

## Appendix D

### Mitigation Strategy Guidance



## NYS Office of Emergency Management Hazard Mitigation Planning Standards

Dear Hazard Mitigation Partner:

Congratulations on taking the first steps to create or update a multi-hazard mitigation plan for your community! Based on New York State's disaster history, the State Office of Emergency Management (State OEM) recommends your mitigation plan consider incorporating the standards below from the earliest planning phases.

**PLEASE NOTE: These will be "required actions" for any hazard mitigation plan developed with funds administered by State OEM and will be part of all contracts executed with grant recipients after October 15, 2012. All grantees are encouraged to include this information in their "Request for Proposals" and to provide it to their consultants before planning begins in earnest.**

1. Counties and communities should invite (at a minimum) the following stakeholders when initiating the planning process and identifying strategies and specific projects:
  - County Hazard Mitigation Coordinators and Floodplain Professionals
  - County Emergency Managers
  - County Planners & GIS staff
  - County Soil & Water Conservation Districts
  - Regional & Metropolitan (Transportation) Planning Organizations
  - Delaware and Susquehanna River Basin Commissions (if applicable)
  - Local Hazard Mitigation Coordinators and Floodplain Managers
  - Local Code Enforcement Officials
  - Local Emergency Management (Emergency Manager, Fire & Police Chiefs)
  - Local Planners and planning consultants (if applicable)
  - Local Engineers and engineering consultants (if applicable)
  - Local Public Works or Highway Superintendents

Inviting and encouraging participation of the local officials noted above is the best way to ensure success in the planning phases that develop a community's mitigation strategies and identify its specific projects. Plans developed without the participation of land use or community planners, and DPW officials, engineers, or others personally familiar with past damages to local infrastructure are less likely to contain viable, innovative or useful projects.

The goal is to include the widest range of organizations and stakeholders to develop a hazard mitigation plan that best suits your community's unique needs. **Plans developed with State OEM-administered funds must document that the stakeholders above were invited to participate at each phase, and whether they did or not.**

2. As part of the analysis of critical facilities, counties and communities should identify mitigation strategies and projects for any such facility that has ever sustained flooding, even if it is not located in a 100-year floodplain on a current (adopted) or draft FEMA Flood Insurance Rate Map (FIRM). Per FEMA's Part 9 regulations, critical facilities as defined by FEMA should be protected to a 500-year flood event. Identified projects should include the information described in 5a below. If mitigation projects have already been performed to address or reduce previous flooding, with or without FEMA assistance, the plan should also analyze these and document:
  - the original problem and the estimated annual damages;
  - the project, its cost, and the damages avoided since implementation;
  - other option(s) considered, their estimated costs, why they were deemed not feasible;
  - how well the project performed in subsequent events, if your basic assumptions were accurate, and what you'd change if you were doing it again;
  - social, economic or environmental considerations that support/challenge the project.

Critical public facilities include those for police, fire protection/emergency services, medical care, education, libraries, utilities and other essential community services, the administrative and support facilities essential to their operation (as defined by FEMA), as well as major communication centers and facilities designed for bulk storage of chemicals, petrochemicals, hazardous or toxic substances or floatable materials (as defined by NYS DEC).

Critical private non-profit (PNP) facilities include those for fire protection/emergency services, medical care, education, utilities, child care facilities, alcohol and drug rehabilitation facilities, custodial care, homeless shelters, libraries and other facilities that provide health and safety services of a governmental nature. Communities may also want to analyze risks to major employers and assess the economic impact of prolonged down-time due to disasters.

The goal is to ensure that critical facilities remain accessible and functional before, during and after disasters to meet the community's continuity of government (COG) and continuity of operations (COOP) needs, and to support important emergency, response, government and sheltering functions. **Plans developed with State OEM-administered funds must document that proposed (or already implemented) projects will protect critical facilities to a 500-year flood event or the actual worst-damage scenario, whichever is greater.**

3. Counties and communities containing a 100-year floodplain on either a current (adopted) or draft FEMA Flood Insurance Rate Map (FIRM) should identify:
  - a. Sites for the placement of temporary housing units to house residents displaced by disaster. This can be an existing mobile home park, public or private land or parkland, or a site easily convertible to accept the temporary housing units, which, per the New York State Uniform Fire Prevention and Building Code, must have floor assemblies placed no less than 2' above the Base Flood Elevation (i.e., of the 100-year flood level). If sites are in a neighboring community, they should be discussed with that community and consistent with its mitigation and emergency plans, evacuation routes, etc.
  - b. Potential sites within the community suitable for relocating houses out of the floodplain, or building new houses once properties in the floodplain are razed. The exploration should identify all suitable sites currently owned by the jurisdiction, and potential sites under private ownership that meet applicable local zoning requirements and floodplain laws.

The goal is to provide more immediate short-term and long-term housing options to residents in flood-prone homes, to continue their active involvement in their neighborhoods, schools or places of worship, and to avoid or reduce personal hardship and impacts to the local economy and tax base. **Plans developed with State OEM-administered funds must identify potential sites and any pre-disaster actions required to make them viable, and include a letter from the local floodplain administrator listing any actions required to ensure conformance with the NYS Uniform Fire Prevention and Building Code, the applicable local floodplain law, etc.**

4. Communities with residential neighborhoods or critical facilities (see 2 above) that have been flooded, inundated, or isolated by water, even if they are not located in a 100-year floodplain on a current (adopted) or draft FEMA Flood Insurance Rate Map (FIRM), should develop evacuation routes and procedures (or analyze/update current evacuation routes and shelter procedures based on recent flooding) and identify shelters, including provisions for a range of medical needs, accommodation for pets, and compliance with the Americans with Disabilities Act (see [www.ada.gov](http://www.ada.gov)).

The goal is to protect residents and minimize stress and personal hardship during disasters. **Plans developed with State OEM-administered funds must identify evacuation routes and shelters (or refer back to such components in an existing valid plan), any pre-disaster actions required to make them viable, evidence of coordination with adjoining communities, and a project lead/point of contact and timetable for implementing new items or revisions.**

5. Counties and communities should incorporate the following items and features in the strategies and projects sections of their plans:
  - a. The Plan should include all mitigation projects on the community's wish list, even those that may not meet FEMA eligibility or Benefit-Cost Analysis requirements, since funding should be sought from multiple sources to achieve a community's mitigation goals most quickly. Each project identified should include a brief description of:
    - the problem and the estimated annual damages;
    - the preferred option, its estimate cost, and the estimated annual damages that will be avoided if it is implemented;
    - how the proposal might be eligible under grant criteria other than mitigation (e.g., coastal, sustainability or climate change initiatives, brownfield funds);
    - other option(s) considered, their estimated costs, and their challenges or why they were deemed not feasible;
    - the social, economic or environmental considerations that support/challenge it;
    - any steps that need to be taken (e.g., engineering studies) before the project can be implemented, the person(s) or organization(s) with lead and supporting roles in completing those steps, and an estimated timetable for completion.

The goal is to have all the community's projects in one place to easily and quickly identify viable candidates when grants are available from FEMA and other private, local, State or Federal agencies. **Plans developed with State OEM-administered funds must use the attached template prepared by FEMA Region II as a starting point for developing a format to describe the projects identified in individual communities.**

- b. The Plan should include a list of potential local, State and Federal funding sources that apply to the projects identified as well as public-private partnerships worth pursuing. This should include a brief description of the programs and links to webpages for those opportunities. (N.B.: lack of an identified funding source or program should not prevent a project's inclusion in a community's list of possible mitigation actions.)

The goal is to link identified projects with viable funding sources, and not to rely solely on the availability of FEMA funding, making implementation that much more likely.

**Plans developed with State OEM-administered funds must include this list, which must incorporate active web links to the appropriate agency page.**

- c. The Plan should include a section that documents previous mitigation projects completed by the county or the jurisdiction within community's borders, whether funded locally or by private, state or federal agencies and organizations. Each project should include a brief description of:
  - the original problem and the estimated annual damages;
  - the project, its cost, and the damages avoided since implementation;
  - the other option(s) considered, their estimated costs, and their challenges or why they were deemed not feasible;
  - how well the project performed in subsequent events, if your basic assumptions were accurate, and what you'd change if you were doing it again;
  - the social, political or environmental considerations that supported/challenged the proposal, and the stakeholders, approaches and other factors that contributed to its successful implementation.

The goal is to provide a context for the community's projects, to act as a source of ideas for mitigation projects and evaluate the accuracy of assumptions and engineering solutions to inform future, similar projects, and to support future mitigation planning and its coordination with other planning, zoning and environmental procedures within the community. **Plans developed with State OEM-administered funds must use the attached template prepared by FEMA Region II as a starting point for developing a format to describe its communities' already-completed projects.**

6. Jurisdictions should also take into account how climate change may affect their vulnerability to the following hazards, specifically the increased frequency of occurrence and/or severity for: Flooding, Wildfire, Drought and Extreme Temperatures.

If it is determined that climate change is likely to increase the frequency or severity of a specific hazard, jurisdictions should identify how they will adapt to or mitigate for these issues. Counties and communities with coastal property should also analyze their vulnerability to sea level rise.

The goal is to plan for and accommodate climate change and sea level rise to protect residents, avoid or reduce damage to property and public infrastructure, and reduce personal hardship. **Plans developed with State OEM-administered funds must include this information within their discussion of these hazards and must contain strategies and projects to address them.**

7. Draft plans should be placed on an existing county/community website, or one created for the purpose of soliciting comments, for 30 days or the time prescribed by local law, whichever is greater. The webpage should identify the name, mailing address, day phone and/or e-mail address for the person responsible for receiving and reviewing comments on the draft hazard mitigation plan. The final plan should also be placed on an existing county/community website, or one created for the purpose of educating the public about the community's mitigation initiatives, and should contain the contact information specified above for the person responsible for maintaining the plan and answering questions about it once it has been adopted.

The goal is to educate the public about how mitigation can both save lives and avoid repetitive property damage in times of diminishing local infrastructure budgets. **Plans developed with State OEM-administered funds must be posted (draft plan during the public comment period, and final adopted versions after adoption) and must include the specified contact information.**

8. For plans developed with State OEM-administered funds: final payment will occur only after 50% of the participating jurisdictions have adopted the FEMA-approved plan and provided adoption resolutions to State OEM. For county-led hazard mitigation planning efforts, the county must be one of the adopting jurisdictions.

Some of the standards listed above may be considered Response activities that do not meet the formal definition of Mitigation actions. They also may not be eligible for grant assistance under FEMA's hazard mitigation programs, and they will not "count" toward the strategy development or project identification that's required of participants in the mitigation planning process: communities must still identify projects that meet the traditional definition of mitigation for each natural hazard analyzed in their local plans.

However, these will be "required actions" for any mitigation plan developed with funds administered by State OEM, and part of all contracts executed with our grant recipients after October 15, 2012.

Questions? Contact the Hazard Mitigation Section at 518-292-2304 or [NYSOEMHazMit@dhses.ny.gov](mailto:NYSOEMHazMit@dhses.ny.gov).

### Other Resources

The following online resources may also be helpful as you begin the mitigation planning process:

- [Mitigation Planning](#) 
- [2008 Local Multi-Hazard Mitigation Planning Guidance](#)
- ["New" 2011 Local Mitigation Plan Review Guide](#)  - Use this review guide & tool as FEMA will use it to review plans exclusively, beginning October 1, 2012 - see "fact sheet" below for details.
- [Fact Sheet - "New" 2011 Local Mitigation Plan Review Process](#) 
- NYS Sea Level Rise Task Force materials and findings: [www.dec.ny.gov/energy/75794.html](http://www.dec.ny.gov/energy/75794.html).
- ["Hazard Mitigation: Integrating Best Practices into Planning"](#)  by the American Planning Association (Planning Advisory Service Report Number 560).
- "Disaster Resilience: A National Imperative" by the Committee on Increasing National Resilience to Hazards and Disasters, the Committee on Science, Engineering, and Public Policy, and The National Academies: [www.nap.edu/catalog.php?record\\_id=13457](http://www.nap.edu/catalog.php?record_id=13457).

<b>Action Title:</b>	
Your Plan Name	
Your Community Name	
Community Action Number	
<b>Risk</b>	
Hazard(s) Addressed	
Risk Finding	
<b>Action - description</b>	
Action Category	
Action Type	
Action Description	
Existing, Future &/or N/A	
<b>Action - evaluation</b>	
Risk Reduction (losses avoided)	
Technical	
Political	
Legal	
Environmental	
Social	
Administrative Capability	
Local Champion	
Other Community Objectives	
<b>Implementation</b>	
Priority	
Local Planning Mechanism	
Responsible Party & Partners	
Cost Estimate	
Potential Funding Sources	
Time Line	
<b>Progress</b>	
Action Progress Status	

## Floodproof Structures

<b>Your Plan Name</b>	County A Hazard Mitigation Plan
<b>Your Community Name</b>	Village E
<b>Community Action Number</b>	Village E#1
<b>Risk</b>	
<b>Hazard(s) Addressed</b>	Flood
<b>Risk Finding</b>	Property damage of about \$100,000 per year. Business interruptions an average of 5 days per year.
<b>Action - description</b>	
<b>Action Category</b>	Structure/infrastructure projects
<b>Action Type</b>	Floodproofing
<b>Action Description</b>	Floodproof 10 businesses in the downtown area
<b>Existing, Future &amp;/or N/A</b>	Addresses existing structures
<b>Action - evaluation</b>	
<b>Risk Reduction (losses avoided)</b>	City's cost to repair flooded properties reduced by 90%; approximate saving of \$10,000 per year.
<b>Technical</b>	Technically feasible. Flooding problem in downtown area solved for the long-term; community's problem of business interruption solved.
<b>Political</b>	- More than half the members of the City Council are opposed to buy-outs; it might be easier to get their support for an alternative to buy-outs. - Will help improve CRS rating in the long term (so entire community's flood insurance premium will be reduced).
<b>Legal</b>	ok
<b>Environmental</b>	No adverse environmental effects
<b>Social</b>	ok
<b>Administrative Capability</b>	Need at least 3 people to administer (after technical assistance from the State)
<b>Local Champion</b>	Possibly from business community
<b>Other Community Objectives</b>	ok
<b>Implementation</b>	
<b>Priority</b>	High
<b>Local Planning Mechanism</b>	
<b>Responsible Party &amp; Partners</b>	Village E (Public Works)
<b>Cost Estimate</b>	Floodproofing cost = \$10,000 X 10 = \$100,000
<b>Potential Funding Sources</b>	HMGP, RFC, SRL and FMA. For 25% local match, in-kind services.
<b>Time Line</b>	1 year
<b>Progress</b>	
<b>Action Progress Status</b>	New action proposed in 2012

## Acquire Repetitive Loss Properties

<b>Your Plan Name</b>	County A Hazard Mitigation Plan
<b>Your Community Name</b>	Village B
<b>Community Action Number</b>	Village B#1
<b>Risk</b>	
<b>Hazard(s) Addressed</b>	Flood
<b>Risk Finding</b>	12 Repetitive Loss Properties located in a neighborhood with combined losses of \$4.3 million over past 30 years.
<b>Action - description</b>	
<b>Action Category</b>	Structure/infrastructure projects and planning mechanisms
<b>Action Type</b>	Acquisition
<b>Action Description</b>	Acquire 12 of the Repetitive Loss Properties in neighborhood A
<b>Existing, Future &amp;/or N/A</b>	Existing structures and future development
<b>Action - evaluation</b>	
<b>Risk Reduction (losses avoided)</b>	Removes flooding problem. May not pass benefit-cost analysis (BCA)
<b>Technical</b>	ok
<b>Political</b>	Potential effect on tax base. Support from residents for this voluntary program.
<b>Legal</b>	ok
<b>Environmental</b>	Adjacent to park so open space created can be used to extend park.
<b>Social</b>	ok
<b>Administrative Capability</b>	ok
<b>Local Champion</b>	no
<b>Other Community Objectives</b>	Supports open-space preservation
<b>Implementation</b>	
<b>Priority</b>	High
<b>Local Planning Mechanism</b>	Modify comprehensive plan and zoning to identify land as open space during next scheduled updates.
<b>Responsible Party</b>	Village B (Planning Department)
<b>Cost Estimate</b>	\$ 4.2 million
<b>Potential Funding Sources</b>	HMGP, RFC, SRL and FMA. For 25% local match, in-kind services, village open-space fund, Community Development Block Grant (CDBG) and NFIP Increased Cost of Compliance (ICC).
<b>Time Line</b>	3 years
<b>Progress</b>	
<b>Action Progress Status</b>	Ongoing. Obtained HMGP grant and acquired 5 of 12 flood-prone properties to date. See Progress Report for more information.

## Acquire Repetitive Loss Properties - Short BCR

<b>Your Plan Name</b>	County A Hazard Mitigation Plan
<b>Your Community Name</b>	Village B
<b>Community Action Number</b>	Village B#1
<b>Risk</b>	
<b>Hazard(s) Addressed</b>	Flood
<b>Risk Finding</b>	12 Repetitive Loss Properties located in a neighborhood with combined losses of \$4.3 million over past 30 years.
<b>Action - description</b>	
<b>Action Category</b>	Structure/infrastructure projects and planning mechanisms
<b>Action Type</b>	Acquisition
<b>Action Description</b>	Acquire 12 of the Repetitive Loss Properties in neighborhood A
<b>Existing, Future &amp;/or N/A</b>	Existing structures and future development
<b>Action - evaluation</b>	
<b>Benefits</b>	Removes flooding problem. Support from residents for this voluntary program. Adjacent to park so open space created can be used to extend park.
<b>Costs</b>	Monetary cost, potential effect on tax base, may not pass benefit-cost analysis (BCA)
<b>Implementation</b>	
<b>Priority</b>	High
<b>Local Planning Mechanism</b>	Modify comprehensive plan and zoning to identify land as open space during next scheduled updates.
<b>Responsible Party</b>	Village B (Planning Department)
<b>Cost Estimate</b>	\$ 4.2 million
<b>Potential Funding Sources</b>	HMGP, RFC, SRL and FMA. For 25% local match, in-kind services, village open-space fund, Community Development Block Grant (CDBG) and NFIP Increased Cost of Compliance (ICC).
<b>Time Line</b>	3 years
<b>Progress</b>	
<b>Action Progress Status</b>	Ongoing. Obtained HMGP grant and acquired 5 of 12 flood-prone properties to date. See Progress Worksheet for more information.

## TOWN OF WARWICK MULTI-HAZARD MITIGATION PLAN

### Mitigation Action/Project Worksheet Instructions

1. Please complete all fields of the form per our discussions
2. FEMA Region II Requirements:
  - a. There must be **at least 1 A/Ps** for each hazard profiled. The profiled hazards are: Dam Failure, Drought, Extreme Temperature, Severe Wind, Flood, Winter Storm, Hurricanes, Tornado, Lightning and Wildfire.
  - b. Each jurisdiction must develop its own, unique A/Ps relevant to that jurisdiction
  - c. Actions/Projects (A/P) should be as specific as possible, measurable with regard to performance and success, and have a projected schedule for completion of some kind. For example, an A/P described as: *“Reduce flooding in the community of Floodville”*, is probably too vague and general, is difficult to evaluate regarding performance and success, and is difficult to establish a schedule for. Alternatively, an A/P described as: *“Reduce flooding of structures at 1<sup>st</sup> and Main by installing a new culvert at the Highwater Creek crossing”*, is more detailed, measurable, and can be more readily assigned a completion schedule.
  - d. Response oriented A/Ps will be accepted, but will not be counted towards the mitigation A/P requirements.
  - e. Be as specific as possible with descriptions...tell the “what” and “why” in project descriptions.
  - f. Project descriptions should be clear and detailed enough, such that anyone tasked with completing the project will generally understand what needs to be done.
  - g. Generally should consider a 5-year timeframe, as the Plan will require updating in 5-years.

## Mitigation Actions / Projects Worksheet STAPLEE Criteria

The following are evaluation criteria that the Planning Team should consider for each Mitigation A/P.

- **Social** – Community acceptance
  - Will the action adversely affect one segment of the population?
  - Will the action disrupt established neighborhoods or break up voting districts, or cause the relocation of lower income people?
  - Is the action compatible with present and future community values?
- **Technical** – Feasibility and impacts of the A/P
  - How effective is the action in avoiding or reducing future losses?
  - Will it create more problems than it solves?
  - Does it solve the problem or only the symptom?
- **Administrative** – Staffing, funding, and maintenance capabilities
  - Does the jurisdiction have the capability to implement the action or can it be readily obtained?
  - Can the community provide the necessary maintenance?
  - Can it be accomplished in a timely manner?
- **Political** – Community and State political leadership
  - Is there political support to implement and maintain this action?
  - Have political leaders participated in the planning process so far?
  - Is there a local champion willing to help see the action to completion?
  - Have all stakeholders been offered an opportunity to participate in the planning process?
- **Legal** – Lawful authority to implement A/P
  - Does the community have the authority to implement the proposed action?
  - Is there technical, scientific, or legal basis for the action?
  - Are proper laws, ordinances, and resolutions in place to implement the action?
  - Are there potential legal consequences?
  - Is the action likely to be challenged by stakeholders who may be negatively affected?
- **Economic** – Local and state budget constraints
  - Are there currently sources of funds that can be used to implement the action?
  - What benefits will the action provide?
  - Does the cost seem reasonable for the size of the problem and likely benefits?
  - What burden will be placed on the tax base or local economy to implement this action?
  - Does the action contribute to other community economic goals, such as capital improvements or economic development?
- **Environmental** – Impact on the environment
  - How will this action affect the environment (land, water, endangered species)?
  - Will this action comply with local, state and federal environmental laws or regulations?
  - Is the action consistent with community environmental goals?