

SECTION 1: INTRODUCTION

BACKGROUND

In response to the requirements of the Disaster Mitigation Act of 2000 (DMA 2000), Tioga County, and the towns and villages located in the County have developed this Multi-Jurisdictional All-Hazard Mitigation Plan (HMP) which is an update of the 2006 Tioga County Hazard Mitigation Plan. DMA 2000 amends the 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 York State Office of Emergency Management (NYSOEM) also supports plan development for jurisdictions in New York State.

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

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.

DMA 2000 ORIGINS -THE ROBERT T. STAFFORD DISASTER RELIEF AND EMERGENCY ASSISTANCE ACT

In the early 1990s a new federal policy regarding disasters began to evolve. Rather than simply reacting whenever disasters strike communities, the federal government would encourage communities to first assess their vulnerability to various disasters and then take actions to reduce or eliminate potential risks. The logic is simply 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, other costs associated with disasters, such as the time lost from productive activity by business and industries, are minimized.

The **Federal Emergency Management Agency (FEMA)** estimates that for every dollar spent on damage prevention (mitigation), twice that amount is saved through avoided post-disaster damage repair.

DMA 2000 provides an opportunity for States, tribes and local governments to take a new and revitalized approach to mitigation planning. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions (Section 409) and replacing them with a new set of requirements (Section 322). This section 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 can be taken by the community to mitigate those hazards—before disaster strikes. For communities to remain eligible for hazard mitigation assistance from the federal government, they must first prepare a HMP and maintain (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 York, specifically to NYSOEM. FEMA also provides support through guidance, resources, and plan reviews. Copies of the applicable federal and state regulations are found in Appendix A.

ORGANIZATIONS INVOLVED IN THE MITIGATION PLANNING EFFORT

Tioga County and the participating jurisdictions intend to implement this HMP with full coordination and participation of County and local departments, organizations and groups, as well as by coordinating with 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 and in the Jurisdictional Annexes in Volume II, Section 9.

In addition to Tioga County, all jurisdictions within the County have participated in the planning process (Table 1-1 and Figure 1-1) including four school districts noted below that sustained damages due to flooding in the September 2011 flood event.

Table 1-1. Participating Jurisdictions in Tioga County

Towns	Villages
Town of Barton	Village of Candor
Town of Berkshire	Village of Newark Valley
Town of Candor	Village of Nichols
Town of Newark Valley	Village of Owego
Town of Nichols	Village of Spencer
Town of Owego	Village of Waverly
Town of Richford	School Districts
Town of Spencer	Candor Central
Town of Tioga	Owego Apalachin Central
	Tioga Central
	Spencer-Van Etten Central

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 York State, NYSOEM is the lead agency providing hazard mitigation planning assistance to local jurisdictions. NYSOEM provides guidance to support mitigation planning. In addition, FEMA provides grants, tools, and training to support mitigation planning.

Additional input and support for this planning effort was obtained from a range of agencies and through public involvement (as discussed in Section 3). Oversight for the preparation of this plan was provided by the Tioga County All Hazard Planning Committee (Planning Committee), which includes representatives from:

- County Soil and Water Conservation District

- County Emergency Management
- County Attorney
- County Planning & Zoning
- County Department of Public Works
- County Geographical Information Systems (GIS)
- County Legislature
- County Chamber of Commerce
- Tioga CCE
- Participating School Districts
- Participating Jurisdictions
- Agencies and Non-Profit (incorporated by stakeholder surveys and satellite meetings)

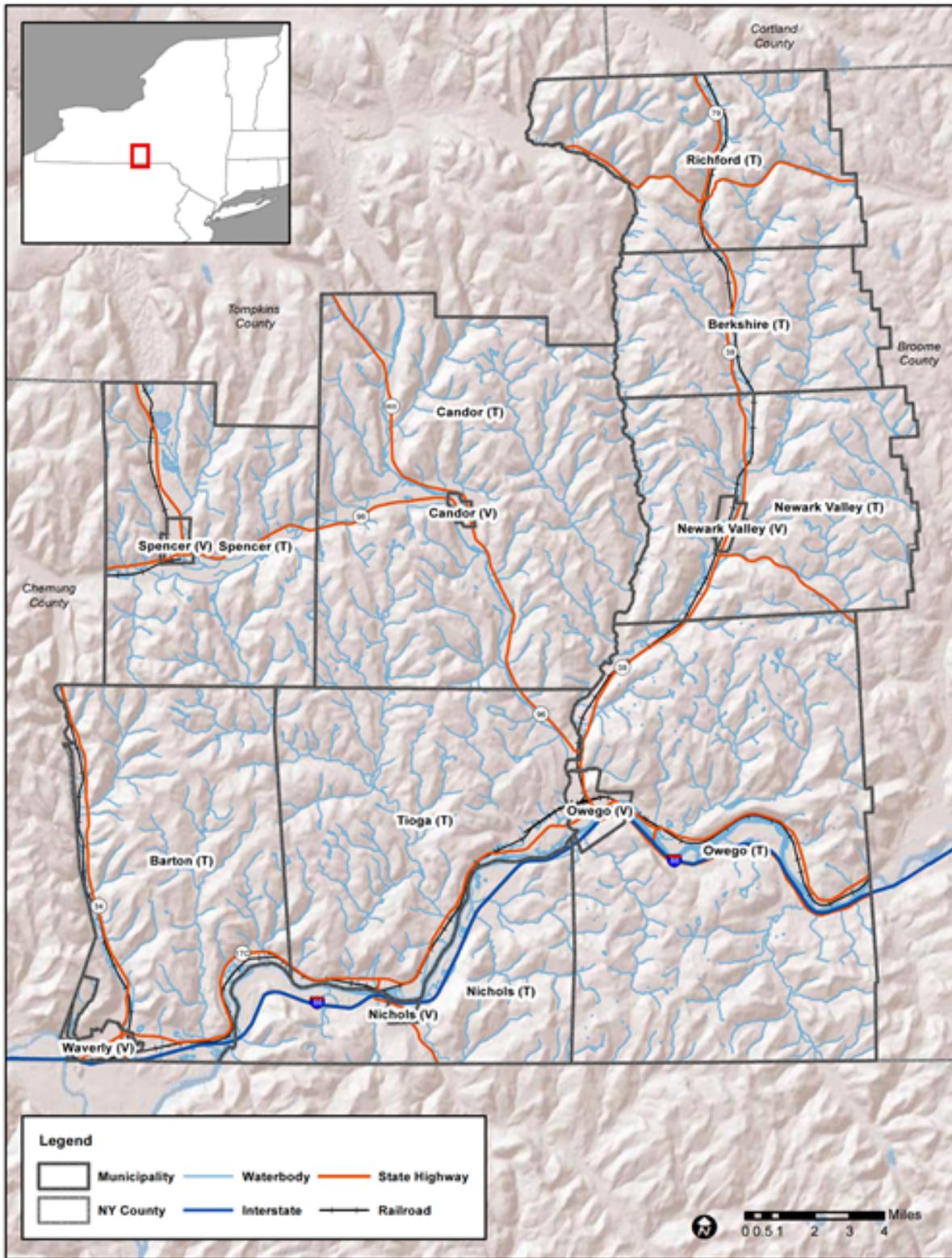
The Steering Committee is a subset of the Planning Committee and has been formed as a leadership group to plan, guide, expedite, and implement the planning process. The Steering Committee has provided guidance and leadership, overseen the planning process, and has acted as the point of contact for all partners and the various interest groups in the planning area.

The Planning Committee is comprised of the Steering Committee as well as additional county representatives and the remaining participating jurisdictional representatives. A list of Steering Committee and Planning Committee members is provided in Section 3: Planning Process.

The Working Group is a subset of the Steering Committee which met bi-weekly to review the status to the planning process and to address any comments or issues that might have had an effect on the plan schedule.

Throughout the planning process, Tioga County utilized the services of Tetra Tech EM, Inc. (Tetra Tech) in the capacity of consultant to provide assistance in preparation of the HMP. Tetra Tech was present and participated in meetings as noted in Section 3: Planning Process. Tetra Tech developed the plan, supported the identification of goals and objectives, reviewed and compiled hazard data, performed risk analyses, hazard identification and profiling, vulnerability analyses, supported the development of mitigation strategies, provided planning support, and authored the plan with input from Tioga County.

Figure 1-1. Tioga County Mitigation Plan Area



Source: Tioga County Department of Economic Development and Planning

This HMP was prepared in accordance with the following regulations and guidance:

- 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. 2004. “How-To Guide for Using HAZUS-MH for Risk Assessment.” FEMA Document No. 433. February.
- FEMA Mitigation Planning How-to Series (FEMA 386-1 through 4, 2002), available at: <http://www.fema.gov/fima/planhowto.shtm>.

Table 1-2 summarizes the requirements outlined in the DMA 2000 Interim Final Rule and where each of these requirements is addressed in this HMP.

Table 1-2. FEMA Local Mitigation Plan Review Crosswalk

FEMA Local Mitigation Plan Review Crosswalk	
Plan Criteria	Primary Location in Plan
Prerequisites	
Adoption by the Local Governing Body: §201.6(c)(5)	Volume I, Section 2.0; Appendix B
Planning Process	
Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)	Volume I, Section 3.0
Risk Assessment	
Identifying Hazards: §201.6(c)(2)(i)	Volume I, Sections 5.2
Profiling Hazards: §201.6(c)(2)(i)	Volume I, Section 5.3
Assessing Vulnerability: Overview: §201.6(c)(2)(ii)	Volume I, Section 5.4
Assessing Vulnerability: Identifying Structures: §201.6(c)(2)(ii)(A)	Volume I, Section 4.0 Volume I Section 5.4
Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)	Volume I, Section 5.4
Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)	Volume I, Section 4.0; Section 9 Annexes
Mitigation Strategy	
Local Hazard Mitigation Goals: §201.6(c)(3)(i)	Volume I, Section 6.0; Volume II, Section 9 Annexes
Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)	Volume I, Section 6.0; Volume II, Section 9 Annexes
Implementation of Mitigation Actions: §201.6(c)(3)(iii)	Volume I, Section 6.0; Volume II, Section 9 Annexes
Multi-Jurisdictional Mitigation Actions: : §201.6(c)(3)(iv)	Volume I, Section 6.0; Volume II, Section 9 Annexes
Plan Maintenance Process	
Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i)	Volume I, Section 7.0
Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)	Volume I, Section 7.0
Continued Public Involvement: §201.6(c)(4)(iii)	Volume I, Section 7.0

Organization

The Tioga County Hazard Mitigation Plan Update has been reorganized into a two volume plan. Whereas the original plan was divided mainly into hazard categories the new plan provides a detailed review and analysis of hazards of concern and resources and demographics of the County and participating municipalities. Volume I is intended to be used as a resource for on-going mitigation analysis. Volume II consists of a chapter or annex dedicated to each participating jurisdiction. Each annex summarizes each jurisdiction's vulnerabilities to natural hazards and provides an individualized mitigation strategy. The annexes are intended to provide an expedient resource for each jurisdiction for implementation of mitigation projects and future grant opportunities.

Goals and Objectives

The plan update has incorporated a goals and objectives hierarchy as a basis for the planning process and to address all hazards of concern rather than providing separate goals and objectives for each hazard as in the original plan. A cross-walk indicating the relationship of the original goals and objectives with the new goals and objectives is provided in Section 6 of the plan.

Hazards of Concern

The county and participating jurisdictions reviewed natural hazards that caused measurable impacts in the planning area and evaluated the risk and vulnerability due to each of the hazards of concern on the assets of each participating jurisdiction. Although the resulting hazard risk rankings varied for each jurisdiction, the summary risk rankings corresponded with that of the County and are indicated in each jurisdictional annex. The hazard risk ranks were used to focus and prioritize the individual jurisdictional mitigation strategies.

Plan Integration into Other Planning Mechanisms

It is the intention of this planning process that municipalities shall incorporate findings and recommendation of this plan into future local planning efforts and into overall execution of their land-use planning process (e.g. site plan review, permitting, and code enforcement).

Implementation of the 2006 Plan

The status of the mitigation projects in the 2006 are provided in Sections 6 and 9 of the plan. Numerous projects and programs have been implemented that have reduced hazard vulnerability to assets in the planning area. Due to the lack of resources, the 2006 has not been integrated with planning processes in the county and jurisdictions for the most part, but the integration of the 2012 plan is a high priority for the next five year cycle as noted in the plan maintenance procedure.

Many jurisdictions have comprehensive or master plans, none of them were updated during the time period covered under Tioga County's previous All Hazards Mitigation Plan. However, there was one plan created and adopted by both the Town of Owego and Tioga County – the Stormwater Management Program Plan. This plan does call for the education and outreach and participation of the general public on various stormwater activities. While the Tioga County/Town of Owego Stormwater Management Program Plan addresses only the hazards of severe storms and floods, any activities that are accomplished in accordance with this plan will include Hazard Mitigation Plan aspects where at all possible and suitable. The next Stormwater Management Program Plan update scheduled for 2016 will include language that incorporates hazard mitigation items for severe storms and flooding.

Similarly, the County will ensure through the Hazard Mitigation Coordinator duties that all jurisdictions are aware they need to incorporate hazard mitigation plan aspects into their comprehensive and master plan updates, as well as making specific recommendations, such as having the Flood Plain Administrator review all site plan review and zoning permits within the 100-year floodplain and including the hazards map in their plan. Municipalities now in the process of creating and/or updating their plans are the Town of Spencer, Town of Nichols, Village of Owego and Town of Newark Valley, so they will be the immediate focus.

The table below provides an indication of changes and additions to the 2006 plan.

Table 1-3. Mitigation Plan Update Summary

2006 Hazard Mitigation Plan Section	Topic	2012 Hazard Mitigation Plan Section	Comments
Introduction	Authority	Section 3	An explanation of the agencies administering the grant which funded this process and who are managing the planning process is included in this section.
Introduction	Public Participation	Section 3	A full chronology of meetings, a description of participant input and responsibilities, and summary of public outreach is included in this section.
Introduction	Hazard Analysis	Section 5	Section 5.2, 5.3, and 5.4 include hazards of concern identification, hazard profiles, and hazard risk rankings.
Introduction	Vulnerability Assessment	Section 5	Section 5.1 provides a description of methodology and Section 5.4 includes vulnerability assessments based on HAZUS-MH analysis.
Introduction	County Physical Geography	Section 4	The County profile includes an overview of the physical characteristics of the County.
Introduction	Land Use & Development Trends	Section 4	Land Use and Development data is provided in the County Profile.
Section I-Flood Hazards	Flood History Prior to 1950	Section 5.4.1	Flood history, frequency, and probability are addressed in the Flood Profile, Section 5.4.1.
Section I-Flood Hazards	Major Flood Events 1950-1970		
Section I-Flood Hazards	Tropical Storm Agnes		
Section I-Flood Hazards	Flood Events 1975-2000		
Section I-Flood Hazards	Frequency and Probability Estimate		
Section I-Flood Mitigation Goals, Objectives, and Actions	Actions: County-Wide Projects	Sections 6 and 9.1	The plan update is formatted in two volumes with Volume I containing

2006 Hazard Mitigation Plan Section *	Topic	2012 Hazard Mitigation Plan Section	Comments
Section I-Flood Mitigation Goals, Objectives, and Actions	Town of Spencer Dam		information pertaining to the entire planning area and Volume II containing one chapter or annex pertaining to each plan participant. The County-wide actions are included in Section 9.1. Progress of County-wide actions is provided in Section 6 as well as Section 9.1.
Section I-Flood Mitigation Goals, Objectives, and Actions	Town of Spencer-Raise Dam		
Section I-Flood Mitigation Goals, Objectives, and Actions	Construction Drop Structures		
Section I-Flood Mitigation Goals, Objectives, and Actions	Flood Proof Homes		
Section I-Flood Mitigation Goals, Objectives, and Actions	Extend Dike and Buy Out Repetitive Loss Properties		
Section I-Flood Mitigation Goals, Objectives, and Actions	Streambank Stabilization		
Section I-Flood Mitigation Goals, Objectives, and Actions	Reconstruct Dam and Replace Culvert		
Section II-Other Natural Hazards	Wind Event History	Section 5.4.3	This is addressed in the Severe Storm profile, Section 5.4.3.
Section II-Other Natural Hazards	Wind Event Potential		
Section II-Other Natural Hazards	Earthquakes	Section 5.4.5	
Section II-Other Natural Hazards	Snow and Ice Storms	Section 5.4.2	This is addressed in the Severe Winter Storm profile, Section 5.4.2.
Section II-Other Natural Hazards	Snow and Ice Storm Potential		
Section II-Other Natural Hazards	Landslides	Not addressed in the 2012 Update	See below.
Section II-Other Natural Hazards	Fires-History		
Section II-Other Natural Hazards	Fires-Potential		
Section II-Mitigation Goals and Objectives: Other Natural Hazards	Not addressed in the 2012 Update	See below.	See below.
Section III-Manmade/Technological Hazards	Transportation Hazards and Related Incidents	Not addressed in the 2012 Update	The committee agreed to focus the limited resources to address the natural hazards that have provided the main impacts to the County in the past 5 years.
Section III-Manmade/Technological Hazards	Air Traffic		
Section III-Manmade/Technological Hazards	Pipelines-History		
Section III-Manmade/Technological Hazards	Pipelines-Potential		
Section III-Manmade/Technological Hazards	Railroads-History		
Section III-Manmade/Technological Hazards	Railroads-Potential Events		

2006 Hazard Mitigation Plan Section *	Topic	2012 Hazard Mitigation Plan Section	Comments
Section III- Manmade/Technological Hazards	Trucks-History		
Section III- Manmade/Technological Hazards	Trucks-Potential Events		
Section III- Manmade/Technological Hazards	Fixed Sites		
Section III- Manmade/Technological Hazards	Fixed Site History		
Section III- Manmade/Technological Hazards	Hazardous Materials- Potential Events		
Section III-Mitigation Goals and Objectives: Manmade/Technological Hazards	Not addressed in the 2012 Update	Not addressed in the 2012 Update	See above.
Section IV-Conclusions	Flood Conclusion	Section 5.4.1	Included.
Section IV-Conclusions	Other Natural Hazards	Sections 5.4.2 through 5.4.5	Included.
Section IV-Conclusions	Earthquakes	Section 5.4.5	Included.
Section IV-Conclusions	Snow and Storms	Section 5.4.2 and 5.4.3	Included.
Section IV-Conclusions	Fires		
Section IV-Conclusions	Manmade/Technological Hazards	Not addressed in the 2012 Update	Included.

IMPLEMENTATION OF THE PLANNING PROCESS

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

- Developed a Planning Committee
- Reviewed the 2006 Tioga County Hazard Mitigation Plan
- Identified/reviewed hazards of concern to be included in the update
- Profiled these hazards
- Estimated the inventory at risk and potential losses associated with these hazards
- Developed mitigation goals and actions that address the various hazards that impact the area
- Developed mitigation plan maintenance procedures to be executed after obtaining approval of the plan from NYSOEM and FEMA

Based on a hazards identification worksheet and ranking process, subsequent input from the Planning Committee, and review of other available data, the planning process then proceeded to identify, rank and profile those hazards that are of greatest concern to the community (hazards of concern). The hazard profiles include location, extent, previous occurrences and losses, and the probability of future events. The process also included a vulnerability assessment to evaluate what County, town and village assets are exposed or vulnerable to the hazards.

To address the requirements of DMA 2000 and better understand their potential vulnerability to and losses associated with hazards of concern, Hazards U.S. – Multi-Hazard (HAZUS-MH or HAZUS) software package (discussed in greater detail later in this Plan) supplemented by local data, as feasible, was used to support the risk assessment and vulnerability evaluation. HAZUS-MH assesses risk and estimates potential losses for natural hazards. It produces outputs that will assist state and local governments, communities, and the private sector in implementing emergency response, recovery, and mitigation programs, including the development of HMPs.

As required by DMA 2000, Tioga County and participating jurisdictions have informed the public and provided opportunities for public comment and input. In addition, numerous agencies and stakeholders have participated as core or support members, providing input and expertise throughout the planning process.

This Multi-Jurisdictional All-Hazard Mitigation Plan documents the process and outcomes of the County and jurisdictions' efforts. Additional information on the planning process is included in Section 3, Planning Process. Documentation that the prerequisites for plan approval have been met is included in Section 2, Plan Adoption.

BENEFITS OF MITIGATION PLANNING

The planning process will help prepare citizens and government agencies to better respond when disasters occur. Also, mitigation planning allows Tioga County and town and villages 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:

- An increased understanding of hazards faced by communities
- A more sustainable and disaster-resistant community
- 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 and reduced repair costs

ORGANIZATION OF THIS MITIGATION PLAN

This Plan was organized in accordance with FEMA and NYSOEM guidance. The structure of this Plan follows the four-phase planning process recommended by FEMA and summarized in Figure 1-2. The Plan is organized into two volumes: Volume I includes all information that applies to the entire planning area (Tioga County); and Volume II includes participating jurisdiction-specific information.

Volume I of this Plan includes the following sections:

Section 1: Introduction: Overview of participants and planning process

Section 2: Plan Adoption: Information regarding the adoption of the Plan by Tioga County and each participating jurisdiction.

Section 3: Planning Process: A description of the Plan methodology and development process, Planning Committee and stakeholder involvement efforts, and a description of how this Plan will be incorporated into existing programs.

Section 4: County Profile: An overview of Tioga County, including: (1) general information, (2) economy, (3) land use trends, (4) population and demographics, (5) general building stock inventory and (6) critical facilities.

Section 5: 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 and health; general building stock; critical facilities and the economy). Description of the status of local data and planned steps to improve local data to support mitigation planning.

Section 6: Mitigation Strategies: Information regarding the mitigation goals and objectives identified by Tioga County in response to priority hazards of concern.

Section 7: Plan Maintenance Procedures: The system established by Tioga County to continue to monitor, evaluate, maintain and update the Plan.

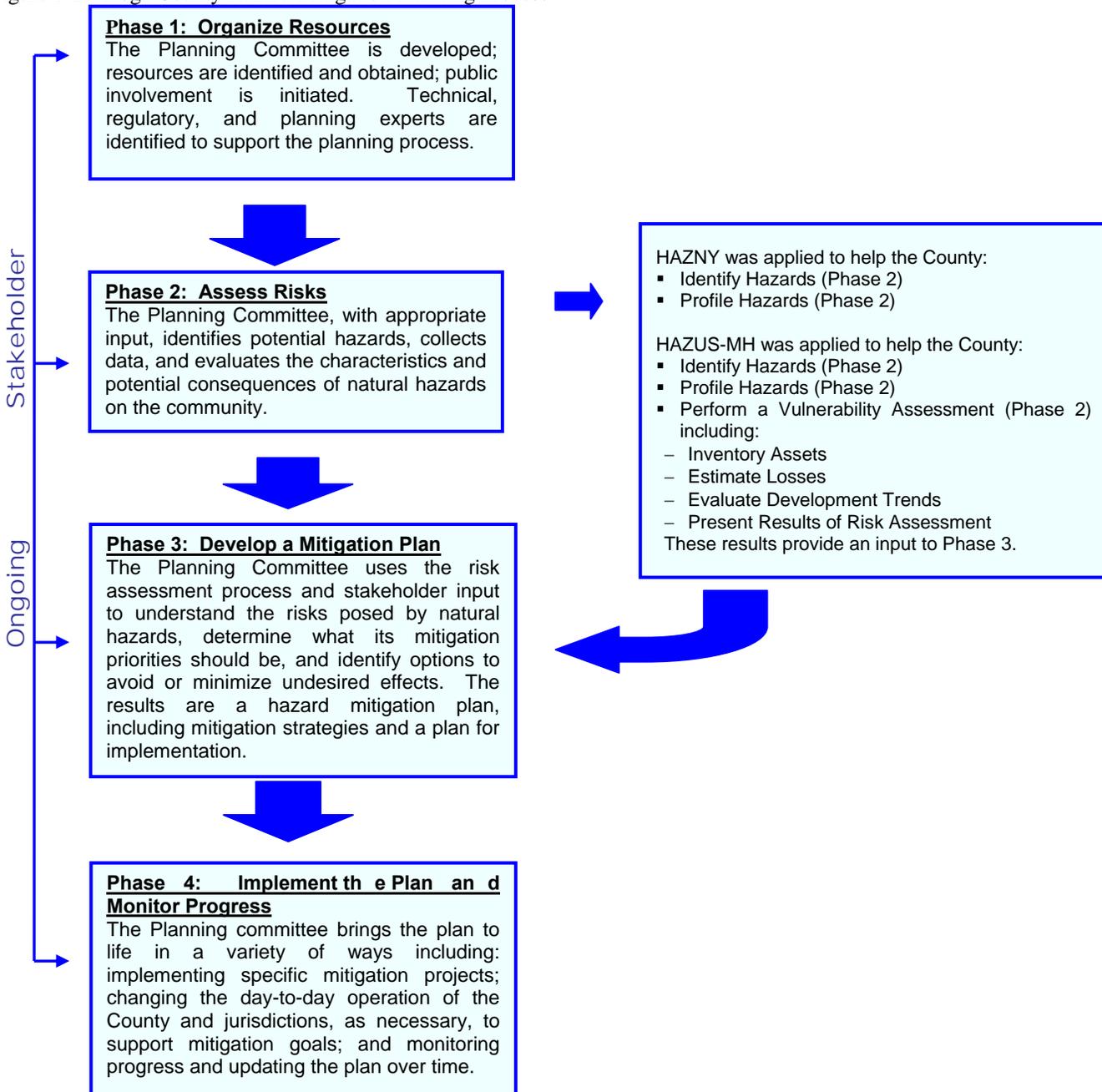
Volume II of this Plan includes the following sections:

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



Section 9: Jurisdictional Annexes: A jurisdiction-specific annex for each participating jurisdiction and the County containing their hazards of concern, hazard risk ranking, capability assessments, mitigation actions and action prioritization specific only to the County or that jurisdiction.

Figure 1-2. Tioga County Hazard Mitigation Planning Process



Appendices –

Appendix A: Applicable Federal and State Regulations: Copies of federal and state acts and regulations that apply to hazard mitigation planning within this jurisdiction.

Appendix B: Resolution of Plan Adoption: Documentation that supports the Plan approval signatures included in Section 2 of this Plan.

Appendix C: Public and Stakeholder Outreach and Comments: Results of Public Survey Public Notices, Public Service Announcements, various newspaper articles to inform the public of the hazard mitigation planning effort in Tioga County and specific public and stakeholder comments received throughout the planning process.

Appendix D: Mitigation Catalog: Comprehensive list of mitigation actions considered by Tioga County and the participating jurisdictions.

Appendix E: Federal Mitigation Programs, Activities, and Initiatives: Summary of federal funding options that could be used to fund mitigation activities.

Appendix F: Jurisdictional Annex Template and Instructions: Template and instructions used by Tioga County and each participating jurisdiction.

Appendix G: FEMA 386-4 Guidance Worksheets

Appendix H: Public Survey Results

Appendix I: Minutes of Meetings: Agendas, minutes, and sign-in sheets of major meetings convened during the planning process.

Appendix J: Sample Letter of Intent provided to participants summarizing minimum requirements of participation in the planning process.