SECTION 5: MITIGATION STARTEGY

5.1 MITIGATION GOALS

The Nassau County Hazard Mitigation Plan update process described in the preceding sections have affirmed that the priorities established in the originally approved version remain valid and have not changed. In addition, the hazard mitigation goals were also assessed by the Planning Group, taking into consideration both state and jurisdictional goals for mitigation. None of the goals or actions in this plan contradicts the goals of the State Hazard Mitigation Plan.

New York State 2014 Hazard Mitigation Plan Goals:

- Promote a comprehensive state hazard mitigation policy framework for effective mitigation programs that includes coordination between federal, state, and local organizations for planning and programs.
- Protect property including public, historic, private structures, and critical facilities and infrastructure.
- Increase awareness and promote relationships with stakeholders, citizens, elected officials, and property owners to develop opportunities for mitigation of natural hazards.
- Encourage the development and implementation of long-term, cost-effective, and resilient mitigation projects to preserve or restore the functions of natural systems.
- Build stronger by promoting mitigation actions that emphasize sustainable construction and design measures to reduce or eliminate the impacts of natural hazards.

The following Nassau County Multi-Jurisdictional Hazard Mitigation Planning Goals, adopted in the initial plan, have been adopted by vote of the Planning Group and will apply to each jurisdiction adopting this plan.

- Promote disaster-resistant development.
- Build and support local capacity to enable the public to prepare for, respond to, and recover from disasters.
- Reduce the possibility of damage and losses due to drought.
- Reduce the possibility of damage and losses due to flooding caused by floods and coastal storms.
- Reduce the possibility of damage and losses due to earthquakes.
- Reduce the possibility of damage and losses due to landslides.
- Reduce the possibility of damage and losses due to coastal erosion
- Reduce the possibility of damage and losses due to winter storms.
- Reduce the possibility of damage and losses due to tornadoes and high winds caused by windstorms and hurricane winds.
- Reduce the possibility of damages to emergency facilities from flooding and wind damage.

5.2 MITIGATION STRATEGY

The Mitigation Implementation Strategies address actions and priorities to reduce risk and increase resiliency throughout the County. Resultant actions are linked to risk categories along with prioritization and implementation data. In addition, responsible parties, potential funding sources, timeline targets and cost data are detailed for individual projects. Mitigation strategies were developed in ongoing planning meetings and supported in individual workshops conducted by FEMA in each of the County's Townships. The final assembly of mitigation actions were developed within each jurisdiction and submitted for inclusion in the Plan update. The Planning Group reviewed project actions to ensure that they related to the plan's goals and objectives. Consideration was also given to take advantage of future initiatives and activities related to emergency management, public safety, growth management, community development, capital improvements, code revisions, and other programs to enhance mitigation opportunities. Stakeholders considered a range of actions in in relation to the development of mitigation actions for their jurisdiction. These were identified and analyzed for each hazard type to reduce the impact of hazard events on both new and existing buildings and infrastructure. The following table represents the potential mitigation actions considered in addressing the hazards identified in this plan

Table 30
Alternative Mitigation Actions Considered

GOAL		ACTION	
1	Promote disaster-resistant development	1.A	Join the National Flood Insurance Program (for non-participating communities).
		1.B	Ensure that local comprehensive plans incorporate natural disaster mitigation techniques by requiring a courtesy-review of draft plans by the County Office of Emergency Management.
		1.C	Explore the need for hazard zoning and high-risk hazard land use ordinances.
		1.D	Organize an annual event / fair for homeowners, builders and county and local jurisdictions that includes sale of NOAA weather radios, dissemination of information brochures about disasters and building retrofits, demonstration of "defensible-space" concept and fire resistant construction materials (for roofs/exterior finishes and inflammable coverings for openings like chimneys and attics) etc.
		1.E	Develop a storm water management plan that includes subdivision regulations to control run-off; both for flood reduction and to minimize saturated soils on steep slopes that can cause landslides.
2	Build and support local capacity to enable the public to	2.A	Expand / disseminate GIS and other hazard information on internet.
		2.B	Create a mitigation outreach program that helps residents prepare for disasters.
		2.C	Develop a plan to fund backup electric and telecommunications systems in local government-owned critical facilities.

Table 30 Alternative Mitigation Actions Considered			
GOAL		**ACTION**	
	prepare for, respond to, and recover from disasters	2.D	Support and fund Community Emergency Response Team (CERT) programs that also include a mitigation component.
		2.E	Create a virtual and physical library that contains all technical Studies, particularly natural resources.
		2.F	Expand GIS to collect and develop more sophisticated hazard mapping. Use information to update plan. Ensure information will be available to the public and to relevant communities and agencies.
		2.G	Provide training for inspection and enforcement of adopted codes and ordinances.
3	Reduce the possibility of damage and losses due to drought	3.A	Encourage citizens to implement water conservation measures by distributing water saving kits that include replacement shower heads, flow restrictors, and educational pamphlets which describe water saving techniques. Also encourage conservation by offering rebates for ultra- low-flow toilets.
		3.B	Modify rate structure to influence consumer water use including: increasing rates during summer months and imposing excess use charges during times of water shortage.
		3.C	Reduce water use for landscaping by imposing mandatory water-use restrictions during times of water shortage. Also, develop a demonstration garden to exhibit water conservation techniques.
		3.D	Publish and distribute pamphlets on water conservation techniques and drought management strategies.
		3.E	Develop and adopt an emergency water allocation strategy to be implemented during severe drought.
		3.F	Implement water metering and leak detection programs followed by water main repair/replacement to reduce losses.
4	Reduce the possibility of damage and losses due to flooding caused by floods and hurricanes	4.A	Join the National Flood Insurance Program. As a participant, floodplains within the participating community will be identified and mapped. In return, the participating community will become eligible for flood insurance as long as the local governing body adopts and enforces a floodplain ordinance.
		4.B	Limit uses in floodways to those tolerant of occasional flooding, including but not limited to agriculture, outdoor recreation, and natural resource areas.
		4.C	Develop a Countywide gauging and warning system for flash and riverine flooding.
		4.D	Continue to implement best management practices for floodplain
		4.E	Identify and document repetitively flooded properties. Explore mitigation opportunities for repetitively flooded properties, and if necessary, carry out acquisition, relocation, elevation, and flood-proofing measures to protect these properties.
		4.F	Participate in the New York State Routine Stream Maintenance Program

Table 30 Alternative Mitigation Actions Considered			
GOAL		**ACTION**	
		4.G	Develop specific mitigation solutions for flood-prone roadways and intersections under the leadership of NYDOT. Develop a work plan for when sites will be surveyed and what role can the local government play in selection and implementation of mitigation activities (e.g. any monetary or contextual support through the local capital improvement plan).
5	Reduce the possibility of damage and losses due to earthquakes	5.	Retrofit old / dilapidated critical facilities.
		5. B	Public awareness through video/brochures about simple steps Homeowners can take to mitigate damage.
6	Reduce the possibility of damage and losses due to landslides	6.A	Create comprehensive geological mapping to areas prone to landslides and rockslides.
		6.B	Identify high landslide hazard areas and limit future development.
		6.C	Develop a public outreach program that addresses the economic impacts of landslides on personal property.
		6.D	Develop a vegetation management plan. Proper vegetation can supply slope-stabilizing root strength, and facilitate in intercepting precipitation. Establishing and maintaining appropriate vegetation of areas above the bluff slope may be the single most important and cost-effective mitigation measure available.
7	Reduce the possibility of damage and losses due to coastal erosion	7.A	Establish an erosion setback line which is located landward of the first stable natural vegetation at a specified distance based on long-term rate of erosion.
		7.B	Implement V Zone construction requirements for new development located in Coastal A Zones (for communities not currently implementing these requirements).
8	Reduce the possibility of damage and losses due to winter storms	8.A	Promote (or purchase, for critical facilities) NOAA weather radios.
		8.B	Educate residents about driving in winter storms and handling winter- related health effects
		8.C	Ice and windstorm-resistant trees and landscaping practices to reduce tree- related hazards
		8.D	Bury utility lines to avoid power outage due to winter storms (if risk is very high then only this action might be cost-effective)
9	Reduce the possibility of damage and losses due to tornadoes and high	9.A	Adopt an ordinance to require safe rooms in mobile home parks
		9.B	Provide low interest loans (or other form of financial assistance) for building safe rooms.
		9.C	Provide technical assistance for building safe rooms.
		9.D	Adopt an ordinance to require hurricane clips on new construction.

	winds	9.E	Install hurricane clips and wind shutters on existing development- particularly emergency facilities and shelters built before existing codes were adopted to offer some degree of wind protection.
10	Reduce the possibility of damages to emergency facilities from flooding and wind damage	10.A	Conduct a study to determine the year-built and level of protection (flood, surge, wind) for each emergency facility.
		10.B	On completion of 10.A, seek funding for mitigation projects for emergency facilities not currently designed for protection from Flooding, surge, and high wind.

5.3 MITIGATION ACTIONS

All participating jurisdictions that adopt this plan have elected to undertake the following public outreach actions:

- Each participating jurisdiction will add a link on their jurisdiction's web page to the County mitigation planning website, if they have not already done so as part of the plan development process.

- Participating jurisdictions will conduct annual interviews and/or smaller meetings with civic groups, the public and other stakeholders. This will be accomplished through incorporating discussion of the mitigation plan into other regularly attended meetings.

After reviewing the many types of action items previously considered and adding new items developed for the plan update, each participant was asked to prioritize mitigation actions. Each jurisdiction rated the overall benefits and costs of each action they had selected, and assigned priorities. To determine overall "benefits" for a certain action, each jurisdiction considered individual social, technical, administrative, political, legal, economic, and environmental benefits for the action and then indicated whether the net benefits, overall, could be characterized as high, medium, or low. To determine overall "costs" for a certain action, each jurisdiction considered individual social, technical, administrative, political, legal, economic, and environmental costs for that action and then indicated whether the net costs, overall, could be characterized as high, medium, or low.

Action items not selected for prioritization by a given community received a low priority at this time. In the future, communities may still seek to pursue actions and associated studies, funding, etc. for these actions. Each participant identified at least one action item for implementation.

As noted within the Multi-Hazard Mitigation Planning Guidance under the DMA 2000, a mitigation

act is a *"sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects."* In keeping with this guidance, the actions sought by the County's stakeholders represent what can be described as a four-pronged approach to reducing that risk: reinforcing our infrastructure, road elevation, shoreline protection, and emergency power generation. Protecting life and property by building stronger, focusing on long-term benefits, and providing our critical facilities the ability to continue operations and treatment in the face of an emergency is key to creating more resilient communities.

Hurricane Sandy exposed the devastating vulnerability of our infrastructure. Through hardening and elevating facilities, our communities will better protect our infrastructure from severe weather events. Coastal road elevation projects will contribute to safer transit, faster first response, and saved lives. Reinforced shoreline protections, such as improved bulk-heading, will protect both lives and property from wave action and floodwater damage, while emergency power generation will allow for the continued operation of critical utility, emergency and medical services following a disaster.

The Action Item Matrix contained in Appendix B contains information regarding the implementation strategy developed by participants for selected and prioritized action items. The implementation strategy is community-specific for each participant. Participants were asked to identify an implementation strategy for the action items they selected and prioritized for their respective communities. The implementation strategy developed by each participant was based on each participant's qualitative analysis of social, technical, administrative, political, legal, economic, and environmental benefits and costs associated with each selected action.

Each community addressed how the actions will be implemented and administered using tools developed by the Planning Group. For each selected and prioritized action item, participants identified the hazard addressed, if the action applies to new and/or existing assets, the primary agency responsible for action item completion, any existing local planning mechanisms through which the action item will be implemented, target date for completion, estimated cost, and funding source.