



SECTION 1. INTRODUCTION

In response to the requirements of the Disaster Mitigation Act of 2000 (DMA 2000), Morris County and the municipalities located therein have developed this Hazard Mitigation Plan (HMP), which represents a regulatory update to the 2015 Morris County Multi-Jurisdictional Multi-Hazard Mitigation Plan (HMP). The DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) and is designed to improve planning for, response to, and recovery from disasters by requiring state and local entities to implement pre-disaster mitigation planning and develop HMPs. The Federal Emergency Management Agency (FEMA) has issued guidelines for HMPs. The New Jersey Office of Emergency Management (NJOEM), also supports plan development for jurisdictions in New Jersey.

Hazard Mitigation is any sustained action taken to reduce or eliminate the long-term risk and effects that can result from specific hazards.

FEMA defines a Hazard Mitigation Plan as the documentation of a state or local government evaluation of natural hazards and the strategies to mitigate such hazards.

Specifically, the DMA 2000 requires that states, with support from local governmental agencies, develop and update HMPs on a five-year basis to prepare for and reduce the potential impacts of natural hazards. The DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. This enhanced planning better enables local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

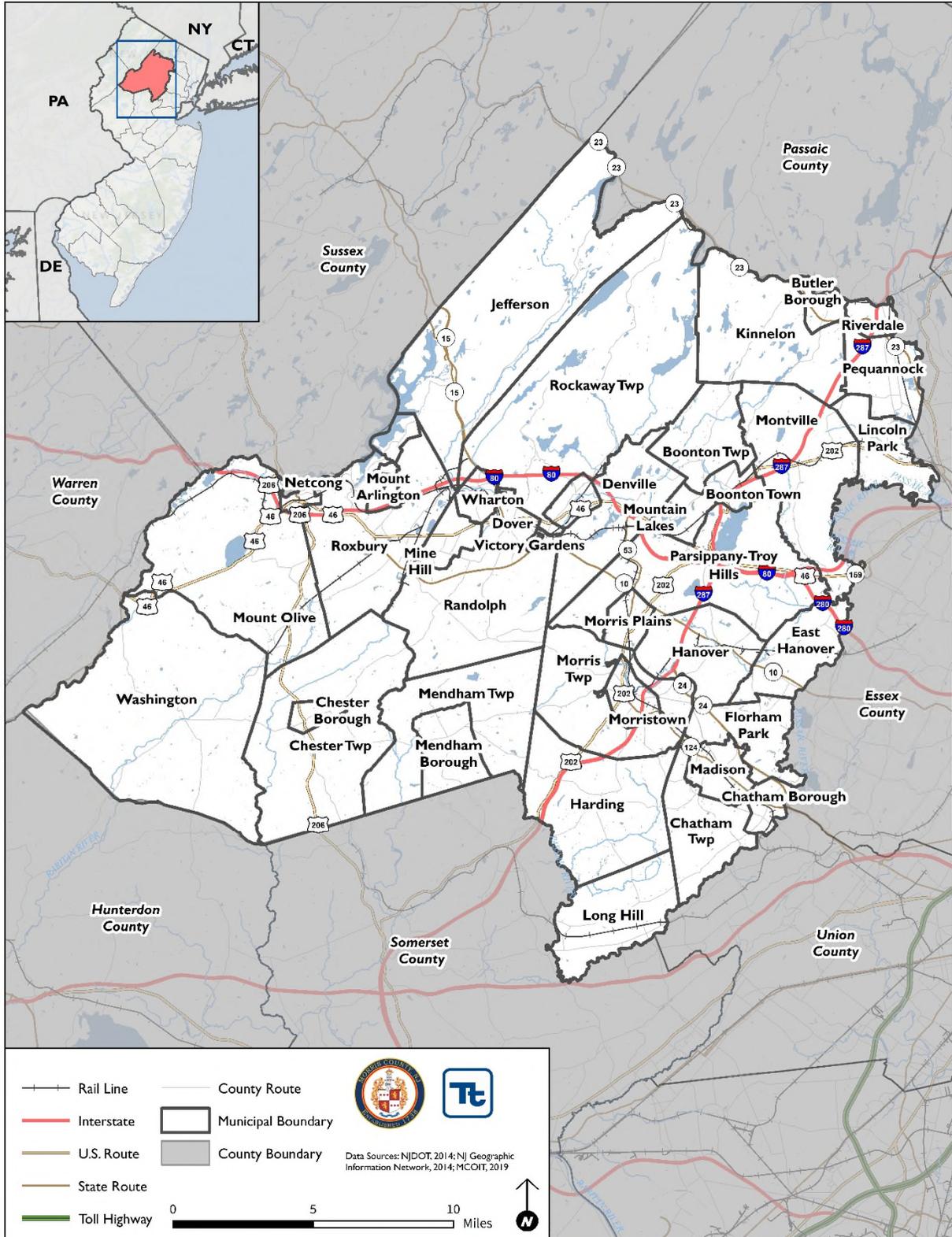
Morris County and all municipalities are participating in the plan update; refer to Table 1-1 and Figure 1-1.

Table 1-1. Participating Jurisdictions

Jurisdictions		
Morris County		
Boonton, Town	Jefferson, Township	Mount Olive, Township
Boonton, Township	Kinnelon, Borough	Mountain Lakes, Borough
Butler, Borough	Lincoln Park, Borough	Netcong, Borough
Chatham, Borough	Long Hill, Township	Parsippany Troy Hills, Township
Chatham, Township	Madison, Borough	Pequannock, Township
Chester, Borough	Mendham, Borough	Randolph, Township
Chester, Township	Mendham, Township	Riverdale, Borough
Denville, Township	Mine Hill, Township	Rockaway, Borough
Dover, Town	Montville, Township	Rockaway, Township
East Hanover, Township	Morris Plains, Borough	Roxbury, Township
Florham Park, Borough	Morris, Township	Victory Gardens, Borough
Hanover, Township	Morristown, Town	Washington, Township
Harding, Township	Mount Arlington, Borough	Wharton, Borough



Figure 1-1. Morris County New Jersey





1.1 DMA 2000 ORIGINS -THE STAFFORD ACT

In the early 1990s, a new federal policy regarding disasters began to evolve. Rather than reacting whenever disasters strike communities, the federal government began encouraging communities to first assess their vulnerability to various disasters and proceed to take actions to reduce or eliminate potential risks. The logic is that a disaster-resistant community can rebound from a natural disaster with less loss of property or human injury, at much lower cost, and, consequently, more quickly. Moreover, these communities minimize other costs associated with disasters, such as the time lost from productive activity by business and industries.

The DMA 2000 provides an opportunity for states, tribes, and local governments to take a new and revitalized approach to mitigation planning. The DMA 2000 amended the Stafford Act by repealing the previous mitigation planning provisions (Section 409) and replacing them with a new set of requirements (Section 322). Section 322 sets forth the requirements that communities evaluate natural hazards within their respective jurisdictions and develop an appropriate plan of action to mitigate those hazards, while emphasizing the need for state, tribal and local governments to closely coordinate mitigation planning and implementation efforts.

The amended Stafford Act requires that each local jurisdiction identify potential natural hazards to the health, safety, and well-being of its residents and identify and prioritize actions that the community can take to mitigate those hazards—before disaster strikes. To remain eligible for hazard mitigation assistance from the federal government, communities must first prepare and then maintain and update an HMP (this plan).

Responsibility for fulfilling the requirements of Section 322 of the Stafford Act and administering the FEMA Hazard Mitigation Program has been delegated to the State of New Jersey, specifically to NJOEM. FEMA also provides support through guidance, resources, and plan reviews.

1.2 BENEFITS OF MITIGATION PLANNING

Mitigation planning forms the foundation for Morris County’s long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. Mitigation planning also allows Morris County, as a whole and with participating jurisdictions, to remain eligible for mitigation grant funding for mitigation projects that will reduce the impact of future disaster events. The long-term benefits of mitigation planning include the following:

- An increased understanding of hazards faced by Morris County and their inclusive jurisdictions.
- Building more sustainable and disaster-resistant communities.
- Increasing education and awareness of hazards and their threats, as well as their risks.
- Developing implementable and achievable actions for risk reduction in the county and its jurisdictions.
- Building relationships by involving residents, organizations, and businesses.
- Identify implementation approaches that focus resources on the greatest risks and vulnerabilities.
- Financial savings through partnerships that support planning and mitigation efforts.
- Focused use of limited resources on hazards that have the biggest impact on the community.
- Reduced long-term impacts and damages to human health and structures.
- Reduced repair costs.

National Benefit-Cost Ratio (BCR) Per Peril <small>*BCR numbers in this study have been rounded</small>		Beyond Code Requirements	Federally Funded
Overall Hazard Benefit-Cost Ratio		\$4:1	\$6:1
	Riverine Flood	\$5:1	\$7:1
	Hurricane Surge	\$7:1	Too few grants
	Wind	\$5:1	\$5:1
	Earthquake	\$4:1	\$3:1
	Wildland-Urban Interface Fire	\$4:1	\$3:1

Source: FEMA 2018; Federal Insurance Mitigation Administration 2018
Note: Natural hazard mitigation saves \$6 on average for every \$1 spent on federal mitigation grants.





1.3 HAZARD MITIGATION PLAN OVERVIEW

The structure of this HMP follows the four-phase planning process recommended by FEMA and summarized in Figure 1-2. Table 1-2 summarizes the requirements outlined in the DMA 2000 Interim Final Rule and provides the section where each is addressed in this HMP. This HMP is organized in accordance with FEMA and NJOEM guidance. This plan was prepared in accordance with the following regulations and guidance:

- FEMA Local Mitigation Planning Handbook, March 2013.
- FEMA Integrating Hazard Mitigation into Local Planning, March 1, 2013.
- FEMA Plan Integration: Linking Local Planning Efforts, July 2015.
- Local Mitigation Plan Review Guide, October 1, 2011.
- DMA 2000 (Public Law 106-390, October 30, 2000).
- 44 Code of Federal Regulations (CFR) Parts 201 and 206 (including: Feb. 26, 2002, Oct. 1, 2002, Oct. 28, 2003, and Sept. 13, 2004 Interim Final Rules).
- FEMA How-To Guide for Using HAZUS-MH-MH for Risk Assessment FEMA Document No. 433, February 2004.
- FEMA Mitigation Planning How-to Series (FEMA 386-1 through 4), 2002, available at: <http://www.fema.gov/fima/planhowto.shtm>.
- FEMA Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards, January 2013



Figure 1-1. Morris County Hazard Mitigation Planning Process

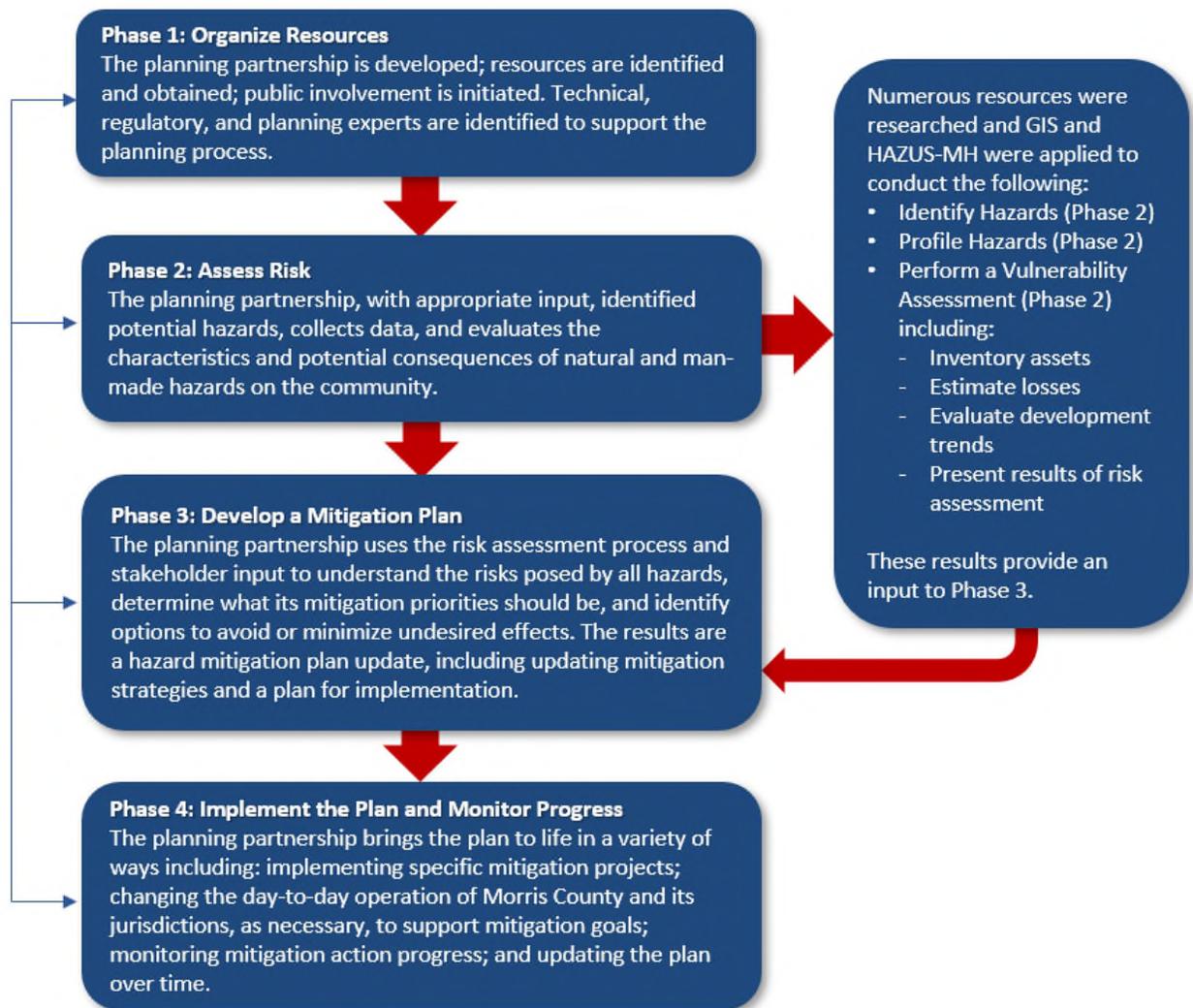




Table 1-2. FEMA Local Mitigation Plan Review Crosswalk

HMP Criteria	Primary Location in the HMP
Prerequisites	
Adoption by the Local Governing Body: §201.6(c)(5)	Section 1; Appendix A
Planning Process	
Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)	Section 2; Section 8
Risk Assessment	
Identifying Hazards: §201.6(c)(2)(i)	Section 4.1
Profiling Hazards: §201.6(c)(2)(i)	Section 4.3
Assessing Vulnerability: Overview: §201.6(c)(2)(ii)	Section 4.3
Assessing Vulnerability: Identifying Structures: §201.6(c)(2)(ii)(A)	Section 3, 4.2, Section 4.3; Section 9
Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)	Section 4.3; Section 9
Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)	Section 3; Section 4.3; Section 9
Mitigation Strategy	
Local Hazard Mitigation Goals: §201.6(c)(3)(i)	Section 6; Section 9
Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)	Section 6; Section 9
Implementation of Mitigation Actions: §201.6(c)(3)(iii)	Section 6; Section 9
Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)	Section 6; Section 9
Plan Maintenance Process	
Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i)	Section 7
Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)	Section 6, 7; Section 9
Continued Public Involvement: §201.6(c)(4)(iii)	Section 7

1.4 PLANNING PROCESS OVERVIEW

Morris County and the participating jurisdictions intend to implement this HMP with full coordination and participation of County and local departments, organizations and groups, and relevant state and federal entities. Coordination helps to ensure that stakeholders have established communication channels and relationships necessary to support mitigation planning and mitigation actions included in Section 6 (Mitigation Strategy) and Section 9 (Jurisdictional Annexes).

During the Morris County HMP planning process, the nation, the State of New Jersey and Morris County were facing the COVID-19 pandemic. The COVID-19 pandemic was declared a major disaster on March 25, 2020 (DR-4488). The Governor issued a stay-at-home Executive Order beginning March 21, 2020, which remained in effect the duration of the planning process. Morris County has been greatly impacted by the COVID-19 pandemic.

The Morris County Office of Emergency Management (OEM), Steering Committee members and the planning partners (County departments, municipalities and municipal utility authorities) were facing the COVID-19 pandemic concurrent with completing the update to the HMP. Morris County and all planning partners made their best effort to work through this unprecedented time to complete the HMP update and meet FEMA and State requirements. The majority of the public and stakeholder engagement strategy was implemented earlier in the planning process; however, an in-person Steering Committee draft review meeting was not scheduled, and a public draft HMP meeting was not held due to the Executive Order in place and for the safety of residents and all planning partners. Instead, the Steering Committee continued to communicate via email and hold teleconference meetings to complete the review of the draft plan prior to submittal. The Morris County OEM website was updated, and social media and email was utilized to advertise the draft plan posting to residents and stakeholders. All planning partners were notified that the draft plan was posted for public and stakeholder



review, were provided social media posts/images, and were asked to distribute these notifications in their jurisdictions. Last, stakeholders that were distributed the stakeholder surveys were notified via email that the draft plan was posted for public review and comment. Public and stakeholder comments received on the draft plan were shared with the planning partners via email. To complete the update to the draft plan prior to submission to NJOEM, teleconference meetings were held in a best effort to complete jurisdictional annexes given staffing constraints during the active pandemic.

1.5 MULTIPLE AGENCY SUPPORT FOR HAZARD MITIGATION

Primary responsibility for the development and implementation of mitigation strategies and policies lies with local governments. However, local governments are not alone; various partners and resources at the regional, state, and federal levels are available to assist communities in the development and implementation of mitigation strategies. Within New Jersey, NJOEM is the lead agency providing hazard mitigation planning assistance to local jurisdictions. NJOEM provides guidance to support mitigation planning. In addition, FEMA provides grants, tools, guidance, and training to support mitigation planning.

The Morris County OEM and the Steering Committee provided project management and oversight of the planning process. Participating jurisdictions were asked to identify a primary and alternate local point of contact (POC) to be members of the Planning Committee and lead the planning process update on behalf of the jurisdiction. At the start of the planning process, each municipality identified their Floodplain Administrator and requested their involvement. Further, each jurisdiction was encouraged to form a ‘mitigation team’ comprised of representatives across departments to ensure broad participation, share the work of the update process and ensure accurate information was captured in their chapter, or annex. The mitigation team worked directly with the primary and alternate POCs and contributed to the jurisdictional annexes presented in Section 9. Together, the Steering Committee and Planning Committee are referred to as the Planning Partnership for the Morris County HMP update. A list of Steering Committee and jurisdiction POCs is provided in Section 2 (Planning Process), while Appendices B (Meeting Documentation) and Appendix C (Participation Documentation) provide further documentation of the broader level of municipal involvement. Additional input and support for this planning effort was obtained from a range of agencies and through public and stakeholder involvement (as discussed in Section 2 and presented in Appendix D – Public and Stakeholder Outreach).

Steering Committee (SC) is comprised of County and municipal representatives that guide and lead the HMP update process on behalf of the Planning Partnership.

Planning Committee (PC) is comprised of representatives from each participating jurisdiction (County and municipalities).

Planning Partnership = SC + PC

1.6 GOALS AND OBJECTIVES

The planning process included a review and update of the prior mitigation goals and objectives as a basis for the planning process and selection of appropriate mitigation actions addressing all hazards of concern. Further, the goal development process considered the mitigation goals expressed in the 2019 State of New Jersey HMP, as well as other relevant county and local planning documents, as discussed in Section 6 (Mitigation Strategy).

1.7 HAZARDS OF CONCERN

Morris County and participating jurisdictions reviewed the hazards that caused measurable impacts based on events, losses, and information available since the development of the 2015 Morris County HMP and the 2019 State of New Jersey HMP. A list of potential hazards of concern was reviewed by the Planning Partnership, and each was evaluated to identify the hazards of concern for the 2020 update planning process. The list was



presented to each of the participating jurisdictions where they evaluated their risk and vulnerability from each hazard of concern. While the overall hazard rankings were calculated for the County and each participating jurisdiction, the specific hazard rankings displayed in each annex reflect jurisdictional input. The hazard risk rankings were used to focus and prioritize individual jurisdictional mitigation strategies.

1.8 PLAN INTEGRATION INTO OTHER PLANNING MECHANISMS

Plan integration is the process by which jurisdictions look at their existing planning framework and align efforts with the goal of building a safer, smarter, and more resilient community. It is specific to each community and depends on the vulnerability of the built environment. Community-wide plan integration supports risk reduction through various planning and development measures, both before and after a disaster. Plan integration involves a community's plans, policies, codes, and programs that guide development and the roles of people and government in implementing these capabilities. Successful integration occurs through collaboration among a diverse set of stakeholders in the community (FEMA 2015).

Effective mitigation is achieved when hazard awareness and risk management approaches and strategies are integrated into local planning mechanisms and become an integral part of public activities and decision making. Within Morris County, there are numerous existing plans and programs that support hazard risk management and reduction, and thus, it is critical that the 2020 HMP update integrates, coordinates with, and complements those mechanisms.

Section 5 (Capability Assessment) provides a summary and description of the existing plans, programs and regulatory mechanisms at all levels of government (federal, state, county, local) that support hazard mitigation within the County. Within each jurisdictional annex in Section 9 (Jurisdictional Annexes), the County and each participating jurisdiction identified how they have integrated hazard risk management into their existing planning, regulatory and operational/administrative framework ("existing integration"), and how they intend to promote this integration ("opportunities for future integration").

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 9 (Jurisdictional Annexes).

1.9 IMPLEMENTATION OF PRIOR AND EXISTING LOCAL HAZARD MITIGATION PLANS

Section 9 (Jurisdictional Annexes) of the plan present the status of the mitigation projects identified in the 2015 Morris County HMP. Numerous projects and programs have been implemented that have reduced hazard vulnerability to assets in the planning area. The County and jurisdictional annexes, as well as plan maintenance procedures in Section 7 (Plan Maintenance), were developed to encourage specific activities. Future actions include integrating hazard mitigation goals into Master Plan updates; reviewing the HMP during updates of codes, ordinances, zoning, and development; and ensuring a more thorough integration of hazard mitigation, with its related benefits into municipal operations, will be completed within the upcoming five-year planning period.

1.10 IMPLEMENTATION OF THE PLANNING PROCESS

The planning process and findings are required to be documented in local HMPs. To support the planning process in developing this HMP, Morris County and the participating jurisdictions have accomplished the following:

- Developed a Steering Committee and countywide planning partnership with jurisdictions and stakeholders.
- Reviewed the 2015 Morris County Hazard Mitigation Plan.



- Identified and reviewed those hazards that are of greatest concern to Morris County and its jurisdictions (hazards of concern) to be included in the plan.
- Profiled the relevant hazards.
- Estimated the inventory at risk and potential losses associated with the relevant hazards.
- Reviewed and updated the hazard mitigation goals and objectives.
- Reviewed mitigation strategies identified in the 2015 Morris County HMP.
- Developed new mitigation actions to address reduction of vulnerability of hazards of concern.
- Involved a wide range of stakeholders and the public in the plan process.
- Developed mitigation plan maintenance procedures to be executed after obtaining approval of the plan from NJOEM and FEMA.

As required by the DMA 2000, Morris County and its participating jurisdictions have informed the public and provided opportunities for public comment and input. Numerous agencies and stakeholders were invited to participate in the planning process by providing input and expertise. Refer to Appendix D (Public and Stakeholder Outreach Documentation) for copies of public service announcements, social media posts and other forms of public and stakeholder outreach conducted.

1.11 ADOPTION

Upon FEMA Approval Pending Adoption (APA) status of the 2020 HMP update, Morris County and each municipality will adopt the plan by resolution of local governing body. An example resolution authorizing adoption of the 2020 Morris County Hazard Mitigation Plan may be found in Appendix A (Plan Adoption). The Morris County and jurisdiction adoption resolutions will be included in Appendix A upon receipt of the FEMA APA status. Please refer to Section 8 (Planning Partnership) for additional information on plan adoption procedures.

1.12 ORGANIZATION OF THE HAZARD MITIGATION PLAN

The Morris County HMP update is organized as a two-volume plan. Volume I provides information on the overall planning process and hazard profiling and vulnerability assessments, which serves as a basis for understanding risk and identifying mitigation actions. As such, Volume I is intended for use as a resource for on-going mitigation analysis. Volume II provides an annex dedicated to each participating jurisdiction. Each annex summarizes the jurisdiction's legal, regulatory, and fiscal capabilities; identifies vulnerabilities to hazards; documents mitigation plan integration with other planning efforts; records status of past mitigation actions; and presents an individualized mitigation strategy. The annexes are intended to provide a useful resource for each jurisdiction for implementation of mitigation projects and future grant opportunities, as well as place for each jurisdiction to record and maintain their local aspect of the countywide plan.

Volume I of this HMP includes the following sections:

Section 1: Introduction: Overview of participants, planning process and information regarding adoption of the HMP by Morris County and each participating jurisdiction.

Section 2: Planning Process: Description of the HMP methodology and development process; Steering Committee, Planning Committee, Planning Partnership, and stakeholder involvement efforts; and a description of how this HMP will be incorporated into existing programs.

Section 3: County Profile: Overview of Morris County, including: (1) physical setting, (2) land use, (3) land use trends, (4) population and demographics, (5) general building stock and (6) critical facilities and lifelines.



Section 4: Risk Assessment: Documentation of the hazard identification and hazard risk ranking process, hazard profiles, and findings of the vulnerability assessment (estimates of the impact of hazard events on life, safety, health, general building stock, critical facilities, the economy); description of the status of local data; and planned steps to improve local data to support mitigation planning.

Section 5: Capability Assessment: A summary and description of the existing plans, programs and regulatory mechanisms at all levels of government (federal, state, county, local) that support hazard mitigation within the County.

Section 6: Mitigation Strategy: Information regarding the mitigation goals and objectives in response to priority hazards of concern and the process by which Morris County and local mitigation strategies have been developed or updated.

Section 7: Plan Maintenance Procedures: System established to continue to monitor, evaluate, maintain, and update the HMP.

Volume II of this plan includes the following sections:

Section 8: Planning Partnership: Description of the planning partnership, their responsibilities, and description of jurisdictional annexes.

Section 9: Jurisdictional Annexes: Jurisdiction-specific annex for Morris County and each participating jurisdiction containing their hazards of concern, hazard ranking, capability assessment, mitigation actions, action prioritization specific only to Morris County or that jurisdiction, progress on prior mitigation activities (as applicable), and a discussion of prior local hazard mitigation plan integration into local planning processes.

Appendices include the following:

Appendix A: Plan Adoption: Resolutions from the County and each jurisdiction included as each formally adopts the HMP update.

Appendix B: Participation Documentation: Matrix to give a broad overview of who attended meetings and when input was provided to the HMP update, as well as Letters of Intent to Participate described in Section 2 (Planning Process), annex sign-off sheets discussed in Section 6 (Mitigation Strategy) and additional worksheets submitted during workshops conducted throughout the planning process.

Appendix C: Meeting Documentation: Agendas, attendance sheets, minutes, and other documentation (as available and applicable) of planning meetings convened during the development of the plan.

Appendix D: Public and Stakeholder Outreach Documentation: Documentation of the public and stakeholder outreach effort including webpages, informational materials, public and stakeholder meetings and presentations, surveys, and other methods used to receive and incorporate public and stakeholder comment and input to the plan process.

Appendix E: Risk Assessment Supplementary Data: Expanded explanation of community lifelines; critical facility storm surge exposure results by municipality; and the previous hazard events from the 2015 HMP.

Appendix F: Mitigation Strategy Supplementary Data: Documentation of the broad range of actions identified during the mitigation process; types of mitigation actions; the mitigation catalog developed using jurisdiction input and potential mitigation funding sources.



Appendix G: Plan Maintenance Tools: Examples of plan review tools and templates available to support annual plan review.

Appendix H: Linkage Procedures: Procedures for non-participating local governments to "link" to the plan within the period of performance to gain eligibility for programs under the DMA 2000.

1.13 THE UPDATED PLAN – WHAT IS DIFFERENT?

Both the planning process and the 2020 HMP have been enhanced for this update. An increased effort to actively engage stakeholders and the public was a focus of the update; as well as the continued education of the Planning Partnership of mitigation and available grant funding opportunities. The mitigation strategy was updated to only contain detailed actions that are considered priority to each jurisdiction (i.e., quality not quantity). Further, the sections in the 2020 HMP have been realigned to increase the readability of the plan. The following summarizes process and plan changes that differ from the 2015 process and HMP:

- Section 2 (Planning Process) was formerly Section 3 in the 2015 HMP and now comprises the Planning Process section of the plan. Adoption information has been re-located to Section 8 (Planning Partnership) and Appendix A.
- Section 4 (Risk Assessment) has been streamlined and updated.
 - A new hazard of concern, Harmful Algal Bloom, was added to the plan and the flood hazard was expanded to collect additional details on urban flooding (i.e., flooding outside of the floodplain).
 - The updated plan is based on new inventory data and hazard data.
 - The topic of FEMA lifelines is included. All jurisdictions identified critical facilities considered lifelines in accordance with FEMA's community lifeline definition.
 - The flood hazard was expanded to include urban flooding or flooding outside of the floodplain. The Planning Partnership identified locations of urban flooding which was developed into a spatial layer to inform the mitigation strategy.
 - The 2011 preliminary DFIRMs for Morris County used in the 2015 HMP were used to compare changes in flood hazard risk area and building exposure to the most current 2017 preliminary DFIRMs used in the HMP update.
 - The hazard ranking methodology was expanded to include adaptive capacity and climate change.
- Section 5 (Capability Assessment) and Section 9 (Jurisdictional Annexes) are subject to several changes of the capability assessment, both in Volumes I and II of the plan.
 - Section 5 (Capability Assessment) is now a stand-alone section for the capability assessment summarizing existing plans, programs and regulatory mechanisms at all levels of government (federal, state, county, local) that support hazard mitigation within the County. This information was formerly part of Section 6 (Mitigation Strategy) in the 2015 HMP.
 - Section 9 (Jurisdictional Annexes) has an expanded capability assessment to include additional planning mechanisms in New Jersey as well as information regarding plan integration in the Planning, Legal and Regulatory table.
- The jurisdictional annexes in Section 9 have been enhanced to include the following:
 - Identification of the NFIP Floodplain Administrator as part of the hazard mitigation planning team.
 - Expanded capability assessment including the identification of additional administrative and technical capabilities and catalog of adaptive capacity for each hazard of concern for each jurisdiction.
 - Inclusion of a table of jurisdiction-specific risk assessment results per hazard.
 - Expansion of the critical facility and lifeline flood hazard exposure table to include a mitigation action, if appropriate.
 - A user-friendly presentation of the hazard ranking results.



- A revised 2015 previous mitigation strategy status table to more clearly identify if the action is to be included in the 2020 HMP update.
- An increased focus on actionable projects has been applied; removing actions that are capabilities and focusing on high-ranked hazards.
- A more detailed proposed mitigation action table that now specifies the problem statement and the proposed solution (mitigation action). The more detailed mitigation strategy is also reflected in the mitigation action worksheets that also include additional details.
- A table that summarizes the actions across the ranked hazards and their mitigation action types.
- Individuals that contributed to the annex are specifically listed at the end of the section.
- Mitigation action worksheets have only been developed for FEMA-eligible projects, per NJOEM guidance.
- To increase public engagement, the following efforts were made:
 - Multi-lingual public outreach strategy (English and Spanish) to reach a broader audience in the County (informational materials, social media posts and translator at a public engagement event).
 - All Planning Partnership meetings were made open to the public.
 - Social media (Facebook and Twitter) was used to inform the public of meetings and to take the citizen survey.
 - Public events were attended to engage residents and business owners, and survey the mitigation actions they would like implemented in the County.
- A grant-funding webinar was conducted to summarize the upcoming fiscal year 2019 FEMA Hazard Mitigation Assistance grant funding opportunity and how jurisdictions can leverage the HMP update and develop competitive applications and benefit-cost analyses. In addition, the planning consultant and NJOEM met with individual municipalities that expressed interest in applying to assist with identifying projects and providing guidance on the information needed to complete the grant application and BCA process.
- A user-friendly tone was used to cater to the strong desire for this plan to be understandable to the general public and not overly technical. This includes limiting the hazard profile section to brief summaries and providing an increased number of graphical summaries throughout the risk assessment.
- An enhanced mitigation strategy process was utilized to develop a robust and actionable action plan.
 - A mitigation toolbox was built to assist with mitigation action identification.
 - Utilizing the risk assessment and capability assessment results, problem statements were drafted by each municipality and used to inform the mitigation action development.
 - Actions are identified, rather than strategies. Strategies provide direction, but actions are fundable under grant programs. The identified actions are designed to meet multiple measurable objectives, so that each planning partner can measure the effectiveness of their mitigation actions.
- The plan maintenance strategy is more clearly defined to provide a roadmap for the annual monitoring of the plan.

Table 1-3 indicates the major changes between the two plans as they relate to 44 CFR planning requirements.

Table 1-3. HMP Changes Crosswalk

44 CFR Requirement	2015 HMP	2020 Updated HMP
Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;	The 2015 plan followed an outreach strategy utilizing multiple media developed and approved by the Steering Committee. This strategy involved the following: <ul style="list-style-type: none"> • Public participation on an oversight Steering Committee. 	Building upon the success of the 2015 plan, the 2020 planning effort deployed an enhanced public engagement methodology: <ul style="list-style-type: none"> • Multi-lingual informational materials and news release • Use of social media.



44 CFR Requirement	2015 HMP	2020 Updated HMP
<p>(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and</p> <p>(3) Review and incorporation, if appropriate, of existing plans, studies, reports and technical information.</p>	<ul style="list-style-type: none"> Establishment of a plan informational website. Press release Use of public and stakeholder information surveys. <p>Stakeholders were identified and coordinated with throughout the process. A comprehensive review of relevant plans and programs was performed by the planning team.</p>	<ul style="list-style-type: none"> Web-deployed surveys to residents and targeted stakeholders All meetings open to the public Resident voting exercise to identify mitigation action types preferred to be implemented Attendance at public events to engage residents and businesses <p>As with the 2015 plan, the 2020 planning process identified key stakeholders and coordinated with them throughout the process. A comprehensive review of relevant plans and programs was performed by the planning team.</p>
<p>§201.6(c)(2): The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.</p>	<p>The 2015 plan included a comprehensive risk assessment of hazards of concern. Risk was defined as (probability x impact), where impact is the impact on people, property, and economy of the planning area. All planning partners ranked hazard risk as it pertains to their jurisdiction. The potential impacts of climate change are discussed for each hazard.</p>	<p>The same methodology, using new, updated data, was deployed for the 2020 plan update. Harmful Algal Bloom was added as a new hazard of concern. The flood hazard was expanded to include urban flooding (or flooding outside of the floodplain). The hazard ranking methodology was expanded to include adaptive capacity and climate change. Jurisdiction-specific risk assessment results are summarized in Section 4 (Risk Assessment) and in each jurisdictional annex (Section 9).</p>
<p>§201.6(c)(2)(i): [The risk assessment] shall include a) description of the ... location and extent of all-natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.</p>	<p>The 2015 plan presented a risk assessment of each hazard of concern. Each section included the following:</p> <ul style="list-style-type: none"> Hazard profile, including maps of extent and location, previous occurrences, and probability of future events. Climate change impacts on future probability. Impact and vulnerability on life, health, safety, general building stock, critical facilities, and economy. Future growth and development. 	<p>The same format, using new and updated data, was used for the 2020 plan update. Each section of the risk assessment includes the following:</p> <ul style="list-style-type: none"> Hazard profile, including maps of extent and location, previous occurrences, and probability of future events. Climate change impacts on future probability using the best available data for New Jersey. Newly available study from North Jersey Transportation Planning Authority (NJTPA) was used to inform the risk assessment. Vulnerability assessment includes: impact on life, safety, and health, general building stock, critical facilities/lifelines, and the economy, as well as future changes that could impact vulnerability (population, development and climate). The vulnerability assessment also includes changes in vulnerability since the 2015 plan.
<p>§201.6(c)(2)(ii): [The risk assessment] shall include a) description of the jurisdiction's vulnerability to the hazards</p>	<p>Vulnerability was assessed for all hazards of concern. The HAZUS-MH-MH computer model was used for the</p>	<p>A robust vulnerability assessment was conducted for the 2020 plan update, using new and updated asset</p>



44 CFR Requirement	2015 HMP	2020 Updated HMP
described in paragraph (c)(2)(i). This description shall include an overall summary of each hazard and its impact on the community.	wind, earthquake, and flood hazards. These were Level 2 analyses using County data. Site-specific data on County-identified critical facilities were entered into the HAZUS-MH model. HAZUS-MH outputs were generated for other hazards by applying an estimated damage function to an asset inventory extracted from HAZUS-MH-MH.	and hazard data. Volume 1, Section 4.3 summarizes countywide and municipal-specific vulnerability for each hazard of concern. The jurisdictional annexes (Section 9) include a summary table of impacts on each community.
§201.6(c)(2)(ii): [The risk assessment] must also address National Flood Insurance Program insured structures that have been repetitively damaged floods.	A summary of NFIP insured properties including an analysis of repetitive loss property locations was included in the plan.	Updated NFIP statistics, as well as Write-Your-Own statistics were presented in the 2020 plan update using best available data.
Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure and critical facilities located in the identified hazard area.	A complete inventory of the numbers and types of buildings exposed was generated for each hazard of concern. The Steering Committee defined “critical facilities” for the planning area, and these were inventoried by exposure. Each hazard chapter provides a discussion on future development trends.	Quantitative and qualitative analyses were conducted using the updated hazard and inventory data as presented in Section 4 (Risk Assessment). In addition, critical facilities considered lifelines in accordance with FEMA’s definition were identified.
Requirement §201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) and a description of the methodology used to prepare the estimate.	Loss estimates were generated for all hazards of concern. These were generated by HAZUS-MH-MH for the wind, earthquake, and flood hazards. For the other hazards, loss estimates were generated by applying a regionally relevant damage function to the exposed inventory. In all cases, a damage function was applied to an asset inventory. The asset inventory was the same for all hazards and was generated in HAZUS-MH.	Quantitative and qualitative analyses were conducted using the updated hazard and inventory data as presented in Section 4 (Risk Assessment). Estimated potential losses are reported in both Volume 1, Section 4.3 and Volume II Section 9 for each jurisdiction.
Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.	There is a summary of anticipated development in the County profile, as well as in each individual annex.	A spatial analysis using Highlands Council identified growth areas, and potential new development identified by municipalities was conducted to determine if located in hazard areas. These results were reported to all participants and summarized in their annexes to discuss mitigation measures. In Volume I, Section 4.3, projected changes in population and development are discussed in each hazard section and how these projected changes may lead to increased vulnerability, or plans/regulations/ordinances in place to implement mitigation to protect the development.
§201.6(c)(3):[The plan shall include a mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.]	The 2015 plan contained goals, objectives and actions. Each planning partner identified actions that could be implemented within their capabilities. The actions were jurisdiction-specific and strove to meet multiple objectives. All objectives met multiple goals and stand alone as components of the plan. Each planning partner completed an	The Steering Committee reviewed and updated the goals, and objectives and they were approved by the Planning Committee. A mitigation strategy workshop with associated tools and guidance on problem statement development was deployed to inform the identification of mitigation actions. Actions that were



44 CFR Requirement	2015 HMP	2020 Updated HMP
	assessment of its regulatory, technical, and financial capabilities.	completed or no longer considered to be feasible were removed; and actions considered general or capabilities were moved to the capability and integration sections. The balance of the actions was carried over to the 2020 plan, and in some cases, new actions were added to the action plan.
Requirement §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.	The Steering Committee identified goals, and objectives targeted specifically for this hazard mitigation plan. These planning components supported the actions identified in the plan.	The Steering Committee reviewed and updated goals, and objectives and they were approved by the Planning Committee. One new goal and several new objectives were identified to align with updated County and municipal mitigation priorities.
Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.	The 2015 plan included mitigation action worksheets that evaluated alternative actions considered for the final mitigation strategy.	For the 2020 update, a mitigation catalog was developed to provide a comprehensive range of specific mitigation actions to be considered. A table with the analysis of mitigation actions by type and hazard was used in jurisdictional annexes to the plan. Mitigation action worksheets with an alternatives evaluation were prepared for FEMA-eligible projects.
Requirement: §201.6(c)(3)(ii): [The mitigation strategy] must also address the jurisdiction’s participation in the National Flood Insurance Program, and continued compliance with the program’s requirements, as appropriate.	All municipal planning partners that participate in the National Flood Insurance Program indicated their commitment to maintain compliance and good standing under the program.	An analysis of repetitive and severe repetitive loss properties was conducted and is summarized in Section 4.3.7 (Flood) and in Section 9 (Jurisdictional Annexes). Municipalities with repetitive and severe repetitive loss properties included an action to mitigate those properties.
Requirement: §201.6(c)(3)(iii): [The mitigation strategy shall describe] how the actions identified in section (c)(3)(ii) will be prioritized, implemented and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.	Each recommended action was prioritized using a revised methodology based on the STAPLEE criteria was used to prioritize projects.	A revised methodology based on the STAPLEE criteria and using new and updated data was used for the 2020 plan update. The 14 criteria were used to evaluate each potential mitigation action. The evaluation included a qualitative benefits and cost review. The results of the evaluation were used to identify the actions to include in the plan and assist with the prioritization. An emphasis was placed on benefits and costs (quantified where possible and listed in the mitigation action worksheets), as well as timeline for implementation (also documented in the mitigation action worksheets for FEMA-eligible projects).
Requirement §201.6(c)(4)(i): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.	The 2015 plan outlined a detailed maintenance strategy.	The 2020 plan an enhanced plan maintenance strategy. The update provides a roadmap for the annual monitoring of the plan. This includes the inclusion of a summary plan maintenance matrix that provides an overview of the planning partner



44 CFR Requirement	2015 HMP	2020 Updated HMP
Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.	The 2015 plan details recommendations for incorporating the plan into other planning mechanisms.	responsibilities for monitoring, evaluation, and update of the plan. The 2020 plan details recommendations for incorporating the plan into other planning mechanisms such as the following: <ul style="list-style-type: none"> ▪ Master Plan ▪ Emergency Response Plan ▪ Capital Improvement Programs ▪ Municipal Code
Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.	The 2015 plan details a strategy for continuing public involvement.	The 2015 plan maintenance strategy was enhanced for the 2020 plan. In addition, the County will use a proprietary online tool to support the annual progress reporting of mitigation actions. Section 7 (Plan Maintenance) also details the continued public participation in the plan maintenance process.
Requirement §201.6(c)(5): [The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).	Morris County and all jurisdictions, with the exception of the Borough of Butler, participated in the 2015 HMP.	The 2020 plan achieves DMA compliance for Morris County and all jurisdictions. Resolutions for each partner adopting the plan can be found in Appendix A of this volume.