



SECTION 6. MITIGATION STRATEGY

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6.1 PROCESS SUMMARY

Mitigation goals are general guidelines that explain what the County wants to achieve. Goals are usually expressed as broad policy statements representing desired long-term results. Mitigation objectives describe strategies or implementation steps to attain the identified goals. Objectives are more specific statements than goals; the described steps are usually measurable and can have a defined completion date.

There were 6 goals and 27 objectives identified in the 2012 HMP. After some discussion, the 2017 HMP plan goals and objectives were determined to be consistent with the existing goals and objectives as expressed by the Municipal representatives via a mailed survey and then later confirmed at the two Capability & Risk Assessment meetings (March 23, 2017 at Milton, PA and March 30, 2017 at Sunbury, PA). There were no changes or revisions made to the goals or objectives from the meetings.

A summary comparison between the 2012 HMP goals & objectives and the 2017 HMP goals & objectives can be viewed in [Table 6.1-1 List of 2012 Mitigation Strategy Goals and Objectives Reviewed for the 2017 HMP.](#)

GOAL	OBJECTIVE	REVIEW
GOAL 1	Increase public education and awareness of existing and potential hazards in Northumberland County.	Review: This goal will remain as Goal 1 in the 2017 Mitigation Strategy.
Objective 1A	Develop public education and outreach programs on hazards and hazard mitigation.	This objective remains relevant and will be kept as objective 1A in the 2017 HMP.
Objective 1B	Educate property owners in hazard-risk areas regarding their risks and the precautions they can take.	This objective remains relevant and will be kept as objective 1B in the 2017 HMP.
Objective 1C	Provide ongoing training to EM Directors and municipal leaders to stay current on procedures/policies in development.	This objective remains relevant and will be kept as objective 1C in the 2017 HMP.
Objective 1D	Utilize the County website to provide ongoing education to the public about hazard mitigation and related upcoming events.	This objective remains relevant and will be kept as objective 1D in the 2017 HMP.
GOAL 2	Protect the citizens of Northumberland County as well as public and private property from the impacts of natural and human-caused hazards.	Review: This goal will remain as Goal 2 in the 2017 Mitigation Strategy.
Objective 2A	Protect existing structures from damage that can be caused by hazards.	This objective remains relevant and will be kept as objective 2A in the 2017 HMP.
Objective 2B	Promote management and regulatory procedures that would reduce the impacts of hazards on public and private property.	This objective remains relevant and will be kept as objective 2B in the 2017 HMP.
Objective 2C	Develop local structural projects to reduce the impacts of natural and human-caused hazards on public and private property.	This objective remains relevant and will be kept as objective 2C in the 2017 HMP.
Objective 2D	Maintain stream and culverts to reduce backup and flooding.	This objective remains relevant and will be kept as objective 2D in the 2017 HMP.
Objective 2E	Protect critical facilities from the impacts of natural and human-caused hazards.	This objective remains relevant and will be kept as objective 2E in the 2017 HMP.
Objective 2F	Maintain annual meetings of County and Municipal Officials to review local problem areas and ensure each organization are clear about their individual and collective responsibilities.	This objective remains relevant and will be kept as objective 2F in the 2017 HMP.
GOAL 3	Mitigate the potential for injury/death and damage from natural and human-made hazards in Northumberland County.	Review: This goal will remain as Goal 3 in the 2017 Mitigation Strategy.
Objective 3A	Develop regulations limiting development in hazard-prone areas	This objective remains relevant and will be kept as objective 3A in the 2017 HMP.
Objective 3B	Lessen impacts on natural resources and open space from natural and human-caused hazards.	This objective remains relevant and will be kept as objective 3B in the 2017 HMP.
Objective 3C	Direct new growth away from hazard-prone areas.	This objective remains relevant and will be kept as objective 3C in the 2017 HMP.
Objective 3D	Encourage property owners in the 1 percent annual chance floodplain to purchase flood insurance and provide education related to flood insurance to assist residents in making informed decisions.	This objective remains relevant and will be kept as objective 3D in the 2017 HMP.
Objective 3E	Acquire, demolish, or elevate structures subject to flooding.	This objective remains relevant and will be kept as objective 3E in the 2017 HMP.

* This goal relates to response and recovery in Northumberland County.

Table 6.1-1A: List of 2012 Mitigation Strategy Goals and Objectives reviewed for the 2017 NC HMP

GOAL	OBJECTIVE	REVIEW
GOAL 4	Encourage proper information management of data related to natural and human-caused hazards in Northumberland County.	Review: This goal will remain as Goal 4 in the 2017 Mitigation Strategy.
Objective 4A	Develop data management policies to ensure adequate data management.	This objective remains relevant and will be kept as objective 4A in the 2017 HMP.
Objective 4B	Develop and update detailed databases related to hazards and hazard mitigation.	This objective remains relevant and will be kept as objective 4B in the 2017 HMP.
GOAL 5	Increase local government awareness of hazard mitigation programs.	Review: This goal will remain as Goal 5 in the 2017 Mitigation Strategy.
Objective 5A	Educate local public officials about hazard mitigation practices and the Hazard Mitigation Plan.	This objective remains relevant and will be kept as objective 5A in the 2017 HMP.
Objective 5B	Provide training and technical assistance to emergency management personnel regarding hazard mitigation.	This objective remains relevant and will be kept as objective 5B in the 2017 HMP.
Objective 5C	Encourage municipalities to develop, implement, regularly review, and update hazard mitigation plans.	This objective remains relevant and will be kept as objective 5C in the 2017 HMP.
Objective 5D	Maximize the use of public funding for hazard mitigation programs and equipment.	This objective remains relevant and will be kept as objective 1B in the 2017 HMP.
Objective 5E	Use public funding for mitigation projects on private property.	This objective remains relevant and will be kept as objective 5D in the 2017 HMP.
GOAL 6	Improve emergency services and capabilities in Northumberland County to protect citizens from natural and human-caused hazards.*	Review: This goal will remain as Goal 6 in the 2017 Mitigation Strategy.
Objective 6A	Improve coordination and communication between departments.	This objective remains relevant and will be kept as objective 6A in the 2017 HMP.
Objective 6B	Ensure adequate training and resources for those involved in emergency response, services, relief, or hazard mitigation.	This objective remains relevant and will be kept as objective 6B in the 2017 HMP.
Objective 6C	Ensure adequacy of equipment and technology.	This objective remains relevant and will be kept as objective 6C in the 2017 HMP.
Objective 6D	Ensure that residents receive relief and are evacuated as quickly as possible in the event of a disaster.	This objective remains relevant and will be kept as objective 6D in the 2017 HMP.
Objective 6E	Ensure that all emergency services are aware of funding opportunities that are available to maintain or acquire specialized equipment.	This objective remains relevant and will be kept as objective 6E in the 2017 HMP.

Table 6.1-1B: List of 2012 Mitigation Strategy Goals and Objectives reviewed for the 2017 NC HMP

* This goal relates to response and recovery in Northumberland County.

Actions provide more detailed descriptions of specific work tasks to help the County and its Municipalities achieve prescribed goals and objectives. There were 46 actions identified in the 2012 HMP Mitigation Strategy. These actions were prioritized using the PA-STEEL criteria.

Of the 46 actions listed in the 2012 HMP, 1 was removed, 18 were found relevant and kept the same, 27 were updated, and 34 new actions were added for a total of 79 actions for the 2017 HMP. A list of these actions as well as a review summary of their progress based on comments from the HMT is included in TABLE 6.1-2 List and Review Summary of 2012 Mitigation Actions for the 2017 HMP Mitigation Actions with the intent of carrying over any actions that have had no progress or were incomplete but still viable as well as continuous actions in the next five years.

GOAL	OBJECTIVE	REVIEW
ACTION 1	ACTION: Disseminate informational pamphlets or mailings and/or create websites and social media for Northumberland County residents that explain the risks of hazards, outline precautionary measures that can be taken to help reduce the impacts of a disaster to themselves and their property, and emphasize the values of hazard mitigation.	This action was updated to add "or mailings and/or create websites and social media" and is included in the 2017 NC HMP as action # 1.
ACTION 2	ACTION: Develop an informational website with information on the hazards that can effect the County, how residents can protect themselves from disaster, and mitigation actions the County and municipalities are taking to help reduce the risks.	This action remains relevant and is included in the 2017 NC HMP as action # 2.
ACTION 3	ACTION: Cooperate with local media to produce regular public service announcements or news releases on hazard risk, safety, and the importance of mitigation.	This action remains relevant and is included in the 2017 NC HMP as action # 3.
ACTION 4	ACTION: Coordinate with FEMA, PEMA, PA DCED, and any other appropriate agencies on developing and implementing a natural hazard awareness curriculum in local schools.	This action was updated by being rewritten and is included in the 2017 NC HMP as action # 4.
ACTION 5	ACTION: Disseminate informational pamphlets or mailings and/or create websites and social media on hazard mitigation for property owners in the 1 percent annual chance floodplain or owners of Repetitive and Severe Repetitive Loss structures.	This action was updated to add "or mailings and/or create websites and social media" and is included in the 2017 NC HMP as action # 5.
ACTION 6	ACTION: Develop informational workshops on hazard risks and hazard mitigation for property owners in high-risk areas.	This action remains relevant and is included in the 2017 NC HMP as action # 6.
ACTION 7	ACTION: Investigate avenues for real estate disclosure for properties in the 1 percent annual chance floodplain.	This action remains relevant and is included in the 2017 NC HMP as action # 7.
ACTION 8	ACTION: Assist municipalities in developing policies and procedures related to hazard mitigation, especially for municipalities that are vulnerable to direct impacts from possible levee failure.	This action remains relevant and is included in the 2017 NC HMP as action # 8.
ACTION 9	ACTION: Investigate a County fund to facilitate voluntarily acquiring, elevating, or retrofitting structures in hazard-prone areas.	This action remains relevant and is included in the 2017 NC HMP as action # 9.
ACTION 10	ACTION: Enforce forest and vegetation management policies along the West and North Branch of the Susquehanna River floodplain.	This action has been updated to add "along the West and North Branch of the Susquehanna River floodplain" and is included in the 2017 NC HMP as action # 10.
ACTION 11	ACTION: Enforce urban forestry and landscape management policies for Drainage & Stormwater Management.	This action has been updated to add "for Drainage & Stormwater Management" and is included in the 2017 NC HMP as action # 11.
ACTION 12	ACTION: Develop a plan of hazard mitigation best management practices that can be shared with other Counties.	This action has been updated to remove "Enforce" and add "Develop a plan of hazard mitigation" and "that can be shared with other Counties" and is included in the 2017 NC HMP as action # 12.

Table 6.2-1A: List and Review Summary of 2012 Mitigation Actions for the 2017 NC HMP Mitigation Actions

GOAL	OBJECTIVE	REVIEW
ACTION 13	ACTION: Enforce sediment and erosion control regulations for all Land Development Planning, especially for floodplain areas.	This action has been updated to add "for all Land Development Planning, especially for floodplain areas" and is included in the 2017 NC HMP as action # 13.
ACTION 14	ACTION: Work with state and federal officials to enforce dumping regulations along the North & West Branch of the Susquehanna River, especially the recreational areas.	This action has been updated to add "along the North & West Branch of the Susquehanna River, especially the recreational areas" and is included in the 2017 NC HMP as action # 14.
ACTION 15	ACTION: Work with state and federal officials to enforce wetlands development regulations for all Land Development Planning to protect the Natural Resources.	This action has been updated to add "for all Land Development Planning to protect the Natural Resources" and is included in the 2017 NC HMP as action # 15.
ACTION 16	ACTION: Identify potential locations to construct levees or floodwalls to protect communities subject to flooding along the West Branch of the Susquehanna River.	This action has been updated to add "Identify potential locations to" and "along the West Branch of the Susquehanna River" and is included in the 2017 NC HMP as action # 16.
ACTION 17	ACTION: Mitigate properties by elevation, acquisition & demolition, relocation or wet/dry floodproofing of properties in the hazard areas, notably the 1 percent annual chance floodplain.	This action was updated to add "Mitigate properties by elevation, acquisition & demolition, relocation or floodproof properties in the" and remove "to convert them to open space" and is included in the 2017 NC HMP as action # 17.
ACTION 18	ACTION: Track Opioid use within each municipality, assist and support law enforcement activities to eliminate and prohibit the manufacturing, distribution and use of Opioids in Northumberland Country.	This original action has been removed because it is included in action # 17. The new action is for the County to "track Opioid use within each municipality, assist and support law enforcement activities to eliminate and prohibit the manufacturing, distribution and use of Opioids in Northumberland Country" and is included in the 2017 NC HMP as action # 18.
ACTION 19	ACTION: Regularly inspect and maintain bridges, culverts, and levees for the protection from hazards and structural failures.	This action has been updated to add "for the protection from hazards and structural failures" and is included in the 2017 NC HMP as action # 19.
ACTION 20	ACTION: Develop a stream corridor restoration plan to protect the Susquehanna River banks, stream and creek banks from washout & erosion.	This action has been updated to add "to protect the Susquehanna River banks, stream and creek banks from washout & erosion" and is included in the 2017 NC HMP as action # 20.
ACTION 21	ACTION: Create and maintain a database and map of all critical facilities in the County for Emergency and Hazard Planning.	This action has been updated to add "for Emergency and Hazard Planning" and is included in the 2017 NC HMP as action # 21.
ACTION 22	ACTION: Inspect critical facilities regularly to ensure they comply with standard codes and can structurally withstand the impacts of a disaster.	This action was updated by adding "structurally" and is included in the 2017 NC HMP as action # 22.
ACTION 23	ACTION: Participate in the hazard mitigation planning process.	This action remains relevant and is included in the 2017 NC HMP as action # 23.

Table 6.2-1B: List and Review Summary of 2012 Mitigation Actions for the 2017 NC HMP Mitigation Actions

GOAL	OBJECTIVE	REVIEW
ACTION 24	ACTION: Enforce floodplain development regulations to ensure proper floodproofing and repairs/alterations.	This action has been updated to add "to ensure proper floodproofing and repairs/alterations" and is included in the 2017 NC HMP as action # 24.
ACTION 25	ACTION: Offer technical assistance to municipalities to develop, address, or enforce floodplain, zoning, hillside development regulations, subdivision and development regulations, design review standards, and environmental review standards.	This action remains relevant and is included in the 2017 NC HMP as action # 25.
ACTION 26	ACTION: Develop stormwater management plans and regulations for those watersheds in the County that do not currently have a plan.	This action remains relevant and is included in the 2017 NC HMP as action # 26.
ACTION 27	ACTION: Purchase of easement/development rights in hazard-prone areas, specifically the 1 percent annual chance floodplain to limit floodplain development.	This action was updated to add "Purchase of easement/development rights" in place of "Acquire easements" and add "to limit floodplain development" is included in the 2017 NC HMP as action # 17.
ACTION 28	ACTION: Promote open space preservation for flood water storage without causing damages.	This action has been updated to add "for flood water storage without causing damages" and is included in the 2017 NC HMP as action # 28.
ACTION 29	ACTION: Require special use permits for hazard-prone areas according to the Floodplain Ordinances.	This action has been updated to add "according to the Floodplain Ordinances" and is included in the 2017 NC HMP as action # 29.
ACTION 30	ACTION: Promote natural resource planning especially for public awareness and recreational uses.	This action has been updated to add "especially for public awareness and recreational uses" and is included in the 2017 NC HMP as action # 30.
ACTION 31	ACTION: Review, evaluate, and discuss designated growth areas in existing County and Local plans to ensure development will occur out of hazard-prone areas.	This action remains relevant and is included in the 2017 NC HMP as action # 31.
ACTION 32	ACTION: Review planned infrastructure to ensure that it will be developed outside of hazard-prone areas.	This action remains relevant and is included in the 2017 NC HMP as action # 32.
ACTION 33	ACTION: Recommend, encourage, and assist communities to participate in the National Flood Insurance Program (NFIP) Community Rating System (CRS).	This action remains relevant and is included in the 2017 NC HMP as action # 33.
ACTION 34	ACTION: Encourage regional development of plans and procedures with other Counties and Municipalities.	This action has been updated to add "with other Counties and Municipalities" and is included in the 2017 NC HMP as action # 34.
ACTION 35	ACTION: Encourage departments responsible for creating and storing data related to parcels, centerlines, buildings, addresses, hydrology, and hazards to develop and enforce data maintenance policies.	This action remains relevant and is included in the 2017 NC HMP as action # 35.

Table 6.2-1C: List and Review Summary of 2012 Mitigation Actions for the 2017 NC HMP Mitigation Actions

GOAL	OBJECTIVE	REVIEW
ACTION 36	ACTION: Encourage the development of data-sharing policies and agreements between departments and organizations responsible for data creation, management, and use.	This action remains relevant and is included in the 2017 NC HMP as action # 36.
ACTION 37	ACTION: Develop and maintain hazard occurrence databases to record information on hazards such as date and time of occurrence, duration of disaster, amount of damage, numbers of injuries, etc., for repetitive hazard profiling and for prediction & early warning planning & notifications.	This action has been updated to add "for repetitive hazard profiling and for prediction & early warning planning & notifications" and is included in the 2017 NC HMP as action # 37.
ACTION 38	ACTION: Develop detailed databases on parcels and buildings in and out of the 1 percent annual chance floodplain. The data could include first-floor elevations, number of stories, basements, value of the structure, acreage of parcel in the floodplain, etc.	This action remains relevant and is included in the 2017 NC HMP as action # 38.
ACTION 39	ACTION: Work with the Federal Emergency Management Agency (FEMA) to update current NFIP floodplain maps and determine base flood elevations for the county.	This action remains relevant and is included in the 2017 NC HMP as action # 39.
ACTION 40	ACTION: Ensure that all critical facilities, including local dams and levees, have updated Emergency Response Plans.	This action remains relevant and is included in the 2017 NC HMP as action # 40.
ACTION 41	ACTION: Develop and distribute a list of contact persons for each organization that may play a part in emergency response, services, relief, or hazard mitigation actions and planning.	This action has been updated to add "actions and planning" and is included in the 2017 NC HMP as action # 41.
ACTION 42	ACTION: Encourage the heads of each department or organization involved in emergency response, services, relief, or hazard mitigation to meet several times a year to discuss hazard mitigation planning and training.	This action has been updated to add "planning and training" and is included in the 2017 NC HMP as action # 42.
ACTION 43	ACTION: Disseminate informational brochures or mailings and/or create websites and social media for organizations involved in emergency response, services, relief, or hazard mitigation.	This action was updated to add "or mailings and/or create websites and social media" and is included in the 2017 NC HMP as action # 43.
ACTION 44	ACTION: Inventory all available equipment and technology used for emergency response, for hazard planning, and EOP resource listing .	This action has been updated to add "for hazard planning, and EOP resource listing " and is included in the 2017 NC HMP as action # 44.
ACTION 45	ACTION: Develop evacuation routes and an evacuation plan to be used in the event of a disaster.	This action remains relevant and is included in the 2017 NC HMP as action # 45.
ACTION 46	ACTION: Encourage homeowners to install appropriate venting devices to alleviate radon concentrations from within homes.	This action has been updated to add "from" and is included in the 2017 NC HMP as action # 46.
ACTION 47	ACTION: Require all municipalities in Northumberland County to create and adopt an Emergency Operations Plan and provide a copy to the County Dept. of Public Safety.	This is a new action and was included in the 2017 NC HMP as action # 47.

Table 6.2-1D: List and Review Summary of 2012 Mitigation Actions for the 2017 NC HMP Mitigation Actions

GOAL	OBJECTIVE	REVIEW
ACTION 48	ACTION: Develop a Mitigation Plan for Repetitive and Severe Repetitive Loss properties.	This is a new action and was included in the 2017 NC HMP as action # 48.
ACTION 49	ACTION: Recommend, encourage, and assist communities in the adoption of the 2017 NC HMP.	This is a new action and was included in the 2017 NC HMP as action # 49.
ACTION 50	ACTION: Municipalities shall require Building Permits for any work done to any structures located in the 1 percent annual chance floodplain.	This is a new action and was included in the 2017 NC HMP as action # 50.
ACTION 51	ACTION: Recommend and encourage municipalities to amend their floodplain ordinance to prohibit Manufactured Homes in the 1 percent annual chance floodplain.	This is a new action and was included in the 2017 NC HMP as action # 51.
ACTION 52	ACTION: Assist municipalities in developing policies and procedures related to hazard mitigation, especially for municipalities that are vulnerable to direct impacts from possible dam failure.	This is a new action and was included in the 2017 NC HMP as action # 52.
ACTION 53	ACTION: Develop a Northumberland County Post Disaster Recovery & Reconstruction Ordinance using the model ordinance included in the APA/FEMA PAS Report # 483/484.	This is a new action and was included in the 2017 NC HMP as action # 53.
ACTION 54	ACTION: Recommend, encourage and assist municipalities in enforcing their floodplain ordinances.	This is a new action and was included in the 2017 NC HMP as action # 54.
ACTION 55	ACTION: Assist municipalities in obtaining computer equipment, training, usage, and creating databases on local hazards for local Municipalities without equipment, etc..	This is a new action and was included in the 2017 NC HMP as action # 55.
ACTION 56	ACTION: Northumberland County to provide annual review/maintenance/update meetings for local municipalities, stakeholders, etc. over the next 5 years.	This is a new action and was included in the 2017 NC HMP as action # 56.
ACTION 57	ACTION: Conduct annual hazard emergency management training exercises/drills with County and local municipalities.	This is a new action and was included in the 2017 NC HMP as action # 57.
ACTION 58	ACTION: Disseminate informational pamphlets or mailings and/or create websites and social media for to residents of mobile home/trailer (Manufactured Home) parks on how and why to anchor mobile homes/trailers to protect against severe windstorms and flood events.	This is a new action and was included in the 2017 NC HMP as action # 58.
ACTION 59	ACTION: Conduct routine inspections, regular maintenance, and annual tests on all emergency communications equipment, public address systems, and alert sirens to ensure unhindered operation during an emergency event.	This is a new action and was included in the 2017 NC HMP as action # 59.
ACTION 60	ACTION: Maintain response actions to hazards that are consistent with County-level EOP.	This is a new action and was included in the 2017 NC HMP as action # 60.

Table 6.2-1E: List and Review Summary of 2012 Mitigation Actions for the 2017 NC HMP Mitigation Actions

GOAL	OBJECTIVE	REVIEW
ACTION 61	ACTION: Ensure that a planned, coordinated, technologically advanced, and effective public warning dissemination program exists at the local level.	This is a new action and was included in the 2017 NC HMP as action # 61.
ACTION 62	ACTION: Develop a technical proficiency at the municipal level for conducting post-disaster damage assessments and regulating reconstruction activities to ensure compliance with NFIP substantial damage/substantial improvement requirements and the PA UCC.	This is a new action and was included in the 2017 NC HMP as action # 62.
ACTION 63	ACTION: Develop a technical proficiency at the municipal level for assisting local residents and business owners in hazard mitigation measures that are to be incorporated in reconstruction activities.	This is a new action and was included in the 2017 NC HMP as action # 63.
ACTION 64	ACTION: Improve communications between the public and emergency management services through online information.	This is a new action and was included in the 2017 NC HMP as action # 64.
ACTION 65	ACTION: Develop and implement a post-disaster recovery and mitigation training program for local officials.	This is a new action and was included in the 2017 NC HMP as action # 65.
ACTION 66	ACTION: Maintain a partnering relationship with the NWS Mid-Atlantic River Forecast Center to enhance the existing Susquehanna River Basin Flood Forecast and Warning System via the Advanced Hydrologic Prediction Services Program.	This is a new action and was included in the 2017 NC HMP as action # 66.
ACTION 67	ACTION: Develop new or revise existing County and local municipal Subdivision and Land Development Ordinances, Comprehensive Plans, Erosion and Soil Ordinances, and Stormwater Ordinances to regulate the location and construction of buildings and other infrastructure in the known hazard areas.	This is a new action and was included in the 2017 NC HMP as action # 67.
ACTION 68	ACTION: Encourage municipal compliance with NFIP and PA Act 166 floodplain development regulations and/or encourage more restrictive requirements, as appropriate by conducting training and inspection workshops.	This is a new action and was included in the 2017 NC HMP as action # 68.
ACTION 69	ACTION: Maintain a flood damage reduction/prevention public education program utilizing the NC DPS website and social media including but not limited to the development of informative training for local officials on NWS "Storm Ready", FEMA, PEMS, and NFIP Programs.	This is a new action and was included in the 2017 NC HMP as action # 69.
ACTION 70	ACTION: Continue participation in the National Weather Service "Storm Ready" Program.	This is a new action and was included in the 2017 NC HMP as action # 70.
ACTION 71	ACTION: Coordinate with FEMA, PEMA, and PA DCED to ensure that affected County/municipal residents are aware of the Biggert-Waters legislation, the FEMA sponsored updated flood mapping for the Susquehanna River Basin, the availability and benefits of obtaining federally backed flood insurance. Encourage uninsured affected County/municipal residents to purchase flood insurance, and to inform residents outside of the SFHA that they are also eligible to purchase flood insurance through the NFIP.	This is a new action and was included in the 2017 NC HMP as action # 71.

Table 6.2-1F: List and Review Summary of 2012 Mitigation Actions for the 2017 NC HMP Mitigation Actions

GOAL	OBJECTIVE	REVIEW
ACTION 72	ACTION: When funding becomes available, preform acquisitions, foundation stabilizations, demolitions, elevations, remodeling, retrofitting, relocations, dry	This is a new action and was included in the 2017 NC HMP as action # 72.
ACTION 73	ACTION: Coordinate with local municipality and or PennDOT on the potential feasibility of replacing, removing or enlarging those roads, bridges and culvert stream crossings that are identified as being unable to pass the 10 year frequency flood flow.	This is a new action and was included in the 2017 NC HMP as action # 73.
ACTION 74	ACTION: Conduct drainage system and ditch maintenance & upgrades throughout the municipalities to prevent roadway flooding. Ensure existing drainage systems are adequate and functioning properly in order to reduce impacts related to flash flooding and storm water/runoff.	This is a new action and was included in the 2017 NC HMP as action # 74.
ACTION 75	ACTION: Conduct routine stream and river bank maintenance to keep them free of obstructions to flow and to prevent flooding problems.	This is a new action and was included in the 2017 NC HMP as action # 75.
ACTION 76	ACTION: Maintain and improve the Sunbury Levee System, and any other levees, in order to provide more effective flood protection from the potential impacts from upstream community floodwalls and levees.	This is a new action and was included in the 2017 NC HMP as action # 76.
ACTION 77	ACTION: Review and monitor Emergency Operations Plans for gas line installations. & structures.	This is a new action and was included in the 2017 NC HMP as action # 77.
ACTION 78	ACTION: Review and monitor stormwater runoff from gas line installations.	This is a new action and was included in the 2017 NC HMP as action # 78.
ACTION 79	ACTION: To provide the Executive Summary in the spanish language.	This is a new action and was included in the 2017 NC HMP as action # 79.

Table 6.2-1G: List and Review Summary of 2012 Mitigation Actions for the 2017 NC HMP Mitigation Actions

6.2 MITIGATION GOALS AND OBJECTIVES

Based on the results of the goals and objectives evaluation exercise and input from the HMT, a list of 6 goals and 27 objectives was developed for the 2017 HMP and is shown in TABLE 6.2-1 List of Mitigation Strategy Goals and Objectives for the 2017 HMP. These goals and objectives are the same as the 2012 HMP.

GOAL	OBJECTIVE
GOAL 1	Increase public education and awareness of existing and potential hazards in Northumberland County.
Objective 1A	Develop public education and outreach programs on hazards and hazard mitigation.
Objective 1B	Educate property owners in hazard-risk areas regarding their risks and the precautions they can take.
Objective 1C	Provide ongoing training to EM Directors and municipal leaders to stay current on procedures/policies in development.
Objective 1D	Utilize the County website to provide ongoing education to the public about hazard mitigation and related upcoming events.
GOAL 2	Protect the citizens of Northumberland County as well as public and private property from the impacts of natural and human-caused hazards.
Objective 2A	Protect existing structures from damage that can be caused by hazards.
Objective 2B	Promote management and regulatory procedures that would reduce the impacts of hazards on public and private property.
Objective 2C	Develop local structural projects to reduce the impacts of natural and human-caused hazards on public and private property.
Objective 2D	Maintain stream and culverts to reduce backup and flooding.
Objective 2E	Protect critical facilities from the impacts of natural and human-caused hazards.
Objective 2F	Maintain annual meetings of County and Municipal Officials to review local problem areas and ensure each organization are clear about their individual and collective responsibilities.
GOAL 3	Mitigate the potential for injury/death and damage from natural and human-made hazards in Northumberland County.
Objective 3A	Develop regulations limiting development in hazard-prone areas
Objective 3B	Lessen impacts on natural resources and open space from natural and human-caused hazards.
Objective 3C	Direct new growth away from hazard-prone areas.
Objective 3D	Encourage property owners in the 1 percent annual chance floodplain to purchase flood insurance and provide education related to flood insurance to assist residents in making informed decisions.
GOAL 4	Encourage proper information management of data related to natural and human-caused hazards in Northumberland County.
Objective 4A	Develop data management policies to ensure adequate data management.
Objective 4B	Develop and update detailed databases related to hazards and hazard mitigation.
GOAL 5	Increase local government awareness of hazard mitigation programs.
Objective 5A	Educate local public officials about hazard mitigation practices and the Hazard Mitigation Plan.
Objective 5B	Provide training and technical assistance to emergency management personnel regarding hazard mitigation.
Objective 5C	Encourage municipalities to develop, implement, regularly review, and update hazard mitigation plans.
Objective 5D	Maximize the use of public funding for hazard mitigation programs and equipment.
Objective 5E	Use public funding for mitigation projects on private property.
GOAL 6	Improve emergency services and capabilities in Northumberland County to protect citizens from natural and human-caused hazards. *
Objective 6A	Improve coordination and communication between departments.
Objective 6B	Ensure adequate training and resources for those involved in emergency response, services, relief, or hazard mitigation.
Objective 6C	Ensure adequacy of equipment and technology.
Objective 6D	Ensure that residents receive relief and are evacuated as quickly as possible in the event of a disaster.
Objective 6E	Ensure that all emergency services are aware of funding opportunities that are available to maintain or acquire specialized equipment.
Objective 3E	Acquire, demolish, or elevate structures subject to flooding.

* This goal relates to response and recovery in Northumberland County.

Table 6.2-1: List of Mitigation Strategy Goals and Objectives for the 2017 NC HMP

6.3 IDENTIFICATION AND ANALYSIS OF MITIGATION TECHNIQUES

Appendix 7 of the SOG developed by PEMA provides a comprehensive list of hazard mitigation ideas. Northumberland County used this guide to identify mitigation techniques and develop mitigation actions. There are six categories of mitigation actions which Northumberland County considered in developing its Mitigation Action Plan. Those categories include:

- **Prevention:** Government administration or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning, zoning, building codes, subdivision regulations, hazard specific regulations (such as floodplain regulations), capital improvement programs, and open-space preservation and stormwater regulations.
- **Property Protection:** Actions that involve modifying or removing existing buildings or infrastructure to protect them from a hazard. Examples include the acquisition, elevation and relocation of structures, structural retrofits, flood-proofing, storm shutters, and shatter-resistant glass. Most of these property protection techniques are considered to involve “sticks and bricks”; however, this category also includes insurance.
- **Emergency Services:** Actions that typically are not considered mitigation techniques but reduce the impacts of a hazard event on people and property. These actions are often taken prior to, during, or in response to an emergency or disaster. Examples include warning systems, evacuation planning and management, emergency response training and exercises, and emergency flood protection procedures.
- **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, forest and vegetation management, wetlands restoration or preservation, slope stabilization, and historic property and archeological site preservation.
- **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about potential risks from hazards and potential ways to mitigate them. Such actions include hazard mapping, outreach projects, library materials dissemination, real estate disclosures, the creation of hazard information centers, and school age / adult education programs.
- **Structural Project Implementation:** Mitigation projects intended to lessen the impact of a hazard by using structures to modify the environment. Structures include stormwater controls (culverts), dams, dikes, levees, and saferooms.

Table 6.3-1 provides a strategy matrix identifying the mitigation techniques used for the moderate and high-risk hazards in the County. The specific actions associated with these techniques are in Appendix G.

HAZARD RISK	HAZARD NATURAL (N) HUMAN-MADE (M)	MITIGATION STRATEGY TECHNIQUE CATEGORY					
		PREVENTION	PROPERTY PROTECTION	EMERGENCY SERVICES	NATURAL RESOURCE PROTECTION	PUBLIC EDUCATION AND AWARENESS	STRUCTURAL PROJECT IMPLEMENTATION
HIGH	Floods, Flash Floods, Ice Jams (N)	X	X	X	X	X	X
	Winter Storm (N)		X	X		X	X
	Radon Exposure (N)	X		X		X	X
	Drought (N)	X		X	X	X	
MODERATE	Tornado, Wind Storm (N)	X	X	X		X	X
	Dam Failure (M)	X	X	X		X	X
	Levee Failure (M)	X	X	X		X	X
	Environmental Hazards (M)	X		X	X	X	
	Utility Interruptions (M)	X	X	X		X	X
	Transportation Accidents (M)	X		X		X	
	Hurricane, Tropical Storm, Nor'easter (N)	X	X	X		X	X

Table 6.3-1: MITIGATION STRATEGY TECHNIQUE MATRIX

6.4 MITIGATION ACTION PLAN

The following Risk Assessment stage of the 2017 HMP development process, Risk Assessment Meetings were held on March 23 & 30, 2017 to develop a Mitigation Action Plan (see the meeting minutes in Appendix A). Following the goals and objectives review and evaluation during the meeting, the HMT went over Mitigation Techniques using PEMA’s Mitigation Strategy Ideas section of the SOG. Municipalities were given Hazard Mitigation Action forms and asked to fill out the form for any action they completed, or any new action that was needed, or for any new hazard not addressed.

The Mitigation Action Form was not the only avenue available to the Local Municipalities to identify mitigation priorities. In total, all municipalities were able to select actions by using one of the following methods: submission of a Mitigation Action Form; comment provided on other worksheets to be completed throughout the process (i.e., the Hazard Mitigation Plan Update Questionnaire, the Hazard and Repetitive Loss Evaluation, Risk Assessment Form, Comment sheets for any of the meetings); or actions located in the 2012 Mitigation Action Plan that the HMT evaluated and determined to be in progress or incomplete but still viable.

Unfortunately, only one Municipality chose to attend one of the two meetings and none of the municipalities filled out a Hazard Mitigation Action form, so going forward the HMT formulated the Mitigation Actions and assigned Municipal responsibility.

The final list of the 78 Mitigation Actions is made up of actions developed by the HMT from the 2012 Mitigation Action Plan, actions from the 2012 HMP goals and objectives, and new actions developed by the HMT.

Appendix G lists all the mitigation actions for the 2017 HMP. At least one mitigation action was established for each moderate and high-risk hazard in Northumberland County, but more than one action is identified for several hazards. Each Municipality is assigned at least one action. Each mitigation action is intended to address one or more of the goals and objectives in Section 6.2. Actions 5, 33, 39, 62, 68, 68, 71 and 72 contribute to continued compliance with and participation in the NFIP. Additionally, Actions 24, 25, 32, 50, 54, and 67 will reduce the effects of hazards on new buildings and infrastructure while Actions 5, 6, 9, 17, 25, 48, 50, 54, and 72 will reduce the effects of hazards on existing buildings and infrastructure.

Each of the actions in Appendix G list the Municipality or Municipalities participating in the action, the action number and description, mitigation technique(s), hazard(s) addressed, the potential funding sources, the lead agency or department, and implementation schedule.

6.5 MITIGATION ACTION ASSESSMENT

Economic considerations are particularly important in weighing the costs versus benefits of implementing one action prior to another. Following PEMA's SOG, and FEMA's Local Mitigation Planning Handbook, mitigation requirements indicate that any prioritization system used shall include a special emphasis on the extent to which benefits are maximized according to a cost-benefit review of the proposed projects. To do this, and to be consistent with FEMA's guidance on using cost-benefit review of mitigation planning, the HMT created Table 6.5-1.

Table 6.5-1 lists the 78 mitigation actions and follows the PA STEEL Alternate Actions Assessment Method and includes a higher weighting for the two elements of the economic feasibility factor – Benefits of Actions and Cost of Action. This method incorporates concepts similar to those described in Method C of FEMA 386-5: Using Benefit Cost Review in Mitigation Planning (FEMA 2007). The HMT applied the seven PA STEEL criteria in Table 6.5-1 to evaluate the mitigation actions as either favorable, less favorable, and not applicable factors. Table 6.5-1 summarizes the assessment methodology and provides the factors for the "Benefit of Action" column and the "Cost of Action" column of Table 6.5-2.

Alternative Actions Assessment Method		PA STEEL Criteria Considerations																				Summary (Equal Weighted)		Summary (Benefits and Costs Weighted)		
		+ Favorable - Less favorable N Not Applicable																								
		P		A		S		T		E		E		L												
Action No.	Mitigation Action Description	Political		Administrative		Social		Technical		Economic		Environmental		Legal												
		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	Cost of Action	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	ACTION: Disseminate informational pamphlets or mailings and/or create websites and social media for Northumberland County residents that explain the risks of hazards, outline precautionary measures that can be taken to help reduce the impacts of a disaster to themselves and their property, and emphasize the values of ACTION: Develop an informational website with information on the hazards that can effect the County, how residents can protect themselves from disaster, and mitigation actions the County and municipalities are taking to help reduce the risks.	+	+	+	+	+	+	+	+	N	+	N	N	N	+	+	N	N	N	+	+	+	+	+	16 (+) 6 (N) 1 (-)	20 (+) 6 (N) 1 (-)
2	ACTION: Cooperate with local media to produce regular public service announcements or news releases on hazard risk, safety, and the importance of mitigation.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	15 (+) 7 (N) 1 (-)	19 (+) 7 (N) 1 (-)
3	ACTION: Coordinate with FEMA, PEMA, PA DCEd, and any other appropriate agencies on developing and implementing a natural hazard awareness curriculum in local schools.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	16 (+) 5 (N) 2 (-)	18 (+) 7 (N) 4 (-)
4	ACTION: Disseminate informational pamphlets or mailings and/or create websites and social media on hazard mitigation for property owners in the 1 percent annual chance floodplain or owners of Repetitive and Severe Repetitive Loss structures.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	17 (+) 5 (N) 0 (-)	21 (+) 5 (N) 0 (-)
5	ACTION: Develop informational workshops on hazard risks and hazard mitigation for property owners in high-risk areas.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	16 (+) 6 (N) 1 (-)	20 (+) 6 (N) 1 (-)
6	ACTION: Investigate a venues for real estate disclosure for properties in the 1 percent annual chance floodplain.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	17 (+) 5 (N) 1 (-)	21 (+) 5 (N) 1 (-)
7	ACTION: Assist municipalities in developing policies and procedures related to hazard mitigation, especially for municipalities that are vulnerable to direct impacts from possible levee failure.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
8	ACTION: Investigate a County fund to facilitate voluntarily acquiring, elevating, or retrofitting structures in hazard-prone areas.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)

Alternative Actions Assessment Method (continued)		PA STEEL Criteria Considerations														Summary (Benefits and Costs Weighted)												
		P			A		S		T			E		E				L										
Action No.	Mitigation Action Description	+ Favorable - Less favorable N Not Applicable														Summary (Equal Weighted)												
		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	Cost of Action	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				
10	ACTION: Enforce forest and vegetation management policies along the West and North Branch of the Susquehanna River floodplain.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	22 (+)	26 (+)	
11	ACTION: Enforce urban forestry and landscape management policies for Drainage & Stormwater Management.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	22 (+)	26 (+)
12	ACTION: Develop a plan of hazard mitigation best management practices that can be shared with other Counties.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)
13	ACTION: Enforce sediment and erosion control regulations for all Land Development Planning, especially for floodplain areas.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	22 (+)	26 (+)
14	ACTION: Work with state and federal officials to enforce dumping regulations along the North & West Branch of the Susquehanna River, especially the recreational areas.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	22 (+)	26 (+)
15	ACTION: Work with state and federal officials to enforce wetlands development regulations for all Land Development Planning to protect the Natural Resources.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	22 (+)	26 (+)
16	ACTION: Identify potential locations to construct levees or floodwalls to protect communities subject to flooding along the West Branch of the Susquehanna River.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	16 (+)	18 (+)
17	ACTION: Mitigate properties by elevation, acquisition & demolition, relocation or wet/dry floodproofing of properties in the hazard areas, notably the 1 percent annual chance floodplain.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	15 (+)	17 (+)
18	ACTION: Track Opioid use within each municipality, assist and support law enforcement activities to eliminate and prohibit the manufacturing, distribution and use of Opioids in Northumberland County.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	14 (+)	16 (+)
		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	4 (-)	6 (-)
		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	5 (N)	4 (N)
		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	4 (-)	6 (-)

**TABLE 6.5-1
Alternative Actions Assessment Method (continued)**

PA STEEL Criteria Considerations

Action No.	Mitigation Action Brief Description	PA STEEL Criteria Considerations												Summary (Equal Weighted)	Summary (Benefits and Costs Weighted)											
		+ Favorable						- Less favorable								N Not Applicable										
		P		A		S		T		E		E				L										
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	Cost of Action	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				
19	ACTION: Regularly inspect and maintain bridges, culverts, and levees for the protection from hazards and structural failures..	+	+	+	+	+	+	+	+	N	+	+	+	+	N	N	N	N	+	+	+	+	+	+	18 (+) 5 (N) 0 (-)	22 (+) 5 (N) 0 (-)
20	ACTION: Develop a stream corridor restoration plan to protect the Susquehanna River banks, stream and creek banks from washout & erosion.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	18 (+) 2 (N) 3 (-)	22 (+) 2 (N) 3 (-)
21	ACTION: Create and maintain a database and map of all critical facilities in the County for Emergency and Hazard Planning.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	+	+	+	+	+	17 (+) 5 (N) 1 (-)	21 (+) 5 (N) 1 (-)
22	ACTION: inspect critical facilities regularly to ensure they comply with standard codes and can structurally withstand the impacts of a disaster.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	19 (+) 4 (N) 0 (-)	23 (+) 4 (N) 0 (-)
23	ACTION: Participate in the hazard mitigation planning process.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
24	ACTION: Enforce floodplain development regulations to ensure proper floodproofing and repairs/alterations.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
25	ACTION: Offer technical assistance to municipalities to develop, address, or enforce floodplain, zoning, hillside development regulations, subdivision and development regulations, design review standards, and environmental review standards..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
26	ACTION: Develop stormwater management plans and regulations for those watersheds in the County that do not currently have a plan.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	+	18 (+) 1 (N) 4 (-)	20 (+) 1 (N) 6 (-)
27	ACTION: Purchase of easement/development rights in hazard-prone areas, specifically the 1 percent annual chance floodplain to limit floodplain development.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	19 (+) 1 (N) 3 (-)	21 (+) 1 (N) 5 (-)

Alternative Actions Assessment Method (continued)		PA STEEL Criteria Considerations															Summary (Benefits and Costs Weighted)										
		+ Favorable					- Less favorable					N Not Applicable															
		P			A		S		T			E		E				L									
Action No.	Mitigation Action Brief Description	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	Cost of Action	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			
		28	ACTION: Promote open space preservation for flood water storage without causing damages.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+
29	ACTION: Require special use permits for hazard-prone areas according to the Floodplain Ordinances..	+	+	+	-	-	-	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	19 (+)	23 (+)
30	ACTION: Promote natural resource planning especially for public awareness and recreational uses..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	22 (+)	26 (+)
31	ACTION: Review, evaluate, and discuss designated growth areas in existing County and Local plans to ensure development will occur out of hazard-prone areas.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)
32	ACTION: Review planned infrastructure to ensure that it will be developed outside of hazard-prone area s.	+	+	+	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	+	+	+	+	21 (+)	25 (+)
33	ACTION: Recommend, encourage, and assist communities to participate in the National Flood Insurance Program (NFIP) Community Rating System (CRS).	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)
34	ACTION: Encourage regional development of plans and procedures with other Counties and Municipalities.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)
35	ACTION: Encourage departments responsible for creating and storing data related to parcels, centerlines, buildings, addresses, hydrology, and hazards to develop and enforce data maintenance policies.	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	+	+	+	+	17 (+)	21 (+)
36	ACTION: Encourage the development of data-sharing policies and agreements between departments and organizations responsible for data creation, management, and use.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	+	+	+	+	18 (+)	22 (+)
		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	5 (N)	5 (N)
																										0 (-)	0 (-)

Alternative Actions Assessment Method (continued)		PA STEEL Criteria Considerations																Summary (Benefits and Costs Weighted)							
		+ Favorable - Less favorable N Not Applicable																							
		P				A				S				T					E				L		
Action No.	Mitigation Action Brief Description	Political Support		Administrative		Social		Technical		Economic		Environmental		Legal		Summary (Equal Weighted)									
		Local Champion	Public Support	Staffing	Funding Allocation	Maintenance / Operations	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Species	Effect on HAZMAT / Waste Site	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws	State Authority	Existing Local Authority	Potential Legal Challenge			
46	ACTION: Encourage homeowners to install appropriate venting devices to alleviate radon concentrations from within homes.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)
47	ACTION: Require all municipalities in Northumberland County to create and adopt an Emergency Operations Plan and provide a copy to the County Dept. of Public Safety.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	22 (+)	26 (+)
48	ACTION: Develop a Mitigation Plan for Repetitive and Severe Repetitive Loss properties.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	19 (+)	23 (+)
49	ACTION: Recommend, encourage, and assist communities in the adoption of the 2017 NC HMP.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)
50	ACTION: Municipalities shall require Building Permits for any work done to any structures located in the 1 percent annual chance floodplain.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	20 (+)	24 (+)
51	ACTION: Recommend and encourage municipalities to amend their floodplain ordinance to prohibit Manufactured (Mobile) Homes in the 1 percent annual chance floodplain.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14 (+)	18 (+)
52	ACTION: Assist municipalities in developing policies and procedures related to hazard mitigation, especially for municipalities that are vulnerable to direct impacts from possible dam failure.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)
53	ACTION: Develop a Northumberland County Post-Disaster Recovery & Reconstruction Ordinance using the model ordinance included in the APA/FEMA PAS Report # 483/484.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	22 (+)	26 (+)
54	ACTION: Recommend, encourage and assist municipalities in enforcing their floodplain ordinances.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+)	27 (+)

**TABLE 6.5-1
Alternative Actions Assessment Method (continued)**

Action No.	Mitigation Action Brief Description	PA STEEL Criteria Considerations														Summary (Benefits and Costs Weighted)										
		+ Favorable							- Less favorable								N Not Applicable									
		P		A		S		T		E		E		L												
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	Cost of Action	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				
55	ACTION: Assist municipalities in obtaining computer equipment, training, usage, and creating databases on local hazards for local Municipalities without equipment, etc..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
56	ACTION: Northumberland County to provide annual review/maintenance/update meetings on the 2017 NC HMP for local municipalities, stakeholders, etc. over the next 5 years.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
57	ACTION: Conduct annual hazard emergency management training exercises/drills with County and local municipalities.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
58	ACTION: Disseminate informational pamphlets or mailings and/or create websites and social media for to residents of mobile home/trailer (Manufactured Home) parks on how and why to anchor mobile homes/trailers to protect against severe	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	21 (+) 2 (N) 0 (-)	25 (+) 2 (N) 0 (-)
59	ACTION: Conduct routine inspections, regular maintenance, and annual tests on all emergency communications equipment, public address systems, and alert sirens to ensure unhindered operation during an emergency event.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	21 (+) 2 (N) 0 (-)	25 (+) 2 (N) 0 (-)
60	ACTION: Maintain response actions to hazards that are consistent with County-level EOP.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23 (+) 0 (N) 0 (-)	27 (+) 0 (N) 0 (-)
61	ACTION: Ensure that a planned, coordinated, technologically advanced, and effective public warning dissemination program exists at the local level.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	16 (+) 5 (N) 2 (-)	18 (+) 5 (N) 4 (-)
62	ACTION: Develop a technical proficiency at the municipal level for conducting post-disaster damage assessments and regulating reconstruction activities to ensure compliance with NFIP substantial damage/substantial improvement requirements	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	20 (+) 3 (N) 0 (-)	24 (+) 3 (N) 0 (-)
63	ACTION: Develop a technical proficiency at the municipal level for assisting local residents and business owners in hazard mitigation measures that are to be incorporated in reconstruction activities.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	20 (+) 3 (N) 0 (-)	24 (+) 3 (N) 0 (-)

**TABLE 6.5-1
Alternative Actions Assessment Method (continued)**

Action No.		Mitigation Action Brief Description		Criteria Topics for Questions		PA STEEL Criteria Considerations													Summary (Equal Weighted)		Summary (Benefits and Costs Weighted)								
						+ Favorable			- Less favorable			N Not Applicable			L														
						P	A	S	T	E	E	E	E	E	E	E	E	E					E	E	E				
		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	Cost of Action	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					
64		ACTION: Improve communications between the public and emergency management services through online information.																								23 (+)	27 (+)	0 (N)	0 (N)
65		ACTION: Develop and implement a post-disaster recovery and mitigation training program for local officials.																								23 (+)	27 (+)	0 (N)	0 (N)
66		ACTION: Maintain a partnering relationship with the NWS Mid-Atlantic River Forecast Center to enhance the existing Susquehanna River Basin Flood Forecast and Warning System via the Advanced Hydrologic Prediction Services Program.																								23 (+)	27 (+)	0 (N)	0 (N)
67		ACTION: Develop new or revise existing County and local municipal Subdivision and Land Development Ordinances, Comprehensive Plans, Erosion and Soil Ordinances, and Stormwater Ordinances to regulate the location and construction of buildings																								23 (+)	27 (+)	0 (N)	0 (N)
68		ACTION: Encourage municipal compliance with NFIP and PA Act 166 floodplain development regulations and/or encourage more restrictive requirements, as appropriate by conducting training and inspection workshops.																								22 (+)	26 (+)	1 (N)	1 (N)
69		ACTION: Maintain a flood damage reduction/prevention public education program utilizing the Northumberland County Department of Public Safety website and social media including but not limited to the development of informative training for local officials on NWS "Storm Ready", FEMA, PEMS, and NFIP Programs.																								20 (+)	24 (+)	3 (N)	3 (N)
70		ACTION: Continue participation in the National Weather Service "Storm Ready" Program.																								22 (+)	26 (+)	1 (N)	1 (N)
71		ACTION: Coordinate with FEMA, PEMA, and PA DCED to ensure that affected County/municipal residents are aware of the Biggert-Waters legislation, the FEMA sponsored updated flood mapping for the Susquehanna River Basin, the availability and benefits of obtaining federally backed flood insurance. Encourage uninsured affected County/municipal residents to purchase flood insurance, and to inform residents outside of the SFHA that they are also eligible to purchase flood insurance																								20 (+)	24 (+)	3 (N)	3 (N)

**TABLE 6.5-1
Alternative Actions Assessment Method (continued)**

Alternative Actions Assessment Method (continued)		PA STEEL Criteria Considerations																	Summary (Equal Weighted)		Summary (Benefits and Costs Weighted)	
		+ Favorable					- Less favorable					N Not Applicable							Summary (Equal Weighted)	Summary (Benefits and Costs Weighted)		
		P	A	S	T	E	E	E	E	E	E	E	E	E	E	E	E	E			E	
Political Support	Local Champion	Public Support	Staffing	Funding Allocation	Maintenance / Operations	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Benefit of Action	Cost of Action	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	
Action No.	Mitigation Action Brief Description																Questions					
72	ACTION: When funding becomes available, preform acquisitions, foundation stabilizations, demolitions, elevations, remodeling, retrofitting, relocations, dry and wet floodproofing on flood hazard prone homes and commercial structures in accordance with the currently adopted community floodplain ordinances, PA UCC																					
73	ACTION: Coordinate with local municipality and or PennDOT on the potential feasibility of replacing, removing or enlarging those roads, bridges and culvert stream crossings that are identified as being unable to pass the 10-year frequency																					
74	ACTION: Conduct drainage system and ditch maintenance & upgrades throughout the municipalities to prevent roadway flooding. Ensure existing drainage systems are adequate and functioning properly in order to reduce impacts related to flash																					
75	ACTION: Conduct routine stream and river bank maintenance to keep them free of obstructions to flow and to prevent flooding problems.																					
76	ACTION: Maintain and improve the Sunbury Levee System, and a nyother levees, in order to provide more effective flood protection from the potential impacts from upstream community floodwalls and levees.																					
77	ACTION: Review and monitor Emergency Operations Plans for gas line installations and structures.																					
78	ACTION: Review and monitor stormwater runoff from gas line installations and structures.																					
79	ACTION: To provide the Executive Summary in the spanish language.																					

Table 6.5-2 also lists the 78 mitigation actions, many of which will require substantial time commitments from County and Local Municipal staff. The HMT developed and believes these mitigation actions are attainable and can be effectively implemented over the next five-year cycle. While all of the activities will be pursued over the next five years, the reality of limited time and resources requires the identification of high-priority mitigation actions. Prioritization allows the individuals and organizations involved to focus their energies and ensure progress on mitigation activities. The mitigation actions were evaluated using the ten criteria suggested in Appendix 12 of PEMA's SOG, and in the FEMA Local Mitigation Planning Handbook. The criteria include the following:

- **Life Safety:** How effective will the action be at protecting lives and preventing injuries?
- **Property Protection:** How significant will the action be at eliminating or reducing damage to structures and infrastructures.
- **Technical:** Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.
- **Political:** Is there overall public support for the mitigation action? Is there the political will to support it?
- **Legal:** Does the community have the authority to implement the action?
- **Environmental:** What are the potential environmental impacts of the action? Will it comply with environmental regulations?
- **Social:** Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?
- **Administrative:** Does the community have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?
- **Local Champion:** Is there a strong advocate for the action or project among local departments and agencies that will support the action's implementation?
- **Other Community Objectives:** Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of the comprehensive plan?

This method uses life safety, property protection, technical, political, legal, environmental, social, administrative, local champion, and other community objectives, to evaluate which of the identified actions should be considered most critical. Economic considerations are particularly important in weighing the costs versus benefits of implementing one action prior to another. Table 6.5-2 includes a summary of the feasibility factors from the "Benefit of Action" column and the "Cost of Action" column of Table 6.5-1, and places equal weight (+3) on those factors. The sum of the row is provided in the Feasibility Score Non-Weighted column, and in the Feasibility Score Non-Weighted column. This provides higher Economic factoring to the prioritization chart.

TABLE 6.5-2 Mitigation Action Prioritization Assessment		Mitigation Action Evaluation Criteria Considerations										Benefit - Cost Ratio			
(+) FAVORABLE (-) NOT FAVORABLE (N) NOT APPLICABLE/NEUTRAL NC Mitigation Action Brief Description		Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Economic Benefit of Action (+3)	Economic Cost of Action (+3)	Feasibility Score Non-Weighted	Feasibility Score Weighted
		1	NC to set up website/social media & mailings on for residents on hazards.	(+)	(+)	(+)	(+)	(+)	N	(+)	(+)	(+)	N	+	+
2	NC website on hazards info, protection & mitigation.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	N	+	+	11 (+) 1 (N) 0 (-)	17 (+) 1 (N) 0 (-)
3	News press to to media on hazards & mitigations.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	-	11 (+) 0 (N) 1 (-)	14 (+) 0 (N) 3 (-)
4	Hazard awareness education for schools.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
5	Develop website/social media & mailings on flooding.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	N	+	+	11 (+) 1 (N) 0 (-)	17 (+) 1 (N) 0 (-)
6	Workshops on hazard risk & mitigation for public.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
7	Real estate disclosure on floodplain properties.	(+)	(-)	(-)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	8 (+) 0 (N) 4 (-)	14 (+) 0 (N) 4 (-)
8	Develop policy & procedures on hazard mitigation.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
9	Investigate NC fund for hazard mitigation of properties.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
10	Enforce forest & vegetation management policies.	(-)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
11	Enforce urban forestry & landscape management policies.	(-)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
12	Enforce best management practices.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)

TABLE 6.5-2 Mitigation Action Prioritization Assessment		Mitigation Action Evaluation Criteria Considerations										Benefit - Cost Ratio			
(+ FAVORABLE (-) NOT FAVORABLE (N) NOT APPLICABLE/NEUTRAL		Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Economic Benefit of Action (+3)	Economic Cost of Action (+3)	Feasibility Score Non-Weighted	Feasibility Score Weighted
No	Mitigation Action Brief Description														
13	Enforce sediment & erosion control policies.	(-)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
14	Enforce dumping regulations.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
15	Enforce wetlands development regulations.	(-)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
16	Construct levees & floodwalls.	(+)	(+)	(-)	(+)	(+)	(+)	(+)	(-)	(-)	(+)	+	-	9 (+) 0 (N) 3 (-)	12 (+) 0 (N) 6 (-)
17	Mitigate properties in the 100 yr floodplain.	(+)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	-	11 (+) 0 (N) 1 (-)	14 (+) 0 (N) 3 (-)
18	Trach opioid use & assist and support law enforcement.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	-	10 (+) 0 (N) 2 (-)	13 (+) 0 (N) 5 (-)
19	Inspection & maintenance of bridges, culverts & levees.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
20	Develop a stream corridor restoration plan.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
21	Database & map of critical facilities.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
22	Inspection of critical facilities in hazard -prone areas.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
23	Participate in hazard mitigation planning process.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
24	Enforce floodplain development regulations.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)

TABLE 6.5-2 Mitigation Action Prioritization Assessment		Mitigation Action Evaluation Criteria Considerations										Benefit - Cost Ratio			
(+ FAVORABLE (-) NOT FAVORABLE (N) NOT APPLICABLE/NEUTRAL		Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Economic Benefit of Action (+3)	Economic Cost of Action (+3)	Feasibility Score Non-Weighted	Feasibility Score Weighted
No	Mitigation Action Brief Description														
25	Technical assistance to enforce development regulations in hazard areas.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
26	Develop stormwater management plans.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	-	+	11 (+) 0 (N) 1 (-)	14 (+) 0 (N) 3 (-)
27	Purchase easements & development rights in the 100 yr floodpl	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	-	+	9 (+) 0 (N) 3 (-)	13 (+) 0 (N) 5 (-)
28	Promote open space preservation.	(-)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	+	+	9 (+) 0 (N) 3 (-)	15 (+) 0 (N) 3 (-)
29	Require special use permits for hazard areas.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
30	Promote natural resource planning.	(-)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	+	+	9 (+) 0 (N) 3 (-)	15 (+) 0 (N) 3 (-)
31	Evaluate existing plans to prohibit growth in hazard areas.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
32	Review planned infrastructure to prohibit growth in hazard area	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	N	11 (+) 1 (N) 0 (-)	14 (+) 3 (N) 0 (-)
33	Encourage & assist communities to participate in NFIP & CRS.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
34	Encourage regional development of plans & procedures.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
35	Develop & enforce data maintenance policies.	(-)	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	8 (+) 0 (N) 4 (-)	14 (+) 0 (N) 4 (-)
36	Development data sharing policies & agreements.	(-)	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	8 (+) 0 (N) 4 (-)	14 (+) 0 (N) 4 (-)

TABLE 6.5-2 Mitigation Action Prioritization Assessment		Mitigation Action Evaluation Criteria Considerations										Benefit - Cost Ratio			
(+ FAVORABLE (-) NOT FAVORABLE (N) NOT APPLICABLE/NEUTRAL		Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Economic Benefit of Action (+3)	Economic Cost of Action (+3)	Feasibility Score Non-Weighted	Feasibility Score Weighted
No	Mitigation Action Brief Description														
37	Develop & maintain hazard occurrence databases.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
38	Develop databases on 100 yr floodplain properties.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	-	10 (+) 0 (N) 2 (-)	14 (+) 0 (N) 4 (-)
39	Work with FEMA to update maps & base flood elevations.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
40	Ensure all critical facilities have an EOP.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
41	Develop & distribute a contact list of assistance.	(+)	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	9 (+) 0 (N) 3 (-)	17 (+) 0 (N) 3 (-)
42	Encourage EMA agencies & staff to hold several meetings/yr.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
43	Develop website/social media & mailings for EMA agencies.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
44	Inventory all equipment & technology used for emergency respo	(+)	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
45	Develop evacuation routes & plans used for disasters.	(+)	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
46	Encourage homeowners to install venting equipment for Radon.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
47	Require adoption of EOP by all municipalities.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
48	Develop a mitigation plan for RL & SRL properties.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)

TABLE 6.5-2 Mitigation Action Prioritization Assessment		Mitigation Action Evaluation Criteria Considerations										Benefit - Cost Ratio			
(+ FAVORABLE (-) NOT FAVORABLE (N) NOT APPLICABLE/NEUTRAL		Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Economic Benefit of Action (+3)	Economic Cost of Action (+3)	Feasibility Score Non-Weighted	Feasibility Score Weighted
NC	Mitigation Action Brief Description														
52	Assist in developing policy & procedures on dam & levee failure.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
53	Develop NC post-disaster recovery & reconstruction ordinance.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
54	Enforce floodplain ordinances.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
55	Assist municipalities in obtaining computer equipment, etc.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
56	NC to provide annual review & meetings on the 2017 NC HMP.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)
57	Conduct EMA training.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
58	Develop website/social media & mailings on mobile home anch	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
59	Inspect, maintain & annually test all emergency equipment.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
60	Maintain response actions to hazards.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
61	Ensure all municipalities have public warning systems.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	-	10 (+) 0 (N) 2 (-)	13 (+) 0 (N) 5 (-)
62	Develop post-disaster damage assessment & reconstruction reg	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
63	Develop assistance for residents in hazard mitigation.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)

TABLE 6.5-2 Mitigation Action Prioritization Assessment		Mitigation Action Evaluation Criteria Considerations										Benefit - Cost Ratio			
(+) FAVORABLE (-) NOT FAVORABLE (N) NOT APPLICABLE/NEUTRAL No Mitigation Action Brief Description		Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Economic Benefit of Action (+3)	Economic Cost of Action (+3)	Feasibility Score Non-Weighted	Feasibility Score Weighted
		64	Improve communication between public & EMA.	(+)	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+
65	Develop training for local government in post-disaster & mitigation.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
66	Maintain partnering with NWS Mid-Atlantic River Forecast Center.	(+)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
67	Revise land development & stormwater ordinances to include hazardous materials.	(+)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	11 (+) 0 (N) 1 (-)	17 (+) 0 (N) 1 (-)
68	Municipal compliance with NFIP & PA Act 166.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
69	Public education program & training for local officials on hazardous materials.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
70	Participate in the Storm Ready Program.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
71	Make residents aware of the Biggert-Waters Act.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
72	Flood mitigation of residential & commercial properties.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
73	Repair or replace bridges & culverts & roads.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	-	10 (+) 0 (N) 2 (-)	13 (+) 0 (N) 5 (-)
74	Drainage system maintenance & updates.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	-	11 (+) 0 (N) 1 (-)	14 (+) 0 (N) 3 (-)
75	Stream & river bank maintenance.	(+)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	-	10 (+) 0 (N) 2 (-)	13 (+) 0 (N) 5 (-)

TABLE 6.5-2 Mitigation Action Prioritization Assessment		Mitigation Action Evaluation Criteria Considerations										Benefit - Cost Ratio			
(+) FAVORABLE (-) NOT FAVORABLE (N) NOT APPLICABLE/NEUTRAL No Mitigation Action Brief Description		Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Economic Benefit of Action (+3)	Economic Cost of Action (+3)	Feasibility Score Non-Weighted	Feasibility Score Weighted
		76	Maintain & improve all levees, including the Sunbury levee.	(+)	(+)	(+)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	+	-
77	Review & monitor EOP for gas lines.	(+)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
78	Review & monitor stormwater runoff from gas lines.	(+)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	+	+	10 (+) 0 (N) 2 (-)	16 (+) 0 (N) 2 (-)
79	To provide the Executive Summary in the spanish language.	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	+	+	12 (+) 0 (N) 0 (-)	18 (+) 0 (N) 0 (-)

MITIGATION STRATEGY

Once an action has been determined to be feasible it should be prioritized against all other feasible mitigation actions. To prioritize actions, the following weighted, multi-objective mitigation action prioritization criteria was used:

- **Effectiveness (20% of score):** The extent to which an action reduces the vulnerability of people and property.
- **Efficiency (30% of score):** The extent to which time, effort, and cost is well used as a means of reducing vulnerability.
- **Multi-Hazard Mitigation (20% of score):** The action reduces vulnerability for more than one hazard.
- **Addresses High Risk Hazard (15% of score):** The action reduces vulnerability for people and property from a hazard(s) identified as high risk.
- **Addresses Critical Communication/Critical Infrastructure (15% of score):** The action pertains to the maintenance of critical functions and structures such as transportation, supply chain management, data circuits, etc.

Cumulative scores will range between 0 and 3. Priority assignment is as follows:

- **Low priority = 0-1.8**
- **Medium priority = 1.9-2.4**
- **High priority = 2.5-3.0**

No.	Mitigation Actions Brief Action Description	Multi-Objective Mitigation Action Prioritization Criteria					Priority
		Effectiveness	Efficiency	Multi-Hazard Mitigation	Addresses High Risk Hazard	Addresses Critical Communications/Critical Infrastructure	
1	NC to set up website/social media & mailings on for residents on	2.7	2.6	3	3	1.5	2.60
2	NC website on hazards info, protection & mitigation.	2.7	2.6	3	3	1.5	2.60
3	News press to to media on hazards & mitigations.	2.7	2.6	3	3	1.5	2.60
4	Hazard awareness education for schools.	2.5	2.6	2.7	3	1.5	2.50
5	Develop website/social media & mailings on flooding.	2.7	2.6	1.9	3	1.5	2.38
6	Workshops on hazard risk & mitigation for public.	2.7	2.8	2.7	3	2	2.67
7	Real estate disclosure on floodplain properties.	3	3	3	3	1.5	2.78
8	Develop policy & procedures on hazard mitigation.	3	3	3	3	2.5	2.93
9	Investigate NC fund for hazard mitigation of properties.	2.3	2.3	2.3	3	2	2.36
10	Enforce forest & vegetation management policies.	2.3	2.8	2.5	3	1.5	2.48
11	Enforce urban forestry & landscape management policies.	2.3	2.8	2.5	3	1.5	2.48
12	Enforce best management practices.	2.6	2.8	2.8	3	2.8	2.79
13	Enforce sediment & erosion control policies.	2.4	2.8	2.8	3	1.5	2.56
14	Enforce dumping regulations.	2.3	2.8	2.5	3	1.5	2.48
15	Enforce wetlands development regulations.	2.6	2.6	2.6	3	1.5	2.50
16	Construct levees & floodwalls.	2.7	2	2.5	3	2	2.39
17	Mitigate properties in the 100 yr floodplain.	2.8	2.8	3	3	1.5	2.68
18	Trach opioid use & assist and support law enforcement.	2.6	2.7	2.3	3	1.5	2.47
19	Inspection & maintenance of bridges, culverts & levees.	2.3	2.3	2.4	3	1.5	2.31
20	Develop a stream corridor restoration plan.	2.2	2.2	2.2	3	1.5	2.22
21	Database & map of critical facilities.	2.8	2.8	2.6	3	2.8	2.79
22	Inspection of critical facilities in hazard -prone areas.	2.6	2.6	2.6	3	2.8	2.69
23	Participate in hazard mitigation planning process.	2.9	2.9	3	3	2.9	2.94
24	Enforce floodplain development regulations.	2.8	2.9	2.8	3	2.6	2.83
25	Technical assistance to enforce development regulations in hazard	2.8	2.8	2.8	3	2.4	2.77
26	Develop stormwater management plans.	2.6	2.6	2.7	3	2.5	2.67
27	Purchase easements & development rights in the 100 yr floodplain.	2.9	2.9	2.6	3	2.3	2.77
28	Promote open space preservation.	2.9	2.9	2.9	3	1.9	2.77
29	Require special use permits for hazard areas.	2.6	2.6	2.6	3	2.6	2.66
30	Promote natural resource planning.	2.6	2.6	2.6	3	2.1	2.59
31	Evaluate existing plans to prohibit growth in hazard areas.	2.7	2.6	2.8	3	2.2	2.66

No.	Mitigation Actions	Multi-Objective Mitigation Action Prioritization Criteria					Priority
		Effectiveness	Efficiency	Multi-Hazard Mitigation	Addresses High Risk Hazard	Addresses Critical Communications/Critical Infrastructure	
32	Review planned infrastructure to prohibit growth in hazard areas.	2.7	2.6	2.8	3	2.4	2.69
33	Encourage & assist communities to participate in NFIP & CRS.	2.7	2.6	2.8	3	2.6	2.72
34	Encourage regional development of plans & procedures.	2.8	2.8	2.8	3	2.8	2.83
35	Develop & enforce data maintenance policies.	2.4	2.6	2.5	3	2.5	2.59
36	Development data sharing policies & agreements.	2.4	2.6	2.5	3	2.5	2.59
37	Develop & maintain hazard occurrence databases.	2.8	2.8	3	3	2.7	2.86
38	Develop databases on 100 yr floodplain properties.	2.8	2.8	2.8	3	2.5	2.79
39	Work with FEMA to update maps & base flood elevations.	2.8	2.8	2.6	3	2.8	2.79
40	Ensure all critical facilities have an EOP.	2.9	2.9	2.9	3	2.9	2.92
41	Develop & distribute a contact list of assistance.	2.3	2.2	2.2	3	1.9	2.30
42	Encourage EMA agencies & staff to hold several meetings/yr.	2.7	2.7	2.7	3	2.8	2.76
43	Develop website/social media & mailings for EMA agencies..	2.7	2.7	2.7	3	2.8	2.76
44	Inventory all equipment & technology used for emergency	2	2.6	2.8	3	1.9	2.48
45	Develop evacuation routes & plans used for disasters.	2.7	2.7	2.7	3	2	2.64
46	Encourage homeowners to install venting equipment for Radon.	2.8	2.6	1.9	3	1.9	2.46
47	Require adoption of EOP by all municipalities.	2.9	2.9	2.9	3	2.9	2.92
48	Develop a mitigation plan for RL & SRL properties.	2.7	2.7	2.5	3	2	2.60
49	Recommend, encourage & assist all to adopt the 2017 NC HMP.	2.9	2.9	2.9	3	2.9	2.92
50	Municipalities to require building permits for the 100 yr floodplain.	2.9	2.9	2.7	3	2.4	2.80
51	Recommend & encourage municipalities to prohibit mobile homes in the 100 yr floodplain.	2.9	2.6	2.9	3	2	2.69
52	Assist in developing policy & procedures on dam & levee failure.	2.9	2.6	2.2	3	2.8	2.67
53	Develop NC post-disaster recovery & reconstruction ordinance.	2.9	2.6	2.2	3	2.8	2.67
54	Enforce floodplain ordinances.	2.8	2.9	2.8	3	2.6	2.83
55	Assist municipalities in obtaining computer equipment, etc.	2.8	2.6	2.8	3	2.5	2.73
56	NC to provide annual review & meetings on the 2017 NC HMP.	2.9	2.9	2.5	3	2	2.70
57	Conduct EMA training.	2.7	2.7	2.7	3	2.8	2.76
58	Develop website/social media & mailings on mobile home	2.7	2.7	2.6	3	1.5	2.55
59	Inspect, maintain & annually test all emergency equipment.	2.8	2.7	2.6	3	1.5	2.57
60	Maintain response actions to hazards.	2.8	2.8	2.8	3	2.8	2.83
61	Ensure all municipalities have public warning systems.	2.8	2.8	2.6	3	2.2	2.70
62	Develop post-disaster damage assessment & reconstruction	2.6	2.6	2.6	3	2.7	2.68
63	Develop assistance for residents in hazard mitigation.	2.8	2.8	2.8	3	2.1	2.73
64	Improve communication between public & EMA.	2.8	2.8	2.7	3	2.1	2.71
65	Develop training for local government in post-disaster & mitigation	2.8	2.8	2.7	3	2.4	2.75
66	Maintain partnering with NWS Mid-Atlantic River Forecast Center.	2.3	2.2	2.3	3	2	2.33
67	Revise land development & stormwater ordinances to include	2.6	2.6	2.6	3	2.2	2.60
68	Municipal compliance with NFIP & PA Act 166.	2.7	2.4	2.8	3	2.6	2.66
69	Public education program & training for local officials on hazard mitigation programs.	2.8	2.8	2.7	3	2.4	2.75
70	Participate in the Storm Ready Program.	2.7	2.7	2.7	3	2.5	2.72
71	Make residents aware of the Biggert-Waters Act.	2.4	2.3	2.6	3	2	2.44
72	Flood mitigation of residential & commercial properties.	2.7	2.7	2.5	3	1.5	2.53
73	Repair or replace bridges & culverts & roads.	2.3	2.3	2.4	3	2.5	2.46
74	Drainage system maintenance & updates.	2.6	2.6	2.7	3	1.5	2.52
75	Stream & river bank maintenance.	2.2	2.2	2.2	3	2.8	2.41
76	Maintain & improve all levees, including the Sunbury levee.	2.9	2.6	2.2	3	2.8	2.67
77	Review & monitor EOP for gas lines.	2.5	2.4	2.5	3	2.8	2.59
78	Review & monitor stormwater runoff from gas lines.	2.5	2.4	2.5	3	2.8	2.59
79	To provide the Executive Summary in the spanish language.	3	2.8	2.7	2.8	1.5	2.63

Effectiveness: The extent to which an action reduces the vulnerability of people and property.

Efficiency: The extent to which time, effort, and cost is well used as a means of reducing vulnerability.

Multi-Hazard Mitigation: The action reduces vulnerability for more than one hazard.

Addresses High Risk Hazard: The action reduces vulnerability for people and property from hazard(s) identified as high risk.

Addresses Critical Communications/Critical Infrastructure: The action pertains to the maintenance of critical functions and structures such as transportation, supply chain, management, data circuits, etc.