

## 9.1 LEHIGH AND NORTHAMPTON COUNTIES

This section presents the county-level annex for Lehigh and Northampton Counties.

### A. HAZARD MITIGATION PLAN POINTS OF CONTACT

Lehigh County		Northampton County	
<b>Primary Point of Contact</b>		<b>Primary Point of Contact</b>	
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### B. REGIONAL PROFILE

Please refer to Section 2 of this plan for details on population, location, climate, history, growth, and development in the Lehigh Valley.

#### B.1 Known or Anticipated Future Development

Please refer to the Regional Profile (Section 2) and the municipal annexes (Section 9) of this plan for known and anticipated future development in the Lehigh Valley.

### C. NATURAL HAZARD EVENT HISTORY SPECIFIC TO THE REGION

Please refer to the Previous Occurrences and Losses section of the appropriate hazard profiles in Section 4.3 of this plan.

**D. HAZARD RISK/VULNERABILITY RISK RANKING**

The following relative ranking of natural and non-natural hazard risks in the Lehigh Valley was developed using PEMA's Risk Factor methodology described in Section 4, "Risk Assessment".

HAZARD RISK	NATURAL HAZARDS	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
HIGH	Winter Storm	3	2	4	1	3	2.7
	Flood	3	2	2	3	3	2.5
MODERATE	Radon Exposure	4	1	2	1	4	2.4
	Extreme Temperatures	4	1	2	1	3	2.3
	Drought	2	1	4	1	4	2.2
	Wildfire	3	1	2	3	3	2.2
	Hailstorm	3	1	3	2	1	2.1
	Wind, incl. Tornado	1	3	2	4	1	2.1
	Lightning	4	1	1	2	1	2
LOW	Earthquake	1	1	4	4	1	1.9
	Subsidence / Sinkholes	2	1	1	2	1	1.4
	Landslide	1	1	1	4	1	1.3

HAZARD RISK	MAN-MADE HAZARDS	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
HIGH	Fire (Urban/Structural)	4	2	1	4	2	2.6
	Environmental Hazard and Explosion	3	2	2	4	3	2.6
	Levee Failure	1	3	3	4	3	2.5
	Utility Interruption	3	1	3	4	3	2.5
MODERATE	Transportation Accident	4	1	1	4	1	2.2
	Dam Failure	1	3	2	4	2	2.2
	Mass Gathering and Civil Disturbance	3	1	1	4	2	2
LOW	Terrorism	1	3	1	4	1	1.9
	Building Collapse	1	3	1	4	1	1.9
	Nuclear Incident	1	1	1	4	2	1.4

## E. CAPABILITY ASSESSMENT

Please refer to Section 5 of this plan for a complete discussion on the regional hazard mitigation capabilities within the Lehigh Valley.

## F. MITIGATION STRATEGY

### F.1 Past Mitigation Activities/Efforts

The following summarizes progress on the mitigation strategy identified by Lehigh and Northampton Counties in the 2006 plan.

#### Hazard Identification Actions:

**Action #1: County EMAs coordinate with FEMA to accurately locate all repetitive loss properties in the Lehigh Valley. Year 4 (2011)**

Disposition for 2012 Update: Complete

2008 Status: The LVPC obtained updated data on repetitive loss properties since April 30, 2004. There are currently 330 properties identified as repetitive loss properties in Lehigh and Northampton counties. The LVPC has mapped these properties; however, 29 of the properties could not be located. The LVPC also obtained data on severe repetitive loss properties. There are 42 severe repetitive loss properties in the two counties. The properties have been mapped; however, four of the properties could not be located.

2012 Status: Complete. Tetra Tech has been provided NFIP policy, claims and Repetitive Loss/Severe Repetitive Loss data from FEMA Region II, current to December 31, 2011. This data was geo-coded by FEMA, and has been used within the flood profiling and risk assessment work for this plan update.

#### Vulnerability Assessment Actions:

**Action #2: Lehigh and Northampton County GIS departments map building footprints to better evaluate structures at risk from flooding. Year 3 (2010)**

Disposition for 2012 Update: Complete

2008 Status: The Lehigh County GIS department has begun the process of mapping building footprints. All condominiums and mobile homes for the entire county have been mapped. The City of Allentown has completed mapping for the city and the mapping will be incorporated into the county mapping. The county will proceed municipality by municipality until the mapping for all other structures is complete. There is not a scheduled completion date. Northampton County EMAs are in the process of coordinating with the county GIS department to create floodplain building footprints.

2012 Status: The Lehigh County GIS Department has completed the process of mapping building footprints for the entire county. They are now in the process of updating the files to include pictures from the 2011 aerial flight.

**Action #3: County EMAs investigate the implementation of the FEMA HAZUS software in plan updates to better define potential losses from flooding, hurricanes and earthquakes. Year 4 (2011)**

Disposition for 2012 Update: Complete

2008 Status: No progress

2012 Status: HAZUS-MH has been used extensively in the development of the 2012 LV HMP Update. All data sets and HAZUS-MH projects shall be provided to the counties at the end of the project for their longterm use.

**Action #4: County EMAs refine the critical facilities mapping from assessment data to include only properties that actually represent critical facilities for emergency management purposes. Year 2 (2009)**

Disposition for 2012 Update: Complete

2008 Status: Lehigh County is updating their rosters and SARA facilities. Northampton County is reassessing their critical facilities inventory.

2012 Status: Tetra Tech worked with both county's EM and GIS departments to develop an updated critical facility inventory to support the risk assessment effort for this plan update. This dataset shall be provided to both counties at the end of the project.

**Action #5: County EMAs encourage property owners in carbonate bedrock areas to obtain sinkhole insurance. Year 1 (2008)**

Disposition for 2012 Update: Ongoing; carried forward in 2012 update

2008 Status: Lehigh County – no progress. Northampton County anticipates working on this item in the near future.

2012 Status: Lehigh and Northampton Counties anticipates offering an insurance informational meeting to the public in the upcoming year to encourage homeowners obtain sinkhole and flood insurance.

**Action #6: County EMAs work with the Pennsylvania State University Agricultural Extension Office to develop economic loss data due to droughts. Year 4 (2011)**

Disposition for 2012 Update: Discontinued

2008 Status: No progress.

2012 Status: No progress.

**Action #7: Municipalities adopt floodplain regulations that prohibit new development and structures in the 100-year floodplain and adopt carbonate bedrock standards to minimize sinkhole occurrences to reduce hazard impacts on new development. Year 1 (2008)**

Disposition for 2012 Update: Ongoing; carried forward in 2012 update

2008 Status: The first in the series of model ordinances, floodplain regulation, was released in September 2007 by the LVPC. The model regulations were designed to be more effective at preventing flood damage and to better deal with the redevelopment of existing properties that have been subject to repeated flooding. The regulations exceed the National Flood Insurance Program minimum requirements.

2012 Status: During 2009, the LVPC held workshops for municipalities to discuss the floodplain ordinance as well as other model ordinances related to natural features preservation including steep slopes and woodlands. The steep slopes ordinance was released in November 2008, and the woodlands ordinance was released in March 2009. The LVPC also created a model ordinance on conservation subdivisions (released in November 2010). The LVPC continues to promote all the model ordinances which are available on the LVPC website ([www.lvpc.org](http://www.lvpc.org)).

**Capability Assessment Actions:**

**Action #8: County EMAs, in conjunction with the regional Counterterrorism Task Force, implement a Reverse Notification System; also known as Interactive Communication Notification System. Year 1(2008)**

Disposition for 2012 Update: Complete

2008 Status: Lehigh County purchased the Reverse 9-1-1 System and is in the process of implementation. Northampton County purchased a Reverse Notification System, and it was implemented in October 2007. The county is working on guidelines for its use. The county updated the subscriber database with phone records and county shape file updates (new parcels). These are done biannually. They also added contours to the map updates.

2012 Status: Lehigh County has completed the installation of the Reverse 9-1-1 System, which was funded by the Regional Counter-Terrorism Taskforce.

**Action #9: Lehigh County EMA provides National Oceanic and Atmospheric weather radios for needed facilities to alert them of warnings and post-event information. Northampton County EMA explores providing weather radios for needed facilities. Year 1 (2008)**

Disposition for 2012 Update: Complete

2008 Status: Lehigh County purchased and distributed the radios in the fall of 2007 to local coordinators. School districts received radios from another source. Northampton County is still in the exploratory stage.

2012 Status: Lehigh County has not expanded upon the Weather Radio Distribution Program, however a small number of radios have been exchanged due to them being broken. Each spring the facilities which received these radios, participate in the Annual Statewide Severe Weather Exercise. During the exercise, schools, hospitals, nursing homes and day-cares are notified of a severe weather event, and are asked to

practice getting students, residents and patients to a safe location in emergency situation, thus enacting and testing their emergency response plans.

**Action #10: County EMAs pursue implementation of stream/river gauges – pursue participation in the Integrated Flood Observing and Warning System by installation, maintenance and monitoring of additional rainfall/stream/river gauges throughout both counties to provide additional rainfall and stream level data, to allow the counties to disseminate necessary alerts. Year 2 (2009)**

Disposition for 2012 Update: Ongoing

2008 Status: Lehigh County – no progress. Northampton County did receive quotes, but it is very expensive. The county is exploring grant programs as a viable option. They are also exploring the use of a Weather Bug Tool that can be put on a computer desktop and customized by specific county location. It is noted that United States Representative Charlie Dent secured funding for an enhanced flood warning system for the Delaware River Basin. It is not clear how this might benefit the two counties.

2012 Status: Lehigh County has explored the implementation of stream/river gauges, however the system is very costly, and we currently do not have the funds for this program. The county hopes to work with the National Weather Service in the near future to develop an Acquisition Plan to implement this project in the future.

**Action #11: County EMAs will work to create formal agreements between the counties and all municipalities to provide mutual aid in the event of a hazard event. Northampton County EMAs will work to create a formal agreement with Warren and Hunterdon counties in New Jersey. Year 1 (2008)**

Disposition for 2012 Update: Complete

2008 Status: Lehigh County – no information. Northampton County began working on this earlier this year. By law, the proposed Intrastate Mutual Aid legislation will require agreements. The county will create the agreements. The goal is to complete them by Spring 2009. The county has not approached Warren or Hunterdon counties yet. They will check to see if an agreement is needed.

2012 Status: Mutual Aid Agreements exist between the Pennsylvania Counties, as a result of the PA Intrastate Mutual Assistance Program. All PA counties are participants in this program.

**Action #12: County EMAs encourage Lehigh County, Northampton County, Allentown and Bethlehem 9-1-1 operations to fully integrate mapping and databases to streamline coordination during regional hazard events. Year 2 (2009)**

Disposition for 2012 Update: Complete

2008 Status: For both Lehigh and Northampton counties, the Northeast Pennsylvania Emergency Response Group (Counterterrorism Task Force), through a GIS committee, is spearheading an effort among eight counties, including Lehigh and Northampton, to work with 9-1-1 centers to integrate data.

**Action #13: County EMA offices will recruit individuals for the following [programs]: Year 2 (2009)**

- **Citizen Corps Council**
- **Are You Ready?**
- **Community Emergency Response Team (CERT)**

Disposition for 2012 Update: Ongoing

2008 Status: Lehigh County has an active, 24-member Citizen Corps Council. There were 3,543 preparedness packets distributed to schools, businesses, SARA facilities, multi-cultural centers, day cares, nursing homes, and churches. There have been 21 outreach programs held over the past year and a half. The county has held three CERT training sessions over the past year and has added 34 members to the team. The City of Allentown Volunteer Medical Reserve Corps (AVMRC) is an integral part of the Lehigh County Citizen Corps Council. AVMRC currently has 58 active members. The Lehigh County Citizen Corps Council is currently planning the First Annual Volunteer Skills Training Day for all CERT and Allentown and Bethlehem MRC members. Several events and programs are planned throughout the Lehigh Valley to promote preparedness during the Fifth National Preparedness Month (September 2008). Northampton County established a Citizen Corp Council in May 2008. The county has also integrated with the Medical Reserve Corps in the City of Bethlehem to get access to 105 persons. The county is exploring the establishment of CERT and Teen CERT programs.

2012 Status: Lehigh County has a very active 22-member Citizen Corps Council. The Council continues to oversee Community Emergency Preparedness Campaigns and Programs, which include: Community Emergency Response Team (CERT) Trainings, Outreach Programs, annual participation in the National Preparedness Month (NPM) Campaigns and Advanced Training Opportunities for volunteers. The City of Allentown Volunteer Medical Reserve Corps (AVMRC) and the City of Bethlehem Medical Reserve Corps continue to be active members on the Citizen Corps Council, and their volunteers participate in activities, drills and training events along with the County CERT Members. There have been 49 Community Outreach Events, 38 "Are You Ready?" programs, 12 CERT classes, 36 Training Opportunities, and 3 CERT Rodeo/Exercises over the past 4 years. CERT volunteers assisted with the 3 large-scale H1N1 Clinics, which were held in 2009 and 2010. In 2011 CERT members assisted with the shelters that were opened as a result of Hurricane Irene, Tropical Storm Lee and the October Snow Storm. The Citizen Corps Council is currently developing a planning calendar for CERT Training, Advanced Skills Training and a CERT/MRC Rodeo for the fall/winter 2012. We will also be participating/hosting several events and programs during the Annual National Preparedness Month (September 2012)

**Action #14: County EMAs will look at identifying and partnering with owners/operators of critical facilities as necessary to provide adequate planning and protection. Year 3 (2010)**

Disposition for 2012 Update: Ongoing

2008 Status: Lehigh County – no progress. Northampton County is updating their critical facilities inventory. It is noted that in February 2008, State Senator Lisa Boscola secured \$100,000 for the establishment of the Lehigh Valley Emergency Web Network by Active Data Exchange, a local Bethlehem firm. The network provides the public in the area with information during emergency situations. Both counties are contributors to the network.

**Action #15: Municipalities adopt ordinance provisions to protect natural resources including wetlands and riparian buffers to preserve their flood mitigation benefits. Year 1 (2008)**

Disposition for 2012 Update: Ongoing

2008 Status: The LVPC has prepared a model ordinance on riparian and wetland buffers. The LVPC released the ordinance at the monthly meeting in July 2008. It is noted that a bill introduced by State Representative Bob Freeman was signed into law June 11, 2008 by Governor Ed Rendell related to the protection of the Appalachian Trail. Act 24 requires municipalities to adopt zoning laws to preserve and protect this natural resource. Municipalities are required to implement and enforce these zoning provisions.

2012 Status: During 2009, the LVPC held workshops for municipalities to discuss the riparian and wetland buffers ordinance as well as other model ordinances related to natural features preservation. In January 2011, the LVPC updated the riparian and wetland buffers model ordinance. The model ordinance was updated to provide a discussion on the DEP riparian buffer regulations passed in November 2010 and how they relate to the LVPC model ordinance. The LVPC continues to promote the model ordinances which are available on the LVPC website ([www.lvpc.org](http://www.lvpc.org)).

## **F.2 Hazard Vulnerabilities Identified**

Please refer to the hazard profiles in Section 4.3 of this plan for information on hazard vulnerabilities identified within the Lehigh Valley.



**F.3 Hazard Mitigation Strategy**

Note some of the identified mitigation initiatives in Table F are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in county priorities.

Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
<b>Prevention and Planning</b>									
1	Maintain a centralized library of all data, information and documents compiled, developed and used for the 2012 LV HMP update process, including HAZUS-MH datasets and projects (HPR files). This data shall be used to support plan implementation and future updates, and may be used to support other emergency management and planning functions. Note: This is part of the ongoing 2006 Initiative #14 – see also #3 below.	N/A	All Hazards	Lehigh and Northampton County EMAs; County GIS Departments	Medium - Improved understanding of hazard risk; improved support to future planning efforts including regulatory updates of this plan support of other mitigation, preparedness and response activities.	Low	County Budgets	Short (2012/3)	High
2	As resources and training opportunities permit, County EMAs to install HAZUS-HM and train staff in its use.	N/A	All Hazards	Lehigh and Northampton County EMAs; County GIS Departments	Medium - Improved understanding of hazard risk; improved support to future planning efforts including regulatory updates of this plan support of other mitigation, preparedness and response activities.	Medium	County Budgets	Long-term DOF	Medium



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Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
3	Lehigh County to continue to work on enhancing their critical facility inventory, specifically with respect to attribution (e.g. names of facilities, type of construction, etc.) Note: This is part of the ongoing 2006 Initiative #14 – see also #1 above.	N/A	All Hazards	Lehigh County EMA and GIS departments	Medium - Improved understanding of hazard risk; improved support to future planning efforts including regulatory updates of this plan support of other mitigation, preparedness and response activities.	Low- Medium	County Budgets	Short (2013)	High
4	Support Lehigh Valley communities with ongoing compliance and enhanced participation in the National Flood Insurance Program (NFIP), specifically through the county-level initiatives identified below.	Both	Flood; Severe Storm	LVPC and Lehigh and Northampton County EMAs working with LV municipalities; supported by PADEP, PEMA, FEMA Region III, ISO	High - Reduced flood risk	Low-Medium	County Budgets	Ongoing	High
5	Continue to promote and assist municipalities with adopting additional and higher regulatory standards by providing model ordinances (e.g. model floodplain management and flood damage ordinances, including increased freeboard and cumulative substantial damages / improvements; carbonate bedrock standards; steep slopes; vegetation management; riparian and wetland buffers), and assisting with local adoption of these ordinances. The LVPC model floodplain regulations are designed to be more effective at preventing flood damage and to better deal with the redevelopment of existing properties that have been subject to repeated flooding, and exceed the National Flood Insurance Program minimum requirements. Note: This is part of the ongoing 2006 Initiative #7.								
	See above	New	Flood; Severe Storm; Severe Winter Storm; Subsidence/Sinkholes; Landslide; Drought	LVPC with support from municipalities and their NFIP FPA, FEMA Region III, ISO, PADEP and PEMA; DRBC	High	Low-Medium	County and LVPC Budgets	Ongoing	High



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6	Continue to support Lehigh Valley municipalities with the adoption of carbonate bedrock standards to minimize sinkhole occurrences to reduce hazard impacts on new development. Note: This is part of ongoing 2006 Initiative #7.	New	Subsidence\Sinkholes	LVPC supporting local municipalities	High	Low	LVPC Budget	Ongoing	High
7	Improve communication and coordination with the Councils of Governments to promote and support local mitigation efforts.	N/A	All Hazards	Lehigh and Northampton County EMAs, and NC DCED	Medium	Low	County Budgets	Short	High
8	Expand support of communities and property owners / developers to understand current and developing flood mapping and NFIP compliance issues.	N/A	Flood; Severe Storm	Lehigh and Northampton County EMAs, NC DCED	Medium	Low	County Budgets	Ongoing	High
9	Continue to promote and support municipal participation in available Hazard Mitigation Assistance (HMA) grant funding opportunities to mitigate floodprone structures and infrastructure, including RL/SRL outreach.	Existing	Flood; Severe Storm	Lehigh and Northampton County EMAs, working with support from municipal NFIP FPAs. Support provided by PEMA, FEMA Region III, PADEP.	High	Medium	County Budget	Ongoing	High



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10	Support and facilitate public education and outreach on the NFIP program (see related Public Education and Outreach initiatives)	Existing	Flood; Severe Storm	Lehigh and Northampton County EMAs with support from FEMA Region II, ISO, PADEP and PEMA	Medium	Low	County Budget	Ongoing	High
11	Continue to support and facilitate FEMA floodplain study/remapping and Risk MAP programs	N/A	Flood; Severe Storm; Land Subsidence/Sinkholes; Wildfire	Lehigh and Northampton County EMAs, LVPC with support from municipal NFIP FPA, FEMA Region III, ISO, PADEP and PEMA; DRBC	Medium	Medium-Low	County Budget	Ongoing	High
12	Promote and facilitate continued education and training programs for municipal NFIP floodplain managers and other county and local personnel involved in flood and hazard risk management by advertising and/or facilitating training and certification programs offered by PEMA, PADEP, ASFPM. Such training and certification programs include NFIP 101, Certified Floodplain Manager (CFM) certification through the Association of State Floodplain Managers, FEMA Benefit-Costs Analysis (BCA), NIFP Community Rating System (CRS).								
	See above	N/A	Flood; Severe Storm	Lehigh and Northampton County EMAs, LVPC with support from municipal NFIP FPA, FEMA Region III, ISO, PADEP and PEMA	Medium	Medium-Low	County Budget	Ongoing – To hold a CFM training and certification course in 2012/3	High
13	Promote and support municipal participation in the Community Rating System (CRS) program to better manage flood risk and reduce flood insurance premiums.	N/A	Flood; Severe Storm	Lehigh and Northampton County EMAs, LVPC with support from municipal NFIP FPA, FEMA Region III, ISO, PADEP and PEMA	Medium	Medium-Low	County Budget	Ongoing	High



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14	Assist municipalities with NFIP Community Assistance Visits (CAVs)	N/A	Flood; Severe Storm	LVPC with support from municipal NFIP FPA, FEMA Region III, ISO, PADEP and PEMA	Medium	Medium-Low	County Budget	Ongoing	High
Integrate/coordinate the findings and recommendations of this HMP within the following regional, county and local planning and regulatory mechanisms:									
15a	The "Lehigh Valley Comprehensive Plan...2030"	N/A	All Hazards	LVPC, working with both counties and municipalities	Medium (Reduced hazard vulnerability through integration of plans)	Medium	LVPC Budget	Pending funding	High
15b	County and Local Comprehensive / Master Plans	N/A	All Hazards	LVPC working with municipalities	Medium (Reduced hazard vulnerability through integration of plans)	Medium	LVPC, county and local budgets	Ongoing	High
15c	Capital Improvement Plans	N/A	All Hazards	County and Municipalities	High (leveraging of available funding to implement mitigation actions)	Low	Local and County funding; matching with available State and Federal sources	Ongoing	High
15d	Watershed and Stream Corridor Management Plans	N/A	Flood; Severe Storm	LVPC working with municipalities	Medium (Reduced hazard vulnerability through integration of plans)	Medium	LVPC, county and local budgets	Ongoing	High
15e	Comprehensive Emergency Management Plans	N/A	All Hazards	Lehigh and Northampton County EMAs	Medium (Reduced hazard vulnerability through integration of plans)	Low	County and Local Budgets	Ongoing	High



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15f	Act 167 Stormwater Management Plans	N/A	Flood; Severe Storm	LVPC working with municipalities	Medium (Reduced hazard vulnerability through integration of plans)	Medium - High	State funding (suspended)	Pending reinstatement of state funding	High
15g	HUD/CDBG Action Plan(s) – maintain CDBG action plans to support mitigation	Existing	Flood; Severe Storm	NC DCED	High (leveraging of available funding to implement mitigation actions)	Medium	County for maintenance of Action Plans	Ongoing	High
16	Lead and support the implementation, monitoring, maintenance, and update of this Plan, as defined in Section 7.0.	N/A	All Hazards	NC EMS (through the Hazard Mitigation Planning Coordinator) working along with the LV HMP Steering Committee, participating jurisdictions, PEMA, FEMA Region III	High	Low – High (for 5-year update)	County and Local Budgets, FEMA Mitigation Grant Funding for 5-year update	Ongoing	High
17	Continue to provide representation on and support of local and regional flood and watershed committees, commissions and task forces (e.g. Delaware River Basin Commission). Petition DRBC to include LV emergency management representation on their Hazards Committee.	N/A	All Hazards (DRBC includes a Hazards Committee)	Lehigh and Northampton County EMAs, LVPC	Medium - High	Low - Medium	Agency Budget	Ongoing	High



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18	Lehigh County to continue participation in, and Northampton County to complete their current efforts to join, the NOAA "Storm Ready" program to enhance County/community resilience to severe storms. "Storm Ready" communities are better prepared to save lives from the onslaught of severe weather through advanced planning, education and awareness. Participation in the NOAA "Storm Ready" program includes providing information on the "Storm Ready" program, facilitating public outreach and awareness programs, and supporting community storm risk reduction activities as appropriate. Specific actions addressed by "Storm Ready" participation include establishing a 24 hour Warning Point, increase number of ways EOC receives NWS warnings, increase number of ways to disseminate warnings, monitoring hydro-meteorological data, providing annual weather safety talks, train weather spotters, create a formal hazardous weather plan, host annual visits by NWS to communities, etc.								
	See above.	N/A	Flood; Severe Storm; Severe Winter Storm	Lehigh and Northampton County EMAs; support from NWS, PEMA, FEMA, PADEP	Medium	Low-Medium	County Budget	Lehigh County – ongoing; Northampton County to join in 2012/3	High
	Continue to participate in and support the USACE Silver Jackets program, which provides tools and resources in support of public and stakeholder outreach on flood risk management, and an online database to assist in the mitigation grant program application process.	N/A	Flood; Severe Storm	NC EMS working with USACE and the PA Silver Jackets team	Medium – High	Low - Medium	Agency Budgets	Ongoing	High
<b>Property Protection</b>									
19	Support communities in the Lehigh Valley with participation in FEMA mitigation grant programs. Specific support activities shall include: <ul style="list-style-type: none"> <li>• Forwarding grant program announcements provided by PEMA and/or FEMA to appropriate municipal representatives in a timely manner.</li> <li>• Posting and maintaining grant announcements and associated documents, forms, etc. on the LV HMP webpage.</li> <li>• Supporting PEMA and or FEMA-sponsored public outreach for available grant opportunities, including RL/SRL outreach.</li> <li>• Providing municipalities with grant application support.</li> </ul>								
	See above	Existing	All Hazards	Lehigh and Northampton County EMAs; support from PEMA and FEMA Region III	High (reduced risk for vulnerable structures)	Medium	County Budget	Ongoing	High



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20	Continue to identify vulnerable county-owned structures and infrastructure, develop and prioritize appropriate mitigation projects, and implement projects as funding is appropriated.	Existing	All Hazards	Lehigh and Northampton County EMAs; working with county departments and agencies with critical facilities and infrastructure	High (reduced risk for vulnerable structures)	Medium – High	County Budget	Ongoing	Medium
21	Work with utility companies and owners/operators of critical facilities to identify and underground important utility lines (esp. those serving critical facilities). Identify and explore potential funding programs, including public / private partnerships, to implement utility hardening projects.	Existing	Severe Storm; Severe Winter Storm	County EMAs and DPWs, working with utilities and owners/operators of critical facilities	High	Medium (identification of projects); High (implementation)	County Budgets to identify; Implementation TBD	Ongoing	Medium
<b>Public Education and Awareness</b>									
	Develop a program to improve the quality and consistency of public education and outreach for natural hazard preparedness and mitigation. Specific activities and aspects of this include the following activities and initiatives.								
22	Leverage existing regional and local meetings and media outlets (local websites, newsletters, email “blasts” and mailings) to promote awareness and understanding of personal preparedness and mitigation activities.	N/A	All Hazards	Lehigh and Northampton County EMAs, working with municipalities	Increased public understanding of hazard preparedness and risk reduction measures	Low	County and Local Budgets	Ongoing	High
23	Maintain the Northampton County Emergency Management Services hazard mitigation webpage; Lehigh County	N/A	All Hazards	Lehigh and Northampton County EMAs, working with municipalities	Increased public understanding of hazard preparedness and risk	Low - Medium	County and Local Budgets	Ongoing	High





SECTION 9.1: LEHIGH AND NORTHAMPTON COUNTIES

Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
	to maintain a link to this page on their Emergency Management website. Promote public attention through periodic County homepage announcements and other available media. Advise municipalities to maintain links to the County Emergency Management and HMP websites on their websites.				reduction measures				
24	Continue to participate in and support the USACE Silver Jackets program, which provides tools and resources in support of public and stakeholder outreach on flood risk management, and an online database to assist in the mitigation grant program application process.	N/A	Flood; Severe Storm	NC EMS working with USACE and the PA Silver Jackets team	Medium – High	Low - Medium	Agency Budgets	Ongoing	High
25	Improve public understanding of disaster preparedness and what to do during an emergency, including personal preparedness, available notification/warning services, and incoming and outgoing evacuation routes. Indicate locations of shelters and tips for staying at home. Provide advisories to avoid road travel combined with safe travel tips. Provide information on hazards of unheated houses, guidance on the use of	N/A	All Hazards	County EMAs, working with local EM, police, fire and LEPCs	Medium (increased personal preparedness. life safety)	Low - Medium	County and local budgets, PEMA	Ongoing	High



SECTION 9.1: LEHIGH AND NORTHAMPTON COUNTIES

Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
	portable and standby generators, fire hazards associated with space heaters, protecting plumbing during a winter storm, and coping with power failures.								
26	Expand information on emergency service for special needs populations to cover all of the Lehigh Valley.	N/A	All Hazards	Lehigh and Northampton County EMAs, County Human Services	Medium (life safety)	Low-Medium	County Budgets	Ongoing	High
27	Coordinate and facilitate a bi-county hazards insurance summit with appropriate local insurance carriers/companies to promote a stronger regional understanding of hazard insurance needs and options available to public and private property owners. This summit shall address all types of hazard insurance including flood, sinkhole, earthquake, hurricane/high wind, and sump pump failure. Develop and distribute public informational material and distribute through the public outreach program(s) identified above. Note: This is part of ongoing 2006 Initiative #5.	N/A	Earthquake; Flood; Hailstorm; Landslide; Lightning Strike; Subsidence/Sinkholes; Wind; Winter Storm	Lehigh and Northampton County EMAs with support of other county stakeholders; regional insurance carriers	Medium – Increased understanding and awareness of insurance needs and limitations	Low	County Budgets	Short	High



Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
28	Incorporate the public education, awareness, preparedness and personal mitigation information provided by Pennsylvania Power and Light (PPL).	N/A	Severe Storm, Severe Winter Storm, Urban/Structural Fire, Environmental/Explosion, Utility Interruption	Lehigh and Northampton County EMAs	Medium - High	Low	County Budgets	Short	High
<b>Natural Resource Protection</b>									
29	LVPC to continue to support municipal adoption of higher regulatory standards, specifically in the area of floodplain management, riparian and wetland buffers, steep slopes, carbonate bedrock, and other zoning laws to protect natural resources that provide natural hazard protection. Note: This is a continuation of Initiative #15 from the 2006 plan.	N/A	Flood, Landslide, Subsidence/Sinkholes	LVPC; working with municipalities	High	Low	LVPC and municipal budgets	Ongoing	High
30	Work with utilities to enhance programs to keep trees from threatening lives, property, and public infrastructure during storm events, including tree trimming and removal programs.	Existing	Severe Storm, Severe Winter Storms	County EMAs and DPWs, Utilities	Protection of electric infrastructure; life-safety.	Medium - High	Current funding sources	Ongoing	Medium



SECTION 9.1: LEHIGH AND NORTHAMPTON COUNTIES

Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
<b>Emergency Services</b>									
31	Implement the Lehigh Countywide Generator Project, funded through 2008 LPDM. Provide grant administration and technical support, as needed, to those Lehigh County municipalities awarded funding under this grant. Funding for generators has been awarded for the following sites (note: this is part of the implementation of 2006 Initiative #14): <ul style="list-style-type: none"> <li>• Macungie Well #1/Public Works Building – 301 South Church Street, Macungie Borough</li> <li>• Neffs Volunteer Fire Company – 3755 Park Avenue, Neffs, North Whitehall Township</li> <li>• City of Allentown Fire Station – 164 West Susquehanna Avenue, Allentown</li> <li>• Lower Macungie Township Public Works Facility – 5536 Indian Creek Road, Lower Macungie Township</li> <li>• Whitehall Township Authority – 1901 Schadt Avenue, Whitehall Township</li> <li>• Lehigh County Maintenance Facility – 260 South Cedarbrook Road, Allentown</li> <li>• Police Station – 941 Long Street, Fountain Hill Borough</li> <li>• Fountain Hill Borough – Duplex Grinder Pump Station</li> </ul>								
	See above.	Existing	All Hazards	Lehigh County EMA, working with municipalities	Medium – High (continued operation of critical facilities during power outages)	Low – Medium (local share of LPDM grant)	2008 LPDM grant; local budgets for match	Ongoing	High
32	Implement the Northampton Countywide Generator Project, funded through 2008 LPDM. Provide grant administration and technical support, as needed, to those municipalities awarded funding under this grant. Funding for generators have been awarded for the following sites (note: this is part of the implementation of 2006 Initiative #14): <ul style="list-style-type: none"> <li>• Portland Borough Authority, Well #3</li> <li>• East Bangor Municipal Authority, Well #34</li> <li>• Hellertown Borough Authority, Well #1</li> <li>• Portland Borough Authority, Well #4</li> <li>• Township of Bethlehem</li> <li>• Lehigh Township Municipal Authority (Danielsville and Pennsville)</li> <li>• Borough of Northampton Sewage Pump</li> </ul>								
	See above.	Existing	All Hazards	Northampton County Emergency Management Services, working with municipalities	Medium – High (continued operation of critical facilities during power outages)	Low – Medium (local share of LPDM grant)	2008 LPDM grant; local budgets for match	Ongoing	High



SECTION 9.1: LEHIGH AND NORTHAMPTON COUNTIES

Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
33	Improve communication and coordination between NC DCED, NC Department of Human Services (NC DHS), NC EMS, LC EMA and the Lehigh Valley Disaster Relief Task Force, particularly to support response and post-disaster recovery efforts (human services, small business recovery assistance, donations management).	N/A	All Hazards	NCEMS, LCEMA, NC DCED, NC DHS; working with the Lehigh Valley Disaster Relief Task Force	Medium – High (improved coordination, efficiency and effectiveness of county agencies and departments to assist residents and businesses during disaster response and recovery)	Medium	Local Budgets	Short	Medium
34	Develop a long-term recovery liaison position to support the above initiative.	N/A	All Hazards	NCEMS, LCEMA, NC DCED, NC DHS; working with the Lehigh Valley Disaster Relief Task Force and other departments	Medium – High (as in Initiative #33 above)	Medium-High	County Budgets	Short	Medium
35	Northampton County to maintain and train (through ESF-16 and the Regional Catastrophic Planning Task force), and Lehigh County to establish and participate in training, a donations / volunteer management program to improve the receipt and allocation of donations (e.g. equipment, supplies, water, food, clothes), and the deployment of volunteer resources during disaster recovery. This may include identifying and training volunteers to manage the program, and establishing donation / volunteer management center(s).								
	See above.	N/A	All Hazards	NCEMS, LCEMA, NC DCED, NC DHS; working with the Lehigh Valley Disaster Relief Task Force	Medium – High (improved coordination, efficiency and effectiveness of county agencies and departments to assist residents and businesses during disaster response and recovery)	Medium-High	County Budgets; supported by Federal and State EM funding as available	Ongoing	High



SECTION 9.1: LEHIGH AND NORTHAMPTON COUNTIES

Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
36	<p>County EMAs to continue to pursue implementation of stream/river gauges – pursue participation in the Integrated Flood Observing and Warning System by installation, maintenance and monitoring of additional rainfall/stream/river gauges throughout both counties to provide additional rainfall and stream level data, to allow the counties to disseminate necessary alerts. Both counties have explored implementation of gaging systems, however these systems are expensive and outside funding would be needed support implementation. Both counties intend to continue to explore funding sources, including working with the National Weather Service to develop an acquisition plan, to support project implementation.</p> <p>This is the continued implementation of Initiative #10 from the 2006 plan.</p>								
	See above	N/A	Flood	County EMAs, working with USGS, National Weather Service, Delaware River Basin Commission and other regional flood stakeholders	Medium – High Improved flood forecasting and warning supporting emergency management flood response	High	County budgets to support pursuit of funding for project implementation	Ongoing	High
37	<p>County EMAs to continue their efforts to recruit individuals for the following programs:</p> <ul style="list-style-type: none"> <li>- Citizen Corps Council</li> <li>- Are You Ready?</li> <li>- Community Emergency Response Team (CERT)</li> </ul> <p>This is a continuation of Action #13 from the 2006 plan.</p>	N/A	All Hazards	Lehigh County EMA	Medium (increased emergency preparedness, response and recovery capabilities)	Medium	County budgets	Ongoing	High
38	<p>County EMAs to continue their efforts at identifying and partnering with owners/operators of critical facilities as necessary to provide adequate planning and protection.</p> <p>This is a continuation of Action #14 from the 2006 Plan.</p>	Existing	All Hazards	Lehigh and Northampton County EMAs	Medium (protection of critical facilities)	Low	County budgets	Ongoing	High



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Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
39	Research the NFPA “Firewise” program to identify what elements would benefit the LV and how they would be managed and implemented in the LV.	N/A	Wildfire	Lehigh and Northampton County EMAs, working with local fire departments and the NFPA	Medium (increased management of wildfire risk)	Low - Medium	County Budgets	Short	Medium
40	Develop and publicize evacuation plans, routes, policies, and procedures for the full range of contingencies and geographic areas of the Lehigh Valley.	N/A	All Hazards	Lehigh and Northampton County EMAs; with support from LVPC (transportation element)	High (life safety)	Medium - High	County Budgets	Short	Medium
41	Develop county-level debris management plans for the Lehigh Valley.	N/A	Flood; Severe Storm; Severe Winter Storm	Lehigh and Northampton County EMAs	Medium (improved recovery, reduced loss of services)	Medium	County budgets; FEMA EMPG	Longterm	Low - Medium
42	Identify areas and specific residents who would need evacuation assistance, including residents who lack transportation, and develop evacuation assistance plans.	N/A	All Hazards	Lehigh and Northampton County EMAs, working with Human Services and municipalities	Medium – High (life safety)	Low - Medium	County budgets; FEMA EMPG	Short	Medium - High
43	Improve coordination and cooperation with colleges and universities in the Lehigh Valley to address their emergency management and service’s needs, including mass gathering/civil disturbance risks.	N/A	All Hazards, spec. Mass Gathering/ Civil Disturbance	Lehigh and Northampton County EMAs working with college and university emergency services	Medium (improved emergency management capabilities)	Low	Local Budgets	Ongoing	High



Initiative #	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Addressed	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority
<b>Structural Projects</b>									
44	Implement the Lower Milford Township Creek Stabilization Project, funding through the 2008 LPDM. This project proposes to stabilize a section of Hosensak Creek that is threatening Shutlz Bridge Road near its intersection with Buchman Road, through the installation of 19 inches of rip-rap. Provide grant administration and technical support as needed.								
	See above.	Existing	Flood; Severe Storm	Lehigh County agencies, working with Lower Milford Township	High	High	2008 LPDM, county and local for local match	Longterm	High
45	Continue to design replacement bridges to the new standards.	Existing	Flood; Severe Storm	Northampton County DPW	High (reduced vulnerability to critical infrastructure)	High	FEMA Mitigation Grant Programs; County budget for local share	Ongoing	High

Notes:

\*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (NA) is inserted if this does not apply.

**Costs:**

Where actual project costs have been reasonably estimated:

Low = < \$10,000

Medium = \$10,000 to \$100,000

High = > \$100,000

Where actual project costs cannot reasonably be established at this time:

Low = Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.

Medium = Could budget for under existing work-plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.

High = Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

**Potential FEMA HMA Funding Sources:**

PDM = Pre-Disaster Mitigation Grant Program

FMA = Flood Mitigation Assistance Grant Program

RFC = Repetitive Flood Claims Grant Program

SRL = Severe Repetitive Loss Grant Program

HMGP = Hazard Mitigation Grant Program

**Timeline:**

Short = 1 to 5 years. Long Term = 5 years or greater. OG = On-going program. DOF = Depending on funding.





## F. ANALYSIS OF MITIGATION ACTIONS

Municipal mitigation actions were evaluated and prioritized primarily using the PA STEEL methodology discussed in Section 6 of this plan. Per the cost-benefit weighted PA STEEL methodology, those actions receiving 20 or more favorable ratings were generally considered high-priority actions. However, other factors beyond the PA STEEL numeric ranking may have been considered by the municipality during project prioritization. For example, a project might be assigned a medium priority because of the uncertainty of a funding source, and could be changed to high once a funding source has been identified such as a grant.

Mitigation Action		PA STEEL CRITERIA CONSIDERATIONS																				Results				
		(+) Favorable							(-) Less favorable							(N) Not Applicable										
		P Political			A Administrative				S Social		T Technical			E Economic				E Environmental				L Legal			SUMMARY (EQUAL WEIGHTING)	SUMMARY (BENEFITS & COSTS PRIORITIZED)
No.	Name	Political Support	Local Champion	Public Support	Staffing	Funding Allocation	Maintenance / Operations	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Benefit of Action (x3)	Cost of Action (x3)	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Site	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws	State Authority	Existing Local Authority	Potential Legal Challenge		
1	Centralized data library of LVHMP	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	N	N	N	N	+	N	+	+	16 (+) 0 (-) 7 (N)	20 (+) 0 (-) 7 (N)
2	Incorporate HAZUS and train staff	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	+	N	N	+	+	+	+	-	16 (+) 5 (-) 2 (N)	20 (+) 5 (-) 2 (N)
3	Enhance critical facility inventory	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	N	+	+	19 (+) 0 (-) 3 (N)	23 (+) 0 (-) 3 (N)



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4	Compliance and participation in NFIP Program	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	-	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)
5	Assist municipalities with regulatory requirement and ordinances	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	N	+	+	17 (+) 0 (-) 6 (N)	21 (+) 0 (-) 6 (N)
6	Assist municipalities with carbonate bedrock standards	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	N	+	+	17 (+) 0 (-) 6 (N)	21 (+) 0 (-) 6 (N)
7	Improve communication with Councils of Governments	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	N	N	+	+	+	+	+	-	16 (+) 5 (-) 2 (N)	20 (+) 5 (-) 2 (N)
8	Support understanding of flood mapping and NFIP compliance	+	+	-	N	-	+	N	N	N	N	+	+	N	+	N	N	N	N	N	N	N	+	N	7(+) 2(-) 14(N)	11(+) 2(-) 14(N)
9	Support HMA grant assistance	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	N	+	+	19 (+) 0 (-) 3 (N)	23 (+) 0 (-) 3 (N)	
10	Support NFIP public outreach	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	N	N	N	+	N	+	+	18 (+) 1 (-) 4 (N)	22 (+) 4 (-) 4 (N)	
11	Support FEMA remapping and Risk Map programs	+	+	-	N	-	+	N	N	N	N	+	+	N	+	N	N	N	N	N	N	N	+	N	7(+) 2(-) 14(N)	11(+) 2(-) 14(N)
12	Facilitate training for floodplain managers	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	N	N	+	+	+	+	-	16 (+) 5 (-) 2 (N)	20 (+) 5 (-) 2 (N)	



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13	Support CRS	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	+	+	17 (+) 0 (-) 6 (N)	21 (+) 0 (-) 6 (N)
14	Support NFIP CAV's	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	-	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)
15a	Integrate HMP with LV Comprehensive Plan	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
15b	Integrate HMP with local Comprehensive and Master Plans	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
15c	Integrate HMP with Capital Improvement Plans	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
15d	Integrate HMP with Watershed and Stream Corridor Management Plans	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
15e	Integrate HMP with Emergency Management Plans	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
15f	Integrate HMP with Act Stormwater Management Plans	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
15g	Integrate HMP with HUD/CDBG	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)



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16	Lead and support maintenance of this Plan	+	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	N	N	N	N	+	N	+	+	16 (+) 0 (-) 7 (N)	20 (+) 0 (-) 7 (N)
17	Provide representation and support of local watershed communities	+	+	-	+	-	+	+	+	+	+	N	+	+	N	+	N	N	N	N	N	+	N	+	+	14+ 2- 7N	20+ 2- 7N
18	Continue participation in Storm Ready	+	+	-	N	+	+	N	N	+	+	N	+	+	N	+	N	N	N	N	N	+	N	+	N	11+ 1- 11N	17+ 1- 11N
19	Support communities with FEMA grant programs	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	-	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)	
20	Identify county owned vulnerable infrastructure	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	+	N	N	+	+	+	+	-	16 (+) 5 (-) 2 (N)	20 (+) 5 (-) 2 (N)	
21	Coordinate with Private sector regarding underground utilities	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
22	Promote awareness of personal preparedness and mitigation	+	+	-	N	-	+	N	N	N	N	N	+	+	N	+	N	N	N	N	N	N	+	N	7(+) 2(-) 14(N)	11(+) 2(-) 14(N)	
23	Webpage public attention and announcement	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	+	+	+	20 (+) 0 (-) 3 (N)	24 (+) 0 (-) 3 (N)	
24	Participate in USACE Silver Jackets program	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	-	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)	
25	Improve public understanding of disaster preparedness	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	+	+	+	20 (+) 0 (-) 3 (N)	24 (+) 0 (-) 3 (N)	



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26	Expand emergency service for special needs populations	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	N	N	+	N	+	+	18 (+) 1 (-) 4 (N)	22 (+) 4 (-) 4 (N)
27	Coordinate bi-county insurance summit to include public information material	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	N	N	N	N	+	N	+	+	16 (+) 0 (-) 7 (N)	20 (+) 0 (-) 7 (N)
28	Incorporate PPL public information listings	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	N	+	+	19 (+) 0 (-) 3 (N)	23 (+) 0 (-) 3 (N)	
29	Support higher regulatory floodplain standards	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	N	N	+	+	+	+	-	16 (+) 5 (-) 2 (N)	20 (+) 5 (-) 2 (N)	
30	Coordinate with Utilities ref. threatening trees during events	+	-	-	-	-	-	+	-	+	+	-	+	-	-	-	+	N	N	+	+	N	+	-	9(+) 11(-) 3(N)	11(+) 13(-) 3(N)
31	Implement county wide generator project phase One	+	+	-	N	+	+	N	N	+	+	N	+	+	N	+	N	N	N	N	+	N	+	N	11+ 1- 11N	17+ 1- 11N
32	Implement county wide generator project phase Two	+	+	-	N	+	+	N	N	+	+	N	+	+	N	+	N	N	N	N	+	N	+	N	11+ 1- 11N	17+ 1- 11N
33	Improve coordination and communication to support response and post disaster recovery	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	N	N	+	N	+	+	18 (+) 1 (-) 4 (N)	22 (+) 4 (-) 4 (N)



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34	Develop a long term recovery liaison	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
35	Train Regional Catastrophic Task Force and volunteer resources	+	N	+	+	-	+	+	+	+	+	N	+	+	N	+	-	-	+	N	N	N	+	+	14(+) 3(-) 6(N)	20(+) 3(-) 6(N)
36	Participate in Integrated Flood Observing and Warning System and monitoring gauges	+	+	-	+	-	+	+	+	+	+	N	+	+	N	+	N	N	N	N	+	N	+	+	14+ 2- 7N	20+ 2- 7N
37	Continue to support Citizen Corps, CERT and Are You Ready programs	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	N	N	N	N	+	N	+	+	16 (+) 0 (-) 7 (N)	20 (+) 0 (-) 7 (N)
38	Support critical facility owners with planning and protection	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
39	Research NFPA Firewise program	+	N	+	+	-	+	+	+	+	+	N	+	+	N	+	-	-	+	N	N	N	+	+	14(+) 3(-) 6(N)	20(+) 3(-) 6(N)
40	Develop and publicize evacuation plans and routes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	+	+	+	20 (+) 0 (-) 3 (N)	24 (+) 0 (-) 3 (N)	
41	Develop county wide debris management plans	+	+	-	N	-	+	N	N	N	N	N	+	+	N	+	N	N	N	N	N	N	+	N	7(+) 2(-) 14(N)	11(+) 2(-) 14(N)



SECTION 9.1: LEHIGH AND NORTHAMPTON COUNTIES

42	Identify residents in need of evacuation assistance	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	+	+	+	20 (+) 0 (-) 3 (N)	24 (+) 0 (-) 3 (N)
43	Improve coordination and coordination of colleges and universities regarding needs	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	-	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)
44	Implement the Lower Milford Creek Stabilization Project	+	+	+	N	+	+	+	+	+	+	+	+	+	+	+	N	N	+	+	+	+	-	19(+) 1(-) 3(N)	23(+) 1(-) 3(N)	
45	Design replacement bridges to new standards	+	+	+	+	-	+	+	+	+	+	N	+	+	N	+	-	-	N	-	+	N	+	-	14(+) 5(-) 4(N)	18(+) 5(-) 4(N)

