farther south, tide gauges in Atlantic City and Cape May measured storm surges of 5.82 feet and 5.16 feet.



Superstorm Sandy caused unprecedented damage to New Jersey's housing, business, infrastructure, utilities, health, social service and environmental sectors. President Obama's October 30th disaster declaration designated all 21 New Jersey counties major disaster areas. Storm damage was particularly concentrated in communities bordering or near the Atlantic Ocean or the Hudson River, many of which were flooded by Sandy's storm surge. Atlantic, Bergen, Cape May, Essex, Hudson, Middlesex, Monmouth, Ocean and Union Counties have been identified by the U.S. Department of Housing and Urban Development (HUD) as New Jersey's most impacted areas (NJDCA 2013). As a result of Superstorm Sandy, over 325,000 housing units were damaged, totaling \$5.9 billion in damages (Rutgers University 2013).

As presented in the 2014 Plan update, the State has one of the most extensive transit systems in the United States. It is a critical component to the Region's transportation infrastructure. The State experienced substantial damage damages and closures of roadways, railways, mass transit infrastructure and transportation systems as a result of the event.

There was significant variation in degree and types of impact on the residential, commercial, and municipal sectors across New Jersey. The most common challenge was lack of power; the U.S. Department of Energy estimated that 2.6 million customers were without power throughout the State (Rutgers University 2013), with outages ranging from days to over one month.

Superstorm Sandy also had a widespread and lasting impact on New Jersey's business sector and particularly affected small businesses. The storm caused substantial damage to commercial property and caused short- and long-term business operations losses. Data suggest that businesses in 113 of New Jersey's 565 municipalities incurred a combined \$382,000,000 in commercial property losses and \$63,900,000 in business interruption losses. While most, if not all, New Jersey industries were impacted, the tourism industry has been particularly affected. While some tourism-driven businesses may require significant rebuilding, certain others on the Jersey Shore that were comparatively less affected are expected to suffer under a general misperception that the entire coastline was decimated by Superstorm Sandy. All of these losses also affected the State's labor market, which in the month after the storm saw more than double the historically expected amount of unemployment claims filed (NJDCA 2013).

Other sectors were also negatively impacted by Superstorm Sandy. The storm had, and continues to have, adverse impact to New Jersey's environment. Impacts include beach erosion, compromised levees, and debris strewn across natural habitats. Further, many municipalities are now facing storm-induced budget shortfalls due to decreased revenues, increased expenses and declining property tax bases (NJDCA 2013).

To meet other emergency compliance standards and assure a broad, comprehensive risk management planning approach, this Plan update continues to consider man-made and technological hazards, and has expanded this consideration to include the full range of hazards identified in associated and complementary emergency and risk management documents and programs within the State. Coincident to this plan update process, the State Office of Homeland Security and Preparedness has been preparing a Threat, Hazard Identification and Risk Assessment (THIRA) that further expands our understanding of risk to the broad range of hazards that can affect our State.

## **Goals**

For this 2014 Hazard Mitigation Plan (HMP) update, the MCT and SHMT met on numerous occasions to discuss the State's goals and objectives. Overall, it was determined that all of the 2011 mitigation goals continue to align with the State's priority to reduce potential future losses from hazards. Further, due to recent interest that information be added to the Plan regarding the energy and retail fuel resiliency for the State of



New Jersey, which will be funded and implemented through the Energy Allocation Initiative and the Sandy HMGP 5% initiative, an additional goal was added. Thus, the enhanced mitigation goals for the 2014 Plan update are as follows:

- 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 to 2014)

## **Mitigation Strategies**

As required by FEMA, the MCT, SHMT and Cross-Agency Leadership Team completed a comprehensive evaluation of the mitigation strategies and actions from the previous plans and reported on the status of each. In addition, State agencies were provided the opportunity to include new strategies or actions in the 2014 Plan update. New actions were prioritized to ensure they are cost-effective, environmentally sound, and technically feasible.

Because of disaster responsibilities described throughout this Plan, while great progress has been made on many of the actions and initiatives identified in the 2011 Plan, a limited number of previous mitigation actions were considered complete though many are ongoing. All mitigation actions are fully described in Section 6, Mitigation Strategy.

State agencies were provided the opportunity to include new strategies or actions in the 2014 Plan update, which were prioritized to ensure they are cost-effective, environmentally sound, and technically feasible. The updated mitigation strategy carries forward incomplete actions from the 2011 Plan, identifies new actions and initiatives, and includes actions from a number of agencies that did not identify actions in previous iterations of the State Plan.

## **Plan Implementation**

In addition to identifying and evaluating the State's capabilities to address mitigation and identifying a comprehensive mitigation strategy, another key component to mitigation is funding. As part of the 2008 and 2011 Plan update processes, the planning team reviewed current sources of federal, State, local, or private funding, and tried to identify other potential sources of mitigation funding. For the 2014 Plan update, the federal and State funding programs that provide funding were reviewed and updated and new additions were made.

Further, the 2014 Plan update includes enhanced processes and programs to advance local hazard mitigation planning throughout the State, and to administer the FEMA grant programs that fund both state and local mitigation projects and efforts. Through increased staff resources, the State continues to provide greater levels of hazard mitigation planning and plan implementation support.