



SECTION 6 MITIGATION STRATEGY

This section presents mitigation actions for Morris County to reduce potential exposure and losses identified as concerns in the Risk Assessment portion of this HMP update. The County and planning partnership reviewed the Risk Assessment to identify and develop these mitigation actions, which are presented herein.

Hazard mitigation reduces the potential impacts of, and costs associated with, emergency and disaster-related events. Mitigation actions address a range of impacts, including impacts on the population, property, the economy, and the environment.

Mitigation actions can include activities such as: revisions to land-use planning, training and education, and structural and nonstructural safety measures.

This section includes:

- 1) Background and Past Mitigation Accomplishments
- 2) General Mitigation Planning Approach
- 3) Review and Update of Mitigation Goals and Objectives
- 4) Capability Assessment
- 5) Mitigation Strategy Development and Update

2015 Plan Update Changes

- The 2010 HMP mitigation strategy was presented in Section 9. For the 2015 HMP update, the mitigation strategy update process is presented in Section 6 (this section), while the specific updated mitigation strategies are presented in the jurisdictional annexes in Section 9.
- An NJOEM/FEMA Region II mitigation strategy workshop was conducted for Morris County and all plan participants as summarized in this section.
- The 2010 HMP capability assessment section was presented in Section 8. For the 2015 HMP update, the capability assessment was expanded and presented in Section 6 (this section) and in the jurisdictional annexes in Section 9.
- The mitigation strategy evaluation and prioritization methodology was updated and expanded.

6.1 BACKGROUND AND PAST MITIGATION ACCOMPLISHMENTS

In accordance with DMA 2000 requirements, a discussion regarding past mitigation activities and an overview of past efforts is provided as a foundation for understanding the mitigation goals, objectives, and activities outlined in this HMP. The County, through previous and ongoing hazard mitigation activities, has demonstrated that it is pro-active in protecting its physical assets and citizens against losses from natural and human-caused hazards. Examples of previous and ongoing actions, projects and capabilities include the following:

- The County facilitated the development of the original 2010 Morris County Multi-Jurisdictional Hazards Mitigation Plan, completed in 2010, which included the participation of all municipal governments in the County. The current planning process represents the regulatory five-year local plan update process.
- Out of the 39 municipalities in Morris County, all but one municipality participating in this plan update participate in the National Flood Insurance Program (NFIP), which requires the adoption of FEMA floodplain mapping and certain minimum construction standards for building within the floodplain. The single municipality currently not participating in the NFIP has included joining the NFIP in its updated mitigation strategy.
- Currently, three communities in Morris County are participants in NFIP Community Rating System (CRS) program, specifically the Township of Denville (Class 9), Township of Pequannock (Class 7), and Borough of Riverdale (Class 8). Two (2) municipalities formerly participated and now have “Rescinded” status: Township of Parsippany-Troy Hills and Borough of Lincoln Park. Municipalities



and the County as a whole could expect significant cost savings on premiums if enrolled in the CRS program. During the 2015 HMP update, several communities are now considering joining or re-entering the CRS program.

- The following municipalities have participated in the Morris County Flood Mitigation Program, and some of which requested and received funding from the County to acquire flood-prone properties: Town of Boonton, Township of Boonton, Township of Denville, Township of East Hanover, Borough of Lincoln Park, Township of Long Hill, Town of Morristown, Township of Morris, Township of Parsippany-Troy Hills, Township of Pequannock, and the Borough of Riverdale. Numerous studies have been conducted by Federal, State, County and local agencies/entities to examine natural hazards affecting Morris County, and have been reviewed and incorporated into this plan update as appropriate.
- Many municipalities in Morris County have adopted regulatory standards regarding land-use and zoning that exceed minimum requirements and provide the communities with greater capability to manage development without increasing hazard risk and vulnerability.
- Municipalities have actively participated in available mitigation grant funding opportunities to implement mitigation projects, including the Hazard Mitigation Grant Program funding available in the wake of Tropical Storm Irene and Super Storm Sandy.
- The County and municipalities have implemented mitigation actions to protect critical facilities and infrastructure throughout the planning area.

These past and ongoing activities have contributed to the County’s understanding of its hazard preparedness and future mitigation activity needs, costs, and benefits. These efforts provide an ongoing foundation for the planning partnership to use in developing this HMP update.

6.2 GENERAL MITIGATION PLANNING APPROACH

The overall approach used to update the County and local hazard mitigation strategies are based on FEMA and State of New Jersey regulations and guidance regarding local mitigation plan development, including:

- DMA 2000 regulations, specifically 44 CFR 201.6 (local mitigation planning)
- FEMA “Local Mitigation Planning Handbook”, March 2013
- FEMA “Integrating Hazard Mitigation into Local Planning”, March 2013
- Identifying Mitigation Actions and Implementing Strategies (FEMA 386-3)
- FEMA “Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards”, January 2013

The mitigation strategy update approach includes the following steps that are further detailed in later sections of this section:

- Review and update mitigation goals and objectives.
- Identify mitigation capabilities, and evaluate their capacity and effectiveness to mitigate and manage hazard risk.
- Identify progress on previous county and local mitigation strategies.
- Develop updated county and local mitigation strategies.
- Prepare an implementation strategy, including the prioritization of projects and initiatives in the updated mitigation strategy.



6.3 REVIEW AND UPDATE OF MITIGATION GOALS AND OBJECTIVES

This section documents the efforts to update the guiding principle (mission statement), and hazard mitigation goals and objectives established to reduce or avoid long-term vulnerabilities to the identified hazards.

6.3.1 Goals and Objectives

According to CFR 201.6(c)(3)(i): “The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.” Further, FEMA mitigation planning guidance recommends establishing objectives to better tie mitigation goals to specific mitigation strategies (e.g. projects, activities, and initiatives).

FEMA defines **Goals** as general guidelines that explain what should be achieved. Goals are usually broad, long-term, policy statements, and represent a global vision.

FEMA defines **Objectives** as strategies or implementation steps to attain mitigation goals. Unlike goals, objectives are specific and measurable, where feasible.

FEMA defines **Mitigation Actions** as specific actions that help to achieve the mitigation goals and objectives.

The goals and objectives established in the 2010 plan were reviewed by the Steering Committee in November 2014 in consideration of the hazard events and losses since the 2010 plan, the updated hazard profiles and vulnerability assessment, the goals and objectives established in the updated State HMP, county and local risk management plans, as well as direct input on how the Steering Committee (representing the County and participating municipalities) recognized the need to move forward to best manage their hazard risk.

Based on this review, the Steering Committee has decided maintain the goals and objectives of the 2010 plan. Morris County HMP goals are compatible with the needs and goals expressed in other available community planning documents as well as the New Jersey State HMP. Each goal has a number of corresponding objectives that further define the specific actions or implementation steps. Achievement of these goals will define the effectiveness of a mitigation strategy. The goals also are used to help establish priorities.

Table 6-1 presents Morris County’s goals and objectives for the 2015 Hazard Mitigation Plan update. Although an objective is listed with each goal, the objectives were developed to meet multiple goals as demonstrated in Table 6-2.

Table 6-1. Morris County Hazard Mitigation Plan Goals and Objectives

Goal	Objective
1. Improve education and outreach efforts regarding potential impacts of hazards and the identification of specific measures that can be taken to reduce their impact.	1.A. Increase awareness of risks and understanding of the advantages of mitigation by the general public and local government officials
	1.B. Increase local government official awareness regarding funding opportunities for mitigation.
	1.C. Increase local government official awareness regarding opportunities for participation in and contributing to future Plan updates.
2. Improve data collection, use, and sharing to reduce the impact of hazards.	2.A. Improve availability to the county and participating municipalities of data related to all relevant hazards for use in future planning efforts.
	2.B. Provide government officials and local practitioners with educational opportunities and information regarding best practices for hazard mitigation planning, project identification and implementation
	2.C. Acquire and maintain detailed data regarding critical facilities such that these sites can be prioritized and risk-assessed for possible mitigation actions.
3. Improve capabilities, coordination, and opportunities at municipal and county levels to plan	3.A. Continue support of hazard mitigation planning, project identification and implementation at the municipal and county level.
	3.B. Support increased NFIP/CRS participation.



Goal	Objective
and implement hazard mitigation projects, programs, and activities.	3.C. Support increased integration of municipal/county hazard mitigation planning and floodplain management with effective municipal/ county zoning, subdivision regulation, and comprehensive planning.
	3.D. Elicit and support efforts by federal and state legislatures and agencies to address shortcomings in existing laws, programs and administrative rules related to hazard mitigation.
	3.E. Provide for user-friendly hazard-data accessibility for mitigation and other planning efforts and for private citizens.
	3.F. Provide direct support, where possible, to municipal mitigation programs.
4. Pursue opportunities to mitigate repetitive loss properties and other appropriate hazard mitigation projects, programs, and activities.	4.A. Facilitate development and timely submittal of project applications meeting state and federal guidelines for funding (1) for NFIP Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties and (2) for hardening/retrofitting infrastructure and critical facilities with highest vulnerability ratings.
	4.B. Maintain and enhance local planning and regulatory standards related to future development and investments.



Table 6-2. Morris County Hazard Mitigation Plan Objectives meeting multiple Goals

Obj. #	Objective Statement	Goal 1 - Improve education and outreach efforts	Goal 2 - Improve data collection, use, and sharing	Goal 3 - Improve capabilities, coordination, and opportunities at municipal and county levels	Goal 4 -Pursue opportunities to mitigate repetitive loss properties and other appropriate hazard mitigation projects
1.A	Increase awareness of risks and understanding of the advantages of mitigation by the general public and local government officials	X	X	X	
1.C	Increase local government official awareness regarding funding opportunities for mitigation.	X	X	X	
1.C	Increase local government official awareness regarding opportunities for participation in and contributing to future Plan updates.	X	X	X	
2.1	Improve availability to the county and participating municipalities of data related to all relevant hazards for use in future planning efforts.	X	X		
2.A	Provide government officials and local practitioners with educational opportunities and information regarding best practices for hazard mitigation planning, project identification and implementation	X	X	X	
2.B	Acquire and maintain detailed data regarding critical facilities such that these sites can be prioritized and risk-assessed for possible mitigation actions.	X	X	X	
2.C	Continue support of hazard mitigation planning, project identification and implementation at the municipal and county level.		X	X	X
3.A	Support increased NFIP/CRS participation.	X	X	X	X
3.B	Support increased integration of municipal/county hazard mitigation planning and floodplain management with effective municipal/ county zoning, subdivision regulation, and comprehensive planning.	X	X	X	X
3.C	Increase awareness of risks and understanding of the advantages of mitigation by the general public and local government officials	X	X	X	
3.D	Elicit and support efforts by federal and state legislatures and agencies to address shortcomings in existing laws, programs and administrative rules related to hazard mitigation.			X	
3.E	Provide for user-friendly hazard-data accessibility for mitigation and other planning efforts and for private citizens.	X	X	X	X
3.F	Provide direct support, where possible, to municipal mitigation programs.			X	X
4.A	Facilitate development and timely submittal of project applications meeting state and federal guidelines for funding (1) for NFIP Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties and (2) for hardening/retrofitting infrastructure and critical facilities with highest vulnerability ratings.				X
4.B	Maintain and enhance local planning and regulatory standards related to future development and investments.			X	X



6.4 CAPABILITY ASSESSMENT

According to FEMA 386-3, a capability assessment is an inventory of a community’s missions, programs and policies; and an analysis of its capacity to carry them out. This assessment is an integral part of the planning process. The assessment process enables identification, review and analysis of local and state programs, policies, regulations, funding and practices currently in place that may either facilitate or hinder mitigation.

During the original planning process, the 2010 Planning Committee discussed their current capabilities to address potential hazard events. For the 2015 HMP update, the County and all municipalities identified and assessed their capabilities in the areas of planning and regulatory, administrative and technical, and fiscal. By completing this assessment, the County and each municipality learned how or whether they would be able to implement certain mitigation actions by determining the following:

- Limitations that may exist on undertaking actions;
- The range of local and/or state administrative, programmatic, regulatory, financial and technical resources available to assist in implementing their mitigation actions;
- Action is currently outside the scope of capabilities;
- Types of mitigation actions that may be technically, legally (regulatory) administratively, politically or fiscally challenging or infeasible;
- Opportunities to enhance local capabilities to support long term mitigation and risk reduction.

During the 2015 HMP update process, all participating jurisdictions were tasked with developing their capability assessment, paying particular attention to evaluating the effectiveness of these capabilities in supporting hazard mitigation, and identifying opportunities to enhance local capabilities. This purpose of this section is to provide a summary of these capabilities for the purposes of mitigation and does not describe all responsibilities of each entity. The following subsections and tables present a summary of these assessments.

More detailed county and municipal capabilities in the areas of planning and regulatory, administrative and technical, and fiscal may be found in the Capability Assessment section of their jurisdictional annexes in Section 9. Further, within each annex participating jurisdictions have identified how they have integrated hazard risk management into their existing planning, regulatory and operational/administrative framework (“integration capabilities”), and how they intend to promote this integration (“integration actions”). A further summary of these continued efforts to develop and promote a comprehensive and holistic approach to hazard risk management and mitigation is presented in Section 7.

6.4.1 Planning and Regulatory Capability

According to the FEMA *Local Mitigation Handbook*, planning and regulatory capabilities are based on the implementation of ordinances, policies, local laws and State statutes, and plans and programs that relate to guiding and managing growth and development. Morris County and its municipalities have various Federal, State, County and local policies, programs and plans available to promote and support mitigation and reduce future damages. Refer to Section 9 which summarizes the planning and regulatory capabilities per municipality.

6.4.1.1 Planning and Regulatory Capability – Federal and State

State of New Jersey Hazard Mitigation Plan

The State of New Jersey HMP includes an evaluation of the state’s overall pre- and post-hazard mitigation policies, programs, and capabilities; the policies related to development in hazard-prone areas; and the state’s funding capabilities. The State of New Jersey HMP thoroughly describes the federal and state programs



available to Morris County to promote mitigation. The State of New Jersey HMP was used as a resource in developing Morris County's HMP update.

National Flood Insurance Program (NFIP)

The U.S. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968 (FEMA's 2002 National Flood Insurance Program (NFIP)). The NFIP is a Federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages.

There are three components to the NFIP: flood insurance, floodplain management and flood hazard mapping. Communities participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary. Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage in the U.S. is reduced by nearly \$1 billion each year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built in compliance (FEMA, 2008).

With the exception of Chester Borough that has no mapped NFIP floodplains within its 1.5 square mile extent, all municipalities in Morris County actively participate in the NFIP. On March 11, 2015, FEMA released the preliminary FIRM for the County. The preliminary FIRM incorporates revised flood hazard analysis and mapping for 57.7 miles of detailed riverine analysis in Morris County. The base map was updated to 2010 orthophotography and the topology was updated to the 2012 USGS topographic map. Finally, the FIRM incorporates the New Jersey Flood Hazard Area Design Flood (NJFHADF) which is equal to the 1% annual chance flood plus an additional 25% flow. Several streams in the County were restudied and details regarding the streams and scope of revision can be found here: https://www.rampp-team.com/documents/newjersey/Morris_CountyNJ_Factsheet_031115.pdf. Further details on the County's flood vulnerability may be found in the flood hazard profile in Section 5.4.6.

NFIP Community Rating System (CRS)

As an additional component of the NFIP, the Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance (FEMA, 2012).

Currently, four (4) communities in Morris County are participants in CRS program, specifically the Township of Denville (Class 9), Township of Parsippany-Troy Hills (Class 10), Township of Pequannock (Class 7), and Borough of Riverdale (Class 8). Two (2) municipalities formerly participated and now have "Rescinded" status: Township of Parsippany-Troy Hills and Borough of Lincoln Park. Municipalities and the County as a whole could expect significant cost savings on premiums if enrolled in the CRS program. During the 2015 HMP update, several communities are now considering joining or re-entering the CRS program. Municipalities and the County as a whole could expect significant cost savings on premiums if enrolled in the CRS program. During the 2015 HMP update, several communities are now considering joining or re-entering the CRS program.



Critical Area Protection Policy

Green Acres Program; Blue Acres Program; Historical Preservation Program; Farmland Preservation; Wetlands Act of 1970 (N.J.S.A. 13:9A); Soil and Erosion and Sediment Control Act (N.J.S.A. 4:24); Highlands Water Protection and Planning Act (N.J.S.A. 13:20-1).

These programs provide funding for the State, municipalities, and counties to purchase land for open-space preservation and recreation. The Wetlands Act of 1970 (N.J.S.A. 13:9A) provide rules and regulations governing development in wetland areas of New Jersey. New Jersey has 15 soil conservation districts, following county boundaries that implement the New Jersey Soil Erosion and Sediment Control Act (N.J.S.A. 4:24), which governs certain aspects of new development. The Highlands Act calls for a prohibition on development on steep slopes defined in the Act.

6.4.1.2 Planning and Regulatory Capability – County and Local

Land Use Planning Policy

State of New Jersey Municipal Land Use Law L.1975, c. 291, s. 1, eff. Aug. 1, 1976, is the legislative foundation for the land use process, including decisions by Planning Boards and Zoning Boards of Adjustment, in the State of New Jersey. It defines the powers and responsibilities of boards and is essential to their functions and decisions. It also provides the required components of a municipal Master Plan.

Every municipal agency shall adopt and may amend reasonable rules and regulations, not inconsistent with this act or with any applicable ordinance, for the administration of its functions, powers, and duties. These plans help jurisdictions review their land use plans and policies with public participation. The Municipal Land Use Law requires that each municipality prepare a comprehensive plan and update that plan every 6 years.

The County does not have a traditional comprehensive Master Plan. The County’s transportation plan was developed to be the County’s land use plan guide. All municipalities have Master Plans. The Master Plans were reviewed and consulted when developing the goals and objectives of the HMP update, as well as updating each community’s mitigation strategy.

Morris County Planning Board

The Morris County Planning Board is responsible for adopting a master plan that shows the County Planning Board's recommendations for the development of the County. The Board advises the board of chosen freeholders in adopting and establishing an official county map, showing the highways, roadways, parks, parkways, and sites for public buildings or works, under county jurisdiction or in the acquisition, financing or construction of which the county has participated or may be called upon to participate. The Planning Board also reviews all subdivisions of land within the County and provides approval of those subdivisions affecting county road or drainage facilities. Lastly, the Planning Board reviews site plans for land development along county roads or affecting county drainage facilities and approves such development.

Floodplain Management Policy

New Jersey State Law Flood Hazard Area Control Act (NJSA 58:16A-52): The Act and regulations attempts to minimize damage to life and property from flooding caused by development within fluvial and tidal flood hazard areas, to preserve the quality of surface waters, and to protect the wildlife and vegetation that exist within and depend upon such areas for sustenance and habitat. While it does not require local adoption, as it is enforced by the NJDEP, the floodplain ordinances of each municipality need to be reviewed to be in compliance with this new regulation.



All municipalities with the exception of Chester Borough in Morris County participate in the NFIP and have a Floodplain Ordinance. Communities are encouraged to adopt standards which exceed NFIP requirements.

Morris County Flood Mitigation Program

The Morris County Flood Mitigation Program (FMP) was created in March 2012 in response to the intense flooding the County endured from Tropical Storm Irene. This program is the first county-level flood acquisition program in the State of New Jersey. FMP allows the County to assist its municipalities in proactively and permanently mitigating the issue of repetitive flooding within their communities by creating a specific mitigation program and stable funding source. The program is funded through the Morris County Open Space tax and provides grant funding for municipalities to purchase flood-prone residential properties. By doing this, the County and municipality is protecting their residents from future flooding events and lowering municipal costs. Acquired properties are then reverted to their natural state, creating open space for public use and for capturing/storing floodwaters.

The FMP provides grants to municipalities to acquire residential homes from willing owners that have a minimum Benefit-Cost Ratio (BCR) of 1:1 (the benefit of acquisition must be equal to or greater than the cost to acquire). The acquired land is owned and maintained by the municipality as deed restricted, permanently preserved open space.

Applications for acquisitions are accepted on a rolling basis throughout the year. Morris County provides direct assistance throughout the application and preservation process. There are two funding tracks available to acquire the flood prone properties. The MATCH program provides the required 25% match funding for federal and state mitigation grants in an expedited fashion, thus assuring quick receipt of FEMA and NJDEP grant funds in the wake of a disaster. The other funding track is the CORE program. This is designed to catch homes with have fallen through the FEMA/NJDEP funding nets. Morris County provides up to 75% of the acquisition cost. Local, state, or federal funding sources, or the homeowner's donation of value provides the remaining 25% match. To access this funding, the municipality must have an approved Flood Acquisition Plan (FLAP).

The FLAP is an essential tool used to understand the flood risk within each municipality of Morris County. The County performs a detailed analysis using available data (FEMA, NFIP, USACE, USGS, etc.) as well as direct input from the participating municipality. The final plan provides a comprehensive look at historic and current flood risks within the municipality. Morris County works in partnership, at no cost, with the municipalities to develop FLAPs. Currently, the Morris County FMP has developed FLAPs for 10 of the 39 municipalities in the County: Boonton (Town), Boonton (Township), East Hanover (Township), Lincoln Park (Borough), Long Hill (Township), Morris (Township), Morristown (Town), Parsippany-Troy Hills (Township), Pequannock (Township), and Riverdale (Borough). Most recently, the Township of Denville has requested a FLAP be developed for their community and the FMP is currently working on the plan.

The following municipalities have received funding from the County to acquire flood-prone properties: Town of Boonton, Township of Denville, Borough of Lincoln Park, Township of Long Hill, Town of Morristown, Township of Parsippany-Troy Hills, Township of Pequannock, and the Borough of Riverdale.

Building Codes Policy

Uniform Construction Code (Uniform Construction Code Act of 1975 [UCC]) requires all jurisdictions to have current land use master plans, zoning, and other land development ordinances. The UCC adopts up-to-date building codes as its Building Subcode and One- and Two-Family Subcode. These Subcodes contain requirements that address construction in both A and V flood zones.



Building codes mandate best practices and technology, much of which is designed to reduce or prevent damage from occurring when structures are under stress. New Jersey State Law requires that all municipalities adopt ordinances that follow the UCC. In January 2013, the State established by emergency rule the best available data from FEMA’s latest flood maps, plus one foot of freeboard, as the general rebuilding standard to adapt to changing flood hazard risks and corresponding federal flood insurance rates. All municipalities in Morris County have an active building code.

Emergency Management Plan

According to State Police Directive 101, each County and municipality shall prepare, adopt and maintain an Emergency Operation Plan that meets the requirements of the State Emergency Operations Plan guidelines and checklist. The plan describes the hazards faced by the jurisdiction as well as the jurisdictions capabilities, needs, demands and emergency management structure. Morris County and each municipality have an Emergency Operations Plan.

U.S. Army Corps of Engineers

The following information provides U.S. Army Corps of Engineers (USACE) programs and projects that are occurring within Morris County.

U.S. Army Corps of Engineers Dam Safety Program

The U.S. Army Corps of Engineers (USACE) is responsible for safety inspections of some federal and non-federal dams in the United States that meet the size and storage limitations specified in the National Dam Safety Act. USACE has inventoried dams and has surveyed each state and federal agency’s capabilities, practices, and regulations regarding design, construction, operation, and maintenance of the dams. USACE has also developed guidelines for inspection and evaluation of dam safety (USACE 1997).

Passaic River Basin General Re-Evaluation Study

The USACE and NJDEP partnered to carry out the Passaic River General Re-Evaluation Study to determine the best flood risk management alternative to help communities throughout the Passaic River Basin. The re-evaluation is one of the 15 recommendations made by Governor Chris Christie’s Passaic River Flood Advisory Commission. The study was kicked-off in June 2012 by the signing of a feasibility cost-sharing agreement between the USACE and the NJDEP. In spring 2014, the Passaic River Basin Flood Risk Management General Re-Evaluation Study Preliminary Alternative Analysis Report was completed and is now available to public.

Six alternatives were re-evaluated based on today’s existing conditions in the basin and new preliminary estimates of benefits and costs of each alternative were calculated. Using the preliminary benefit and cost estimates, the NJDEP requested that further, detailed analysis of three alternatives be undertaken in the second and final phases of the study. The three alternatives to be further analyzed include:

- **Alternative 14A** – Alternative 14A includes levees and floodwalls combined with nonstructural measures (such as floodproofing, raising homes, and buyouts). It does not include channel improvements but does include the possibility of bridge and dam modifications to help reduce localized flooding.
- **Duel Inlet Newark Bay Outlet Tunnel** – This alternative is the plan that was authorized by Congress after the 1987 study, with modifications that were developed with public input in the early 1990s. The most significant modification relocated the tunnel outlet from Third River to Newark Bay.
- **Nonstructural** – This alternative involves addressing the flood risk management issues in the Passaic River Basin exclusively through non-structural measures (such as floodproofing, raising homes, and buyouts). The nonstructural measures would be in lieu of large-scale construction projects, like levees, floodwalls, diversion tunnels, and other measures that tend to have a greater impact on the environment than modifying



existing buildings. These non-structural measures would only manage the flood risk to homes within the 10-year floodplain.

Passaic River – Preservation of Natural Flood Storage Areas

The USACE has been working on plans to reduce flooding in the basin since 1936, but no comprehensive plan has yet been implemented. Congress authorized a new study of the Passaic River Basin for the State of New Jersey in the WRDA of 1976 (Public Law 94-587) which led to a plan authorized in WRDA 1990 and modified in WRDA 1992, WRDA 1996, and WRDA 2000. The project includes several elements.

The Preservation of Natural Flood Storage Areas element includes the acquisition of approximately 5,350 acres of natural storage areas, 5,200 acres of which are wetlands and could conceivably be developed, worsening existing flood problems. The State of New Jersey has agreed to continue to protect 6,300 floodway acres, thus avoiding any secondary development. About 9,500 acres of the Central Basin are already protected as designated parkland, bringing the total of natural flood storage areas that would be permanently protected with the project to 21,000 acres. The preservation element will prevent flood damages from becoming worse. It will not reduce flooding in the Passaic River Basin. The cost sharing is set at 75% federal and 25% state. The state, as a non-federal sponsor, may reduce its share by applying credits included in the authorization.

The General Design Memorandum for the element was completed in July 1996 and the state requested that USACE proceed with its implementation at a current cost of \$22.1 million (October 2003 price level). USACE completed a Real Estate Design Memorandum for purchasing the natural flood storage lands and executed a Project Cooperation Agreement with the state in June 1999. To date, over 3,400 acres have been acquired in fee, by conservation easement, or already held under state protection. USACE will continue to acquire lands with completion funds received in fiscal year 2010.

Passaic River Basin Flood Management – Floodway Buy-Out

As stated previously, the USACE has been working on plans to reduce flooding in the basin since 1936, but no comprehensive plan has yet been implemented. As described earlier in this section, Congress authorized a new study of the Passaic River Basin for the State of New Jersey in the WRDA of 1976 which led to a plan authorized in WRDA 1990 and modified in WRDA 1992, WRDA 1996, and WRDA 2000. The project includes several elements, which are currently being implemented throughout the basin.

The Floodway Buy-Out element's cost sharing is set at 75% federal and 25% non-federal. The NJDEP is the non-federal sponsor. The Floodway Buy-out involves the acquisition and removal from the state defined floodway of approximately 800 homes in the municipalities of Fairfield, Lincoln Park (Morris County), Wayne, Pompton Lakes, Montville (Morris County), East Hanover (Morris County), Pequannock (Morris County), Little Falls, and Riverdale (Morris County). These homes are subject to frequent flood damages as documented in the draft Floodway Buy-out Study prepared by the USACE in October 1995. The estimated cost of the buy-outs was \$194,000,000 (October 1994 prices). The authorization specifies that the buy-outs are to be from willing sellers. The state began to implement the buy-outs through the state's Blue Acres Program in the late 1990's utilizing the draft report and \$15,000,000 in state funding, which has been expended.

Federal appropriations totaling \$1,250,000 were made by Congress in fiscal years 2003, 2004, and 2005. The NJDEP indicated that it would act as the non-federal sponsor in 2004. USACE and the state have completed a limited update of the 1995 draft study. The report focused on two areas of the floodway in Hoffman Grove, Wayne and Pompton Lakes for acquisition and demolition of 30 homes as requested by the NJDEP. The limited update draft report and environmental assessment were released for public review in July 2005. A final report was issued in August 2005. A public meeting was held in September 2005 to solicit interest in the buyouts. The report included an update of costs, benefits, an environmental assessment to meet National Environmental Policy



Act requirements, and coordination with the involved communities. An additional \$5 million were appropriated in 2010. The New York District team is updating the 2005 Limited Update Report which includes updating the environmental assessment, economic analysis, and cost estimate to 2014 price levels. USACE is working on Project Partnership Agreement (PPA) package and will submit to NJDEP for review and approval before sending it to USACE headquarters.

Passaic River Flood Warning System

The Passaic River Flood Warning System covers an area of 935 square miles and contains 132 communities within New York and New Jersey counties: Bergen, Essex, Hudson, Morris, Passaic, Sussex, Somerset, Union, and Rockland. This area contains a population of approximately 2.5 million people and over 20,000 homes and businesses. The Passaic River Flood Warning System consists of 56 stream level gages and precipitation gages. The gages transmit observational data via individual Data Collection Platforms (DCPs) to the National Environmental Satellite, Data and Information Services (NESDIS) Geostationary Operational Environmental Satellite (GOES) system. The data is then retrieved by the USGS and made available on the internet for the use of the NWS in their forecasting of riverine flood events, emergency managers, and the general public. The USGS National Water Information System Web Interface uses the collected data to report near real-time river level stage elevations, river water discharge volumes, and in some cases, collected precipitation data.

The observations form the basis for the river forecasts provided by the NWS. The NWS offices in Mount Holly (New Jersey) and Upton (New York) uses these observations and river forecasts in their watch and warning responsibilities for flood and flash flood events. The NWS provides the observed and forecasted streamflow data, as well as watch warning and advisory information on the Advanced Hydrologic Prediction Services webpage. Additionally, real-time data can be obtained from the USGS WaterAlert System, which is a subscription notification service that sends subscribers real-time data via email or text.

During fiscal year 2013, all 56 of the gages and data transmission components were reviewed and upgraded or replaced as needed to assure the collected data can be reliably delivered to the geostationary satellite. Normal operations and maintenance efforts continue within a partnership between the USACE and the USGS. The estimated operations and maintenance cost for fiscal year 2014 is \$580,000.

6.4.2 Administrative and Technical Capabilities

According to the FEMA Local Mitigation Handbook, administrative and technical capability refers to a community's staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. It also refers to the ability to access and coordinate these resources effectively. Local mitigation is further supported by county, regional, state and federal administrative and technical capabilities.

The following summarizes the administrative and technical capabilities available in Morris County. Based upon the capability assessment conducted, municipal administrative and technical capabilities vary across the County. Refer to Section 9 which describes each municipality's administrative and technical capabilities.

6.4.2.1 Administrative and Technical Capabilities – Federal and State

New Jersey State Police – Office of Emergency Management (NJOEM)

The Governor of New Jersey has the overall responsibility for Emergency Management activities in the State. The Superintendent of the New Jersey State Police is the State Director of the New Jersey Office of Emergency Management (NJOEM). On behalf of the Governor, all activities and departments are coordinated, directed, and controlled from the NJOEM, Emergency Operations Center.



The State Director of Emergency Management supervises, directs, and appoints deputies and/or assistants to control the daily activities of NJOEM. The function and staffing of NJOEM is with the approval of the Attorney General. The State Hazard Mitigation Officer is the representative of State government acting as the primary point of contact with FEMA, other federal agencies, and county and local units of government in the planning and implementation of pre- and post-disaster mitigation programs and activities required under the Stafford Act. Currently, the New Jersey State Hazard Mitigation Officer is Acting Sergeant First Class Michael Gallagher of NJOEM.

Recovery Bureau

The Chief of the Recovery Bureau supervises the Mitigation, Public Assistance, and Finance Units. The Mitigation Unit undertakes hazard mitigation planning and the review of mitigation projects in advance of potential disasters, and is also activated during and immediately after disasters to evaluate existing and proposed mitigation measures in the affected areas.

The Public Assistance Unit accepts and reviews applications for funds for emergency work submitted by local individuals, households, and businesses, as well as from local governments during and immediately after a disaster. The 2013 reorganization of the Bureau added a dedicated Finance Unit to support the fiscal functions of both the Public Assistance and Mitigation Units. The Finance Unit ensures timely reimbursements and fiduciary responsibility.

Mitigation Unit

The Mitigation Unit, within the Emergency Management Section, has the mission of enhancing State, county, and municipal risk reduction through the development and implementation of mitigation strategies. Hazard mitigation, by definition, is any sustained action that prevents or reduces the loss of property or human life from recurring hazards. The Mitigation Unit accomplishes this task by implementing and administering several grant-based programs in conjunction with FEMA.

Preparedness Bureau

The Preparedness Unit in the Preparedness Bureau is responsible for disseminating preparedness information in advance of a disaster or potential disaster. The Preparedness Unit maintains an extensive library of natural disaster preparedness and recovery information on its Family and Community Emergency Preparedness website, accessible at www.nj.gov/njoem or www.njsp.org/njoem. The disaster preparedness and recovery information featured prominently on the New Jersey State Police and NJOEM website home pages is a critical part of New Jersey's efforts to protect public health and safety and to minimize loss of life and property in the event of a disaster.

Hazard Mitigation Administrative Plan

In the event that an active disaster declaration has necessitated a FEMA-approved HMGP Administrative Plan, the plan is reviewed to ensure compliance with the prevailing guidance and to set forth the administrative procedures, organization, and requirements for administering the HMGP in New Jersey. The HMGP Administrative Plan details the process for prioritizing post-disaster mitigation funding of local mitigation projects.

New Jersey Department of Environmental Protection Bureau of Dam Safety & Flood Control

The Bureau of Dam Safety & Flood Control leads the State's efforts as the State NFIP Coordinator and Community Rating System (CRS) support. In addition, the section's responsibilities include the funding of



construction and operation of federal-state-local flood control mitigation projects throughout the state. The section has also taken a lead role on the development and adoption of NJ Flood Hazard Area mapping, as well as an active partnership with FEMA on their FEMA Map Modernization Program efforts. The Bureau provides assistance to communities participating in the NFIP and interested in joining CRS thru the NJDEP Community Assistance Program Unit.

NJDEP Dam Safety Section

The NJDEP Dam Safety Section under the Bureau of Dam Safety and Flood Control has responsibility for overseeing dam safety in the State. In 1912, the New Jersey legislature passed a series of safety regulations related to the construction, repair, and inspection of existing and proposed dams in the State. In 1981, the law was amended and became the Safe Dam Act, N.J.S.A. 58:4. Eventually in 1985, the Dam Safety Standards, N.J.A.C. 7:20 regulations were passed eventually leading to the Dam Safety Section.

The primary goal of the program is to ensure the safety and integrity of dams in New Jersey and, thereby, protect people and property from the consequences of dam failures. The Section also coordinates with the Division of State Police, local and county emergency management officials in the preparations and approval of Emergency Action Plans.

The Dam Safety Section reviews plans and specifications for the construction of new dams or for the alternation, repair, or removal of existing dams and must grant approval before the owner can proceed with construction. Engineers from the Section evaluate each project, investigate site conditions, and check recommended construction materials. During construction, engineers identify conditions that may require design changes, check for compliance with approved plans and specifications, and approve foundations before material is placed.

Existing dams are periodically inspected to assure that they are adequately maintained and owners are directed to correct any deficiencies found. The regulations require the owner to obtain a professional engineer to inspect their dams on a regular basis. These investigations include a comprehensive review of all pertinent material contained in the Department's files, a visual inspection, technical studies when necessary, and the preparation of a comprehensive report (NJDEP 2012a).

The owners or operators of all dams which raise the waters of any stream more than 70 feet above its usual mean low-water height or which impound more than 10,000 acre-feet of water shall have a regular inspection performed annually and formal inspections performed every three years by a New Jersey licensed professional engineer obtained by the owner. In addition, these inspections must be attended by a professional engineer assigned from the NJDEP.

Division of Water Supply and Geoscience

The Division of Water Supply and Geoscience (Water Supply) works to ensure adequate, reliable and safe water supply is available for the future. This goal is accomplished through the regulation of ground and surface water diversions, permitting of wells, permitting of drinking water infrastructure, monitoring of drinking water quality and technical support for water systems to achieve compliance with all Federal and State standards. In addition, Water Supply staff act in a support role during an emergency situation to provide technical assistance, as needed to re-establish safe and adequate public water supplies.

Water Supply staff provides technical assistance to assist water systems during water supply emergencies and to address routine non-compliance from significant deficiencies or poor water quality test results. The Drinking Water State Revolving Fund (DWSRF) program assists water systems in financing the cost of infrastructure through the use of federal and New Jersey Infrastructure Trust funds. Additionally, Water Supply provides operator licensing and training support as well as financial assistance through the DWSRF program.



Water Resource Management

The Water Pollution Management Element is responsible for protecting New Jersey's surface and ground waters from pollution caused by improperly treated wastewater and its residuals. This is accomplished primarily through the implementation of the New Jersey Pollutant Discharge Elimination System (NJPDES) permit program. This includes publicly owned treatment facilities (e.g. sanitary sewerage plants) and privately owned facilities (e.g. industrial facilities) as well as facilities that discharge stormwater (e.g. municipalities and highway agencies) and stormwater related to development. The NJPDES program also regulates discharges to ground water (e.g. septic systems) and the proper management of any residuals that are generated as part of the treatment process. The varied ownership of infrastructure components is often a complicating factor in the regulation of these entities (e.g. ownership of a treatment facility by a public entity and sewer mains by a different municipal entity). The total universe of NJPDES permits includes over 7500 permits. The Programs engineering and environmental specialist staff provide technical assistance in the development, interpretation and implementation of permit conditions.

New Jersey Department of the State - Office of Planning Advocacy (OPA) – Business Action Center

Supports and coordinates planning throughout NJ to protect the environment, mitigate development hazards and guide future growth into compact, mixed use development and redevelopment while fostering a robust long-term economy. The Office implements the goals of the State Development and Redevelopment Plan to achieve comprehensive, long term planning; and integrates that planning with programmatic and regulatory land use decisions at all levels of government and the private sector.

New Jersey Geological and Water Survey

Evaluates geologic, hydrogeologic and water quality data to manage and protect water resources, to identify natural hazards and contaminants, and to provide mineral resources including offshore sands for beach nourishment. Information provided by the survey includes GIS data and maps of geology, topography, groundwater and aquifer recharge. In addition the data tracks wellhead protection areas, aquifer thicknesses, properties and depths, groundwater quality, drought, geologic resources, and hazards such as earthquakes, abandoned mines, karst-influenced sinkholes and landslides. Equivalent of three work days is available to counties and/or municipalities upon written or electronic request to the State Geologist.

Rutgers University

Office of the New Jersey's State Climatologist

The ONJSC generates and archives climate data. Generated data are from the NJ Weather and Climate Network (NJWxNet), an assemblage of 55 automated weather stations situated throughout NJ. A decade or more of hourly observations are available from some of the stations, while others have shorter records. Since fall 2012 observations are available on a five-minute basis.

Along with these records, ONJSC archives or has ready access to National Weather Service (NWS) Cooperative Weather Station data. These are daily observations from several dozen stations at any given time over the past century plus. Individual stations have as many as 120 years of data; others have come and gone since the late 19th century. Another source of generated data is the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS), which includes daily observations of rain and snow from as many as several hundred volunteers throughout NJ.



New Jersey Climate Adaptation Alliance

The New Jersey Climate Adaptation Alliance was formed in response to a diverse group of stakeholders who came together on November 29, 2011 at Rutgers University to participate in the conference “Preparing NJ for Climate Change: A Workshop for Decision-Makers”.

The Alliance focuses on climate change preparedness for New Jersey in key impact sectors (public health; watersheds, rivers and coastal communities; built infrastructure; agriculture; and natural resources) through:

- Conducting outreach and education of the general public and targeted sectoral leaders;
- Developing recommendations for state and local actions through collaboration with policymakers at the state, federal and local levels;
- Undertaking demonstration and pilot projects in partnership with the private sector, local governments, non-governmental organizations, and others;
- Identifying science, research and data needs; and
- Developing capacity for implementation of preparedness measures and documentation of best practices (Rutgers University 2014).

NJADAPT is a collaborative effort of scientists and data managers in academia, government, the private sector and NGO community who have developed a strategic plan for a New Jersey platform to host and apply climate science impacts and data. NJADAPT includes a flood exposure profile for community discussions about hazard impacts; NJ Flood Mapper which is a tool for flooding hazards and sea level rise; and Getting to Resilience, a tool used to help communities reduce vulnerability and increase preparedness. NJADAPT can be accessed at <http://www.njadapt.org/>

6.4.2.2 Administrative and Technical Capabilities – County and Local

Morris County Office of Emergency Management

The Morris County Office of Emergency Management (MCOEM) coordinates multi-agency responses to emergencies and disasters within Morris County. It is responsible for alerting and notifying appropriate agencies when disaster strikes; coordinating all agencies that respond; ensuring resources are available and mobilized in times of disaster; developing preparedness plans and procedures for response to and recovery from disasters; and developing and providing materials for the public.

The mission of the MCOEM is to support the countywide emergency response partners and provide critical incident management support by delivering professional and exemplary service. MCOEM accomplishes this support by:

- Providing a comprehensive and integrated emergency management system that coordinates and supports community resources to protect lives, property and the environment through mitigation, preparedness, response and recovery from all natural and man-made hazards, disasters, and national security crises that may impact Morris County;
- Providing effective and professional assistance to other county departments and all Morris County Municipalities by providing guidance with emergency planning and preparation;
- Providing the highest level of emergency service(s) support to all of the emergency response disciplines;
- Providing specialized emergency medical response for our law enforcement, EMS, Fire and Hazardous Materials Response Team (HAZMAT); and,
- Providing quality educational and training programs as well as maintaining an effective Public/Private Partnership which supports a “whole community approach.”



The MCOEM staffs the Emergency Operations Center (EOC) which is a facility that provides coordinated emergency response, and also acts as staff to the liaison to the New Jersey Office of Emergency Management. They provide support for local emergency management, emergency medical services, law enforcement, and fire agencies. Additionally, the MCOEM is responsible for the following:

- Alerting and notifying appropriate agencies during emergencies and disasters.
- Ensuring resources are available and mobilized during large scale incidents.
- Developing preparedness plans and procedures for response to and recovery from emergencies and disasters.
- Developing and providing preparedness materials for the public.
- Management and oversight of the Morris County Emergency Operations Center (a facility which manages and coordinates emergency response for significant incidents.)
- Partnership with the New Jersey Office of Emergency Management.

Morris County Department of Planning and Public Works

The Morris County Department of Planning & Public Works consists of six divisions that provide services ranging from mosquito control and design, maintenance, security, and construction of county government property, including roads, freight lines and bridges to planning and funding distribution related to transportation, and the preservation of natural and cultural resources that are critical to the quality of life and define the character of Morris County.

The Department also provides professional and technical assistance to municipalities and other County departments and agencies to help reduce costs, maximize the efficient use of government resources, and share and update critical demographic, economic and geographic data.

The divisions of the Department include: Building and Grounds, Engineering and Transportation, Mosquito Control, Motor Services, Planning and Preservation, and Roads, Bridges and Shade Tree. Additionally, the Department serves the following boards and committees: Agriculture Development Board, Airport Advisory Committee, Construction Board of Appeals, Flood Mitigation Committee, Freight Railroad Advisory Committee, Historic Preservation Trust Fund Review Board, Mosquito Control Advisory Board, Open Space Committee, Planning Board, and Board of Transportation.

Division of Planning and Preservation

The Morris County Division of Planning & Preservation is one of five divisions of the Morris County Department of Planning & Public Works. It provides support staff for the Morris County Planning Board, the County Agriculture Development Board, the Historic Preservation Trust Fund Review Board, the Open Space Committee, and the Flood Mitigation Committee. The Division is comprised of several sections: Cultural Resources Survey, Farmland Preservation and Right to Farm, Flood Mitigation, Historic Preservation, Land Development Review, Open Space, and Special Projects/Long Range Planning. The Flood Mitigation section of the Division manages the Morris County Flood Mitigation Program, detailed earlier in this section.

The Division is responsible for developing the Morris County master plan, reviewing subdivisions of land and site plans, advising freeholders on planning matters, and providing information for individual citizens, industries, public service groups and government officials. They also maintain aerial photographs of the county and acts as the depository for U.S. Census data. The Division coordinates the process of cross acceptance planning with state and municipalities.

The Preservation Trust administers programs in accordance with the rules and regulations of the county's Open Space, Farmland and Historic Preservation Trust Fund that are designed to preserve farmland, open space,



historic resources and assist in the buyout of flood-prone residential properties in Morris County. Funds are approved by the Board of Chosen Freeholders based upon the recommendations of various Morris County agencies including the Open Space Committee, Agriculture Development Board, Park Commission, Municipal Utilities Authority, Historic Preservation Trust Fund Review Board, and most recently, the Flood Mitigation Committee.

Division of Buildings and Grounds

The Division of Buildings and Grounds provide maintenance for County buildings and grounds, except the parks. The Division also provides security services for all buildings except the parks, courts, and the County nursing home. The Division oversees contracts for construction and reconstruction of county government buildings, whether done by the County or by a private contractor.

Division of Engineering and Transportation

The Division of Engineering & Transportation is part of the Morris County Department of Planning & Public Works. The Division secures funding for road, bridge, railroad, bicycle, and pedestrian projects, and serves the County through regional transportation planning, design, implementation, and coordination of various modes of transportation.

The engineering staff is responsible for design, construction, reconstruction, and paving of county roads, as well as bridge and culvert construction, drainage, and repair specifications. Additionally, engineering is responsible for the design and construction of County building facilities and traffic signals on County roads.

Transportation planning staff conduct studies and coordinate planning efforts with state agencies, municipalities, county departments, and the North Jersey Transportation Planning Authority, and supervise three county-owned freight railroads. Two Freeholder appointed boards, the Morris County Board of Transportation and the Freight Railroad Advisory Committee, advise the Division on its activities.

Division of Mosquito Control

The Division of Mosquito Control was originally organized in 1928 as the Morris County Extermination Commission and is now part of the Department of Planning and Public Works. The Division carries on a program of Integrated Pest Management including inspections, biological controls, water management and public education, coordinated with the NJDEP and health agencies. The Division is a comprehensive, modern, integrated mosquito control program that employs a variety of environmentally sound techniques to reduce the annoyance and threat of disease caused by this important insect. The Morris County Board of Chosen Freeholders takes the work of mosquito control seriously and funds a program that provides a high level of protection from mosquitoes for the residents of Morris County.

The goal of the Division of Mosquito Control is reducing the number of nuisance and disease transmitting mosquitoes within the County. It employs a number of techniques to provide this service to residents with minimal impact on the environment. The program conducts extensive monitoring (mosquito surveillance) to determine the number and types (species) of mosquitoes present before any work is carried out.

Division of Roads, Bridges & Shade Tree

The Division of Roads, Bridges and Shade Tree maintains, reconstructs and repairs the 300-mile county roads and Morris County's 1,000 bridges and culverts. The Division also protects and cares for trees and ornamental plant life along the rights-of-way of the country road system. Additionally, they operate a leaf mulch program and nursery to provide trees for roadside planting. Shade Tree provides consultation to municipalities and non-profit groups.



Morris County Office of Information Technology

Morris County Geographic Information System

Morris County Geographic Information System (MCGIS) Services is a section of the Office of Information Technology (as of December 1st, 2013) at Morris County. The mission of MCGIS Services is to lead in the development of a shared Geographic Information System (GIS) resource for local decision makers and the general public, to support County GIS users, to develop precision site/user specific applications, and to share information, ideas, strategies, and solutions in the management of GIS and related technologies, in order to provide more efficient and effective mapping services to Morris County's agencies and constituents.

Morris County Park Commission

The Morris County Park Commission is committed to excellence in providing for a growing and diverse system of regional parks, recreation facilities, trails, historic sites, arboreta and open spaces of county, state and even national significance that: connects people with the natural environment; offers outstanding visitor experiences; manages its resources to balance recreation, education, conservation and historic preservation; and enhances the quality of life for current and future generations.

There are nine volunteer Park Commissioners serving five-year terms selected by the Board of Chosen Freeholders. Each Commissioner serves on several committees to oversee the Park System's activities. The Commission has public meetings monthly, except for August.

The mission of the Morris County Park Commission is to develop and preserve a dynamic and unique system of diverse natural, cultural and historic resources, and to provide innovative education and recreation opportunities of regional value, while exercising environmental and fiscal responsibility.

6.4.3 Fiscal Capabilities

Mitigation projects and initiatives are largely or entirely dependent on available funding. Morris County, and its municipalities, are able to fund mitigation projects through existing local budgets, local appropriations (including referendums and bonding), and through a range of Federal and State loan and grant programs. Additional information on funding sources may be found in the 2014 New Jersey State Hazard Mitigation Plan.

6.4.3.1 Fiscal Capabilities – Federal and State

Federal Hazard Mitigation Funding Opportunities

Federal mitigation grant funding is available to all communities with a current hazard mitigation plan (this plan); however most of these grants require a “local share” in the range of 10-25% of the total grant amount. The FEMA mitigation grant programs are described below.

Hazard Mitigation Grant Program (HMGP)

The HMGP is a post-disaster mitigation program. It is made available to states by FEMA after each Federal disaster declaration. The HMGP can provide up to 75% funding for hazard mitigation measures. The HMGP can be used to fund cost-effective projects that will protect public or private property in an area covered by a federal disaster declaration or that will reduce the likely damage from future disasters. Examples of projects include acquisition and demolition of structures in hazard prone areas, flood-proofing or elevation to reduce future damage, minor structural improvements and development of state or local standards. Projects must fit into an overall mitigation strategy for the area identified as part of a local planning effort. All applicants must have a FEMA-approved Hazard Mitigation Plan (this plan).



Applicants who are eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that perform essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for the HMGP; a local government must apply on their behalf. Applications are submitted to NJOEM and placed in rank order for available funding and submitted to FEMA for final approval. Eligible projects not selected for funding are placed in an inactive status and may be considered as additional HMGP funding becomes available.

Flood Mitigation Assistance (FMA) Program

The FMA combines the previous Repetitive Flood Claims and Severe Repetitive Loss Grants into one grant program. FMA provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The FMA is funded annually; no federal disaster declaration is required. Only NFIP insured homes and businesses are eligible for mitigation in this program. Funding for FMA is very limited and, as with the HMGP, individuals cannot apply directly for the program. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is 75%. At least 25% of the total eligible costs must be provided by a non-federal source. Of this 25%, no more than half can be provided as in-kind contributions from third parties. At minimum, a FEMA-approved local flood mitigation plan is required before a project can be approved. FMA funds are distributed from FEMA to the state. NJOEM serves as the grantee and program administrator for FMA.

Pre-Disaster Mitigation (PDM) Program

The PDM program is an annually funded, nationwide, competitive grant program. No disaster declaration is required. Federal funds will cover 75% of a project's cost up to \$3 million. As with the HMGP and FMA, a FEMA-approved local Hazard Mitigation Plan is required to be approved for funding under the PDM program.

Federal and State Disaster and Recovery Assistance Programs

Following a disaster, various types of assistance may be made available by local, state and federal governments. The types and levels of disaster assistance depend on the severity of the damage and the declarations that result from the disaster event. Among the general types of assistance that may be provided should the President of the United States declare the event a major disaster are the following:

Individual Assistance (IA)

IA provides help for homeowners, renters, businesses and some non-profit entities after disasters occur. This program is largely funded by the U.S. Small Business Administration. For homeowners and renters, those who suffered uninsured or underinsured losses may be eligible for a Home Disaster Loan to repair or replace damaged real estate or personal property. Renters are eligible for loans to cover personal property losses. Individuals may borrow up to \$200,000 to repair or replace real estate, \$40,000 to cover losses to personal property and an additional 20% for mitigation. For businesses, loans may be made to repair or replace disaster damages to property owned by the business, including real estate, machinery and equipment, inventory and supplies. Businesses of any size are eligible. Non-profit organizations such as charities, churches, private universities, etc. are also eligible. An Economic Injury Disaster Loan provides necessary working capital until normal operations resume after a physical disaster. These loans are restricted, by law, to small businesses only.

Public Assistance (PA)

PA provides cost reimbursement aid to local governments (state, county, local, municipal authorities and school districts) and certain non-profit agencies that were involved in disaster response and recovery programs or that



suffered loss or damage to facilities or property used to deliver government-like services. This program is largely funded by FEMA with both local and state matching contributions required.

Small-Business Administration (SBA) Loans

Small Business Administration (SBA) provides low-interest disaster loans to homeowners, renters, business of all sizes, and most private nonprofit organizations. SBA disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate, personal property, machinery and equipment, and inventory and business assets.

Homeowners may apply for up to \$200,000 to replace or repair their primary residence. Renters and homeowners may borrow up to \$40,000 to replace or repair personal property—such as clothing, furniture, cars, and appliances – damaged or destroyed in a disaster. Physical disaster loans of up to \$2 million are available to qualified businesses or most private nonprofit organizations.

Department of Homeland Security

The Homeland Security Grant Program (HSGP) plays an important role in the implementation of the National Preparedness System by supporting the building, sustainment, and delivery of core capabilities essential to achieving the National Preparedness Goal of a secure and resilient nation. The FY 2013 HSGP supports core capabilities across the five mission area of Prevention, Protection, Mitigation, Response, and Recovery based on allowable cost. HSGP is comprised of three interconnected grant programs including the State Homeland Security Program (SHSP), Urban Areas Security Initiative (UASI), and the Operation Stonegarden (OPSG). Together, these grant programs fund a range of preparedness activities, including planning, organization, equipment purchase, training, exercises, and management and administration.

Community Development Block Grants (CDBG)

CDBG are federal funds intended to provide low and moderate-income households with viable communities, including decent housing, as suitable living environment, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, planning, and administration. Public improvements may include flood and drainage improvements. In limited instances, and during the times of “urgent need” (e.g. post disaster) as defined by the CDBG National Objectives, CDBG funding may be used to acquire a property located in a floodplain that was severely damaged by a recent flood, demolish a structure severely damaged by an earthquake, or repair a public facility severely damaged by a hazard event.

Community Development Block Grants (CDBG)-DR

The National Disaster Resilience Competition will make \$1 billion available to communities that have been struck by natural disasters in recent years. The competition will promote risk assessment and planning and will fund the implementation of innovative resilience projects to better prepare communities for future storms and other extreme events. Funding for the competition is from the Community Development Block Grant disaster recovery (CDBG-DR) appropriation provided by the Disaster Relief Appropriations Act, 2013 (PL 113-2).

Federal Highway Administration - Emergency Relief

The Federal Highway Administration Emergency Relief is a grant program that may be used for repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of a disaster.



Federal Transit Administration - Emergency Relief

The Federal Transit Authority Emergency Relief is a grant program that funds capital projects to protect, repair, reconstruct, or replace equipment and facilities of public transportation systems. Administered by the Federal Transit Authority at the U.S. Department of Transportation and directly allocated to MTA and Port Authority. This transportation-specific fund was created as an alternative to FEMA PA.

Homeownership Repair and Rebuilding Fund

The Homeownership Repair and Rebuilding Fund provides grants of up to an additional \$10,000 to eligible homeowners who have already qualified for FEMA housing assistance's maximum grant (\$31,900) and will not receive other assistance from private insurance or government agencies that would duplicate the grant's funding.

New Jersey Environmental Infrastructure Trust

The New Jersey Environmental Infrastructure Trust (NJEIT) is an independent State financing authority that provides low-interest rate loans to qualified borrowers in New Jersey for water quality and infrastructure projects. The NJEIT, partnering with NJDEP, offers short-term financing (bridge loans) and long-term disaster-recovery loan assistance.

New Jersey Economic Development Authority

The New Jersey Economic Development Authority (NJEDA) is an independent State agency that provides tax incentives to foster development and employment growth and retention, financing for small and mid-sized businesses, revitalizes communities through redevelopment initiatives, and supports entrepreneurial development by providing access to training and mentoring programs. With its large portfolio of some 30 varied programs and services, NJEDA can assist businesses, non-profits and developers to access capital, including tax-exempt and taxable bond financing, loans, loan guarantees, and business and tax incentives.

New Jersey Redevelopment Authority

The New Jersey Redevelopment Authority (NJRA) is an independent State financing authority committed exclusively to the redevelopment of New Jersey's urban areas. NJRA offers several financing resources including site acquisition funding, predevelopment assistance, several development assistance resources and technical assistance.

New Jersey Housing and Mortgage Finance Agency

The New Jersey Housing and Mortgage Finance Agency (NJHMFA) is an independent State financing authority that provides affordable home ownership and housing opportunities for New Jersey residents by funding affordable home mortgages for first-time home buyers, promoting construction and rehabilitation of rental housing, and encouraging mixed-income owner-occupied housing growth. HMFA provides low-interest financing and administers Low Income Housing Tax Credits for the State of New Jersey's low and moderate income communities.

New Jersey Department of Community Affairs

The New Jersey Department of Community Affairs (NJCA) is a State agency created to provide administrative guidance, financial support and technical assistance to local governments, community development organizations, businesses and individuals to improve the quality of life in New Jersey. DCA offers a wide range of programs, funding and services that respond to issues of public concern including fire and building safety, housing production, community planning and development, and local government



management and finance. Among other funding sources, NJDCA administers CDBG funding and is typically the CDBG-DR funding recipient for the State of New Jersey.

6.4.3.2 Fiscal Capabilities – County and Local

Morris County Flood Mitigation Program

The Morris County Flood Mitigation Program (FMP), fully detailed earlier in this section, is the first county-level flood acquisition program in the State of New Jersey. FMP allows the County to assist its municipalities in proactively and permanently mitigating the issue of repetitive flooding within their communities by creating a specific mitigation program and stable funding source. The program is funded through the Morris County Open Space tax and provides grant funding for municipalities to purchase flood-prone residential properties from willing owners that have a minimum Benefit Cost Ratio (BCR) of 1:1 (the benefit of acquisition must be equal to or greater than the cost to acquire). The acquired land is owned and maintained by the municipality as deed restricted, permanently preserved open space.

Capital Improvement Plans

Capital Improvement Plans outline capital spending and investments necessary for public improvements. Many municipalities in Morris County have Capital Improvement Plans. These plans and budgets have been and may continue to be used to fund mitigation projects and demonstrate integration into daily operations. Refer to the jurisdictional annexes in Section 9 for further details.

6.5 MITIGATION STRATEGY DEVELOPMENT AND UPDATE

As required by FEMA, the County and participating municipalities completed a comprehensive evaluation of the mitigation strategies and actions from the 2010 HMP and reported on the status of each. Their update may be found in each jurisdictional annex (Section 9). In addition, the County and participating municipalities were provided the opportunity to include new strategies or actions to include in the 2015 HMP Update. New actions were prioritized to ensure they are cost-effective, environmentally sound, and technically feasible using the methodology outlined below.

6.5.1 Update of Municipal Mitigation Strategies

To evaluate progress on local mitigation actions, each municipality was tasked to review and provide the status of their local mitigation strategy in the 2010 FEMA-approved Morris County HMP, via a Mitigation Action Plan Review Worksheet. Each worksheet was pre-populated with those actions identified for their jurisdiction in the prior plan. For each action, municipalities were asked to indicate the status of each action (“No Progress/Unknown,” “In Progress/Not Yet Complete,” “Continuous,” “Completed,” “Discontinued”), and provide review comments on each. Municipalities were requested to quantify the extent of progress, and provide reasons for the level progress or why actions were discontinued. Each jurisdictional annex provides a table identifying their prior mitigation strategy, the status of those actions and initiatives, and their disposition within their updated strategy.

Local mitigation actions identified as “Complete” and those actions identified as “Discontinued,” have been removed from the updated strategies. Those local actions that municipalities identified as “No Progress/Unknown,” “In Progress/Not Yet Complete,” as well as certain actions/initiatives identified as “Continuous,” have been carried forward in their local updated mitigation strategies. Municipalities were asked to provide further details on these projects to help better define the projects, identify benefits and costs, and improve implementation.



Certain continuous or ongoing strategies represent programs that are, or since the 2010 plan have become, fully integrated into the normal operational and administrative framework of the community. Such programs and initiatives have been identified within the Capabilities section of each annex, and removed from the updated mitigation strategy.

In January 2015, NJOEM and FEMA Region II provided the planning partnership with a mitigation strategy development workshop. The purpose of this workshop was to 1) evaluate progress on previously identified mitigation actions from the 2010 HMP; 2) review and evaluate a comprehensive range of mitigation strategies for consideration; 3) provide the tools and guide the municipalities on identifying and prioritizing selected mitigation actions and 4) discuss integration of mitigation activities into daily operations.

All participating municipalities were provided capture tools (“Mitigation Action Worksheet”) to further assist in assessing the risk, evaluating potential actions/projects (qualitative alternatives analysis), and identifying actions for implementation.

The County and municipalities identified projects that have been submitted to NJOEM for grant funding, including projects for which Letters of Intent (LOI) and grant applications have been submitted under the Hurricane Sandy Hazard Mitigation Grant Program. In general, LOI/application-based projects submitted directly by the communities are identified within their updated mitigation strategies. Communities may also have included other LOI/application-based projects submitted by special-purpose districts (e.g. fire or school districts), local utilities, and hospitals and health care entities.

Throughout the planning process, members of the Steering Committee and the planning consultant worked directly with each community (phone, email, local support meetings) to assist with the development and update of their annex and include mitigation strategies, focusing on identifying well-defined, implementable projects with a careful consideration of benefits (risk reduction, losses avoided), costs, and possible funding sources (including mitigation grant programs).

As new additional potential mitigation actions, projects or initiatives became evident during the plan update process, including as part of the risk assessment update and as identified through the public and stakeholder outreach process (see Section 3), communities were made aware of these either through direct communication (local meetings, email, phone) or via their draft municipal annexes.

To help support the selection of an appropriate, risk-based mitigation strategy, each annex provides a summary of hazard vulnerabilities identified during the plan update process, either directly by municipal representatives, through review of available county and local plans and reports, and through the hazard profiling and vulnerability assessment process.

Concerted efforts were made to assure that municipalities develop updated mitigation strategies that included activities and initiatives covering the range of mitigation action types described in recent FEMA planning guidance (FEMA “Local Mitigation Planning Handbook” March 2013), specifically:

- **Local Plans and Regulations** - These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- **Structure and Infrastructure Projects** - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- **Natural Systems Protection** - These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.



- **Education and Awareness Programs** - These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as the National Flood Insurance Program and Community Rating System, StormReady (NOAA) and Firewise (NFPA) Communities.

In consideration of federal and state mitigation guidance, the Steering Committee recognized that all municipalities would benefit from the inclusion of certain mitigation initiatives. These include initiatives to address vulnerable public and private properties, including RL and SRL properties; initiatives to support continued and enhanced participation in the NFIP; improved public education and awareness programs; and initiatives to support countywide and regional efforts to build greater local mitigation capabilities.

Overall, the following significant modifications to the mitigation strategy identification, update and documentation process were made:

- An overarching effort has been made to better focus local mitigation strategies to clearly defined, readily actionable projects and initiatives that meet the definition or characteristics of mitigation.
- Per NJOEM's advice, broadly defined mitigation objectives were maintained if the community felt it were appropriate to ensure eligibility in the future. For example, if a community has numerous repetitive loss properties however specific projects/property-owner interest is not solidified at this time, a general action was maintained to ensure future eligibility.
- Certain continuous or ongoing strategies that represent programs that are, or since the 2010 plan have become, fully integrated into the normal operational and administrative framework of the community have been identified within the Capabilities section of each annex, and removed from the updated mitigation strategy.
- Where applicable, mitigation projects have been documented with an Action Worksheet, based on FEMA's Action Worksheet templates and within recent guidance documents. These Action Worksheets and Prioritization tables appear at the end of each jurisdiction's annex.

Overall a comprehensive-range of specific mitigation initiatives were considered by each plan participant to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives 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 municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected. Table 6-3 lists the common mitigation actions identified across a majority of the communities.



Table 6-3. Comprehensive Range of Mitigation Actions

Municipality	Acquisitions & Elevations	Drainage / Stormwater	Education & Awareness	Generators	Natural Systems Protection	Structure & Infrastructure	Local Plans & Regulations
Boonton, Town of		X	X	X		X	X
Boonton, Township of			X		X	X	X
Butler, Borough of	Not Participating						
Chatham, Borough of						X	
Chatham, Township of		X	X	X	X	X	
Chester, Borough of				X		X	X
Chester, Township of		X	X	X		X	
Denville, Township of	X	X	X	X	X	X	X
Dover, Town of	X		X	X		X	X
East Hanover, Township of	X	X	X			X	X
Florham Park, Borough of				X		X	X
Hanover, Township of		X	X	X		X	X
Harding, Township of			X	X		X	X
Jefferson, Township of	X		X	X		X	
Kinnelon, Borough of			X	X	X	X	X
Lincoln Park, Borough of	X	X	X			X	X
Long Hill, Township of	X		X			X	
Madison, Borough of		X	X	X		X	
Mendham, Borough of		X	X	X		X	
Mendham, Township of	X	X	X			X	
Mine Hill, Township of		X	X		X	X	X
Montville, Township of	X			X	X	X	X
Morris Plains, Borough of			X	X			X
Morris, Township of	X	X	X		X	X	X
Morristown, Town of	X		X	X	X		
Mount Arlington, Borough of		X	X	X		X	
Mount Olive, Township of	X	X	X	X			



Table 6-3. Comprehensive Range of Mitigation Actions

Municipality	Acquisitions & Elevations	Drainage / Stormwater	Education & Awareness	Generators	Natural Systems Protection	Structure & Infrastructure	Local Plans & Regulations
Mountain Lakes, Borough of		X		X			
Netcong, Borough of			X			X	X
Parsippany-Troy Hills, Township of	X	X	X	X	X	X	X
Pequannock, Township of	X	X	X			X	X
Randolph, Township of	X		X	X		X	
Riverdale, Borough of	X	X	X	X	X	X	X
Rockaway, Borough of				X		X	
Rockaway, Township of	X	X		X		X	X
Roxbury, Township of		X	X	X	X	X	X
Victory Gardens, Borough of		X	X	X			
Washington, Township of	X	X	X	X			
Wharton, Borough of		X	X	X			



6.5.2 Update of County Mitigation Strategies

The update of the county-level mitigation strategies was very similar to the municipal update. It included a review of progress on the actions/initiatives identified in the 2010 HMP, using a process similar to that used to review municipal mitigation strategy progress. The County, through their various department representatives, was provided with a Mitigation Action Plan Review Worksheet identifying all of the county-level actions/initiatives from the 2010 plan. For each action, relevant county representatives were asked to indicate the status of each action (“No Progress/Unknown,” “In Progress/Not Yet Complete,” “Continuous,” “Completed,” “Discontinued”), and provide review comments on each.

Projects/initiatives identified as “Complete,” as well as though actions identified as “Discontinued,” have been removed from this HMP update. Those actions the county has identified as “No Progress/Unknown,” “In Progress/Not Yet Complete,” or “Continuous” have been carried forward in the County’s updated mitigation strategy.

Throughout the course of the HMP update process, additional regional and county-level mitigation actions have been identified. These were identified through:

- Review of the results and findings of the updated risk assessment;
- Review of available regional and county plans, reports and studies;
- Direct input from county departments;
- Direct input from regional, county and local stakeholders.

6.5.3 Mitigation Strategy Evaluation and Prioritization

Section 201.c.3.iii of 44 CFR requires an action plan describing how the actions identified will be prioritized. Recent FEMA planning guidance (March 2013) identifies a modified STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) mitigation action evaluation methodology that uses a set of 10 evaluation criteria suited to the purposes of hazard mitigation strategy evaluation. This method provides a systematic approach that considers the opportunities and constraints of implementing a particular mitigation action.

Based on this guidance, the Steering Committee has adopted and applied an action evaluation and prioritization methodology which includes an expanded set of 14 criteria to include the consideration of cost-effectiveness, availability of funding, anticipated timeline, and if the action addresses multiple hazards.

The 14 evaluation/prioritization criteria used in the 2015 update process are:

- 1) Life Safety – How effective will the action be at protecting lives and preventing injuries?
- 2) Property Protection – How significant will the action be at eliminating or reducing damage to structures and infrastructure?
- 3) Cost-Effectiveness – Are the costs to implement the project or initiative commensurate with the benefits achieved?
- 4) 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.
- 5) Political – Is there overall public support for the mitigation action? Is there the political will to support it?
- 6) Legal – Does the municipality have the authority to implement the action?



- 7) Fiscal - Can the project be funded under existing program budgets (i.e., is this initiative currently budgeted for)? Or would it require a new budget authorization or funding from another source such as grants?
- 8) Environmental – What are the potential environmental impacts of the action? Will it comply with environmental regulations?
- 9) 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?
- 10) Administrative – Does the jurisdiction have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?
- 11) Multi-hazard – Does the action reduce the risk to multiple hazards?
- 12) Timeline - Can the action be completed in less than 5 years (within our planning horizon)?
- 13) Local Champion – Is there a strong advocate for the action or project among the jurisdiction’s staff, governing body, or committees that will support the action’s implementation?
- 14) Other Local Objectives – Does the action advance other local objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of other plans and programs?

Participating jurisdictions were asked to use these criteria to assist them in evaluating and prioritizing all mitigation actions identified in the 2015 update (previously identified actions that were carried forward and new mitigation actions). Specifically, for each mitigation action, the jurisdictions were asked to assign a numeric rank (-1, 0, or 1) for each of the 14 evaluation criteria, defined as follows:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

Further, jurisdictions were asked to provide a brief summary of the rationale behind the numeric rankings assigned, as applicable. The numerical results of this exercise were then used by each jurisdiction to help prioritize the action or strategy as “Low”, “Medium,” or “High.” While this provided a consistent, systematic methodology to support the evaluation and prioritization of mitigation actions, jurisdictions may have additional considerations that could influence their overall prioritization of mitigation actions.

For the 2015 HMP update there has been an effort to develop more clearly defined and action-oriented mitigation strategies. These local strategies include projects and initiatives that have been well-vetted, and are seen by the community as the most effective approaches to advance their local mitigation goals and objectives within their capabilities. As such, many of the initiatives in the updated mitigation strategy were ranked as “High” or “Medium” priority, as reflective of the community’s clear intent to implement, available resources notwithstanding. In general, initiatives that would have had “low” priority rankings were appropriately screened out during the local action evaluation process.

6.5.4 Benefit/Cost Review

Section 201.6.c.3iii of 44CFR requires the prioritization of the action plan to emphasize the extent to which benefits are maximized according to a cost/benefit review of the proposed projects and their associated costs. Stated otherwise, cost-effectiveness is one of the criteria that must be applied during the evaluation and prioritization of all actions comprising the overall mitigation strategy.



The benefit/cost review applied in for the evaluation and prioritization of projects and initiatives in this HMP update process was qualitative; that is, it does not include the level of detail required by FEMA for project grant eligibility under the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grant program. For all actions identified in the local strategies, jurisdictions have identified both the costs and benefits associated with project, action or initiative.

Costs are the total cost for the action or project, and may include administrative costs, construction costs (including engineering, design and permitting), and maintenance costs.

Benefits are the savings from losses avoided attributed to the implementation of the project, and may include life-safety, structure and infrastructure damages, loss of service or function, and economic and environmental damage and losses.

When available, jurisdictions were asked to identify the actual or estimated dollar value for project costs and associated benefits. Having defined costs and benefits allows a direct comparison of benefits versus costs, and a quantitative evaluation of project cost-effectiveness. Often, however, numerical costs and/or benefits have not been identified, or may be impossible to quantitatively assess.

For the purposes of this planning process, jurisdictions were tasked with evaluating project cost-effectiveness with both costs and benefits assigned to “High”, “Medium” and “Low” ratings. Where quantitative estimates of costs and benefits were available, ratings/ranges were defined as:

- Low = < \$10,000
- Medium = \$10,000 to \$100,000
- High = > \$100,000

Where quantitative estimates of costs and/or benefits were not available, qualitative ratings using the following definitions were used:

Table 6-4. Qualitative Cost and Benefit Ratings

Costs	
High	Existing funding levels are not adequate to cover the costs of the proposed project, and implementation would require an increase in revenue through an alternative source (e.g., bonds, grants, and fee increases).
Medium	The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
Low	The project could be funded under the existing budget. The project is part of or can be part of an existing, ongoing program.
Benefits	
High	Project will have an immediate impact on the reduction of risk exposure to life and property.
Medium	Project will have a long-term impact on the reduction of risk exposure to life and property or will provide an immediate reduction in the risk exposure to property.
Low	Long-term benefits of the project are difficult to quantify in the short term.

Using this approach, projects with positive benefit versus cost ratios (such as high over high, high over medium, medium over low, etc.) are considered cost-beneficial and are prioritized accordingly.

For some of the Morris County initiatives identified, the planning partnership may seek financial assistance under FEMA’s HMGP or Hazard Mitigation Assistance (HMA) programs. These programs require detailed benefit/cost analysis as part of the application process. These analyses will be performed when funding applications are prepared, using the FEMA BCA model process. The planning partnership is committed to



implementing mitigation strategies with benefits that exceed costs. For projects not seeking financial assistance from grant programs that require this sort of analysis, the planning partnership reserves the right to define “benefits” according to parameters that meet its needs and the goals and objectives of this HMP.