

SECTION 1. INTRODUCTION

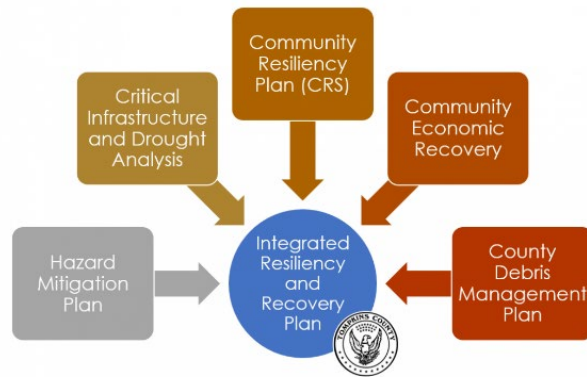
1.1 BACKGROUND

Through grants from the Federal Emergency Management Agency (FEMA) and the New York State Department of State (DOS), the Tompkins County Department of Planning and Sustainability is leading the development of a countywide Resiliency and Recovery Plan. The overall plan not only focuses on hazard mitigation, but will take a more comprehensive approach to resilience and recovery, which makes this Tompkins County plan unique to other county plans in New York State.

This plan includes each of the municipalities in Tompkins County along with a broad group of stakeholders in an effort to better reduce risk associated with hazards and the changing climate as well as to better prepare for long-term recovery from disaster events. By integrating resilience and recovery into the county's general planning practices, municipal and county governments will be able to focus on strategies to address community resilience. In other words, an integrated Resiliency and Recovery Plan will outline key actions that local governments, agencies, and businesses can take to build community resiliency (Tompkins, 2020).

The Hazard Mitigation Plan (HMP) is one component of the overarching resiliency plan and represents the five-year regulatory update of the 2014 Tompkins County HMP.

In accordance with the requirements of the Disaster Mitigation Act of 2000 (DMA 2000), Tompkins County and the municipalities located therein have developed this 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. FEMA has issued guidelines for HMPs. The New York State Division of Homeland Security and Emergency Services (NYS DHSES), formerly the NYS Office of Emergency Management (NYSOEM), also supports plan development for jurisdictions in New York State and issued the NYS DHSES Hazard Mitigation Planning Standards for HMPs developed with NYS DHSES-administered funds.



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.

Tompkins County has been included in 27 FEMA (major and emergency) declarations.

A Hazard Mitigation Plan is a living document that communities use to reduce their vulnerability to hazards. It forms the foundation for a community's long-term strategy to reduce disaster losses and creates a framework for decision making to reduce damage to lives, property, and the economy from future disasters. Examples of mitigation projects include home acquisitions or elevations to remove structures from high-risk areas, upgrades to critical public facilities, and infrastructure improvements. Ultimately, these actions reduce vulnerability, to support communities' ability to recover more quickly from disasters. Tompkins County has demonstrated its commitment to reducing disaster losses by initially developing its multi-jurisdictional HMP in 2014, compiling information upon which to base a successful mitigation strategy to reduce the impacts of natural disasters and to increase the resiliency of its communities.

1.1.1 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.



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 NYS DHSES. FEMA also provides support through guidance, resources, and plan reviews.

1.1.2 Benefits of Mitigation Planning

The planning process helps prepare citizens and government agencies to better respond when disasters occur. Also, mitigation planning allows Tompkins County, and participating municipalities, to remain eligible for mitigation grant funding for projects that will reduce the impact of future disaster events. Eligible projects include property acquisition and structure demolition, structure elevation, localized flood risk reduction projects, infrastructure retrofit, soil stabilization, wildfire mitigation, post-disaster code enforcement, wind retrofit for one- and two-family residences, and planning-related activities. The long-term benefits of mitigation planning include the following:

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

- An increased understanding of hazards faced by Tompkins County and its inclusive municipalities.
- 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.
- 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 damage to human health and structures.
- Reduced repair costs.

1.1.3 Organizations Involved in the Mitigation Planning Effort

Tompkins 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 in the jurisdictional annexes in Section 9 (Jurisdictional Annexes).



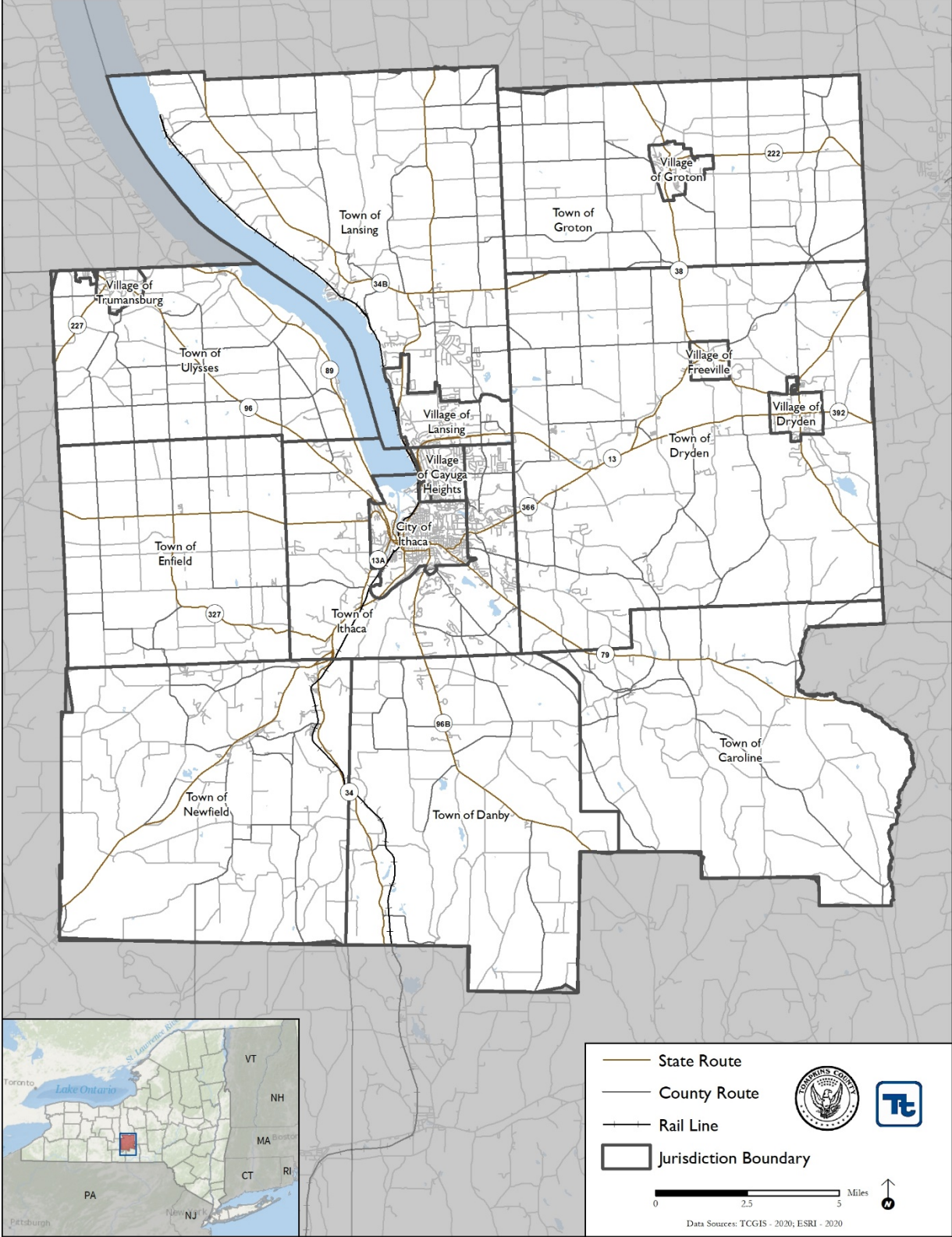
In addition to Tompkins County, all 16 municipal governments in the county have participated in the Tompkins County HMP update planning process as indicated in Table 1-1 below. A map of the Tompkins County HMP planning area is provided in Figure 1-1 following the table.

Table 1-1. Participating Tompkins County Jurisdictions

Jurisdictions	
Tompkins County	
Caroline (T)	Groton (V)
Cayuga Heights (V)	Ithaca (T)
Danby (C)	Ithaca (C)
Dryden (T)	Lansing (T)
Dryden (V)	Lansing (V)
Enfield (T)	Newfield (T)
Freeville (T)	Trumansburg (V)
Groton (T)	Ulysses (T)



Figure 1-1. Tompkins County, New York Mitigation Plan Area



1.1.3.1 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, NYS DHSES is the lead agency providing hazard mitigation planning assistance to local jurisdictions. NYS DHSES provides guidance to support mitigation planning. In addition, FEMA provides grants, tools, guidance, 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). The Tompkins County Department of Planning and Sustainability, with support from the Tompkins County Hazard Mitigation Plan Steering Committee (Steering Committee), provided project management and oversight of the planning process. While participating municipalities were asked to identify a primary and alternate local Point of Contact (POC), broad participation by municipal representatives was encouraged and supported throughout the planning process. A list of Steering Committee and municipal POCs is provided in Section 3 (Planning Process), while Appendix B (Participation Matrix) provides further documentation of the broader level of municipal involvement.

This HMP 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 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.
- NYS DHSES Hazard Mitigation Planning Standard, 2017.
- NYS DHSES Hazard Mitigation Planning Standard Guide, 2017.
- NYS Hazard Mitigation Plan, 2019.

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.



Table 1-2. FEMA Local Mitigation Plan Review Crosswalk

Plan Criteria	Primary Location in Plan
Prerequisites	
Adoption by the Local Governing Body: §201.6(c)(5)	Section 2; Appendix A
Planning Process	
Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)	Section 3
Risk Assessment	
Identifying Hazards: §201.6(c)(2)(i)	Section 5.2
Profiling Hazards: §201.6(c)(2)(i)	Section 5.4
Assessing Vulnerability: Overview: §201.6(c)(2)(ii)	Section 5.4
Assessing Vulnerability: Identifying Structures: §201.6(c)(2)(ii)(A)	Section 4 Section 5.4
Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)	Section 5.4
Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)	Section 4; Section 9 Annexes
Mitigation Strategy	
Local Hazard Mitigation Goals: §201.6(c)(3)(i)	Section 6; Section 9 Annexes
Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)	Section 6; Section 9 Annexes
Implementation of Mitigation Actions: §201.6(c)(3)(iii)	Section 6; Section 9 Annexes
Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)	Section 6; Section 9 Annexes
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 7; Section 9 Annexes
Continued Public Involvement: §201.6(c)(4)(iii)	Section 7

1.1.4 Organization

The Tompkins County HMP update is organized as a two-volume plan. Volume I provides information on the overall planning process and natural hazard profiling and vulnerability assessments, which serve as a basis for understanding risk and identifying appropriate 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 natural hazards; records status of past mitigation actions; and presents 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, as well as a place for each jurisdiction to record and maintain its local version of the countywide plan.

1.1.4.1 Mission Statement

A mission statement or guiding principle describes the overall duty and purpose of the planning process and serves to identify the principal message of the plan. It focuses or constrains the range of goals and objectives identified. This is not a goal because it does not describe outcomes. During the 2021 planning process, the



Steering Committee created a mission statement to provide direction for the planning process and an overarching framework for the goals of the plan.

The mission of the Tompkins County Hazard Mitigation Plan is to develop a pathway, using an integrated and comprehensive approach, to increase capacity for all individuals, communities, municipalities, institutions, businesses, and systems within the county, to adapt and thrive in the face of chronic stresses and acute shocks as a result of natural hazard events in Tompkins County.

1.1.4.2 Goals and Objectives

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









Tompkins County 2021 HMP Update Goals

- 1. Improve the Resiliency of Systems that Support Public Health and Sustainable Development*
- 2. Increase Partnerships that Improve Hazard Risk Knowledge and Mitigation*
- 3. Protect and Restore Natural Ecosystems to Reduce Flood Risk*
- 4. Enhance Mitigation Collaboration and Coordination Among Emergency Service Agencies to Further Support Life Safety and Economic Resiliency*
- 5. Promote and Strengthen Healthy and Equitable Environments for all Residents with Special Considerations for Those Who are Socially and Physically Vulnerable*

1.1.4.3 Hazards of Concern

Tompkins County and participating jurisdictions reviewed the natural hazards that caused measurable impacts based on events, losses, and information available since the development of the Tompkins County HMP (2014) and the New York State Hazard Mitigation Plan - 2019 Update. Tompkins County and participating jurisdictions evaluated the risk and vulnerability due to each of the hazards of concern on the assets of each participating jurisdiction. While the overall hazard rankings were calculated for the county and each participating

municipality, the overall hazard rankings displayed in each annex reflect municipal input. The hazard risk rankings were used to focus and prioritize individual jurisdictional mitigation strategies.

 Drought and Wildfire	 Harmful Algal Bloom (HABs)
 Disease Outbreak	 Invasive Species
 Extreme Temperature	 Severe Storm
 Flood	 Severe Winter Storm



1.1.4.4 Plan Integration into Other Planning Mechanisms

Effective mitigation is achieved when hazard awareness and risk management approaches and strategies become an integral part of public activities and decision-making. Within the county there are many existing plans and programs that support hazard risk management, and thus it is critical that this HMP integrates, coordinates with, and complements those mechanisms. Comprehensive plans, codes and ordinances, local watershed plans are among the sources of information to update the county and municipal capabilities, to identify mitigation strategies, and to develop integration actions.

The “Capability Assessment” section of Section 6 (Mitigation Strategy) provides a summary and description of the existing plans, programs and regulatory mechanisms at all levels of government (federal state, county, and 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).

Additionally, as previously mentioned, Tompkins County will build off the HMP to create a countywide resilience and recovery plan. This HMP will serve as a foundation increase the resiliency of the county through this plan. This integrated planning effort will include:

- Analysis of critical infrastructure vulnerability to flooding and drought
- Development of a plan for local community involvement in FEMA's Community Rating System (CRS)
- Development of a debris management plan, and
- Development of key community recovery tools.

1.1.5 Implementation of Prior and Existing Local Hazard Mitigation Plans

Section 6 (Mitigation Strategy) and Section 9 (Jurisdictional Annexes) of the plan present the status of the mitigation projects identified in the 2014 Tompkins County HMP. Numerous projects and programs have been implemented that have reduced hazard vulnerability to assets in the planning area. The county and municipal annexes, as well as plan maintenance procedures in Section 7 (Plan Maintenance), were developed to include specific, implementable activities. Future actions include integrating hazard mitigation goals into the resiliency plan as well as comprehensive 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, will be completed within the upcoming five-year planning period.

1.1.6 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, Tompkins County and the participating jurisdictions have accomplished the following:

- Developed a Steering Committee and countywide planning partnership with municipalities and stakeholders.
- Reviewed the 2014 *Tompkins County Hazard Mitigation Plan Update*.
- Identified and reviewed those natural hazards that are of greatest concern to the community (hazards of concern).
- Profiled the relevant natural hazards.
- Estimated the inventory at risk and potential losses associated with the relevant hazards.
- Reviewed and updated the hazard mitigation goals and added new objectives.
- Reviewed mitigation strategies identified in the 2014 Tompkins County HMP.
- Developed new mitigation actions to address reduction of vulnerability of hazards of concern.
- Involved a wide range of stakeholders and public in the plan process.
- Developed mitigation plan maintenance procedures to be executed after obtaining approval of the plan from NYS DHSES and FEMA.

As required by the DMA 2000, Tompkins County and participating jurisdictions have provided multiple opportunities for public comment and input. Numerous agencies and stakeholders have participated as core or support members by providing input and expertise throughout the planning process. Refer to Appendix D (Public and Stakeholder Outreach) for copies of public service announcements, newspaper articles, and social media posts.

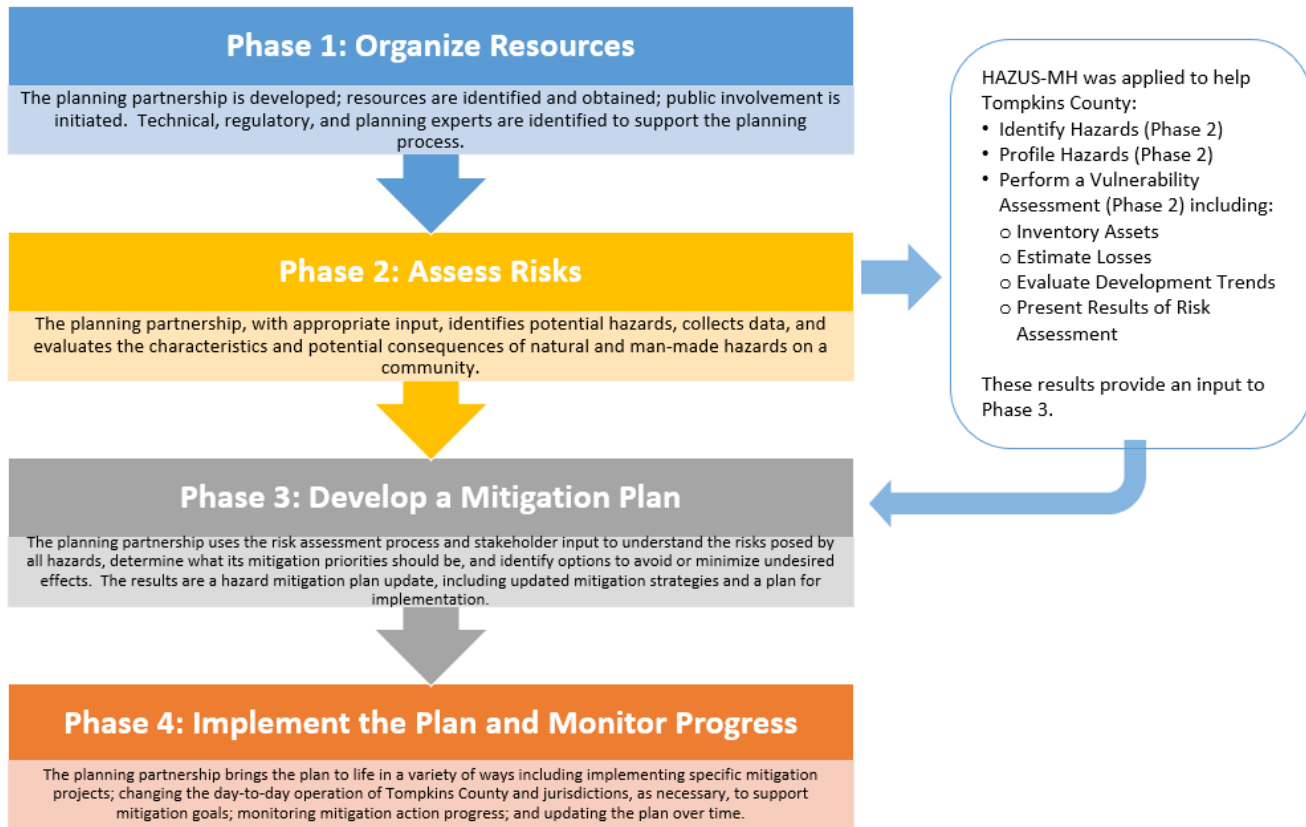
This HMP update documents the process and outcomes of Tompkins County and the jurisdictions' efforts. Section 2 (Plan Adoption) includes documentation that the prerequisites for plan approval have been met. Section 3 (Planning Process) includes additional information on the process to develop this plan.

1.1.7 Organization of This Mitigation Plan

This HMP is organized in accordance with FEMA and NYS DHSES guidance. The structure of this HMP follows the four-phase planning process recommended by FEMA and summarized in Figure 1-3.



Figure 1-2. Tompkins County Hazard Mitigation Planning Process



As noted earlier, the HMP is organized into two volumes: Volume I includes all information that applies to the entire planning area (Tompkins 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 HMP by Tompkins County and each participating jurisdiction.
- Section 3:** Planning Process: A description of the HMP methodology and development process; Steering Committee, Planning Committee and stakeholder involvement efforts; and a description of how this HMP will be incorporated into existing programs.
- Section 4:** County Profile: An overview of Tompkins 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 the Steering Committee in response to priority hazards of concern and the process by which county and local mitigation strategies have been developed or updated.
- Section 7:** Plan Maintenance Procedures: System established by the Steering Committee 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 jurisdictional annexes.
- Section 9:** Jurisdictional Annexes: A jurisdiction-specific annex for Tompkins County and each participating jurisdiction containing their hazards of concern, hazard risk ranking, capability assessments, mitigation actions, action prioritization specific only to Tompkins 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.

List of Appendices:

- Appendix A:** Resolutions of Plan Adoption: Resolutions from the county and each jurisdiction will be included as they formally adopt the HMP update.
- Appendix B:** Participation Matrix: A matrix is presented to give a broad overview of who attended meetings and when input was provided to the HMP update. Letters of Intent to Participate as described in Section 3 are also included in this appendix.
- 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:** County Profile and Risk Assessment Supplementary Data: Details regarding critical facilities from Section 4 (County Profile) and vulnerability assessments conducted for the hazards of concern (Section 5 – Risk Assessment).
- Appendix F:** Critical Facilities: Critical facilities included in the risk assessment.
- Appendix G:** FEMA Plan Review Tools: Examples of plan review templates available to support annual plan review.
- Appendix H:** Tompkins County Mitigation Catalog: Documentation of the broad range of actions identified during the mitigation process.
- Appendix I:** Linkage Procedure: Procedure to define the requirements established by the Tompkins County Steering Committee and all planning partners for dealing with the increase or decrease in planning partners included in this plan.
- Appendix J:** Plan Review Matrix: Summary of plans reviewed, including documentation of content relevant to the mitigation planning process.

1.2 The Plan Update – What is Different?

Tompkins County’s initial HMP was approved by FEMA and adopted by participating jurisdictions in 2006. The plan was subsequently updated, approved by FEMA, and adopted by participating jurisdictions in 2014. The 2021 update builds on the 2014 plan and specifically includes the following changes or enhancements. This plan differed from its predecessor for a variety of reasons:

- This plan was prepared in accordance with the 2017 NYS DHSES guidance, which provided a framework for a more concise, focused, and implementable mitigation plan.
- Updated data and tools provided for a more detailed and accurate risk assessment. Building footprint data was now available to provide a more accurate flood vulnerability assessment. The risk assessment was prepared to better support future grant applications by providing risk and vulnerability information that would directly support the measurement of “cost-effectiveness” required under FEMA mitigation grant programs.
- There was a strong desire on the part of Tompkins County for this plan to be a user-friendly document that is understandable to the general public and not overly technical and provide images and text that can easily be used as tools to better communicate local hazard risk.
- The plan identified implementable actions rather than strategies, with enough information to serve as the basis for policy and funding decisions and represent measurable impacts on resiliency and mitigation progress.



Table 1-3. Plan Changes Crosswalk

44 CFR Requirement	2014 Plan	2021 Updated Plan
<p><i>Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:</i></p> <ul style="list-style-type: none"> • <i>An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;</i> • <i>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</i> • <i>Review and incorporation, if appropriate, of existing plans, studies, reports and technical information.</i> 	<p>The 2014 plan followed an outreach strategy utilizing multiple media developed and approved by the Steering Committee. This strategy involved the following:</p> <ul style="list-style-type: none"> • Public participation on an oversight Steering Committee. • Establishment of a plan informational website. • Stakeholders were identified and coordinated with throughout the process. 	<p>The 2021 planning effort deployed a multi-faceted public engagement methodology. The plan included the following enhancements:</p> <ul style="list-style-type: none"> • Using social media. • Web-deployed surveys for stakeholders, neighboring counties, and residents. • Informational brochure. • The outreach materials 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><i>§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.</i></p>	<p>The risk assessment was based on exposure of assets to natural and man-made hazards of concern with vulnerability calculated based on extrapolation of historical damage data.</p>	<p>The 2021 plan includes a comprehensive risk assessment of natural 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 risk as it pertains to their jurisdiction. The potential impacts of climate change are discussed for each hazard.</p>
<p><i>§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.</i></p>	<p>The 2014 plan presented a hazard profile and risk assessment of each hazard of concern. The hazard profiles included:</p> <ul style="list-style-type: none"> • General hazard description that included the location and extent of the hazard in the county; • Historical hazard occurrences; 	<p>The 2021 plan uses a new format, incorporating updated data. 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



44 CFR Requirement	2014 Plan	2021 Updated Plan
	<ul style="list-style-type: none"> History costs and damage estimates; and Future potential impacts of the hazard including impacts from climate change; <p>The risk assessment included:</p> <ul style="list-style-type: none"> Identification of assets; Damage potential; and Development trends. 	<p>best available data for New York State.</p> <ul style="list-style-type: none"> Vulnerability assessment includes: impact on life, safety, and health, general building stock, critical facilities, and the economy, as well as future changes that could impact vulnerability. The vulnerability assessment also includes changes in vulnerability since the 2014 plan. Identified issues have been documented in each hazard profile.
<p><i>§201.6(c)(2)(ii): [The risk assessment] shall include a) description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i). This description shall include an overall summary of each hazard and its impact on the community.</i></p>	<p>Results from the HIRA-NY were used to identify the hazards of concern and to inform the relative risk for each hazard.</p> <p>The risk assessment was based on exposure of assets to hazards of concern with vulnerability calculated based on extrapolation of historical damage data to provide a quantitative estimate of the people and property that may be susceptible to a particular hazard event. The damage potential for housing within Tompkins County was estimated using housing characteristics and housing values reported by the U.S. Census Bureau's American Fact Finder.</p>	<p>The methodology from the 2014 plan was enhanced for the 2021 update and HAZUS-MH was used for the severe storm, 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.</p>
<p><i>§201.6(c)(2)(ii): [The risk assessment] must also address National Flood Insurance Program insured structures that have been repetitively damaged floods.</i></p>	<p>A summary of NFIP insured properties was included in the plan.</p>	<p>The same methodology was deployed for the 2021 plan update using new and updated data.</p>
<p><i>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.</i></p>	<p>An inventory of the numbers and types of buildings exposed was generated for each hazard of concern.</p>	<p>Based on an updated inventory of general building stock and critical facilities, both exposure and impacts of the hazards of concern were generated for existing assets as well as anticipated development.</p>



44 CFR Requirement	2014 Plan	2021 Updated Plan
<i>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.</i>	-	Hazus-MH provided quantifiable results for the flood and wind hazards.
<i>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.</i>	There is a summary of anticipated development in Section 6.3 (Development Trends) of the 2014 plan.	The same methodology was deployed for the 2021 plan update using new and updated data.
<i>§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.]</i>	Each planning partner in the 2014 plan identified actions that could be implemented within their capabilities. The actions were jurisdiction-specific and strove to meet multiple goals. Each planning partner completed an assessment of its planning, regulatory, technical, and financial capabilities.	A new methodology for setting goals, objectives, and actions was applied to the 2021 plan update. The Steering Committee developed a mission statement, and updated goals, and objectives for the plan. Each planning partner used the progress reporting from the plan maintenance and evaluated the status of actions identified in the 2014 plan. Actions that were completed or no longer considered to be feasible were removed. The remaining actions were carried over to the 2021 plan, and in some cases, new actions were added to the action plan.
<i>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.</i>	The Steering Committee reviewed the goals of the 2006 plan and updated, as needed, for the 2014 plan. The goals supported the actions identified in the plan.	The Steering Committee reviewed and updated goals and identified objectives to frame the mitigation strategy. These supported the development of relevant and implementable actions as applied to the 2021 plan update. The Steering Committee reviewed the goals, to include a focus on increased resiliency. This resulted in the finalization of five goals and 34 objectives to frame the plan.



44 CFR Requirement	2014 Plan	2021 Updated Plan
<p><i>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 emphasis on new and existing buildings and infrastructure.</i></p>	<p>A discussion of the mitigation strategy was included In Section 7.2 of the 2014 plan.</p>	<p>A mitigation catalog was developed using input from the Steering Committee and stakeholders. This catalog has is included in the 2021 plan to represent the comprehensive range of alternatives considered by each planning partner. The table with the analysis of mitigation actions was used in jurisdictional annexes to the plan.</p>
<p><i>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.</i></p>	<p>All municipal planning partners that participate in the NFIP identified an action stating their commitment to maintain compliance and good standing under the program.</p>	<p>Ongoing participation in the NFIP for municipalities was included in ongoing capabilities.</p>
<p><i>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.</i></p>	<p>A qualitative cost-benefit analysis was completed for each proposed mitigation action and used to prioritize the actions.</p>	<p>A revised methodology based on the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) criteria and using new and updated data was used for the 2021 plan update.</p>
<p><i>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.</i></p>	<p>The 2014 plan provides a description of the method and schedule to monitor, evaluate, and update the mitigation plan in Section 9 (Plan Maintenance Process).</p>	<p>The 2021 plan provides a more detailed plan maintenance strategy to support the improved use, benefits, and implementation of the plan.</p>
<p><i>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.</i></p>	<p>The 2014 plan provides recommendations for incorporating the plan into other planning mechanisms in Section 9 (Plan Maintenance Process).</p>	<p>The 2021 plan details recommendations for incorporating the plan into other planning mechanisms such as the following:</p> <ul style="list-style-type: none"> • Comprehensive Plan. • Emergency Response Plan. • Capital Improvement Programs. • Municipal Code.
<p><i>Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will</i></p>	<p>The 2014 plan provides a strategy for continuing public involvement in Section 9 (Plan Maintenance Process).</p>	<p>An updated plan maintenance strategy is included in the 2021 plan. In addition, the county will use an online tool to support the annual</p>



44 CFR Requirement	2014 Plan	2021 Updated Plan
<p><i>continue public participation in the plan maintenance process.</i></p>		<p>progress reporting of mitigation actions.</p>
<p><i>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).</i></p>	<p>16 planning partners and the county participated in the 2014 planning process.</p>	<p>The 2021 plan achieves DMA compliance for 16 planning partners and the county. Resolutions for each partner adopting the plan will be found in Appendix A of this plan.</p>

