

SECTION 1: INTRODUCTION

1.1 Background

In response to the requirements of the Disaster Mitigation Act of 2000 (DMA 2000), Lehigh and Northampton counties, and their inclusive municipalities that comprise the Lehigh Valley, have developed this Multi-Jurisdictional Hazard Mitigation Plan (HMP) which is an update of the July 2006 Lehigh Valley HMP. 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 Pennsylvania Emergency Management Agency (PEMA) also supports plan development for jurisdictions in the Commonwealth.

Specifically, DMA 2000 requires that local governmental agencies, with support from their States and Federal government, 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.

1.1.2 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.

1.2 Purpose

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 and maintain a FEMA-approved HMP (this plan).

The planning process will help prepare citizens and government agencies to better respond when disasters occur. Also, mitigation planning allows the counties and municipalities in the Lehigh Valley 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

1.3 Scope

DMA 2000 and its implementing regulations at 44 CFR 201.6 require that all local governments have a FEMA-approved Local Hazard Mitigation Plan, formally updated every five years, in order to be eligible for state and federal mitigation funding. Both counties and all municipalities were invited to participate in the 2012 regulatory update process in order to maintain their eligibility for mitigation funding. However, both active participation and subsequent adoption of the updated plan by each jurisdiction is required to meet FEMA’s local mitigation planning requirements and the expectations of FEMA plan reviewers.

1.3.1 ORGANIZATIONS INVOLVED IN THE MITIGATION PLANNING EFFORT

Lehigh and Northampton Counties and the participating jurisdictions intend to implement this plan 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 all such 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 Lehigh and Northampton Counties, all jurisdictions within the Lehigh Valley have participated in the planning process as indicated in Table 1-1.

Table 1-1. Jurisdictions Participating in the 2012 Update

Participating Jurisdictions			
LEHIGH COUNTY			
Alburtis Borough	Allentown, City of	Bethlehem, City of (LC)(NC)	Catasauqua Borough
Coopersburg Borough	Coplay Borough	Emmaus Borough	Fountain Hill Borough
Hanover Township (LC)	Heidelberg Township	Lower Macungie Township	Lower Milford Township
Lowhill Township	Lynn Township	Macungie Borough	North Whitehall Township
Salisbury Township	Slatington Borough	South Whitehall Township	Upper Macungie Township

Participating Jurisdictions			
Upper Milford Township	Upper Saucon Township	Washington Township (LC)	Weisenberg Township
Whitehall Township			
NORTHAMPTON COUNTY			
Allen Township	Bangor Borough	Bath Borough	Bethlehem Township
Bushkill Township	Chapman Borough	East Allen Township	East Bangor Borough
Easton, City of	Forks Township	Freemansburg Borough	Glendon Borough
Hanover Township (NC)	Hellertown Borough	Lehigh Township	Lower Mt. Bethel Township
Lower Nazareth Township	Lower Saucon Township	Moore Township	Nazareth Borough
North Catasauqua Borough	Northampton Borough	Palmer Township	Pen Argyl Borough
Plainfield Township	Portland Borough	Roseto Borough	Stockertown Borough
Tatamy Borough	Upper Mt. Bethel Township	Upper Nazareth Township	Walnutport Borough
Washington Township (NC)	West Easton Borough	Williams Township	Wilson Borough
Wind Gap Borough			

LC = Lehigh County; NC = Northampton County

While primary responsibility for the development and implementation of mitigation strategies and policies lies with local governments, 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 the Commonwealth of Pennsylvania, PEMA is the lead agency providing hazard mitigation planning assistance to local jurisdictions, through the State's administration of the Federal mitigation grant programs, as well as providing guidance, tools and training to support mitigation planning and plan implementation.

Additional input and support for this planning effort was obtained from a range of agencies and through public involvement, as discussed in Section 3 (Planning Process). This plan update process was managed by the Northampton County Emergency Management Services (NCEMS), teaming with the Lehigh County Emergency Management Agency (LCEMA). Oversight for the preparation of this plan update was provided by the Lehigh Valley Hazard Mitigation Steering Committee assembled for this update process. The Lehigh Valley Planning Commission, primary author of the original 2006 HMP, served on the Steering Committee and provided a wealth of support and knowledge to this update.

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

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

1.4 Authority and References

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

- 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 Local Mitigation Plan Review Guide, October 1, 2011
- Pennsylvania’s All-Hazard Mitigation Planning Standard Operating Guide (October 2010).

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 Crosswalk

Plan Criteria	Primary Location in Plan
Prerequisites	
Adoption by the Local Governing Body: §201.6(c)(5)	Volume I, Section 8.0; Appendix F
Planning Process	
Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)	Volume I, Section 3.0; Appendices C, D, E
Risk Assessment	
Identifying Hazards: §201.6(c)(2)(i)	Volume I, Section 4.2
Profiling Hazards: §201.6(c)(2)(i)	Volume I, Section 4.3
Assessing Vulnerability: Overview: §201.6(c)(2)(ii)	Volume I, Section 4.3
Assessing Vulnerability: Identifying Structures: §201.6(c)(2)(ii)(A)	Volume I, Sections 2 and 4.3
Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)	Volume I, Section 4.3
Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)	Volume I, Section 2; Volume II, Section 9 Annexes
Mitigation Strategy	
Local Hazard Mitigation Goals: §201.6(c)(3)(i)	Volume I, Section 6.1; Volume II, Section 9 Annexes
Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)	Volume I, Section 6 Volume II, Section 9 Annexes
Implementation of Mitigation Actions: §201.6(c)(3)(iii)	Volume I, Section 6.4; Volume II, Section 9 Annexes
Multi-Jurisdictional Mitigation Actions: : §201.6(c)(3)(iv)	Volume I, Section 6; Volume II, Section 9 Annexes
Plan Maintenance Process	
Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i)	Volume I, Section 7.1
Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)	Volume I, Section 7.2
Continued Public Involvement: §201.6(c)(4)(iii)	Volume I, Section 7.3

A vast wealth of data, information, plans and reports were researched and used in the development of this plan update, as comprehensively documented in Appendix A, “References”.

1.5 Summary of Changes in Plan Update

This document represents a comprehensive update to the July 2006 Lehigh Valley Hazard Mitigation Plan. Significant changes and areas of update are summarized below.

1.5.1 Organization

One of the benefits of multi-jurisdictional planning is the ability to pool resources and eliminate redundant activities within a planning area that has uniform risk exposure and vulnerabilities. FEMA encourages multi-jurisdictional planning under its guidance for the DMA. This plan update has been set up in two volumes so that elements that are jurisdiction-specific can easily be distinguished from those that apply to the whole planning area:

Volume 1—Volume 1 meets the requirements of all elements of Section 201.6 of 44CFR that apply to the entire planning area. This includes the description of the planning process, public involvement strategy, hazard risk assessment, goals and objectives, regional mitigation capabilities and initiatives, and a plan maintenance strategy. To the greatest extent practical, Volume I has been organized according to the Model Plan Outline identified in Pennsylvania’s All-Hazard Mitigation Planning Standard Operating Guide (PEMA SOG).

Volume 2—Volume 2 includes all jurisdiction-specific elements required by Section 201.6 of 44CFR, presented in annexes for each jurisdiction (both counties and each municipality) participating in this process and adopting this plan. Each annex identifies that jurisdiction’s specific hazard risks, mitigation capabilities, and updated mitigation strategy. The annexes are intended to provide an expedient resource for each jurisdiction for implementation of mitigation projects and future grant opportunities.

A summary of the overall plan organization is provided at the end of this Section.

1.5.2 Risk Assessment

This 2012 update has expanded on the hazard profiling and risk assessment efforts in the 2006 plan. In addition to updating the hazard profiles and risk assessment for the natural hazards that pose significant risk to the Lehigh Valley, this update has greatly expanded its consideration of those man-made and technological (non-natural) hazards that pose risk to the region. The potential impacts of climate change as an exacerbating factor have been included for each hazard, where applicable.

While the 2006 plan presented the vulnerability assessment for specific natural hazards separately from their profiles, hazard profiling and risk assessment/vulnerability assessment information are provided in a single, unified profile for each hazard of concern addressed in this update.

This update has also provided County and local risk rankings, allowing a relative comparison of risk for the natural and non-natural hazards within each county and all participating municipalities, developed using the PEMA risk-factor methodology. Relative risk rankings may be used to focus and prioritize the individual jurisdictional mitigation strategies.

1.5.3 Capability Assessment

This update has updated the thorough regional and local capability assessment provided in the 2006 Plan. Regional capabilities are presented in Section 5 (Capability Assessment), along with a summary of local mitigation capabilities. Specific local capabilities are identified in each jurisdiction's annex in Section 9.

1.5.4 Mitigation Strategies

Progress on regional, county and local mitigation strategies identified in the 2006 plan are provided in each jurisdiction's annex in Section 9. Those actions and initiatives being carried forward in the 2013 update have been expanded with further information and details to support implementation. Actions being carried forward, as well as new actions identified during this update process, are included in each jurisdiction's annex in Section 9. Further, the PA STEEL mitigation action evaluation methodology specified in the PEMA SOG has been used to help prioritize each jurisdiction's strategy, as documented in each jurisdictional annex.

A major focus of this update effort has been to identify effective, actionable, and well-defined mitigation actions and initiatives at both the county and local level.

1.5.5 Plan Integration into Other Planning Mechanisms

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

The integration of hazard mitigation, including the findings and recommendations of the 2006 HMP and this update, into other related planning mechanisms in the Lehigh Valley is identified throughout this plan update. The Section 5 Capability Assessment identifies and describes the various plans, programs and mechanisms to support and effect mitigation in the Lehigh Valley, including a discussion of those that have been updated or adopted since the 2006 plan. Section 3.4 of the Planning Process discusses how these plans, programs and mechanisms were integrated into the plan update process, and how this integration/coordination will continue in the Lehigh Valley as the 2013 update is implemented. Further, each jurisdictional annex identifies those planning and regulatory mechanisms that have been adopted and/or updated in each municipality, and identifies specific actions and initiatives to expand and enhance their local risk management capabilities.

1.6 Organization of Mitigation Plan

This plan was organized with consideration of both FEMA and PEMA guidance, and is presented in two volumes: Volume I includes all information that applies to the entire planning area (Lehigh Valley and its inclusive municipalities); and Volume II includes participating jurisdiction-specific information.

Volume I of this Plan includes the following sections:

Section 1: Introduction: Identifies the purpose and authorities for mitigation planning, the scope of this plan update effort, and provides a summary and overview of the plan update process and those changes that have been made to the 2006 plan.

Section 2: Regional Profile: An overview of the Lehigh Valley, including location, history, government and political subdivisions, physical setting, land use and development trends, population and demographics, general building stock inventory, and critical and essential facilities.

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: 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 5: Capability Assessment: evaluates the capabilities and resources that are already in place in a community to reduce hazard risks. The capability assessment looks at the resources in place at the municipal, county, state and federal levels. The assessment also identifies where improvements can be made to increase disaster resistance in the community.

Section 6: Mitigation Strategies: A discussion of how the original mitigation goals and objectives were evaluated, and the process by which the county and local mitigation strategies were updated.

Section 7: Plan Maintenance Procedures: The system established by the Lehigh Valley Steering Committee to continue to monitor, evaluate, maintain and update the plan.

Section 8: Plan Adoption: Information regarding the adoption of the updated plan by both counties and each participating jurisdiction.

Volume II of this Plan includes the following sections:

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

Appendices –

Appendix A - References: Comprehensive documentation of the sources of all data and information used in the development of this plan update.

Appendix B - Local Plan Review Crosswalk: Worksheet used by FEMA Region III plan reviewers to document compliance of this updated plan with 44 CFR 201.6 requirements.

Appendix C - Meeting Documentation: Agendas, minutes, and sign-in sheets of major meetings convened during the planning process.

Appendix D – Municipal Participation Documentation: Worksheets, survey forms and other information provided by municipalities and local stakeholders during the update process.

Appendix E – Public and Stakeholder Documentation: Copies of surveys, media releases, articles, public notices, websites and documentation of other mechanisms used to inform the public of the hazard mitigation planning effort and provide input, including specific public and stakeholder comments received throughout the planning process.

Appendix F – Sample Adoption Resolution: Draft resolution available for use by each jurisdiction during the plan adoption process.

Appendix G – Earthquake Vulnerability Assessment Results: Critical facility vulnerability assessment results for HAZUS-MH earthquake modeling runs.