



Wayne County

Hazard Mitigation Plan Update

MARCH 2016

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Section 1 — Introduction

1.1 Background

Natural and human-caused disasters can strike anywhere, anytime. A disaster can come in many forms, including floods, earthquakes, winter storms, tornadoes, dam failures, and nuclear power plant accidents, among others. The results of these disasters have been the loss of homes, property, communities, jobs, and in some cases, lives. Flooding is historically the primary natural hazard that worries officials and emergency managers in Wayne County and a new technological hazard (2012-2013) may be added to the disaster-watch list: fracking for natural gas deposits in the Marcellus Shale formation under much of the Northeastern United States.



Figure 1.1
Source: *The Wayne Independent*

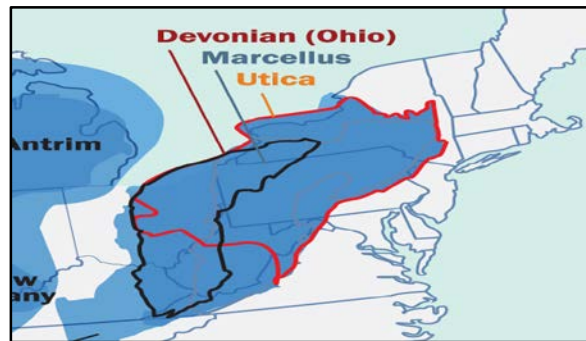


Figure 1.2
Source: Marcellus Shale Coalition

In October 2000, in an effort to reduce the nation's disaster losses, the President signed into law the Disaster Mitigation Act of 2000 (DMA 2000). The Act provides an opportunity for communities to reduce natural disaster losses through disaster mitigation planning. This proactive strategy is designed to reduce the potential for losses before an event occurs. The term "mitigation", as defined by the Federal Emergency Management Agency (FEMA), is any cost effective action taken to eliminate or reduce the long-term risk to life and property from hazards. Actions can be structural or nonstructural in nature and can include construction of levees, storm drainage improvements, property acquisition, flood proofing, natural resource protection, safe rooms, zoning ordinance amendments, land use planning, public awareness, and improved emergency service measures, among others. Local governments must maintain federally-approved all hazard mitigation plans to be eligible for Federal hazard mitigation funding. Municipal mitigation plan adoption may be the result of multi-jurisdictional planning at the county level, such as the update presented here, to meet the funding eligibility requirement.

Since 1955, there have been 36 statewide or county specific gubernatorial and presidential disaster declarations affecting Wayne County. Because the region is susceptible to a range of natural and human-caused disasters, and in response to FEMA's DMA 2000, Wayne County adopted its first all hazards mitigation plan in 2008. This document represents an update of that plan.

1.2 Purpose

The purpose of a hazard mitigation plan is to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation plans form the foundation for a

community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The planning process is as important as the plan itself. It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters.

Wayne County and its municipal governments can benefit from mitigation planning by:

- Identifying cost effective actions for risk reduction that are agreed upon by stakeholders and the public;
- Focusing resources on the greatest risks and vulnerabilities;
- Building partnerships by involving people, organizations, and businesses;
- Increasing education and awareness of hazards and risk;
- Communicating priorities to state and federal officials; and
- Aligning risk reduction with other community objectives.

1.3 Scope

The Wayne County All Hazards Mitigation Plan Update is crafted to meet four criteria:

- The safety and development needs of Wayne County, its elected officials and citizens;
- Alignment with the *2013 Commonwealth of Pennsylvania All Hazard Mitigation Plan*;
- The October 2010 Commonwealth of Pennsylvania's *All Hazard Mitigation Planning Standard Operating Guide*; and
- The Code of Federal Regulations (CFR) Parts 201 and 206.

The structural elements of this Plan Update, in accordance with federal and Commonwealth requirements, are:

- Community Profile
- Planning Process
- Risk Assessment and Capability Assessments
- Mitigation Strategy
- Plan Maintenance and Adoption

1.4 Authority and References

- 44 Code of Federal Regulations, Parts 201 and 206
- Robert T. Stafford Disaster Relief Act
- Disaster Mitigation Act 2000
- *Commonwealth of Pennsylvania All Hazards Mitigation Plan*
- *Pennsylvania's All-Hazard Mitigation Planning Standard Operating Guide*, October 2010
- Pennsylvania Title 35
- National Flood Insurance Program
- Wayne County Comprehensive Plan
- Wayne County Storm Water Management Plan
- Wayne County Floodplain Management Plan
- Wayne County Emergency Operations Plan
- Wayne County Continuity of Operations Plan
- *Emergency Management: Principles and Practice for Local Government*, ICMA Press, editors William Waugh, Jr., Georgia State University, and Kathleen Tierney, University of Colorado at Boulder, second edition, 2007

- *The Practice of Local Government Planning*, ICMA Press, editors Frank So and Judith Getzels, American Planning Association
- 23 local municipal Comprehensive Plans
- 14 local municipal Zoning Ordinances
- 25 local municipal Subdivision & Land Development Ordinances (SALDO)
- 13 local municipal Floodplain Ordinances
- 7 local municipal Storm Water Ordinances
- United States Geologic Survey, Presentations and Web Pages — River stage gauges
- United States Department of Homeland Security, Federal Emergency Management Agency, HAZUS -MH
- National Oceanographic and Atmospheric Administration, Web pages including the National Climatic Data Center, and The Advanced Hydrologic Prediction Service
- National Oceanographic and Atmospheric Administration, National Weather Service
- Delaware River Basin Commission various Publications, Correspondence and Presentations
- Pennsylvania Department of Environmental Protection — High Hazard Dam Inventory
- Pennsylvania Department of Conservation and Natural Resources, PA Map, Imagery
- Wayne County Emergency Management Agency, Hazard Vulnerability Analysis of 2008
- *The Upper Delaware*, Newsletter of the Upper Delaware Council, Inc.
- Lackawaxen River Conservancy
- Millersville University, Seismic Vulnerability, Risk Assessment, Mitigation, Response and Recovery Activity in a Low Risk State: Pennsylvania's Experience
- *The Wayne Independent*
- Wayne County Agricultural Land Use/Land Cover Study

Section 2 — Community Profile

2.1 Geography and Environment

Wayne County is located in the northeastern-most region of Pennsylvania. It is 100 miles west of New York City. Lackawanna, Monroe and Pike counties and the New York State counties of Broome, Delaware and Sullivan border the County. The Delaware River forms its eastern boundary and separates the county from New York State. Although not mountainous, its surface elevations are varied. Predominantly rural, Wayne County contains 28 municipalities, including 22 townships and six boroughs. Honesdale is the county seat, with a population of 4,874 and maintains the largest urban center in the county. Covering 729 square miles of rolling terrain, elevation varies from 2,656 feet above sea level in the western portion of the county to 670 feet at the Delaware River.

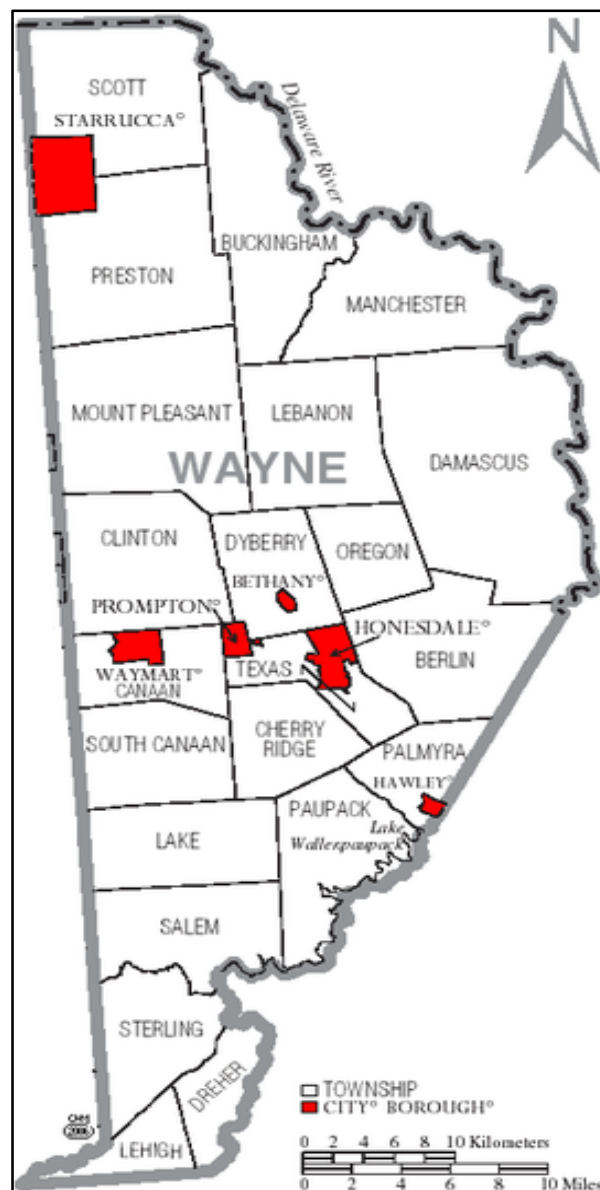


Figure 2.1

Source: Wayne County Planning Department

2.2 Community Facts

In 2011, the top employment sectors in order were retail trade, healthcare, hospitality, and construction. Tourism impacts Wayne County's land development patterns. Wayne County is part of the Pocono Mountain Region, a longstanding tourist destination in northeastern Pennsylvania. As urban residents from New York and New Jersey and the Scranton/Wilkes-Barre area seek less- hectic lifestyles, some Wayne County communities, especially around Lake Wallenpaupack, are growing. Low real estate costs add to the attractiveness of the natural resources.

Wayne Memorial Hospital serves the area. Two weekly newspapers, *The News-Eagle* and *The Wayne Independent*, serve the county. There are two general aviation airports located within the county. These airports are the Cherry Ridge Airport in Cherry Ridge Township and the Spring Hill Air Park in Sterling Township.

Travel infrastructure within Wayne County includes highway, rail, air, bicycle, and pedestrian facilities. The highway network is by far the dominant system of travel infrastructure. It serves passenger vehicle and truck transportation needs in the region. According to the county Comprehensive Plan, Wayne County has a total of 1,400 miles of public roads of which 727 are state highways, 6.5 miles are Interstate 84 and 672 miles are secondary and municipal roads. Other expressways are Route 6, Route 191, Route 590, Route 507, Route 196, Route 296, Route 371, Route 370, Route 652, Route 670, Route 348 and Route 3028. There are 314 state owned bridges, 42 county owned bridges and 38 municipal bridges in Wayne County. 1,095.6 miles of road segments or 49.2% of all County road segments could be affected by water course hazards occurring within 100 feet of water courses in Wayne County. Hence, bridges remain an important component of the Wayne County transportation network but remain vulnerable to adverse weather conditions, such as flooding, and present challenges in hazard mitigation planning. In 2012, Governor Tom Corbett approved a \$2.3 billion transportation bill to fund repairs and replacements for Pennsylvania's aging transportation infrastructure. The bill became law in late 2013, and nine of Wayne County's state-owned and structurally deficient bridges were deemed eligible under the law for reconstruction in 2015: mitigation at its best! Two state-owned bridges on the list (Cherry Ridge and Miller Road) were completed in 2014.

Highway networks impact existing and future County land use patterns. Route 6 extends east to west throughout the County and traverses the boroughs of Hawley, Honesdale, Prompton and Waymart. It is the major connector to Pennsylvania's northern tier counties. Interstate 84 has had an impact on the southern portion of the county and is a major connector to the New York and New Jersey metropolitan areas. Interstate 17, located in New York State, influences the northern portion of the county relative to the migration of new residents from New York. This presents significant challenges to the County in hazard mitigation and future land use pressures. Additionally, Route I-84, I-380, NY State Route 17 and the Casey Highway have increased impacts on the development of those portions of the County they serve.

There is no commuter or inter-city passenger rail service available in Wayne County. However, the area is served by rail freight. Honesdale, county seat, is the birthplace of the American railroad and the small brick building which now houses the Wayne County Historical Society was once the D&H Canal's company office. On August 8, 1829, the Delaware & Hudson operated the first commercial locomotive on rails in the western hemisphere. The original locomotive runs a number of passenger tourist excursions during the year which helps support the line and the area's recreation industry.

The county is served by twenty-six (26) volunteer fire departments. Twenty (20) of those departments are located within the county. Forest City Fire Company is located in Susquehanna County and covers portions of Browndale. Tafton Fire Department located in Pike County provides protection for portions of Wayne County. Vandling and Jefferson Fire Companies are located in Lackawanna County and provide protection to the county. Two fire departments in New York (Deposit and Hancock Fire Departments) cover parts of northern Wayne County. Dispatch for all county-based departments is through the county's 911 center.

Twelve (12) volunteer ambulance corps provide service within the county. Eight (8) of these corps are based in Wayne County. One New York State corps, one Pike County corps and one Lackawanna County corps (formerly Wayne/Lackawanna Ambulance – now Commonwealth Ambulance with its headquarters in Scranton and sub-bases in Wayne County) also provide coverage to portions of the county. Dispatch of all county-based corps is through the county's 911 center.

2.3 Population and Demographics

Historical populations		
Census	Pop.	%±
1800	2,562	—
1810	4,125	61.0%
1820	4,127	0%
1830	7,663	85.7%
1840	11,848	54.6%
1850	21,890	84.8%
1860	32,239	47.3%
1870	33,188	2.9%
1880	33,513	1.0%
1890	31,010	-7.5%
1900	30,171	-2.7%
1910	29,236	-3.1%
1920	27,435	-6.2%
1930	28,420	3.6%
1940	29,934	5.3%
1950	28,478	-4.9%
1960	28,237	-0.8%
1970	29,581	4.8%
1980	35,237	19.1%
1990	39,944	13.4%
2000	47,722	19.5%
2010	52,822	10.7%
Est. 2013	51,548	-2.4%
U.S. Decennial Census [5]		
2012 Estimate [11]		

Discovery of anthracite coal in northeastern Pennsylvania.

Figure 2.2

Source: U.S. Bureau of the Census

Wayne County's 51,548 residents live in a total of 729 square miles. The county is primarily rural, with over 65.2 percent of land use being forests. The total population of Wayne County grew by nearly 3,000 persons since this plan was crafted in 2008 and was 52,822 persons in 2010, according to the U.S. Census. It fell by 867 persons over the next two years for an estimated decrease of 1.6%. Wayne County's population had been outpacing Pennsylvania's and the nation's growth. According to 2000 Census data, Wayne County's growth rate was 19.5 percent, exceeding the 13.2

percent national growth rate and Pennsylvania's growth rate of 3.4 percent, making it the third fastest growing Pennsylvania county in the 1990s. That rate slowed and reversed in the 2010-2013 period but its population density remains higher than in 2010 (73 vs. 65). While Pennsylvania's rate of growth also slowed, it continued to gain population (.5 percent in the 2013 estimate) while Wayne County lost residents. Regional newspapers report the young people are leaving for more urban areas.

The total civilian labor force in Wayne County for June 2010 was 23,839, of which 22,037 were employed and 1,802 unemployed and 44 were in the Armed Forces. The unemployment rate was 7.6 percent as compared to the State unemployment rate of 8.5 percent. The median per capita income reported for Wayne County in the 2010 Census was \$22,525, well below the Pennsylvania average of \$27,049, ranking it 32nd in the Commonwealth.

The population is predominantly white (97.1% in the 2010 Census), aging (19.4%) and comprising 19,216 households – most of whom own their own homes (80.7%). The Wayne County Comprehensive Plan also makes note of a declining school-aged population, an increased prison population (the county hosts three prisons – one county, one State and one Federal) and an in-migration of residents from the New York City/Northern New Jersey area which brings with it languages heretofore foreign to Wayne County.

2.4 Land Use and Development

Wayne County's topographic features have greatly contributed to existing County land use. Topography, soils, lakes and streams were created from bedrock formations and glacial movements that began during the Upper Devonian Period and continued through the Wisconsin glacial stage of the Pleistocene Epoch.

Lumbering was a major industry in the County until the late 19th century, when tanneries and associated acid factories developed after prime lumber was timbered. During the 1920's, the County produced railroad ties and mine shoring reusing existing saw mills. Wayne County's high-quality environment supports the tourism industry and plays a major role in attracting citizens and changing land uses according to the Wayne County Comprehensive Plan.



Figure 2.3
Source: Wayne County Comprehensive Plan

Conversion of agricultural land to residential has been a consistent countywide trend. According to the Wayne County Comprehensive Plan, the county has increased its population by 83 percent since 1960, but has maintained only a modest development scale overall – which reflects the wishes of the county. According to the Wayne County Agricultural Land Use/Land Cover Study, agricultural land decreased significantly between 1959 and 2002, as residential land use has increased. Total acreage in the County is 480,302.14. In 1959, the amount of agricultural use was 88,170.61 acres or 18.4% of the total,

pasture/brush was 97,899.50 acres or 20.4% of the total, while residential land use was 6,200.08 acres or 1.3% of the total. In 2002, the agricultural land use decreased to 61,914.25 acres or 12.9 % of the total, pasture/brush was 53,831.63 or 11.2% of the total, while residential land use increased to 25,455.98 acres or 5.3% of the total. The most notable change in land use/land cover over the study period was the amount of agricultural land (cropland) that converted to pasture/brush use. Over 15,882 acres or 18% of the 1959 agricultural land was idled and began the process of reforestation. Another 9,593 acres, or 10.9%, was reforested in the 43-year study period. Over 6,352 acres, or 7.2%, was converted to residential uses.

Specifically, the Beach Lake, Lake Ariel, and Waymart areas are gaining new commercial retail development at the present time.

Tourism impacts Wayne County's land development patterns. Wayne County is part of the Pocono Mountain Region, a long-standing tourist destination in northeastern Pennsylvania. As urban residents from New York and New Jersey and the Scranton/Wilkes-Barre area seek less- hectic lifestyles, Wayne County communities, especially around Lake Wallenpaupack, are growing. Low real estate costs add to the attractiveness of the natural resources. Some of the County's new residents may have purchased land for speculative purposes or constructed a home as a secondary resident. These dwellings are being converted to permanent residences.

The Lacawac Sanctuary is a nature preserve, ecological field research station and public environmental education facility located approximately 14 miles west of Hawley and 12 miles south of Honesdale. It was founded in 1966, via the donation of 341 acres (now totals 545 acres) and a group of historic buildings. The Lacawac Sanctuary is most notable for 52 acre Lake Lacawac - the southernmost glacial lake in the hemisphere that has been preserved in pristine condition totally free from development or encroachment. The property also features nature displays, a native plants garden, demonstration forest, deer exclosure plots, and five public hiking trails. In addition the property preserves a natural boreal bog, The Wallenpaupack Ledges Natural Area, Partner Ridge, and the Heron and Golden Ponds. Lake Lacawac was declared a National Natural Landmark by the U.S. Department of the Interior in 1966. The 1903 historic "Adirondack Great Camp" building complex at its core has been named to the National Historic Register.

Section 3 — Planning Process

3.1 Federal Requirements for the Planning Process:

Requirement §201.6(a)(3): *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process ... Statewide plans will not be accepted as multi-jurisdictional plans.*

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; (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 (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

Requirement §201.6(c)(1): *[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

3.2 Update Planning Process and Participation Summary (§201.6(c)(1))

This Plan Update was conducted over a 24-month period and was comprised of four methodology phases: documentation review; capability assessment; hazard identification (research) and risk assessment; and stakeholder input. The documentation review included a full assessment of the Wayne County Comprehensive Plan, Floodplain Management Plan, Emergency Operations Plan and Continuity of Operations Plan (among others listed in the references section); each of these plans contain inter-related nuggets of information useful in the crafting of this Plan Update. Each of the plans also are needed to inform one another, and the reader will find footnotes throughout this Plan Update where such cross-pollination has, or will, take place. The hazard vulnerability analysis, the Wayne County Comprehensive Plan, the hazard identification and risk assessment, the capability assessment and the final compilation of all of the components of the hazard mitigation plan have been identified in the methodology to better define the varied and important aspects of public and municipal input which have been included in this planning and update process.

The *Commonwealth of Pennsylvania All Hazards Mitigation Plan* identifies human-caused, technological, and natural hazards which affect our local communities. Seven natural hazards identified in Pennsylvania's plan include: floods, tornadoes, earthquakes, drought, winter storms, wildfire and landslides. Also identified are human-caused or technological hazards such as nuclear power plants, chemical production companies, hazardous material spills, terrorist attacks, mass shootings and hostage situations. The State's plan addresses potential threats to its communities and identifies where and how mitigation may be an effective tool to reduce risks to our citizens.

In like fashion, the Wayne County Hazard Mitigation Plan has been prepared in response to the Federal Emergency Management Agency (FEMA) requirement under the Disaster Mitigation Act of 2000 and was developed to be consistent with the *Commonwealth of Pennsylvania All Hazards Mitigation Plan*. This plan addresses five of the seven natural hazards noted in the State's plan and several of the human-caused ones listed there. It also draws from the State plan in its hazard analysis of terrorism, having no risk examples or history of its own. Of the 32 hazards profiled in the State plan, only 12 were profiled in the Wayne County plan because the planning team considered the other 20 just too low in risk, probability and vulnerability to include them.

As a result, the *2015 Wayne County Hazard Mitigation Plan Update* assembles important inventory and data on potential hazards to the county's communities and prioritizes these hazards in frequency and severity. It analyzes and reviews alternative mitigation options based on the resource capabilities of the County and communities. The plan then selects the most appropriate course for future mitigation of the hazards facing County residents, and suggests a priority listing for Emergency Operations Plan and procedure updates, training and exercises.

3.3 The Planning Team

This *2015 Update of the Wayne County Hazard Mitigation Plan* was made possible by a planning team of county organizations comprised of the Commissioners' Office, Emergency Management Agency, Planning Commission, Geographical Information Systems (GIS), Chief Clerk and County Engineer. Cocciardi and Associates, Inc., was the selected vendor chosen to assist. The Wayne County Local Emergency Planning Committee (LEPC) served as a Steering Committee to review the planning team's guidance to the contractor and to validate its work.

Wayne County Mitigation Planning Team			
Commissioners' Office	Wendell Kay		
Chief Clerk	Vicky Botjer		
Emergency Management Agency	Steve Price, EMC	Pete Hooker, Deputy EMC	Debra Doyle, Administrative Assistant
County Engineer	Steve Knash		
Planning/GIS Department	Ed Coar, Director (retired)	Craig Rickard, Director	Derek Williams
PEMA	Ernie Szabo, Mitigation Spec.	Don Smith, Mitigation Spec.	Mike Stalnecker Eastern Area
Cocciardi & Associates, Inc.	Evalyn Fisher	Brad Shirey	

Local Emergency Planning Committee (Steering)		
Commissioners' Office	Wendell Kay	Chairman
Firemen's Association	Jerry Dulay	President
PSP	Paul Cavallaro	Law Enforcement
PA Department of Health	Linda DeNault	Member
Honesdale Borough	Martin Hedgelon	County 911 Director
High School Principal	Kevin Gunuskey	
County EMA	Steven E. Price	Director
County EMA	Peter Hooker	Deputy Director

Local Emergency Planning Committee (Steering) cont.		
County EMA	Debra Doyle	Residence Owner
SARA Facility Owner	Alan Highhouse	CEO; S&R Team Leader
SARA Facility	Mike Jones	Loveshaw Safety Manager
Community Group	Ned Sader	
Water Facility Manager	Steve Clark	Aqua
Health, EMS, Agriculture	Pat Mohn	
County Planning Department	Craig Rickard	Director
Wayne Memorial Hospital	John Conte	Safety Manager
Township Supervisor	James Merel	Local Elected Official

The role of each organization on the planning committee was outlined as follows:

Wayne County Commissioners' Office and Chief Clerk

- Validate importance of the Plan Update
- Coordinate multi-county, multi-State involvement
- Provide input and comments
- Adopt Plan Update

Wayne County Emergency Management Agency

- Coordinate municipal/public involvement
- Facilitate municipal meetings
- Prepare selected Plan Update components
- Prepare media releases
- Provide Plan Update input and comments
- Coordinate Plan Update adoptions by municipalities

Wayne County Planning/GIS Department

- Submit data collection and analysis
- Provide Plan Update input and comments
- Prepare selected Plan Update components
- Provide GIS data/maps

Wayne County Engineer

- Provide Technical Assistance
- Validate project costs
- Provide Plan Update input and comments

Local Emergency Planning Committee

- Validate Plan Update development
- Facilitate public and elected officials' involvement
- Validate analysis of hazard identification and asset vulnerability
- Facilitate multi-county, multi-State involvement
- Recommend adoption of Plan Update to county commissioners

Pennsylvania Emergency Management Agency

- Provide planning guidance and reviews

OF NOTE: Each of these organizations, and many of the same individuals, took part in the development of the original 2008 Wayne County Hazard Mitigation Plan. In this Plan Update, the county commissioners' office and chief clerk were notably more involved in planning guidance, plan development and the setting of expectations.

3.4 Meetings and Documentation (§201.6(c)(1))

Planning Team Discussions

An initial kick off meeting with the planning team occurred on August 21, 2013 to discuss the planning approach for the update, and to discuss any changes in hazards, vulnerability or magnitude since the 2008 plan creation. A second planning team meeting was held March 17, 2014 to compare the 2015 update of the mitigation plan with the original 2008 plan. The discussion took the form of a briefing by the consultant for the planning team to review the plan documentation work, note any surprises or obvious omissions, review the hazard, vulnerability and capability assessments, and concur on the prioritized list of hazards profiled in the Plan Update. The agendas, notes and sign in sheets for the meetings are included in Appendix A.

Hazard Mitigation Plan Municipal Kick-off Meeting

A hazard mitigation municipal kick-off meeting for the Plan Update was held on October 16, 2013. Invitation letters seeking their attendance were mailed to municipal officials and local emergency management coordinators of all the municipalities. Planning team members from the County EMA offices also attended and helped to facilitate the discussion. The objectives of the meeting were to: describe the hazard mitigation Plan Update and planning process; update the ranking of hazards; complete the capability assessment; seek mitigation projects in each municipality; and discuss the planning timeline. It was explained at the kick-off meeting that all municipalities would be given the opportunity to review and comment on the Plan Update and that there would be a broad public outreach for comment, too. It was also noted that the municipalities would be asked to adopt the Plan Update following one additional municipal meeting/briefing and concurrence by the County LEPC. Municipalities that did not/could not attend the kick-off meeting were provided self-assessments, mitigation project worksheets and information slide decks and asked to complete the assessments and worksheets for inclusion in this Plan Update.

Copies of the municipal official/local emergency manager kick-off meeting agenda, presentation slide deck, meeting packet and sign-in sheets are included in Appendix A.

Second/Final Hazard Mitigation Plan Municipal Meeting

A second and final hazard mitigation municipal meeting for the Plan Update was held on April 16, 2014. A second round of invitation letters seeking their attendance was mailed to municipal officials and local emergency management coordinators of all the municipalities. Planning team members from the County EMA offices also attended and helped to facilitate the discussion. The objectives of the meeting were to: describe the updates made to the plan and public outreach activity since the kick-off meeting and seek validation of them; discuss the timeline and process for municipal plan adoption; and identify new or continuing mitigation efforts that needed to be listed in the Plan Update. Municipalities that did not/could not attend the meeting were provided mitigation project worksheets to complete.



Figure 3.1

Source: April 16, 2014 Municipal Officials Meeting/Discussion of Potential Mitigation Projects

Copies of the municipal official/local emergency management coordinator meeting agenda, presentation slide deck and sign-in sheets are included in [Appendix A](#).

LEPC Review and Validation Meeting

Members of the planning team and the consultant attended the LEPC meeting of June 10, 2014 to brief the Plan Update to committee membership. The discussion again took the form of a briefing by the consultant for the committee to review the planning guidance provided to the consultant by the planning team, and to validate the hazard, vulnerability and capability assessments and the significance and scope of the identified mitigation projects. The LEPC membership was asked to validate the prioritized list of profiled hazards and provide recommendations on additional mitigation projects and additional public outreach activity for the Plan Update, especially to contiguous counties and states, and to recommend approval of the Plan Update to the Wayne County Board of Commissioners. The agenda, presentation slide deck and sign in sheet for the meeting are included in [Appendix A](#).

Wayne County Board of Commissioners

The Wayne County Board of Commissioners were briefed on the mitigation plan update on May 6, 2014 and, during the fall of 2014, all three of Wayne County's Commissioners and the Wayne County Chief Clerk conducted a thorough review of the Plan Update. Their comments are included in the final document and the slide deck for the May 6 briefing is included in [Appendix A](#).

3.5 Public and Stakeholder Participation (§201.6(b))

The planning process included an opportunity for the public, including businesses, academia, agencies involved in hazard mitigation activities and neighboring communities, to provide

comment on the

plan: <http://www.wayneindependent.com/article/20150306/NEWS/150309829/-1/opinion> .

As part of this requirement, the planning committee posted final draft Plan Update components on the primary Wayne County website. Some county departments (planning, emergency management, engineering) and the municipalities were asked to post the Plan Update components on their websites, too. Comments on the plan were requested from the public. Further, the Wayne County EMA met quarterly with municipal elected officials and invited the public to discuss hazard mitigation issues. The Wayne County EMA coordinator addressed the hazard mitigation plan development at the County Commissioners public meetings on at least two occasions. Additionally, hard copies of the final draft Plan Update were made available at the County Emergency Management Office and the County Planning and Zoning Department. Stakeholders, including local emergency management coordinators, municipal officials, the County Chamber of Commerce, the county Townships Association, the county's emergency services chiefs, and the regional task force were all asked to provide feedback. Adjacent counties and New York State Emergency Management Office were also notified of the availability of the final draft Plan Update for review and comment. This was accomplished by the Commissioners' office penning and sending a letter to the Delaware River Basin Commission and other intra-county and contiguous county organizations asking them to go to www.wayne.pa.us to review and comment on the Plan Update with a comment period to coincide with the general public comment period.

A one-month review and comment period was established in March 2015 by a legal notice posted by the county clerk in a local newspaper, *The Wayne Independent*. The notice informed the public that comments on the plan update were solicited and welcomed. A newspaper article in [Appendix A](#) said the same, and suggested all municipalities would be asked to adopt the Plan Update. Website analytics software was not installed and, therefore, the number of actual plan reviews is not identified in this Plan Update. Google Analytics would be the preferred software for future analysis.

Advertising Receipt				Wayne Independent 220 8th Street Honesdale, PA 18431 Phone: (570) 253-5555 Fax: (570) 253-5387			
Wayne County Commissioners Attn: Helen Legal 923 925 Court Street HONESDALE, PA 18431				Cust#: 01100160 000 Acct: 01433082 Phone: (570)253-5970 Date: 03/04/15			
Ad taker: 268 Salesperson:		Classification: 010					
Description	Start	Stop	Ins.	Cost/Day	Surcharges	Total	
01 Wayne Independent	03/05/15	03/19/15	3	42.00		127.14	
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Notice Wayne County Emergency Management Agency kindly requests your review and comment on the Proposed 2015 Wayne County Hazard Mitigation Plan Update. This plan update is a revision to the original mitigation plan approved by the Federal Emergency Management Agency (FEMA) in 2008. It can be viewed at www.waynecountypa.gov or in person at the Emergency Operations Center, Volunteer Drive, Berlin Twp, PA. Comments and questions may be sent to the plan update consultant at etiercel@ccard.com or directed to the EMA coordinator in person or at email@waynecountypa.gov . This plan update, when fully completed, will be submitted to FEMA for approval and each of Wayne County's municipalities will be asked to adopt it as their own. The review and comment period expires at close of business April 5, 2015. Vicky J. Botler, Chief Clerk							
Total:						135.14	
Tax:						0.00	
Net:						135.14	
Prepaid:						0.00	
Total Due						135.14	

Figure 3.2

Source: *The Wayne Independent*, March 2015

3.6 Multi-Jurisdictional Planning (§201.6(a)(3))

Municipal involvement was an important component in the development of this Plan Update. Nearly all the municipalities in Wayne County participated in the Plan Update process – not just because it was understood they needed to adopt the county plan in order to be eligible for any hazard mitigation funding, but because they understood the significance of planning in advance of

disaster or the release of funds. According to FEMA requirements, municipalities must adopt the Plan Update by resolution after a one-month review and comment period. Copies of the adoption resolutions will be included at Appendix D in the final version of the Plan Update.

The County Planning Department was asked to review and comment on the Plan Update on several occasions, and its recommendations were included in the final revision.

Section 4 — Risk Assessment

4.1 Federal Requirements for Hazard Identification, Profiling and Ranking:

Requirement §201.6(c)(2)(ii): *[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.*

4.2 Update Process Summary

The Wayne County Hazard and Vulnerability Analysis was originally developed in the late-1980's by the Wayne County Emergency Management Agency to develop an awareness of the hazards facing Wayne County and provide a basis for improving emergency services and emergency management at all levels of government. The Analysis has been updated in this edition.

The Pennsylvania statewide Threat and Hazard Identification and Risk Assessment (THIRA) reflected in the Commonwealth's approved October 2013 Hazard Mitigation Plan also is reflected in Wayne County's current analysis. During the 2015 county mitigation Plan Update, much of the original 2008 plan's historical hazard data was retained, too.

The identification of Wayne County's hazards was based on a variety of sources, including the Commonwealth's THIRA, national and State websites, newspaper accounts from the *Wayne Independent*, local officials and accounts, the Local Emergency Planning Committee and the public. According to these records, Wayne County has received 20 presidential disaster declarations since 1955.

4.3 Hazard Identification

4.3.1. Table of Presidential Disaster Declarations (Commonwealth THIRA)

Pennsylvania's disaster history helps provide direction on the identification of hazards and their significance in Wayne County. Historically, flood events significantly outnumber other hazards in terms of disaster declarations and this holds true for Wayne County. Hurricanes, tropical storms, winter storms, and urban fires and explosions have also generated significant disaster declarations in the Commonwealth.

There are two thresholds for disaster declarations established under the Robert T. Stafford Disaster Assistance Act: a state and a county threshold. These thresholds are based on a formula that uses the population of the jurisdiction (as recorded in the Census) times \$3.27 per capita for counties and \$1.30 per capita for the state. In Pennsylvania, the statewide threshold is \$16.5 million. State and county thresholds must be simultaneously attained for a Presidential disaster declaration to be issued. Table 4.3.1 depicts the Presidential Disaster Declarations for Wayne County dating back to 1955.

Table 4.3.1: Presidential Disaster Declarations for Wayne County, PA

Date	DR Number	Event	Hazard(s)
November 2013	4149	Severe Storms June-July 2013	Flooding
September 2011	4030	Remnants of Tropical Storm Lee	Flooding
September 2011	4025	Hurricane Irene	Flooding
June 2007	SBA	Severe Storms	Flooding
February 2007	1684	Severe Storms	Flooding
November 2006		Proclamation of Emergency	Flooding
June 2006	1649	Proclamation of Emergency	Flooding
April 2005	1587	Severe Storms, Flooding, Mudslides	Flooding
September 2004	1557	Tropical Depression Ivan	Flooding
August 2003	1485	Severe Storms	Flooding/Wind Damages
January 1996	1093	Snowmelt, Rain	Flooding
January 1996	1085	Severe Winter Storms	Blizzard
January 1994	1015	Severe Winter Storms	
March 1993		Severe Winter Storms	Blizzard
October 1985	745	Hurricane Gloria	Flooding
January 1977		Severe Winter Storm/Gas Shortage	
October 1976	523	Severe Storms	Flooding
September 1975	485	Hurricane Eloise	Flooding
July 1973	400	Severe Storms	Flooding
June 1972	340	Tropical Depression Agnes	Flooding
August 1955		Hurricane Diane	Flooding

4.3.2 Summary of Hazards

HUMAN-MADE HAZARDS

Dam Failures

A dam is a barrier across flowing water that obstructs, directs, or slows down water flow. Dams provide benefits such as flood protection, power generation, drinking water, irrigation, and recreation. Failure of these structures results in an uncontrolled release of impounded water. Failures are relatively rare, but immense damage and loss of life is possible in downstream communities when such events occur. Aging infrastructure, hydrologic, hydraulic and geologic characteristics, population growth, and design and maintenance practices should be considered when assessing dam failure hazards. The failure of the South Fork Dam, located in Johnstown, PA, was the deadliest dam failure ever experienced in the United States. It took place in 1889 and resulted in the Johnstown Flood, which claimed 2,209 lives (FEMA, 1997).

Today there are approximately 3,200 dams and reservoirs throughout Pennsylvania (PA DEP, 2009).

Energy Emergencies

Energy emergencies are hazards that impair the functioning of important utilities in the energy, telecommunications, public works, and information network sectors. Utility interruption hazards include the following:

- **Fuel or Resource Shortage** – Resulting from supply chain breaks or secondary to other hazard events
- **Information Technology Failure** – Due to software bugs, viruses, or improper use
- **Ancillary Support Equipment** – Electrical generating, transmission, system-control, and distribution-system equipment for the energy industry.
- **Public Works Failure** – Damage to or failure of highways, flood control systems, deepwater ports and harbors, public buildings, bridges, and dams.
- **Telecommunications System Failure** – Damage to data transfer, communications, and processing equipment.
- **Transmission Facility or Linear Utility Accident** – Liquefied natural gas leakages, explosions, and facility problems.
- **Major Energy, Power, Utility Failure** – Interruptions of generation and distribution, and power outages, for example.

Fire and Wildfires

A wildfire is a raging, uncontrolled fire that spreads rapidly through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and can spread quickly, creating dense smoke that can be seen for miles. Wildfires can occur at any time of the year, but mostly occur during long, dry hot spells. Any small fire in a wooded area, if not quickly detected and suppressed, can get out of control. Most wildfires are caused by human carelessness, negligence, and ignorance. However, some are precipitated by lightning strikes and in rare instances, spontaneous combustion. Wildfires in Pennsylvania can occur in fields, grass, brush, and forests. Ninety-eight percent of wildfires in Pennsylvania are a direct result of people, often caused by debris burns (DCNR, 1999).

Fixed Nuclear Facilities

Nuclear accidents general refer to events involving the release of significant levels of radioactivity or exposure of workers or the general public to radiation (FEMA, 1997). Nuclear accidents/incidents can be placed into three categories: 1) Criticality accidents which involve loss of control of nuclear assemblies or power reactors, 2) Loss-of-coolant accidents which result whenever a reactor coolant system experiences a break or opening large enough so that the coolant inventory in the system cannot be maintained by the normally operating make-up system, and 3) Loss-of-containment accidents which involve the release of radioactivity. The primary concern following such an incident or accident is the extent of radiation, inhalation, and ingestion of radioactive isotopes which can cause acute health effects (e.g. death, burns, severe impairment), chronic health effects (e.g. cancer) and psychological effects. (FEMA, 1997).

Levee Failures

Levees, like dams and floodwalls are similar in that they control flooding by restricting floodwaters from reaching/inundating protected areas. Levees, dams and floodwalls are probably the best-known forms of structural flood control projects that have been implemented in the United States. It is important to note, however, that just like any other engineering feature, if the design capacity of a dam, levee and/or floodwall is exceeded, its functional utility becomes compromised. As such, dams, levees and floodwalls can give a false sense of security to the property owners that they protect.

Hazardous Materials/Shale Drilling

Environmental hazards are hazards that pose threats to the natural environment, the built environment, and public safety through the diffusion of harmful substances, materials, or products. Environmental hazards include the following:

- **Hazardous Material Releases** – At fixed facilities or as such materials are in transit, including toxic chemicals, infectious substances, biohazardous waste, and any materials that are explosive, corrosive, flammable, or radioactive (PL 1990-165, § 207(e)).
- **Shale Drilling** – Drilling for shale requires accessing natural minerals subsurface. Oil and natural gas well incidents refer to uncontrolled releases of oil or natural gas, or the poisonous byproduct hydrogen sulfide, from production wells.

Transportation Accidents

Transportation accidents can result from any form of air, rail, water, or road travel. It is unlikely that small accidents would significantly impact the larger community. However, certain accidents could have secondary regional impacts such as a hazardous materials release or disruption in critical supply/access routes, especially if vital transportation corridors or junctions are present (US DOT, 2009).

Traffic congestion in certain circumstances can also be hazardous. Traffic congestion is a condition that occurs when traffic demand approaches or exceeds the available capacity of the road network. This hazard should be carefully evaluated during emergency planning since it is a key factor in timely disaster or hazard response, especially in areas with high population density (Federal Highway Administration, 2009).

Terrorism/Cyber Crime

Terrorism is use of force or violence against persons or property with the intent to intimidate or coerce. Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons (FEMA, 2009). Increasingly, cyberattacks have become a more pressing concern for governments.

NATURAL HAZARDS

Drought

Drought is a natural climatic condition that occurs in virtually all climates, the consequence of a natural reduction in the amount of precipitation experienced over a long period of time, usually a season or more in length. High temperatures, prolonged winds, and low relative humidity can exacerbate the severity of drought. This hazard is of particular concern in Pennsylvania due to the presence of farms as well as water-dependent industries and recreation areas across the Commonwealth. A prolonged drought could severely impact these sectors of the local economy, as well as residents who depend on wells for drinking water and other personal uses (National Drought Mitigation Center, 2006).

Earthquakes

An earthquake is the motion or trembling of the ground produced by sudden displacement of rock usually within the upper 10-20 miles of the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of underground caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons, and disrupt the social and economic functioning of the affected area. Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking, which is dependent upon amplitude and duration of the earthquake (FEMA, 1997).

Flooding

Flooding is the temporary condition of partial or complete inundation on normally dry land and it is the most frequent and costly of all hazards in Pennsylvania. Flooding events are generally the result of excessive precipitation. General flooding is typically experienced when precipitation occurs over a given river basin for an extended period of time. Flash flooding is usually a result of heavy localized precipitation falling in a short time period over a given location, often along mountain streams and in urban areas where much of the ground is covered by impervious surfaces. The severity of a flood event is dependent upon a combination of stream and river basin topography and physiography, hydrology, precipitation and weather patterns, present soil moisture conditions, the degree of vegetative clearing as well as the presence of impervious surfaces in and around floodprone areas (NOAA, 2009).

Winter flooding can include ice jams, which occur when warm temperatures and heavy rain cause snow to melt rapidly. Snowmelt combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of a river. The ice layer often breaks into large chunks, which float downstream, piling up in narrow passages and near other obstructions such as bridges and dams. All forms of flooding can damage infrastructure (USACE, 2007).

Radon

Radon is a cancer-causing natural radioactive gas that you can't see, smell, or taste. It is a large component of the natural radiation that humans are exposed to and can pose a serious threat to public health when it accumulates in poorly ventilated residential and occupation settings. According to the USEPA, radon is estimated to cause about 21,000 lung cancer deaths per year, second only to smoking as the leading cause of lung cancer (EPA 402-R-03-003:EPA Assessment, 2003). An estimated 40 percent of the homes in Pennsylvania are believed to have elevated radon levels (PA DEP, 2009).

Tornadoes and Windstorms

A windstorm can occur during severe thunderstorms, winter storms, coastal storms, or tornadoes. Straight-line winds such as a downburst have the potential to cause wind gusts that exceed 100 miles per hour. Based on 40 years of tornado history and over 100 years of hurricane history, FEMA identifies western and central Pennsylvania as being more susceptible to higher winds than eastern Pennsylvania (FEMA, 1997).

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes or tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of high-wind velocities and windblown debris. According to the National Weather Service, tornado wind speeds can range between 30 to more than 300 miles per hour. They are more likely to occur during the spring and early summer months of March through June and are most likely to form in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touch down briefly, but even small, short-lived tornadoes can inflict tremendous damage. Destruction ranges from minor to catastrophic depending on the intensity, size, and duration of the storm.

Structures made of light materials such as mobile homes are most susceptible to damage. Waterspouts are weak tornadoes that form over warm water and are relatively uncommon in Pennsylvania. Each year, an average of over 800 tornadoes is reported nationwide, resulting in an average of 80 deaths and 1,500 injuries (NOAA, 2002). Based on NOAA Storm Prediction Center Statistics, the number of recorded F3, F4, & F5 tornadoes between 1950-1998 ranges from <1 to 15 per 3,700-square-mile area across Pennsylvania (FEMA, 2009). A waterspout is a tornado over a body of water (American Meteorological Society, 2009).

Subsidence

Subsidence is defined as the downward movement of surface material with little or no horizontal movement. Subsidence can occur naturally due to the physical and chemical weathering of certain types of bedrock or can be human-induced due to underground mining or excessive pumping of groundwater. Regardless of the reason for occurrence, the overall effect of a subsidence event is the same. That is, the development and eventual failure of a sinkhole, which can cause significant structural damage if buildings and/or infrastructure are present.

Wildland Fires

A wildfire is a raging, uncontrolled fire that spreads rapidly through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and can spread quickly, creating dense smoke that can be seen for miles. Wildfires can occur at any time of the year, but mostly occur during long, dry hot spells. Any small fire in a wooded area, if not quickly detected and suppressed, can get out of control. Most wildfires are caused by human carelessness, negligence, and ignorance. However, some are precipitated by lightning strikes and in rare instances, spontaneous combustion. Wildfires in Pennsylvania can occur in fields, grass, brush, and forests. Ninety-eight percent of wildfires in Pennsylvania are a direct result of people, often caused by debris burns (DCNR, 1999).

Winter Storms

Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. A winter storm can range from a moderate snowfall or ice event over a period of a few hours to blizzard conditions with wind-driven snow that lasts for several days. Many winter storms are accompanied by low temperatures and heavy and/or blowing snow, which can severely impair visibility and disrupt transportation. The Commonwealth of Pennsylvania has a long history of severe winter weather (NOAA, 2009).

4.4 Hazard Profiles

A comprehensive list of potential hazards was used as a checklist of disasters that occur or might occur in Wayne County. In alignment with the Commonwealth All-Hazard Mitigation Plan, the County Planning Team also determined that a number of new or emerging concerns, like internet interruption, cyber-attacks, and natural gas drilling should be added as *components* of existing hazard profiles. The following hazards in Table 4.4.1 were selected and analyzed by the planning team in this update. See the *Commonwealth All-Hazard Mitigation Plan* (pp 119-127) for detailed hazard descriptions.

Table 4.4.1: Hazards Profiled in this Plan Update	
Natural Hazards	Human-Caused Hazards
Drought	Dam Failures
Earthquakes	Energy Emergencies
Flooding	Fires and Wildfires
Radon	Fixed Nuclear Facilities
Tornadoes and Windstorms	Levee Failures
Subsidence	Hazardous Materials/Shale Drilling
Wildland Fires	Transportation Accidents
Winter Storms	Terrorism/Cyber Crime

NATURAL HAZARDS

4.4.1. Droughts and Water Supply Deficiencies

Pennsylvania has experienced at least five drought emergencies over the past 25 years. The Commonwealth has been most vulnerable to hydrologic and water management droughts. Hydrologic droughts occur after months or years of below normal precipitation and entail a reduction of stream flows, reduction in Lake Reservoir storage and the lowering of groundwater levels. A water management drought is characterized as water deficiencies which exist because of failures of water management practices, or of facilities to bridge normal or abnormal dry periods and equalize water supply throughout the year.

4.4.1.1. Location and Extent: Wayne County in its entirety is subject to and at risk of drought conditions. The extent of each drought is usually severe, as it takes a long period of time to reach drought conditions and a long period of time to recover from them. Crops, milk production, drinking water usage and recreational water usage are all affected negatively.

4.4.1.2 Range of Magnitude: Due to the vast amounts of time it generally takes to place a county at risk of drought, it is usual for an entire region of the Commonwealth or the Commonwealth as a whole, or even the entirety of the Northeastern portion of the United States, to reach drought monitoring concerns. When drought conditions do strike, the entire county is inside the scope of the hazard and animal feed, milk and water usage all become less available and more precious or in need of conservation.

An approximate estimate of privately-drilled wells and back-up wells in the county is about 30,000. In Pennsylvania, there are approximately 1.25 million wells total, which is second in the country only to Michigan.

According to the *2012 Census of Agriculture*, an estimated 32 million dollars' worth of marketable crops and 22,000 herd animals also are at risk of drought in Wayne County. While for many years the number of farms in the county was on a steady decrease, since 2008 the number of crop-producing and animal herd farms has increased – increasing the risk and range of magnitude.

4.4.1.3 Past Occurrences: Wayne County has been plagued with droughts since 1852, the first one causing considerable problems at the D & H Canal. These problems continued until 1895, in spite of enlarging the water depositories. On July 13, 1962, northeast Pennsylvania was singled out as the area most affected. Hay crops in Wayne County were 50 to 60 percent of normal, and corn was in danger of blight. There was also shrinkage in milk deliveries, with 500,000 pounds less than normal.

March 1963 saw no relief; it was reported that Wayne County dairymen spent \$1,250,000 for hay and other feeds to offset the previous summer's drought. Ordinarily, the county would produce 115,000 tons of hay, but in 1962 the crop dropped by 46,000 tons.

In August 1964, Governor William Scranton certified northeastern Pennsylvania as an emergency disaster area, making these areas eligible to receive drought aid, the third year in a row.

On November 19, 1980, Governor Dick Thornburgh declared a Drought Emergency Proclamation

affecting the Delaware River Basin, including Wayne County. Various communities and water companies put rationing plans into effect. A series of guidelines to help Wayne County residents reduce their water usage was published. Effective voluntary conservation was stressed.

Since 1980, Wayne County has been declared in four drought emergencies: one each in 1991, 1995, 1999, and 2002. It was last noted on the Pennsylvania Department of Environmental Protection (DEP) “conditions monitoring” watch list in October 2010. *See Figure 4.1.* The years 2009 and 2010 were relatively dry years and 2010 suffered 22 summer days of temperatures over 90 degrees Fahrenheit, according to the National Climatic Data Center. However, 2011 was a very wet year (the wettest on record for Northeastern Pennsylvania) and 2012 was only slightly below normal.

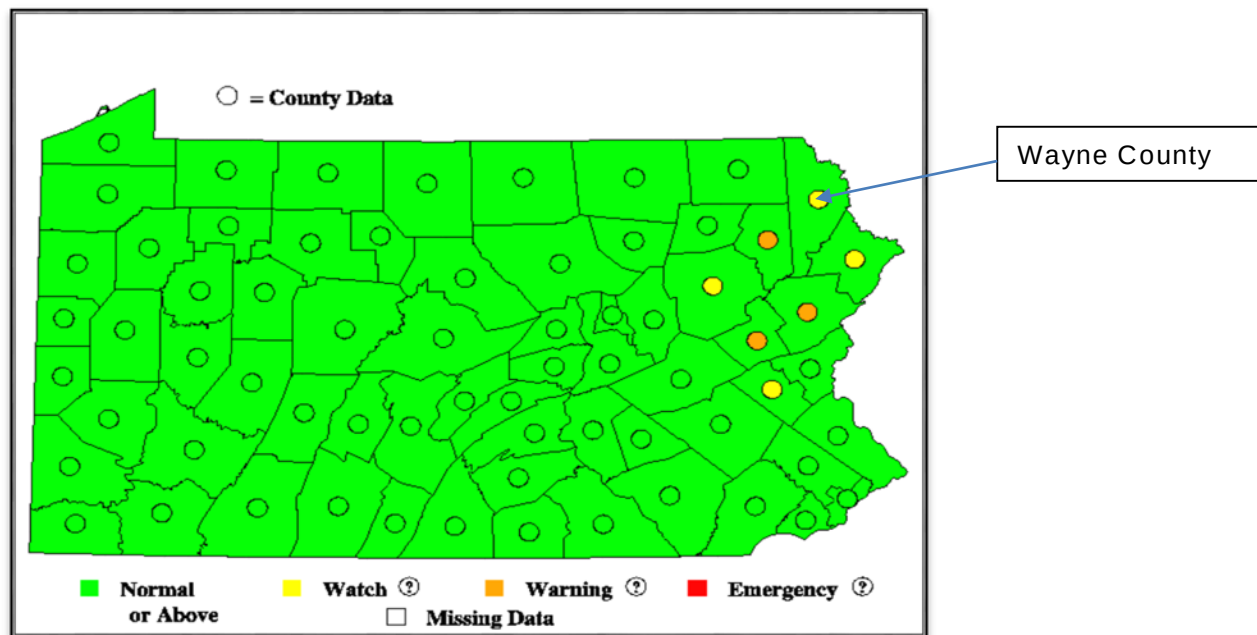


Figure 4.1

Source: Pennsylvania DEP Conditions Monitoring Watch List October 2010

4.4.1.4 Future Occurrences: It is difficult to forecast the severity and frequency of drought emergencies in Wayne County. However, given the historical data from the hazard, and the current conditions depicted on the U.S. Drought Monitor (Figure 4.2), planners can assume droughts will occur systematically and in clusters of years. It takes a long period of time to reach drought conditions, and it takes a long period of time to recover from drought conditions. Hence, they can be seen coming, and mitigation and planning activity can be triggered appropriately.

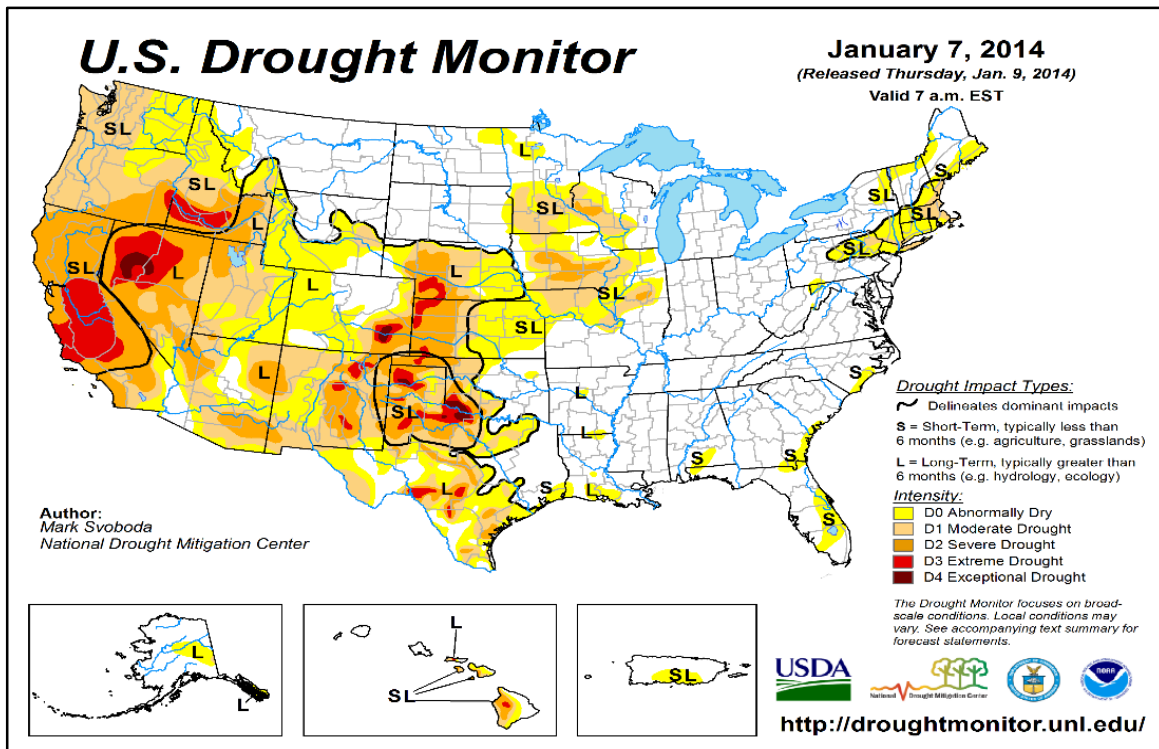


Figure 4.2
Source: U.S. Drought Monitor

4.4.1.5 Vulnerability Assessment: If a drought occurs, it could affect the county in several ways: agricultural losses, deficits in public water supplies, a drop in tourism, and reduced ability to provide fire protection¹. There are no current deficiencies in the county water supply.

4.4.2 Earthquakes

Earthquakes are caused by a sudden slip of a fault caused by the dynamic pressure of the earth's plates pushing together on both sides of the fault over time. The strength of an earthquake is determined by the size of the slip and how close the slip occurred to the surface. The most active faults are along the Pacific Coast, although some smaller, less active, faults exist in the Eastern United States. Earthquakes in Pennsylvania have been a rare occurrence causing no injury; however, the crust of the earth is constantly shifting and earthquakes do pose a possible threat that should be considered.

4.4.2.1 Location and Extent: There have been no recorded earthquakes occurring in Wayne County, although parts of the county have experienced some of the shock waves of some minor earthquakes that have occurred around the region and some of the significant ones along the East Coast, such as the 5.8 Richter Scale-rated August 23, 2011 shake with an epicenter in central Virginia.

Earthquakes and shock waves are relatively infrequent and uncommon in Wayne County but

¹ A discussion on this subject will be included in the next revision of the county and municipal Emergency Operations Plans, along with recommended actions.

there exist data to indicate that earthquake activity has occurred. Millersville University's 2008 earthquake hazard zone map lists Wayne County as a "moderate" hazard zone (compared to "slight" and "very slight" across most of the rest of the Commonwealth).

4.4.2.2 Range of Magnitude: Wayne County is ranked 22nd in risk among Pennsylvania's 67 counties. The East Coast of the United States experiences earthquakes, but rarely above 6.0 – on the Richter Scale, under 3.5 is recorded, but generally not felt; at 6.0 damage can occur to poorly constructed buildings and over 7.0 is considered a major earthquake capable of causing widespread damages.

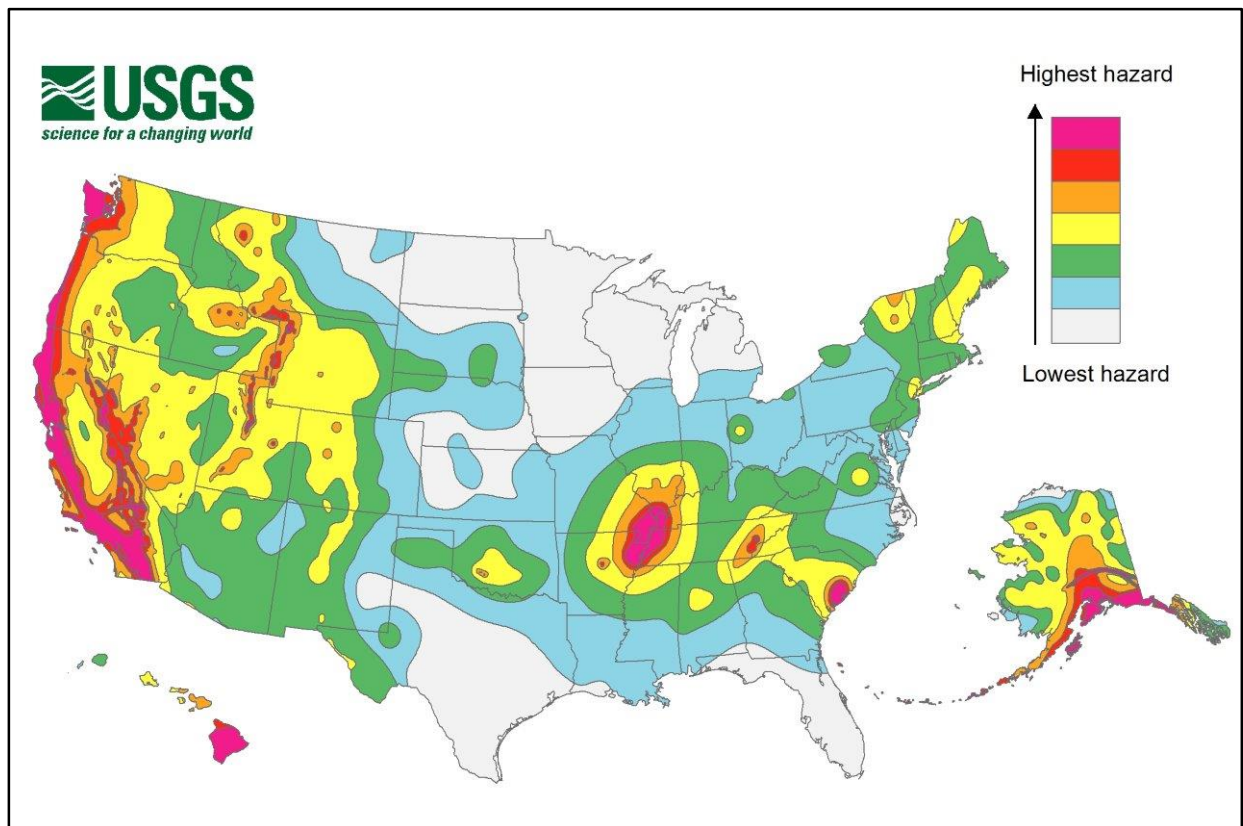


Figure 4.3

Source: The 2014 U.S. Geological Survey (USGS) National Seismic Hazard Maps (PGA, 2% in 50 years)
http://earthquake.usgs.gov/hazards/products/conterminous/2014/HazardMap2014_lg.jpg

4.4.2.3 Past Occurrences: none.

4.4.2.4 Future Occurrences: The probability of such an event occurring is very low. Wayne County does not sit on any fault lines; therefore, it is reasonable to believe that the county will not experience earthquake damage anytime soon. Due to the low probability of damaging earthquakes in Wayne County, mitigation for this threat should be adequately addressed through the enforcement of the Uniform Construction Code and municipal building inspections/permitting.

4.4.2.5 Vulnerability Assessment: Structural damage is anticipated to be minimal; however, the hydrologic changes in the area can be impacted. Domestic wells may go dry, while other,

previously dry wells may flow again as the bedrock geology shifts. Wayne County has no earthquake building codes, therefore, should the county experience a substantial earthquake, it could expect that there could be extensive property and infrastructure damage and a possibility of loss of life.

4.4.3 Flooding

Flooding is first and foremost the most prevalent type of natural disaster that occurs in Wayne County. More than 90 percent of the municipalities located in Pennsylvania are subject to some type of flooding, although that percentage is not matched in Wayne County. Statewide damage is in excess of \$1 billion annually.

4.4.3.1 Location and Extent: Wayne County is located in the Upper Delaware River Basin, as designated in the State Water Plan. This area, like so many others in Pennsylvania, is flood prone because of the topography and climate, and because most of the communities are located along streams and rivers from the early days of development. The southwest and northwest portions of the county feed the Susquehanna River Basin, but most of the county drains into the Delaware River Basin.

The streams in Wayne County most prone to flooding are the: Wallenpaupack Creek at Newfoundland; West Branch Lackawaxen River at Creamton; Balls Creek in Northern Wayne; Shadigee Creek in Starrucca Borough; Equinunk Creek in Manchester and Buckingham Townships; and Middle Creek in Palmyra Township. The Delaware River frequently floods moderately where the river bends sharply at multiple locations in the northern section. Repetitive losses are almost always recreational (second) homes in Damascus Township (marked with a star on Figure 4.3) and owners rebuild or elevate or conduct other mitigation activities with their own funds.

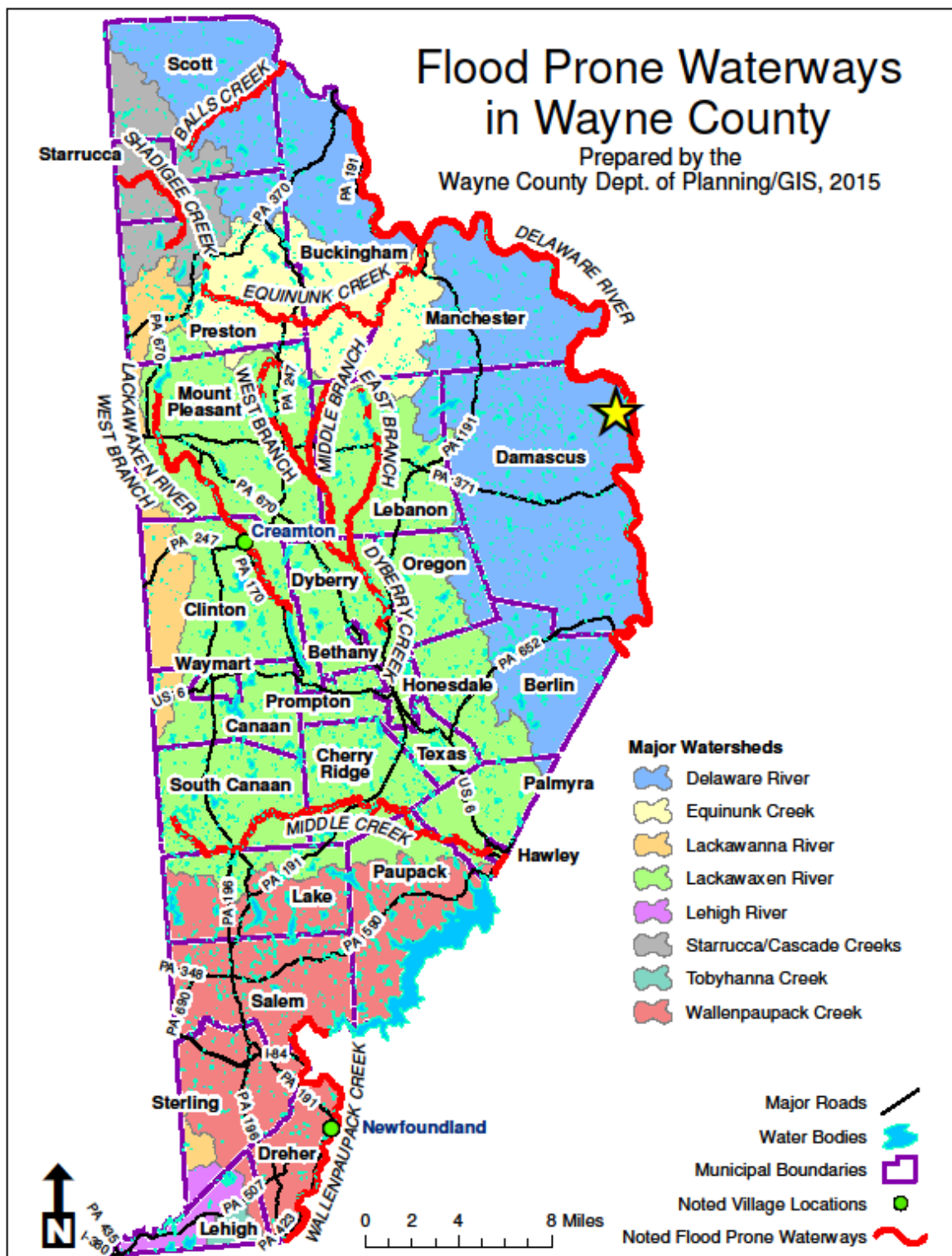


Figure 4.3
Source: Wayne County Planning Department

4.4.3.2 Range of Magnitude: Using the statistics in Table 4.3.1, some degree of flooding occurs in the county one to four times per decade. Since record-keeping began, there has been only one “dry” spell for flooding (1955-1972), and at least four decades recorded multiple flooding events (1856-1864; 1901-1911; 1914-1922; 2004-2013).

4.4.3.3 Past Occurrences: The first recorded flood in Wayne County occurred in 1829. In the following years of 1856, 1859, 1861, 1864, and 1867, extensive flooding occurred in the area. Ice jams (when frozen rivers begin to melt and break into ice chunks and then jam on an obstacle such as a bridge) on the Delaware in 1887 and 1889 caused extreme flooding, and the 1887 ice jam caused the loss of one life. In the following years of 1901, 1902, 1903, 1908, 1911, 1914, 1917, 1922, 1933, 1936, 1942, 1955, 1972 (*Tropical Storm Agnes*), 1985, 1996, 1999, 2004, 2005, 2006, 2012 and 2013, Wayne County suffered some amount of damages due to flooding.

Hurricane Gloria impacted Wayne County in 1985. The warm temperatures leading up to January 19, 1996 produced a rapid thaw from the blizzard of January 7th, compounded by rainfall of about two-three inches throughout the county. This resulted in mudslides, flash flooding (fast, unpredictable water rises), bridges washed out, and numerous road closings. *Hurricane Floyd* impacted Wayne County in 1999. *Tropical Storm Ivan* in 2004 and the floods of April 2005 caused extensive flooding throughout the county, as well as the flooding of the Emergency Operations Center located in Honesdale. The floods of June 2006 brought another bout of flooding – destroying bridges and roadways, stranding people and damaging homes. The Emergency Operations Center and 911 Center had to be permanently relocated due to 26 inches of water from the Lackawaxen River entering the facility.²

Tropical Storms Hanna in 2008 and Nicole in 2010, Hurricanes Irene and Lee in 2012 and the June 27-30 storms of 2013 added to the county’s flooding history since the writing of the 2008 plan.

Frequent small stream flooding occurs in various parts of the county. Generally, the spring thaw causes some streams to overflow. Often, heavy rains have resulted in some flash flooding (unexpected, unpredictable flooding on small streams). Ice jams (when frozen rivers thaw and produce ice chunks that go with the melting flow) occur on the Delaware River, and historically they tend to reoccur in the same general areas.

4.4.3.4 Future Occurrences: The probability that flooding will continue to occur in Wayne County is very high. The severity of flooding depends on many factors, including intensity and speed of any storm, soil conditions, snow pack, terrain and conditions north of the county. If the county population trends upward again, storm-water runoff will increase, exacerbating the flooding issues.

4.4.3.5 Vulnerability Assessment: The greatest flood of record in the Honesdale and Hawley areas occurred in May 1942. Twenty-nine persons lost their lives, and property damages exceeded millions of dollars. In Honesdale alone, the damages amounted to \$7,639,744. Hawley had damages amounting to \$105,070. In 1955, a second deadly flood in the southern part of Wayne County occurred, causing extensive damages and the loss of three lives. Damage was estimated at \$2 million. *Tropical Storm Agnes* was a very damaging storm for the county with millions of dollars in

² This project was funded primarily with Flood Mitigation Assistance (FMA) funds in 2010.

damages.³ Public assistance to municipalities from the January 1996 event was \$409,075. Assistance records for Tropical Storms Irene and Lee totaled nearly \$400,000. Damage estimates from the June 2013 severe storms are \$1.5 million.

All municipalities in the county have areas designated as being flood prone; however, population in most of these areas is of low density. Because of the county's topography and early development (pre-Flood Insurance Rate Maps - FIRMs), developed areas are much more susceptible to *riverine* (river) flooding. As the county population grew and development occurred, local zoning and floodplain ordinances and updated FIRMS (May 2013) have helped reduce the number of new threats to people and structures due to riverine (river as opposed to creek or stream) flooding.

However, Wayne County does possess some Repetitive Loss Properties that are of primary concern (see Table 4.4.3.5.3), especially those noted as Severe Repetitive Loss (SRL). Most of these properties do not make the mitigation project list due to their status as recreational (second) homes ineligible for federal funding support.

Particularly vulnerable communities are: 1) the county seat and borough of Honesdale where the Lackawaxen River flows past borough infrastructure, residences and commercial property in the 4th Street area; 2) historic Equinunk Village where the Little Equinunk Creek has potential to back up from riverine flooding and affect two commercial properties and about 50 residential structures; 3) the borough of Hawley next to the Lackawaxen River; and 4) Starrucca Borough where the Shadigee Creek flows directly through the center of the borough within steep slopes (a retaining wall was installed in the past 10 years).

At the present time, there are no facilities in the floodplains that require special notification of flooding potential or the need for persons to be evacuated. The Damascus Township Emergency Operations Plan makes reference to a listing of persons who are to be asked to voluntarily evacuate at a particular river crest prediction level, however. There are also agricultural areas in the floodplain, specifically the Aldenville area in Clinton Township, that are consistently inundated, causing loss of crops and an economic vulnerability in the thousands of dollars.

The building of the Prompton Dam on the Lackawaxen River and the Jadwin Dam on the Dyberry Creek after the 1942 flood has alleviated much of the heavy flooding in the Honesdale and Hawley areas. Ten small watershed dams were built by the county in other areas prone to flooding. Because of the topography, climate and sheer number of streams and rivers, flooding will continue to be a problem in the future and will require a constant eye on mitigation efforts.

³ All records for this storm were lost in the flooding of 2006.

Table 4.4.3.5.1 Wayne County NFIP Policies as of December 2013

Community (WAYNE CO) ⁴	# Policies	Insurance in Force	\$ Premiums
BERLIN, TOWNSHIP OF	9	\$ 1,622,800	\$ 11,958
BETHANY, BOROUGH OF	1	\$ 350,000	\$ 412
BUCKINGHAM, TOWNSHIP OF	18	\$ 3,006,000	\$ 23,382
CANAAN, TOWNSHIP OF	9	\$ 1,656,400	\$ 11,370
CHERRY RIDGE, TOWNSHIP	6	\$ 1,152,000	\$ 2,657
CLINTON, TOWNSHIP OF	1	\$ 15,200	\$ 242
DAMACUS, TOWNSHIP OF	58	\$ 13,376,000	\$ 52,820
DREHER, TOWNSHIP OF	26	\$ 5,815,500	\$ 37,128
DYBERRY, TOWNSHIP OF	3	\$ 817,100	\$ 4,134
HAWLEY, BOROUGH OF	15	\$ 3,373,300	\$ 10,386
HONESDALE, BOROUGH OF	33	\$ 8,162,600	\$ 27,524
LAKE, TOWNSHIP OF	28	\$ 6,018,100	\$ 17,437
LEBANON, TOWNSHIP OF	1	\$ 29,500	\$ 345
LEHIGH, TOWNSHIP OF	10	\$ 2,637,000	\$ 8,168
MANCHESTER, TOWNSHIP OF	22	\$ 4,731,200	\$ 22,345
MT. PLEASANT, TOWNSHIP	9	\$ 2,750,000	\$ 7,502
OREGON, TOWNSHIP OF	3	\$ 401,200	\$ 4,377
PALMYRA, TOWNSHIP OF	12	\$ 2,557,600	\$ 7,622
PAUPACK, TOWNSHIP OF	35	\$ 7,146,700	\$ 20,980
PRESTON, TOWNSHIP OF	8	\$ 1,267,000	\$ 6,718
PROMPTON, BOROUGH OF	4	\$ 587,000	\$ 4,361
SALEM, TOWNSHIP OF	17	\$ 3,569,300	\$ 11,423
SCOTT, TOWNSHIP OF	12	\$ 1,999,100	\$ 6,546
SOUTH CANAAN, TOWNSHIP	6	\$ 1,284,800	\$ 3,797
STARRUCCA, BOROUGH OF	8	\$ 1,259,400	\$ 6,414
STERLING, TOWNSHIP OF	1	\$ 280,000	\$ 389
TEXAS, TOWNSHIP OF	16	\$ 4,357,100	\$ 29,083
WAYMART, BOROUGH OF	8	\$ 1,266,900	\$ 3,463
TOTALS	379	\$ 81,488,800	\$ 342,983

**Table 4.4.3.5.2 Wayne County NFIP Claim Payments by Municipality
(as of December 2013)**

Community	Type	CID#	# Payments	Total \$	Average \$
Damascus	Township	422163	56	\$ 1,816,505	\$ 32,438
Dreher	Township	422164	9	\$ 15,732	\$ 1,748
Hawley	Borough	420863	3	\$ 49,620	\$ 16,540
Honesdale	Borough	420864	23	\$ 438,915	\$ 19,083
Lake	Township	422166	10	\$ 18,305	\$ 1,831
Lebanon	Township	422567	1	\$ 5,525	\$ 5,525
Manchester	Township	422168	12	\$ 385,554	\$ 32,130
Mt Pleasant	Township	422169	10	\$ 255,065	\$ 25,507
Oregon	Township	422170	6	\$ 91,901	\$ 15,317

⁴ The small number of policies supporting a very significant property insurance coverage reflects some residents' ability to buy high-cost housing in floodplains as recreational homes; however, claims against them are not great (Table 4.4.3.5.2).

**Table 4.4.3.5.2 Wayne County NFIP Claim Payments by Municipality
(as of December 2013)**

Palmyra	Township	420865	1	\$ 1,977	\$ 1,977
Paupack	Township	421023	10	\$ 57,235	\$ 5,724
Preston	Township	422171	1	\$ 13,014	\$ 13,014
Prompton	Borough	420866	1	\$ 4,517	\$ 4,517
Scott	Township	422173	6	\$ 91,327	\$ 15,221
Starrucca	Borough	420867	20	\$ 75,269	\$ 3,763
Texas	Township	422176	1	\$ 6,158	\$ 6,158
Waymart	Borough	420868	10	\$ 37,939	\$ 3,794
TOTALS			180	\$ 3,364,558	\$ 18,692

Repetitive Loss Potential

Table 4.4.3.5.3 Repetitive Loss Flood Properties in Wayne County, Pennsylvania, as of December 2013

	Community Name	Occupancy	Dt of Loss	Dt of Loss	Dt of Loss	Dt of Loss	Dt of Loss	Dt of Loss	Tot Building Payment	Tot Contents Payment	Losses	Total Paid
RL	BUCKINGHAM, TOWNSHIP OF	SINGLE FMLY	6/30/2006	04/03/2005	01/19/1996				45,719.81	0.00	3	45,719.81
RL	BUCKINGHAM, TOWNSHIP OF	SINGLE FMLY	06/28/2006	04/03/2005	09/18/2004				59,835.65	7,394.52	3	67,230.17
RL	BUCKINGHAM, TOWNSHIP OF	SINGLE FMLY	06/28/2006	04/03/2005	4/2/2005	09/19/2004	09/18/2004		153,646.39	13,736.96	3	167,383.35
RL	BUCKINGHAM, TOWNSHIP OF	SINGLE FMLY	06/29/2006	04/02/2005	09/18/2004				534,487.25	123,128.61	3	657,615.86
RL	BUCKINGHAM, TOWNSHIP OF	SINGLE FMLY	06/26/2006	04/02/2005	09/17/2004				23,672.67	0.00	3	23,672.67
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/27/2006	04/02/2005	09/18/2004	01/19/1996			206,928.00	7,500.00	4	214,428.00
SRL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/27/2006	04/02/2005	09/18/2004	01/19/1996			206,928.00	7,500.00	4	214,428.00
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/28/2006	04/02/2005	09/18/2004	01/19/1996			190,164.01	30,915.12	4	221,079.13
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	09/17/2004	09/04/2003					27,576.14	0.00	2	27,576.14
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/27/2006	04/02/2005	09/17/2004				130,928.90	29,140.15	3	160,069.05
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/28/2006	04/03/2005	09/17/2004				66,199.69	0.00	3	66,199.69
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/27/2006	04/02/2005	09/17/2004				191,873.22	24,366.07	3	216,239.29
SRL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/27/2006	04/02/2005	09/17/2004				191,873.22	24,366.07	3	216,239.29
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	09/08/2011	08/28/2011	10/01/2010	06/27/2006	04/02/2005	09/18/2004	74,037.48	0.00	6	74,037.48
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/28/2006	04/02/2005					12,367.12	5,154.95	2	17,522.07
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/27/2006	09/04/2003					34,946.60	0.00	2	34,946.60
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/29/2006	04/03/2005					103,428.77	0.00	2	103,428.77
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/28/2006	04/03/2005					109,907.61	4,100.00	2	114,007.61
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	06/27/2006	04/02/2005	09/18/2004				43,677.69	3,272.02	3	46,949.71
RL	DAMACUS, TOWNSHIP OF	SINGLE FMLY	04/02/2005	09/18/2004					27,335.64	8,213.04	2	35,548.68
RL	DREHER, TOWNSHIP OF	NON RESIDENT	09/27/1985	04/06/1984					335.00	5,725.50	2	6,060.50
RL	HAWLEY, BOROUGH OF	SINGLE FMLY	06/27/2006	04/02/2005					47,266.37	0.00	2	47,266.37
RL	HONESDALE, BOROUGH OF	SINGLE FMLY	09/30/2010	06/26/2006	09/18/2004	08/11/2003			27,071.80	0.00	4	27,071.80
SRL	HONESDALE, BOROUGH OF	SINGLE FMLY	09/30/2010	06/26/2006	09/18/2004	08/11/2003			27,071.80	0.00	4	27,071.80
RL	HONESDALE, BOROUGH OF	NON RESIDENT	06/28/2006	04/02/2005	09/18/2004				131,925.54	49,100.00	3	181,025.54
RL	HONESDALE, BOROUGH OF	SINGLE FMLY	06/28/2006	04/02/2005	09/19/2004				15,235.27	0.00	3	15,235.27
RL	LAKE, TOWNSHIP OF	SINGLE FMLY	06/28/2006	09/18/2004	01/19/1996				17,832.36	120.00	3	17,952.36
RL	MANCHESTER, TOWNSHIP OF	SINGLE FMLY	06/29/2006	04/03/2005					90,961.00	0.00	2	90,961.00
RL	MT. PLEASANT, TOWNSHIP OF	SINGLE FMLY	07/27/2012	06/29/2006					70,481.68	0.00	2	70,481.68
RL	OREGON, TOWNSHIP OF	SINGLE FMLY	09/04/2003	01/19/1996					11,095.42	0.00	2	11,095.42
RL	OREGON, TOWNSHIP OF	SINGLE FMLY	09/16/2004	09/03/2003					33,460.32	10,402.00	2	43,862.32
RL	STARRUCCA, BOROUGH OF	SINGLE FMLY	06/27/2006	04/02/2005	09/16/2004				11,743.37	380.75	3	12,124.12
RL	STARRUCCA, BOROUGH OF	NON RESIDENT	06/28/2006	09/17/2004					10,843.48	0.00	2	10,843.48
RL	WAYMART, BOROUGH OF	SINGLE FMLY	06/28/2006	09/17/2004					14,890.46	15,327.36	2	30,217.82

Potential Loss Data in Wayne County, Pennsylvania as of August 2013

The potential loss data report at [Appendix B](#) is based on Hazus-MH, a nationally applicable standardized methodology that estimates potential losses from earthquakes, hurricane winds and floods. The Federal Emergency Management Agency (FEMA) developed Hazus-MH under contract with the National Institute of Building Sciences).

Hazus-MH uses state-of-the-art Geographic Information Systems software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of earthquakes, hurricane winds and floods on populations.

Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness and response and recovery planning.

4.4.4 Radon

Radon is a cancer-causing natural radioactive gas that you cannot see, smell, or taste. It is a large component of the natural radiation that humans are exposed to and can pose a serious threat to public health when it accumulates in poorly ventilated residential and occupation settings. According to the Environmental Protection Agency (EPA), radon is estimated to cause about 21,000 lung cancer deaths per year, second only to smoking as the leading cause of lung cancer (EPA 402-R-03-003: EPA Assessment, 2003).

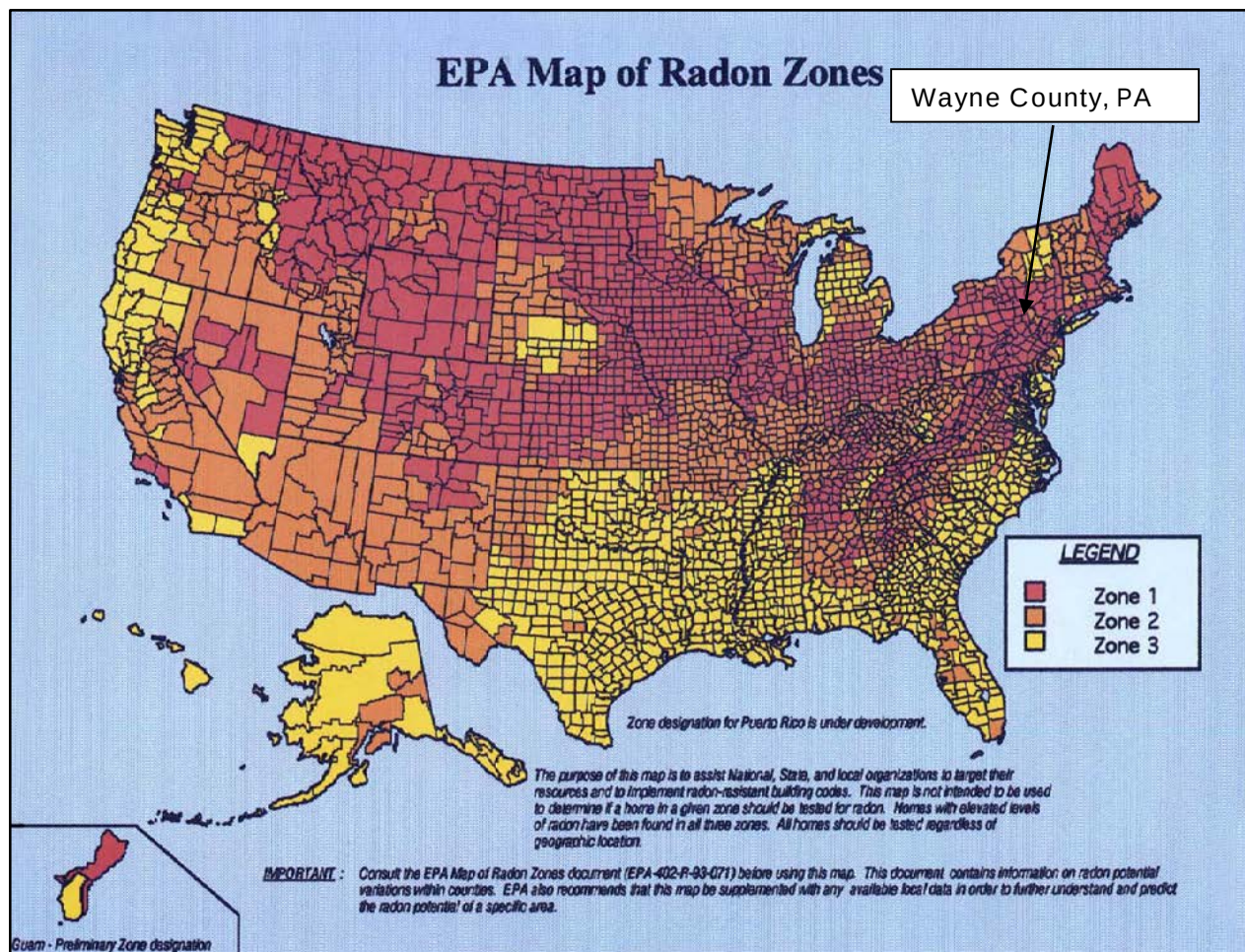


Figure 4.4

Source: Pennsylvania Department of Environmental Protection

4.4.4.1 Location and Extent: Radioactivity caused by airborne radon has been recognized for many years as an important component in the natural background radioactivity exposure of humans, but it was not until the 1980s that the wide geographic distribution of elevated values in houses and the possibility of extremely high radon values in houses were recognized. In 1984, routine monitoring of employees leaving the Limerick nuclear power plant near Reading, Pennsylvania, while it was still under construction and not yet functional, showed that readings on a construction worker at the plant frequently exceeded expected radiation levels. However, only natural, non-fission product radioactivity was detected on the worker.

Subsequent testing of the employee's home in the Reading Prong section of Pennsylvania showed extremely high radon levels around 2,500 pCi/L (pico Curies per liter). To put this amount in perspective, the EPA's guidelines state that actions should be taken if radon levels exceed 4 pCi/L in a home, and uranium miners have a maximum exposure of 67 pCi/L. As a result of this event, the Reading Prong became the focus of the first large-scale radon scare in the world.

Radon is a gas that cannot be seen or smelled. It is a noble gas that originates from the natural radioactive decay of uranium and thorium. Like other noble gases (e.g., helium, neon, and argon), radon forms essentially no chemical compounds and tends to exist as a gas or as a dissolved atomic constituent in groundwater. Two isotopes of radon are significant in nature, ^{222}Rn and ^{220}Rn , formed in the radioactive decay series of ^{238}U and ^{232}Th , respectively. The isotope thoron (i.e., ^{220}Rn) has a half-life (time for decay of half of a given group of atoms) of 55 seconds, barely long enough for it to migrate from its source to the air inside a house and pose a health risk. However, radon (i.e., ^{222}Rn), which has a half-life of 3.8 days, is a widespread hazard. The distribution of radon is correlated with the distribution of radium (i.e., ^{226}Ra), its immediate radioactive parent, and with uranium, its original ancestor. Due to the short half-life of radon, the distance that radon atoms can travel from their parent before decay is generally limited to distances of feet or tens of feet. Each county in Pennsylvania is classified as having a low, moderate, or high radon hazard potential. Wayne County is classified as having a high hazard, meaning there is a predicted indoor radon level greater than 4 pCi/L.

4.4.4.2. Range of Magnitude: According to the EPA, the average radon concentration in the indoor air of homes nationwide is about 1.3 pCi/L. The EPA recommends homes be fixed if the radon level is 4 pCi/L or more. However, because there is no known safe level of exposure to radon, the EPA also recommends that Americans consider fixing their home for radon levels between 2 pCi/L and 4 pCi/L. The worst-case scenario for radon exposure would be that a large area of tightly sealed homes exposed residents to high levels of radon over a prolonged period of time without the residents being aware. This worst-case scenario exposure could lead to a large number of people with cancer attributed to the radon exposure.

4.4.4.3. Past Occurrences: Current data on abundance and distribution of radon as it affects individual houses in Pennsylvania in general and Wayne County specifically is considered incomplete and potentially biased. The EPA has estimated that the national average indoor radon concentration is 1.3 pCi/L and the level for action is 4.0 pCi/L; however, the EPA has estimated that the average indoor concentration in Pennsylvania basements is about 7.1 pCi/L, and 3.6 pCi/L on the first floor (PA DEP, 2011).

The Pennsylvania Department of Environmental Protection (DEP) Bureau of Radiation Protection provides information for homeowners on how to test for radon in their houses. If a test is reported to the Bureau with over 4 pCi/L, then the Bureau works to help the homeowners make repairs to their houses to mitigate against high radon levels. The total number of tests reported to the Bureau since 1990 and their results are provided by zip code on the Bureau's website. However, this information is only provided if over 30 tests total were reported in order to best approximate the average for the area. In Wayne County, two zip codes as examples show a hazard risk.

4.4.4.4. Future Occurrences: Radon exposure is inevitable in small, non-threatening doses given the present soil, geologic, and geomorphic factors in Wayne County. Development in areas where previous radon levels have been significantly high will continue to be more susceptible to exposure.

However, new incidents of concentrated exposure may occur with future development or deterioration of older structures. Exposure can be limited with proper testing for both past and future development and appropriate mitigation measures.

4.4.4.5. Vulnerability Assessment: Pennsylvania has one of the most serious radon problems in the country. An estimated 40 percent of Pennsylvania homes have radon levels above Environmental Protection Agency's action guideline of 4 picocuries per liter. As the examples in Figure 4.5 and 4.6 show, Wayne County has highest maximum levels in some basements and could be susceptible to high levels of radon.

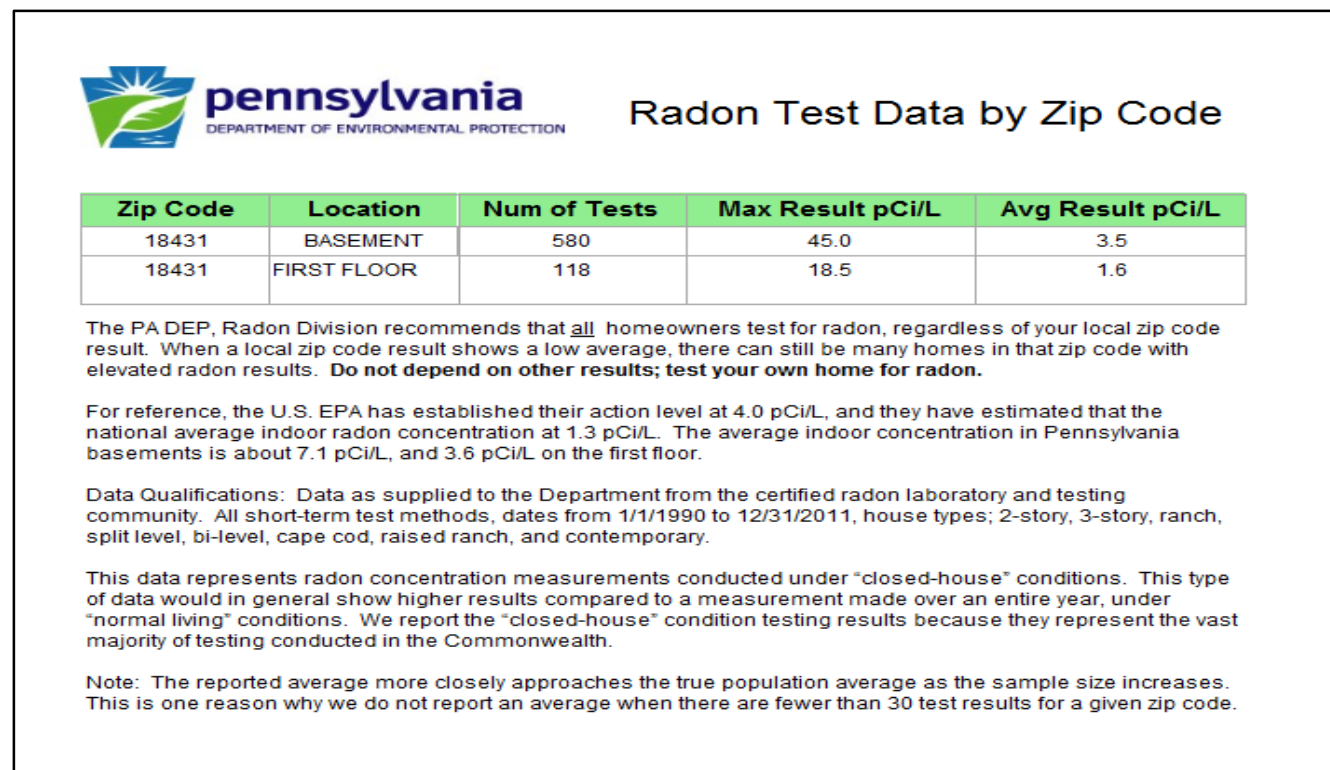


Figure 4.5
Source: Pennsylvania Department of Environmental Protection



Radon Test Data by Zip Code

Zip Code	Location	Num of Tests	Max Result pCi/L	Avg Result pCi/L
18417	BASEMENT	50	73.8	6.6
18417	FIRST FLOOR	Insufficient Data	Insufficient Data	Insufficient Data

The PA DEP, Radon Division recommends that all homeowners test for radon, regardless of your local zip code result. When a local zip code result shows a low average, there can still be many homes in that zip code with elevated radon results. **Do not depend on other results; test your own home for radon.**

For reference, the U.S. EPA has established their action level at 4.0 pCi/L, and they have estimated that the national average indoor radon concentration at 1.3 pCi/L. The average indoor concentration in Pennsylvania basements is about 7.1 pCi/L, and 3.6 pCi/L on the first floor.

Data Qualifications: Data as supplied to the Department from the certified radon laboratory and testing community. All short-term test methods, dates from 1/1/1990 to 12/31/2011, house types; 2-story, 3-story, ranch, split level, bi-level, cape cod, raised ranch, and contemporary.

This data represents radon concentration measurements conducted under "closed-house" conditions. This type of data would in general show higher results compared to a measurement made over an entire year, under "normal living" conditions. We report the "closed-house" condition testing results because they represent the vast majority of testing conducted in the Commonwealth.

Note: The reported average more closely approaches the true population average as the sample size increases. This is one reason why we do not report an average when there are fewer than 30 test results for a given zip code.

Figure 4.6

Source: Pennsylvania Department of Environmental Protection

Smokers can be up to 10 times more vulnerable to lung cancer from high levels of radon, depending on the level of radon to which they are exposed. Older houses that have crawl spaces or unfinished basements are more vulnerable as well because of the increased exposure to soils that could be releasing higher levels of radon gas. Additionally, houses that rely on wells for their water may face an additional risk, although this type of exposure is low and rare in Pennsylvania.

Proper testing for radon levels should be completed across Wayne County, especially in the areas of higher incidence levels and for those individuals and households that face the contributing risks described above. This testing will determine the level of vulnerability that residents face in their homes, as well as in their businesses and schools. The PA DEP Bureau of Radiation Protection provides short- and long-term tests to determine radon levels as well as information on how to mitigate high levels of radon in a building. According to the EPA, repairs to houses to protect against radon can cost on average the same as regular house repairs (EPA, October 2010).

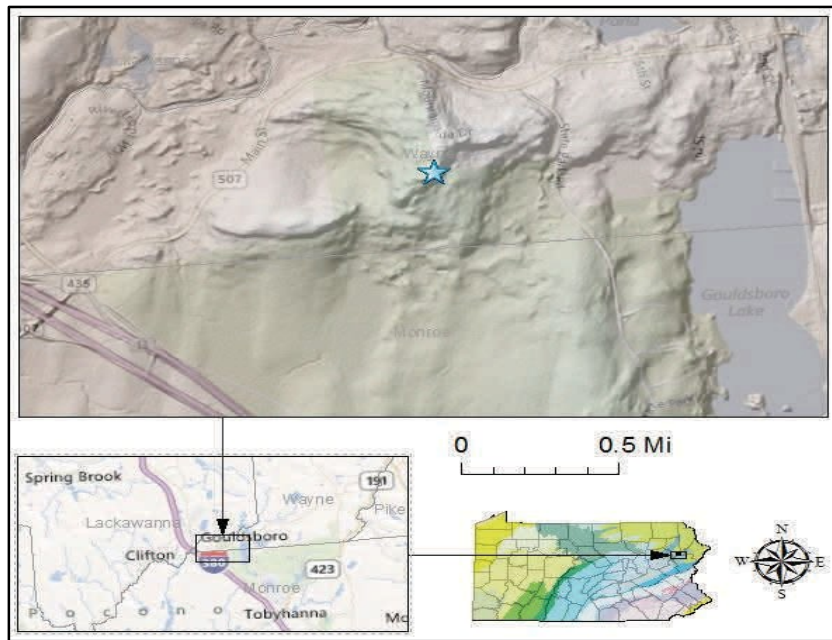
4.4.5 Subsidence

4.4.5.1. Location and Extent: Subsidence potential in Wayne County is very low and if any areas were to be of concern, it would be in the western corridor along the Moosic Mountain range where coal mining was once a primary activity. A mine ventilation shaft was closed in the early 1990s just east of the village of Forest City. Map 4.4.5.5.1 shows that a small portion of Wayne County lies in an area of Pennsylvania where limestone, dolomite, or both are present near ground surface, thus making it slightly susceptible to natural sinkhole development. However, the District Conservation Office states the geologic foundation of Wayne County is non-limestone and the map is most likely inaccurate.

4.4.5.2. Range of Magnitude: Based on the geologic formations underlying parts of Wayne County, subsidence and sinkhole events are remote possibilities. Events could result in minor elevation changes or minor holes in the ground surface. Subsidence and sinkhole events could cause minor damage in urban environments, although gradual events can be addressed before even minor damage occurs.

4.4.5.3. Past Occurrences: According to the Pennsylvania Department of Conservation and Natural Resources' Sinkhole Inventory Online Database (<http://www.dcnr.state.pa.us/topogeo/hazards/sinkhole/default.asp>), there have been no recorded sinkholes in Wayne County. The database does list a natural formation that demonstrates the sandstone geology of the area typically vulnerable to erosion at the southernmost limit of the Wisconsinian Glacier: Prospect Rock.

PROSPECT ROCK WAYNE COUNTY



Gouldsboro State Park, Wayne Co., Lehigh Twp., lat: 41.2381, lon: -75.4743; Tobyhanna 7.5-minute quadrangle

Figure 4.7

Source: Pennsylvania Department of Environmental Protection

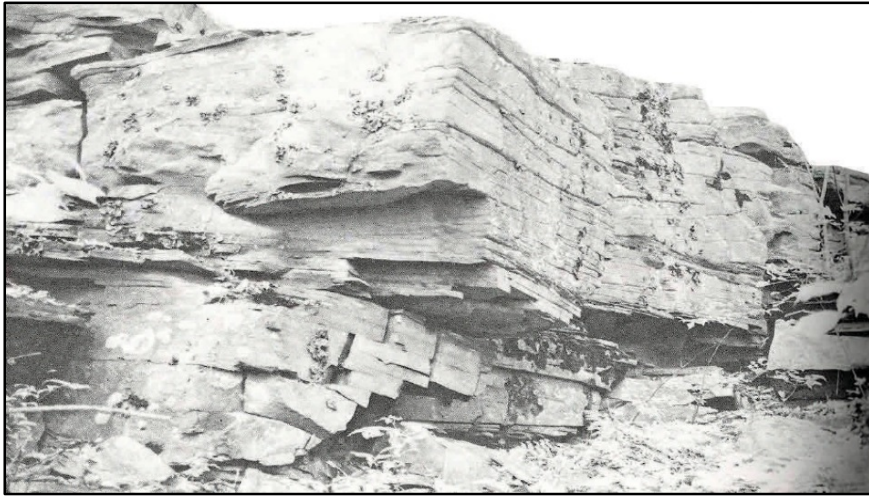
The outcrop is located in the Glaciated Plateau section of the Appalachian Plateaus physiographic province at an elevation of about 2,060 feet. The area was glaciated during the Wisconsin glacialiation and a covering of stony ground moraine, an unsorted mix of clay, silt, sand, gravel, and boulders, was deposited in the vicinity of Prospect Rock.

Glacial striations cut into the rock surface have been mapped at this site. The grooves show that the glaciers flowed slightly west of due south.

Prospect Rock is a 20-foot vertical cliff of thinly-layered sandstone from the Duncannon Member of the Catskill Formation. The outcrop is located on the Prospect Rock loop trail that runs for 5.8 miles in Gouldsboro State Park.

The Duncannon Member rocks at this outcrop are gray sandstones. The nearly horizontal rock bedding shows an internal cross-bedding that developed in braided and meandering streams about 360 million years ago during the Late Devonian.

The rock face of Prospect Rock has developed along a vertical joint. This geologic unit typically does not crop out very much in the area, but when it does, it typically displays a south-facing cliff with a gently dipping north-facing slope.



Cropped black and white photo of Prospect Rock.

Figure 4.8

Source: Pennsylvania Department of Environmental Protection

4.4.5.4. Future Occurrences: Based on the geological conditions of gray and blue sandstone underlying Wayne County, future occurrences of subsidence are not expected. Even when the Conservation District was prompted to investigate abandoned mines in the western corridor of the county, none could be found. And, although Pennsylvania investigations for sinkholes remain high for the county as a whole, no sinkhole investigations for Wayne County could be found.

4.4.5.5. Vulnerability Assessment: According to the Figure 4.9, Clinton Township possesses several abandoned mine sites and structures in their vicinity may be vulnerable to subsidence. However, the Conservation District Office did some investigations of its own and could find none.

Subsidence insurance is available to homes and critical infrastructure at http://www.dep.state.pa.us/dep/deputate/minres/bmr/MSIpage/msi_info.htm.

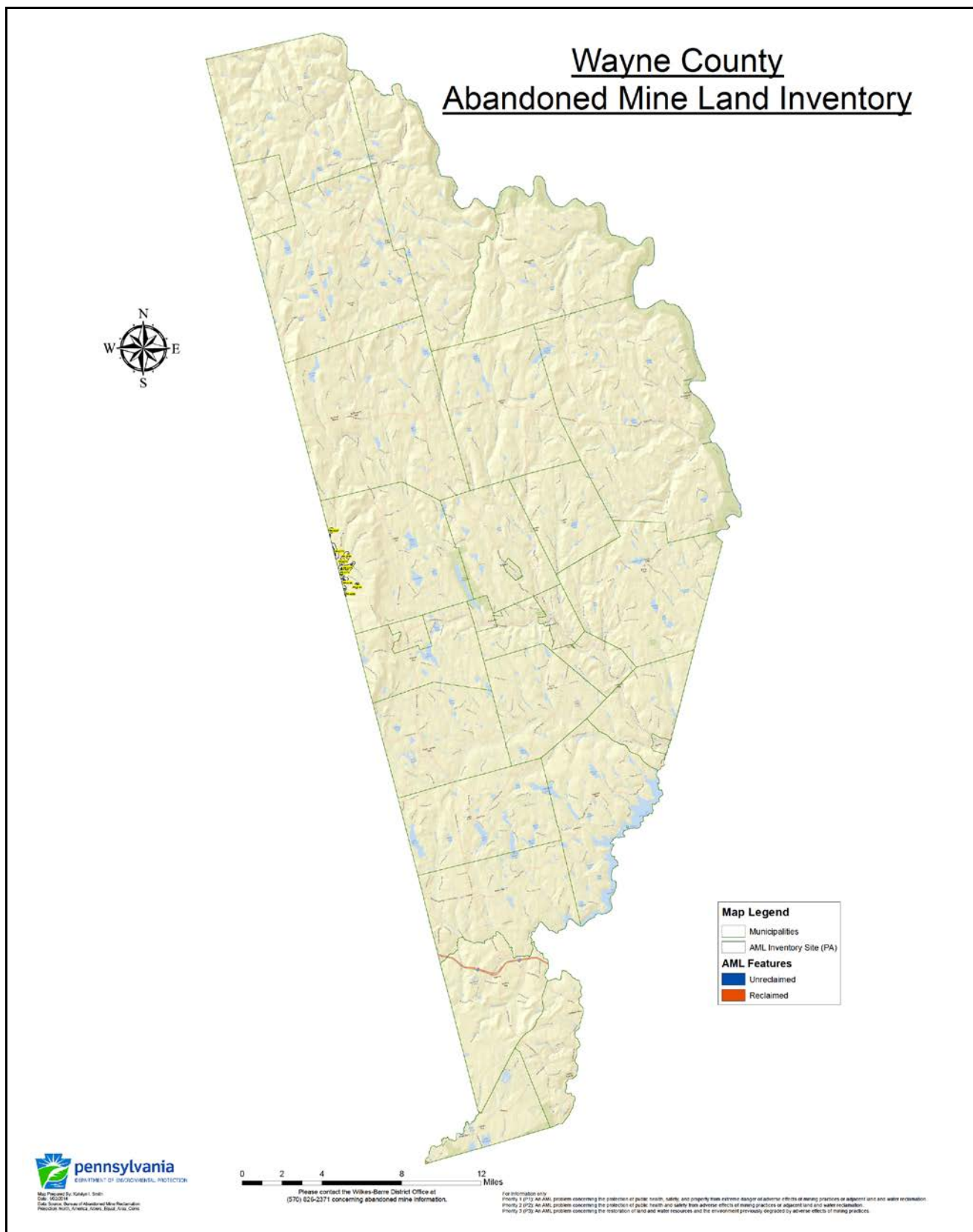


Figure 4.9
 Source: Pennsylvania Department of Environmental Protection

4.4.6 Tornadoes and Windstorms

The Commonwealth is vulnerable to many weather-related hazards. Tornadoes and windstorms are common occurrences, especially during the spring and summer months. Tornadoes, although not as common, have struck almost 90 percent of the counties in Pennsylvania, including Wayne County.

4.4.6.1 Location and Extent: Annually, Wayne County experiences severe thunderstorms, which produce damaging winds. These winds generally cause numerous downed trees and power lines. Historically, Wayne County tornado activity is significantly below Pennsylvania's state average and is 5.7 times below the overall U.S. average.

Within the past twenty years, Wayne County has experienced as a result of severe windstorms, tornadoes and hurricanes:

1. Power failures lasting more than four hours
2. Loss of communications for several hours
3. Heavy losses and damage to crops
4. Evacuation of residents
5. Provision of State assistance
6. Very heavy road damages

All areas of Wayne County are susceptible to tornadoes, hurricanes, and windstorms.

4.4.6.2 Range of Magnitude: The power of extreme wind associated with tornadoes can result in some of the most destructive forces Nature can muster. Damages and deaths can be very significant when tornadoes and windstorms move through highly populated, developed areas. Fortunately for Wayne County, those metrics do not exist and no deaths have been recorded in the county due to extreme wind. Tornadoes are categorized by wind speed and potential damage by the Fujita Scale, with an F0 indicating wind speeds of 65-85 mph and an F5 most feared at wind speeds over 200 mph causing catastrophic damages.

4.4.6.3 Past Occurrences: Incidences of high winds and rains occurred in 1851, 1866, 1878, 1919, 1934, 1941, 1943, 1950, 1954, 1976, 1982, and 1985. The storm of 1950 caused claims of over \$100,000 in the county, while the 1954 storm resulted in over 300 claims filed with just one insurance company (Hurricane Hazel). In September of 1991, Wayne County recorded an F-2 tornado with property damage estimated at \$25,000. In May of 1998, an F-0 tornado struck in Dreher Township causing tree and power line damage, road closures and residences without power for more than two days. In May 2002 an F-1 tornado hit in Manchester Township knocking down hundreds of trees. In August of 2003, Wayne County was also affected by high winds and heavy rain taking out some of the smaller bridges in the county. In July 2010, an F-2 tornado touched down three times in the county. The greatest damage occurred about four miles east of Honesdale and 1.5 miles west of Beach Lake

Fujita scale					
F0	F1	F2	F3	F4	F5
65-85 mph	86-110 mph	111- 135 mph	136- 165 mph	166- 200 mph	> 200 mph

Figure 4.10

Source: National Oceanic and Atmospheric Association (NOAA) and National Weather Service (NWS), Storm Prediction Center. Fujita Tornado Damage Scale. <http://www.spc.noaa.gov/faq/tornado/f-scale.html>

where Dunn Road meets Route 652. Several structures were severely damaged or destroyed including a triple-wide trailer, two barns, and a commercial auto transmission business on Route 652. Here, winds were estimated to peak in the 110 to 120 MPH range.

The spring of 2011 boasted tornado spottings and high winds; one was confirmed an F-1 that closed a portion of Route 6 and knocked out power to 9,000 residents and took out the county 9-1-1 lines temporarily. A tornado in July 2012 near Elmira, New York, caused high winds in the county and a loss of power for several hours. The winds from Super Storm Sandy in October 2012 were strong enough inland to put 25,000 Wayne County customers without power.

4.4.6.4 Future Occurrences: Because of the higher elevations in the northern segment of the county, strong winds always prevail. The frequency of windstorms and minor tornadoes occurring in the county is expected to remain constant. Weather patterns in the northeastern portion of the United States will continue to provide fodder for the emergence of high-wind and tornadic activity.

4.4.6.5 Vulnerability Assessment: As population increases and development continues in Wayne County, the number of persons and properties vulnerable to the effects of tornadoes, windstorms and hurricanes is expected to increase. Historically across the country and in Pennsylvania, manufactured structures are most vulnerable to high winds and usually sustain the most damage and produce the most deaths because of their deliberate lightweight and often unanchored design. Of the estimated 31,653 housing units in Wayne County, 10% of them are manufactured properties at extreme risk to tornadic activity.

4.4.7 Wildfires

4.4.7.1 Location and Extent: Wildfires take place in less developed or completely undeveloped areas, spreading rapidly through vegetative fuels. They can occur any time of the year, but mostly occur during long, dry, hot spells. Any small fire, if not quickly detected and suppressed, can get out of control. Most wildfires are caused by human carelessness, negligence, and ignorance. However, some are precipitated by lightning strikes and in rare instances, spontaneous combustion. Wildfires in Pennsylvania can occur in open fields, grass, dense brush, and forests.

Because a majority – over 65 percent - of Wayne County's land cover is forestland, the potential geographic extent of wildfires is quite large. Under dry conditions or droughts, wildfires have the potential to burn forests as well as croplands. The greatest potential for wildfires is in the spring months of March, April, and May, and the autumn months of October and November; nearly 85% of all Pennsylvania wildfires occur between March and May each year. In the spring, bare trees allow sunlight to reach the forest floor, drying fallen leaves and other ground debris. In the fall, dried leaves are also fuel for fires.

There is a heavy debris cover in Wayne County as a result of a 2005 ice and snow storm which fell many trees, and took down the branches and tops of others. There has not been a major burn in the Pocono Plateau since this storm, and the debris from this storm has not been cleared, adding potential fuel sources in the area for a wildfire.

4.4.7.2 Range of Magnitude: Wildfire events can range from small fires that can be managed by local firefighters to large fires impacting many acres of land. Small fires are usually limited in scope and consume brush and trees but not homes. Large events may require evacuation from one or

more communities and necessitate regional or national firefighting support. The impact of a severe wildfire can be devastating.

In addition to the risk wildfires pose to the general public and property owners, the safety of firefighters is also a concern. Although loss of life among firefighters does not occur often in Pennsylvania, it is always a risk. More common firefighting injuries include falls, sprains, abrasions or heat-related injuries such as dehydration. Response to wildfires also exposes emergency responders to the risk of motor vehicle accidents and can place them in remote areas away from the communities that they are chartered to protect.

Some fires are part of natural succession processes that can kill people, livestock, fish and wildlife. They often destroy property, valuable timber, forage and recreational and scenic values. The most significant environmental impact is the potential for severe erosion, silting of stream beds and reservoirs, and flooding due to ground-cover loss following a fire event. Wildfire can also have a positive environmental impact in that they burn dead trees, leaves, and grasses to allow more open spaces for new vegetation to grow and receive sunlight. Another positive effect is that it stimulates the growth of new shoots on trees and shrubs and its heat can open pine cones and other seed pods.

4.4.7.3 Past Occurrences: There have been 3,553 wildfire events reported to the Pennsylvania Department of Conservation and Natural Resources Bureau of Forestry from 2009-2014. Members of the plan update planning team noted this is probably a low estimate of wildfire events, as it does not include wildfires that were not reported to DCNR, fires without a known origin, or events that were controlled solely by the volunteer fire departments in the County, but this is the most comprehensive list of wildfire occurrences available for Wayne County.

The spring of 2015 was typical for wildfire, according to the Wayne Independent. Volunteer companies responded to numerous brush fires in all parts of Wayne County. The windy, dry conditions of spring played a large role in the fires that ignited from Hamlin in the south to Equinunk in the north. Rain showers brought some relief, but the threat of brush fires continued throughout the rest of spring. Beach Lake, White Mills, Equinunk, Lake Ariel, Hamlin and Greene-Dreher were among fire companies to battle brush fires.

4.4.7.4 Future Occurrences: Previous events indicate that wildfires will continue to occur annually. Weather conditions like drought can increase the likelihood of wildfires occurring. Any fire, without the quick response or attention of firefighters, forestry personnel, or visitors to the forest, has the potential to become a wildfire.

The probability of a wildfire occurring in Wayne County is *possible* in any given year as defined by the Risk Factor Methodology (Section 4.5.2). However, the likelihood of one of those fires attaining significant size and intensity is unpredictable and highly dependent on environmental conditions and firefighting response.

4.4.7.5 Vulnerability Assessment: According to the DCNR Bureau of Forestry, the potential for wildfire hazard is based on conditions that affect wildfire ignition and/or behavior such as fuel, topography, and local weather. Based on this assessment, the majority of the County has a medium vulnerability to wildfires. Municipalities in the northern portion corner of the County have a high vulnerability to wildfires due to the acreage of the forest and propensity for damages from drought.

Based upon this data and past occurrences, it is safe to say that wildfires will continue to be likely in Wayne County. The County will be especially vulnerable during periods of extended dry conditions when the fuel load is high.

4.4.8 Winter Storms

Winter storms occur on the average of five times a year in Pennsylvania. Every county in the Commonwealth is subject to severe winter storms, although the northern tier, western counties, and mountainous regions tend to experience these storms more frequently and with greater severity.

Winter storms can adversely affect roadways, utilities, and business activities, while a rapid thaw often causes flooding. Being located in the northeast portion of Pennsylvania, Wayne County often experiences the effects of Nor'easter storms — low-pressure fronts that move northward along the Atlantic coastline, pulling large amounts of moisture off of the Atlantic Ocean.

4.4.8.1 Location and Extent: Wayne County has been plagued with severe winter storms as far back as 1816. During the winter of 1886-87, an incredible 128 inches of snowfall was recorded.

Very heavy snowstorms occurred in 1888, 1910, 1914, and 1920. In 1940, an 18-inch snowfall followed by extensive drifting and up to two inches of sleet occurred. This storm was described as the "worst storm in 45 years". Electricity was out and most roads were impassable for a week.

4.4.8.2 Range of Magnitude: Winter storms can cause more long-lasting damages than any other severe weather event: power outages; depletion of heating supplies; destruction of communications networks; killing of vegetation; structure collapses from ice loading or falling tree limbs; hundreds of traffic accidents – the National Weather Service estimates that 85% of ice storm deaths are traffic related and 10% of snowstorm heart attacks are snow-removal related. Wayne County averages 15 inches of snowfall per winter month.

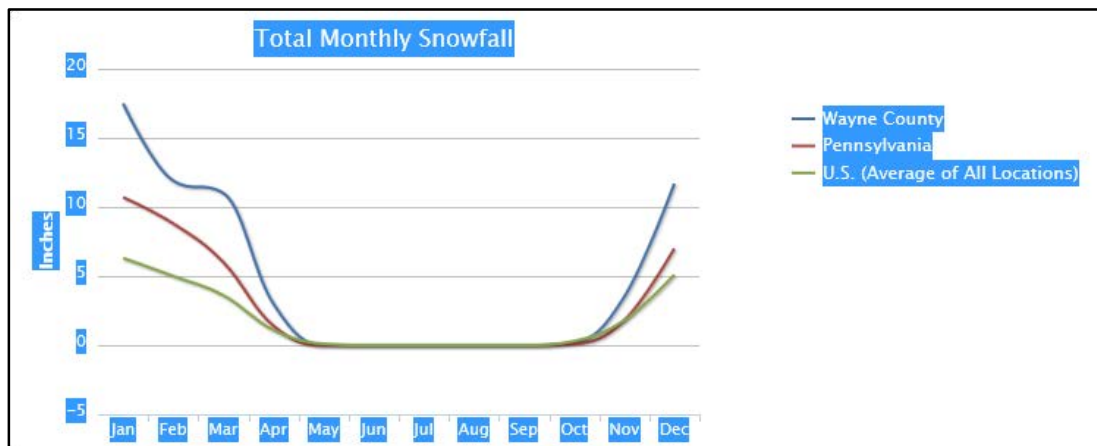


Figure 4.11

Source: NOAA/National Weather Service

4.4.8.3 Past Occurrences: February of 1945 brought two heavy snowstorms. In February 1958, a snowfall of 48 inches was followed by gales up to 60 miles per hour. Sub-zero temperatures

prevailed, with drifts up to 28 feet. As a result, on February 19, 1958, "a state of extreme emergency was declared," by Governor George Leader. Only 170 of 725 miles of state highways were open. Thursday, February 20, 1958, six emergency airlift operations were carried out. March 20 and 21, another snowfall was added with Newfoundland reporting 35 inches, Honesdale 20 and Cherry Ridge 24, bringing the total snowfall for the winter of 1958 to at least nine feet throughout the county.

In 1969, Wayne County saw about 26 inches of snow, with drifts 8 to 12 feet deep and some property damage.

The winter of 1976-77 was unusual because of a natural gas shortage coupled with heavy snow. This caused several schools to close. The Governor ordered all public and private schools to close on January 27. January 31, Wayne County Civil Defense reported that early estimates of economic injury resulting from cold weather reached \$776,000. January 1977 was the coldest on record since the 1800's.

The winter of 1992-93 saw a blizzard on March 12-13, 1993 of major proportion. It affected the whole eastern seaboard and closed multiple highways in the region. As a result, Governor Casey requested and received a federal declaration for emergency assistance. Wayne County reported 30 inches of snow and received federal aid for snow plowing.

January 4 through 31, 1994 saw extended periods of snowfall and extremely cold temperatures. All of Wayne County was affected and had an average snowfall of at least 20 inches in that short time period.

January 7-8, 1996 produced a blizzard that was bad enough to prompt Governor Ridge to close all public roads in the Commonwealth and request a federal declaration of disaster emergency, which was awarded. Wayne County received funds for the plowing of roads. Wayne County recorded between 20 to 30 inches of snow. The central and southern parts of the county were hardest hit, with the northern tier municipalities recording 10 inches of snow. Public assistance to municipalities was approximately \$100,540.00.

April of 1997 brought an isolated snowstorm, which affected only the northeast portion of Pennsylvania, dumping approximately 30 inches of snow in Wayne County. Christmas 2002 dumped over 24 inches of snow in Wayne County. Compounding the problem was the Christmas holiday with most highway and municipal workers on vacation or scheduled to be off work.

President's Day of February 2006 dumped another 18 to 24 inches of snow in the county. The Valentine's Day snowstorm of 2007 added another 13.9 inches of snow to Wayne County's statistics, but did not mix with freezing rain as it did further to the south where it caused snarled traffic and stranded motorists for up to 20 hours on sections of Interstates 78, 80 and 81. According to news reports five years after the storm, the Pennsylvania Department of Transportation (PennDOT) has instituted dozens of preparedness and mitigation efforts to prevent a repeat of that event: <http://thetimes-tribune.com/news/five-years-after-valentine-s-day-storm-penn-dot-says-they-are-prepared-1.1271491>.

A winter storm in December 2008 was particularly severe because it included a mix of snow, sleet, freezing rain and rain in the course of 24 hours.

A series of major snowstorms plagued the Atlantic states throughout February 2010, most notably a back-to-back punch of snowstorms on February 4-7 and February 9-11 that broke monthly and seasonal records in many of the major cities across the Atlantic seaboard. Separately, these storms ranked as Category Three and Two storms on the Northeast Snow Impacts Scale (NESIS), respectively. However, if combined and treated as one storm, the resulting combined total would become only the third Category Five storm (the most extreme category) of the NESIS record.

Monthly Snowfall Records at Select Locations

Location	Old February Record/Year	New February Record
Baltimore, MD	40.5 Inches 2003	49.7 Inches
Washington, DC (Dulles)	34.9 Inches 2003	46.1 Inches
Beckley, WV	30.8 Inches 1964	45.0 Inches
Charleston, WV	21.8 Inches 1964	25.6 Inches
Elkins, WV	32.0 Inches 1986	43.8 Inches
Central Park, NY	30.5 Inches 1896	36.9 Inches*
LaGuardia Arpt, NY	25.6 Inches 1993	29.1 Inches
Pittsburgh, PA	25.3 Inches 2003	48.7 Inches*

*All-time monthly record and closest location to Wayne County listed

Figure 4.12

Source: NOAA/National Weather Service

On February 4th-6th, 2010, a storm that originated in the southwest U.S. traversed eastward pumping in moisture from the Gulf of Mexico and the Atlantic. Dubbed *Snowmageddon*, this massive winter storm caused government offices, schools, and airports to close. Some locations in Maryland, Pennsylvania, Virginia, and West Virginia recorded more than 30 inches of snow – *Wayne County was almost one of those locations, recording over 24 inches of snow.*

Winter storms in January and March of 2011 produced accumulations of snow of six and 10 inches, respectively.

The winter of 2013-14 was the worst winter for snow and cold in 10 years. The onset of winter started shortly after Thanksgiving and did not let up until March 2014. There was a long, severe cold snap through much of December 2013 and again at the end of January 2014. Snowfall occurred on half of the calendar days in January and February 2014, with record accumulations of 18 inches on February 15 and a blizzard amount of 22 inches with drifting February 18-19, 2014.

4.4.8.4 Future Occurrences: Winter storms are a predictable, annual occurrence in Wayne County and the probability of measurable snowfall each winter month each year is very high.

4.4.8.5 Vulnerability Assessment: Due to the rural nature of the county and the limited staff of the twenty-eight municipalities, any major winter storm will have an adverse effect on the county's transportation system. Secondary roads are often narrow, unpaved and generally have steep embankments and any amount of snow accumulation or drifting only makes these roads narrower and more dangerous.

The northern sector of Wayne County is highly susceptible to isolation caused by winter storms especially due to the secondary roads. Although the population increases in the summer months because of vacation resorts and cottages, the "local residents" are able to provide for themselves and are generally prepared for most winter storms.

What must be considered is that Wayne County was once one of the fastest growing counties in the Commonwealth. Along with this came an increase in population that is not transient. As the population of the county grew, the number of vehicles for transport and services delivery also increases the risk of this hazard. As of 2014, the county's population has leveled because members of the youngest generation have been leaving, but the aging population keeps this hazard and its demands on services steady.

Snow removal and utility repair response activity is well-honed for typical events; warming shelters or mass care shelters are opened by the Wayne County Emergency Management Agency when warranted.

HUMAN-CAUSED HAZARDS

4.4.9 Dam Failures

4.4.9.1 Location and Extent: Pennsylvania has over 2,400 dams and reservoirs, many of which are potentially dangerous. Dam failures cause serious downstream flooding either because of partial or complete collapse. Failures are usually associated with intense rainfall and prolonged flood conditions; however, dam breaks may occur during dry periods as a result of progressive erosion of an embankment. The greatest threat from a dam break is to areas immediately downstream.

4.4.9.2 Range of Magnitude: The sheer number of dams (150+ as of Summer 2015) in the county is staggering. Most of Wayne County's dams serve as recreational dams for the many county lakes. Of these, 53 are considered to pose a potential threat to the county. However, due to the small size of the large majority of county dams, a low hazard is considered to exist.

Lake Wallenpaupack Dam creates the largest lake and separates Wayne and Pike counties. It is owned by PPL and is also a hydroelectric power generation facility. PPL built Lake Wallenpaupack in 1926 as a hydroelectric plant. The Wallenpaupack hydroelectric plant is operated remotely from a control center 85 miles away in Allentown, Pa. The plant is owned by a subsidiary of PPL Generation, and had its operating license last renewed in July 2005 by the Federal Energy Regulatory Commission (FERC). Lake Wallenpaupack also serves as a flood control resource for the Lackawaxen and Delaware rivers. The lake's ability to hold water and store it for gradual release at an appropriate time helps to limit the effects of flooding downstream.

According to the County Engineering Department, there are 11 high hazard dams owned by County (waiting for list to be emailed). Of the 117 privately owned dams, 35 of them are Category 1 (27) or 2 (8), which the Pennsylvania Department of Environmental Protection (DEP) considers high hazard. Therefore, in summary, of the 150+ dams throughout the County, 51 (1/3 of total) are considered high hazard.

According to the Pennsylvania Fish and Boat Commission website, five of the high hazard dams in Wayne County are Commonwealth-owned and managed:

Name of Dam	County	Estimated Cost	Funding Source	Project Status	Additional Information	
Belmont	Wayne	\$4.275 M	Unidentified	Pre-design initiated	nearby lakes	lake info
Hankins	Wayne	\$0.3 M	Unidentified	Preliminary planning initiated	nearby lakes	lake info
Lower Woods	Wayne	\$7.9 M	Unidentified	Pre-design initiated	nearby lakes	lake info
Miller	Wayne	\$6.5 M	Unidentified	Preliminary planning initiated	nearby lakes	lake info
White Oak	Wayne	\$6.55	Unidentified	Preliminary planning initiated	nearby lakes	lake info

This number is noteworthy when viewed on the Statewide map: Wayne County has four more Commonwealth-owned and managed high hazard dams than any other county in the Commonwealth: <http://www.fish.state.pa.us/dams/index.htm>.

Dams were originally built to meet the 100 year flood, but now DEP requires they meet the 500-year flood, based on 34 inches of continuous rainfall over a 72 hour period (historic rainfall amount in the Borough of Smethport (McKean County) during the 1940's).

4.4.9.3 Past Occurrences: During the floods of April 2005 and June 2006, there was insufficient reserve capacity at Lake Wallenpaupack. This caused the facility to release water. This release of water caused additional flooding in the Borough of Hawley and Palmyra Township. During the floods of June 2006, Big Bass Lake activated its Emergency Action Plan to protect the residents of Wayne and Lackawanna counties.

After the flooding of June 2006, PP&L formed a Flood Mitigation Committee to look into issues regarding that year's floods: *The Shoreline Committee for Lake Wallenpaupack*.

Following Super Storm Sandy in October 2012, the Army Corps of Engineers closely monitored the water levels and emergency spillways at the larger Wayne County dams; no breaches or damages were reported.

4.4.9.4 Future Occurrences: It is generally felt that the chances of a dam failure in Wayne County should remain low. With the exception of a few larger dams, the majority of the high hazard dams do not affect huge populated areas. In addition, the Emergency Action Plans developed for the dams should aid to minimize the danger to those persons deemed at risk. PPL manages the Lake Wallenpaupack lake level, in accordance with its FERC license, to support recreational uses and provide the maximum water-storage capability at times when flooding is most likely to occur. PPL maintains an Emergency Action Plan and conducts exercises in accordance with the requirements of Chapter 6 of FERC's Engineering Guidelines for the Evaluation of Hydropower Projects. The Emergency Action Plan is shared with response agencies who also participate in the exercises, all of which help to keep the vulnerability score low.

4.4.9.5 Vulnerability Assessment: However, this update of the mitigation plan draws attention to The Lake Cadjaw Watershed Association (LCWA) in its ongoing process to make the recommended repairs to the Lake Cadjaw Dam in hopes of keeping the lake intact. The Pennsylvania Department of Environmental Protection (DEP) in 2013 notified the LCWA of its intention to breach the Lake Cadjaw Dam if extensive repairs are not made to the existing dam. The association cannot do any work or continue to do any work unless and until it obtains a Waterways and Encroachment permit from the DEP. As of the writing of this Plan Update, the permit and the work were not in place and the dam remains on DEP's Unsafe Dam List. This poses a risk to the people who use Lake Cadjaw, as well as the residents of the 30-35 homes in Honesdale that are downstream from the lake and could be put in serious harm if the dam should ever falter or break. There are approximately 95 people in those homes, and there are hundreds of people who come to the downtown as tourists, commuters and visitors on a daily basis.⁵

The owner of the Tyler Hill Dam asked DEP in July 2014 for permission to breach that structure; however, the Tyler Hill Dam poses little threat to people and property.

4.4.10 Energy Emergencies

4.4.10.1 Location and Extent: Energy emergencies can be caused by a variety of conditions including shortages, localized imbalance of supplies, weather conditions, accidents or embargoes. Such emergencies have been experienced in the U.S., including the problems caused by rapid

⁵ A reference to conduct pre-storm response or mitigation activity at the Lake Cadjaw Dam has been included in the county's Emergency Operations Plan checklists.

price increases, which also have the effect of leaving homes and industry without the needed fuels.

4.4.10.2 Range of Magnitude: Energy hazards range in magnitude from a few hundred customers without power for several hours to most of the county being without power for days. See the history section.

4.4.10.3 Past Occurrences: Wayne County was affected by the November 1965 power outage that blacked out the entire northeastern United States. Wayne County experienced the effects of the fuel crisis of 1972-74 and again in 1976-77: long lines at the gas pumps. Provisions were made early in each crisis with key service stations to insure provisions were supplied for emergency vehicles.⁶

The majority of the electrical outages have been weather related, being caused by snow and ice storms or windstorms. Long-term outages include the spring 1997 snowstorm that brought down trees and wires, blacking out large portions of the county for days; and an August 1997 series of thunderstorms that left widespread outages.

In August 2003, a large portion of northeast and north central United States as well as a large portion of Canada was hit by an electrical outage. The portion of Wayne County that is served by PP &L was affected and was without power for several hours.

In January 2005, an ice storm caused major power outages affecting thousands of customers in Monroe, Carbon, Lackawanna, Wayne and Pike Counties. Because of the amount of equipment damage caused by the ice, some areas did not have power restored for over a week.

There was also a serious loss of power in 2011 for Tropical Storm Lee (at least 20,000 residents in Wayne County were without power at the highest report) but, according to the PPL (renamed PPL Electric Utilities), *Super Storm Sandy* in September 2012 struck the worst blow so far (Figure 4.14).

⁶ A discussion of these provisions will be included in the next revision of the county Emergency Operations Plan.

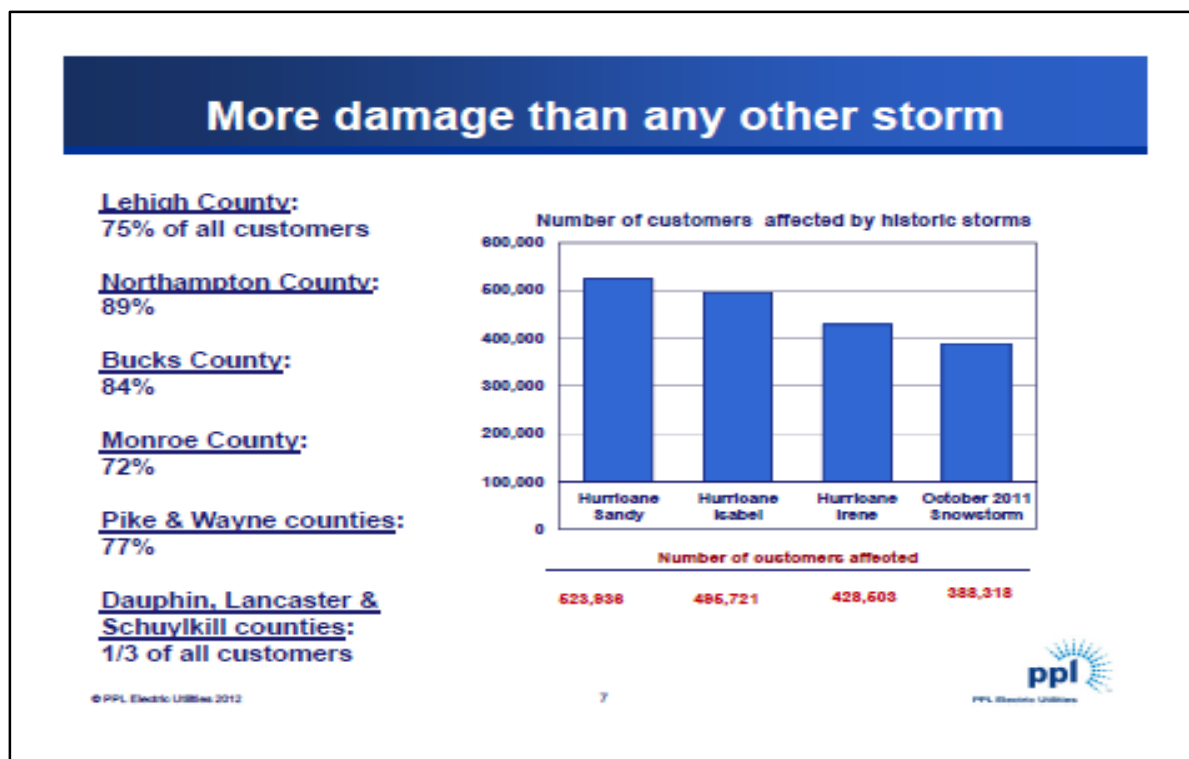


Figure 4.14

Source: PPL Electric Utilities Corporation

The county is also served by Penelec (3,506 customers in northern Wayne County) but the company reports no major impacts from storms in recent years.

4.4.10.4 Future Occurrences: The County can expect to continue to experience electrical outages of varying degrees, especially weather related situations. Trees are going to continue to fall and bring down utility lines. Severe weather over an extended period may cause a few localized problems. Most residents, especially those in rural areas, have alternate heat sources (e.g. wood-burning stoves, coal stoves, kerosene heaters, fireplaces) and prepare far ahead of the winter season.

Accidents, strikes or other situations may cause temporary localized problems, but it is felt that there would not be a time when residents would be without fuel or electricity for extended periods of time.

4.4.10.5 Vulnerability Assessment: The entire county is vulnerable to energy emergencies. With more and more services requiring the use of electronics, and the demand for electricity consistently on the rise, the loss of electricity can create major problems for many more individuals. The demand for electricity has increased, but unfortunately the ability to produce that electricity has not increased. Wayne County is served by a network of 69-kilovolt power lines. These lines are no longer adequate for customer needs. This is especially true in winter, when demand reaches its peak because of residential heating and cold-weather vacation activity. Another problem with the existing electric lines in the region is that they stretch great distances – up to 40 miles – to deliver power from substations to customers. This length makes customers more vulnerable to outages when lines are damaged by fallen trees and extreme weather. The combination of long distances and heavy load on

the lines makes it harder for PPL Electric Utilities to restore power after an outage, particularly during peak winter periods. This means that customers can be without power for an extended time, just when they need it most.

PPL re-built most of the existing 69-kilovolt line from Peckville to Honesdale in 2014 (90% completed at the writing of this Plan Update). The new substations and related 69-kilovolt short connector lines, and the new 230-kilovolt line, are expected to be placed in service in phases, starting in 2015 and running until 2017. Until then, the vulnerability remains as high as ever.

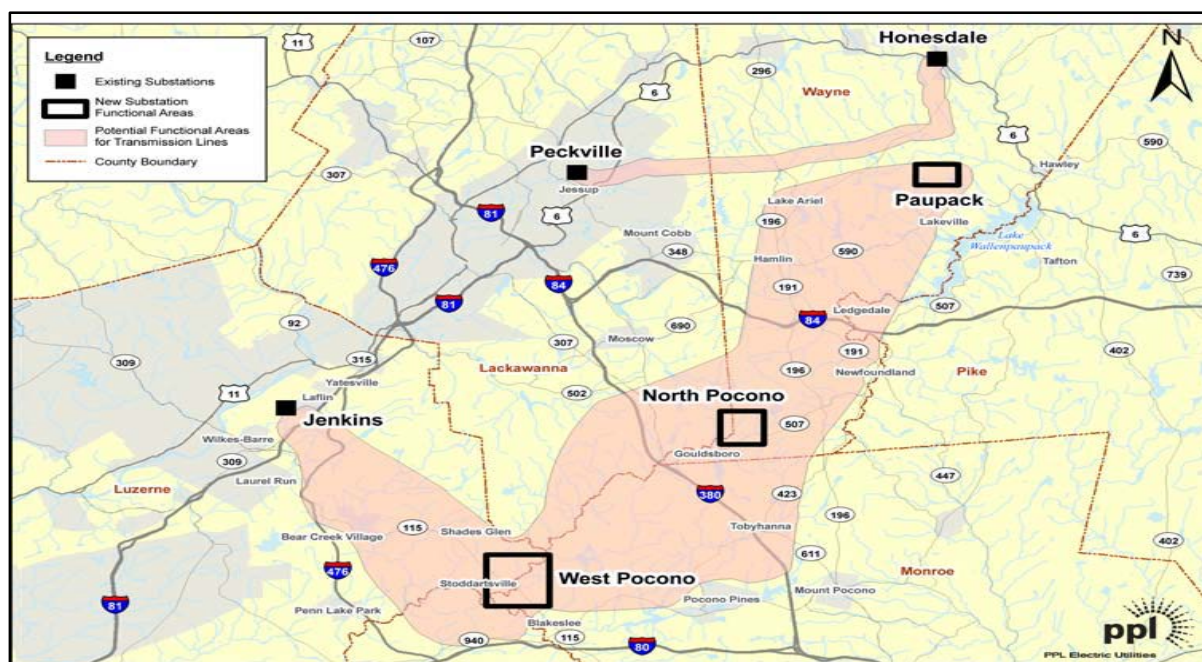


Figure 4.15

Source: PPL Electric Utilities Corporation

As a result of the increase in fuel prices, low-income households have become more vulnerable to utility shut offs and more frequent depletion of fuel supplies.

4.4.11 Fire Hazards

4.4.11.1 Location and Extent: Fire can be triggered or exacerbated by other disaster events such as floods, storms, drought, transportation accidents and hazardous materials accidents. Thus, fire as a secondary event may result in a very complex situation. The Wayne County Agricultural Land Use/Land Cover Study shows that almost 10% more of Wayne County was forested in 2002 than was forested in 1959. Forestland increased from 55.6% to 65.2%. Residential land covered 4% more of the County in that same period (1959 to 2002), increasing from 1.3% of the County to 5.3%.

4.4.11.2 Range of Magnitude: Fires are an ongoing threat to the communities in Wayne County. In 2014, the Wayne County Coroner's Office recorded three deaths resulting from structure fires. Since the writing of the 2008 mitigation plan, there have been 12 fire-related deaths within the county. According to the County Coroner's Office, eight of them were the result of structure fires, one

was the result of a vehicle fire, one was a camper fire death and two were the result of an airplane crash and fire. In calendar year 2014, the county 9-1-1 Center recorded 216 structure fires, six of them commercial buildings.

4.4.11.3 Past Occurrences: Since 1900, Wayne County has experienced at least nine major fire disasters:

One occurred in 1971, the Geiger Nursing Home fire, resulting in 15 deaths; the second occurred in 1978, the Allen Motor Inn fire caused by arson, resulting in 12 deaths.

January 1, 2000, Shaffer's Sawmill burned. The fire was ruled arson by the Pennsylvania State Police. Damage to the business was in excess of \$750,000. January 27, 2000, the second arson fire occurred at Klauss Wood Working with damages also exceeding \$750,000.

February 21, 2005 saw the total devastation of *Rusty Palmer's*. The business sells motorcycles, snowmobiles, four-wheelers and jet skis. Over 200 firefighters with 50 pieces of equipment were used to quell the fire. Route 6 was closed for the better part of the day. Damages were estimated at well over a million dollars.

September 14, 2005, BGM Fastener Company suffered a devastating fire. The fire destroyed the metal finishing building, offices, IT server room and a maintenance supply warehouse. Estimates of damage exceeded one million dollars.

In September 2013, a big business was destroyed by fire and immediately rebuilt. Two large structure fires also occurred in early 2014 in the midst of one of the worst winters in a 10-year period, and the Big Apple Country Tavern burned to the ground March 8.

On February 24, 2015, George Kinsman, Inc., a large tractor and lawn garden retail establishment, suffered a devastating fire. The fire destroyed the second and third floor of the business. <http://www.wayneindependent.com/article/20150304/NEWS/150309898/1995/NEWS>

4.4.11.4 Future Occurrences: Previous events indicate that annual wildfire occurrences in the County are expected. Weather conditions like drought can increase the likelihood of wildfires occurring. Any fire, without the quick response or attention of fire-fighters, forestry personnel, or visitors to the forest, has the potential to become a wildfire. There is virtually a 100 percent chance of a forest fire of some size occurring in any given year within Wayne County. However, the likelihood of one of those fires attaining significant size and intensity is unpredictable and highly dependent on environmental conditions and firefighting response. Overall, the probability of future wildfires can be considered highly likely according to the Risk Ranking (see Table 4.5.2.1). It is important to note that most wildfires in Pennsylvania are human-caused. As a result, the occurrence of future wildfire events will strongly depend on patterns of human activity. Events are more likely to occur in wildfire-prone areas experiencing new or additional development.

4.4.11.5 Vulnerability Assessment: The vulnerability of persons and property to fire depends on a number of factors. As the population of the county increased, the number of housing units increased, along with nursing homes, hotels, trailer parks, schools and new industry that would be especially vulnerable to a major fire. Meanwhile, as the population has been aging (and decreasing), some farmers are abandoning their crops for brush and most local fire departments have seen a decrease in membership. The result: an increased vulnerability to wild land fire that may impact housing units before response units may arrive. Further, a majority of the county does not have a central water supply system; it will be taxing for any of the departments to respond to a major fire with this triple (brush, volunteer decline, water supply) threat.

Mutual aid agreements exist with local fire departments in each of Wayne County's contiguous counties.

4.4.12 Fixed Nuclear Facilities

4.4.12.1 Location and Extent: A segment of Wayne County is located in the ingestion exposure pathway of the Wayne Steam Electric Station (SSES) located in Salem Township, Luzerne County.

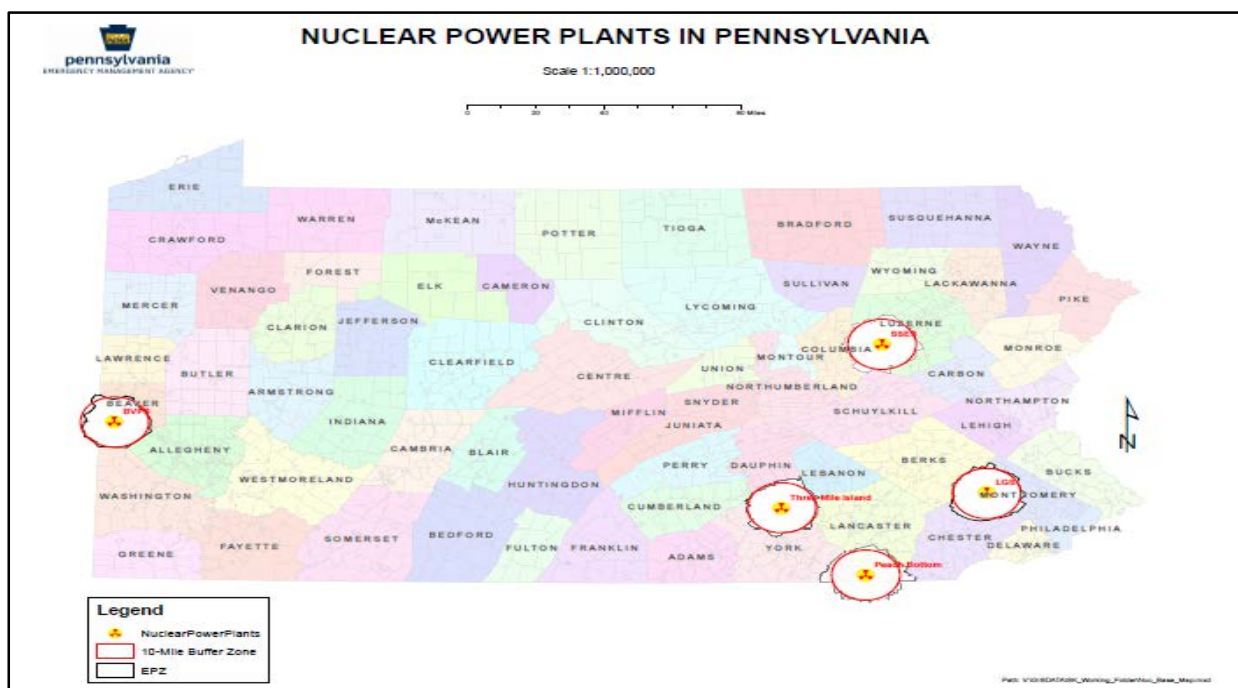


Figure 4.16

Source: Pennsylvania Emergency Management Agency, Technological Hazards Division

4.4.12.2 Range of Magnitude: An ingestion exposure pathway is the circle of 50 miles in radius around a nuclear power plant. Should an accident occur at a nuclear power plant, the area within this 50-mile radius of the plant may receive some radioactive contaminant in a very small amount. While such small amounts are of little concern in terms of external exposure, protection of the food chain – particularly milk – is important in preventing internal exposure due to ingestion of radioactive contaminants. In milk, for instance, there is a magnification effect, but harmful amounts could only be ingested over a period of time.

4.4.12.3 Past Occurrences: None.

4.4.12.4 Future Occurrences: Unlikely.

4.4.12.5 Vulnerability Assessment: If an accident should occur, state agencies would sample milk, livestock feed and forage, crops, farm water and public water supplies within the ingestion exposure pathway. Wayne County would be asked to assist in gathering samples, and, if requested by the state agencies, also participate in implementing controls of foods, foodstuffs and water.

The ingestion exposure pathway planning in the Commonwealth is required by federal regulation to be tested every eight years as a portion of the five power plants' biennial exercise schedule. No deficiencies or issues in ingestion exposure pathway planning were found in last ingestion exposure pathway exercise conducted at SSES in 2004. Hence, the risk is considered low. The next ingestion exercise will not occur until 2043.

4.4.13 Hazardous Materials

4.4.13.1 Location and Extent: The transport, storage and handling of hazardous materials are on the increase nationwide and with this fact is the potential for an increase in accidents. Neither Pennsylvania nor Wayne County is immune.

Hazardous materials fall into several general categories, such as flammable combustible materials, compressed gases, explosive and blasting agents, radioactive materials, oxidizing materials, poisons and corrosive liquids. Facilities that use, manufacture or store hazardous materials in Pennsylvania must comply with both Title III of the federal Superfund Amendments and Reauthorization Act (SARA) and the Pennsylvania Hazardous Materials Emergency Planning and Response Act (165 of 1990), as amended. The Wayne County Local Emergency Planning Committee (LEPC) is charged with development and monitoring of emergency response plans for SARA Title III facilities.

4.4.13.2 Range of Magnitude: According to the LEPC 2013 Update of its *Hazardous Materials Emergency Response Preparedness Assessment*, there are 33 fixed facilities in the county subject to the reporting requirements of SARA Title III and two in adjacent counties. Chemicals stored on-site include chlorine, sulfuric acid, formaldehyde and propane. Quantities are identified as minimal.

In addition, there have been several localized hazardous materials incidents in Wayne County over past several years. With one exception, the majority of incidents over the years have involved petroleum product spills along I-84 in Sterling Township. The majority of these were the result of traffic accidents and have had limited impact on people and the environment.

Marcellus Shale Formation: Recently (since 2008), energy companies have found attractive the natural gas extraction from the Marcellus Shale formation that sits below much of Pennsylvania (and the United States – see Figure 1.2 on page 2 of this Plan Update). The drilling methodology – known as fracking – presents the potential for additional hazardous materials incidents such as methane fires and the pollution of streams and drinking water. Fracking often requires horizontal drilling with millions of gallons of water – mixed with sand and other additives such as hydrochloric or muriatic acid – to “fracture” the formation and release the natural gas beneath. The fracking fluid that is recovered from this process must be properly treated as the water quality

is very poor and can be damaging to the environment and people. Some have expressed concerns about the normally occurring radioactive elements in shale that may end up in the recovered fluids.

The county has prepared a plan for its approach to Marcellus Shale drilling issues, but, as of the writing of this Plan Update, no actual drilling has occurred in Wayne County.

4.4.13.3 Past Occurrences: On March 18, 2006, Brighten at Julia Ribaud Nursing Home 100 gallons of heating oil was released into the environment. May 14, 2006, at mile marker 17 Interstate 84, 100 gallons of hydraulic oil was spilt on the roadway. August 14, 2006, 4,000 gallons of paint was spilt on Interstate 84 at the Hamlin Newfoundland exit. September 27, 2006, a 55-gallon drum of flammable liquid was spilt at the Twin Rocks Truck Stop parking lot. November 15, 2006, 90 gallons of diesel oil was spilt on Interstate 84 near the Hamlin exit. February 24, 2007, a UPS freight truck overturned on Interstate 84 spilling 100 gallons of diesel oil. June 1, 2007, a 500-gallon propane tank was leaking at the Agway Store in Lake Ariel, Lake Township. Homes in the immediate vicinity were evacuated. Agway employees responded and shut off the valve, stopping the leak and allowing residents back into their homes.

For this plan update, the 9-1-1 Center reported eight hazardous materials spills around the county in 2010, eight in 2011, six in 2012, three in 2013 and four in 2014. The October 2014 spill of #2 heating oil into Lake Ariel was the most environmentally significant, requiring boom mitigation in the lake and continuous monitoring that continued at the time of this Plan Update.

4.4.13.4 Future Occurrences: As seen by the numbers above, the probability of a hazardous materials accident is always present. During the summer months, a significant increase in traffic occurs, increasing the possibility of an accident. The Borough of Honesdale is the county seat and the largest populated area of the county on State Route 6. Several manufacturing plants are located in the borough, with two plants using hazardous materials.

With the county located in the northeastern most segment of the state, the probability of its highways being used for truck transportation is not likely to increase to any great degree; however, hazardous materials incidents will continue to pose a threat.

Marcellus Shale Formation: The county's 2010 Comprehensive Plan Update states that shale "is expected to make the county an important producer of energy needed by the nation." However, the number of permits awarded vs. the number of wells drilled tells a different tale, especially when compared to neighboring counties in northeastern Pennsylvania. A handful of test wells have been drilled in the county, but are not producing product. And in January 2014, the Pennsylvania Supreme Court gave back to local jurisdictions what Act 13 had taken away: the right to locally zone oil and gas drilling activities.

See: [Pa. Supreme Court jolts shale industry - Philly.com](#)

4.4.13.5 Vulnerability Assessment: Wayne County is highly rural and experiences few hazardous materials incidents in comparison to its more populated neighboring counties. It contracts with Datom Products as its hazardous materials response team; the team responded to eight hazardous materials spills in 2012 and was placed on stand-by 10 times during that same time period.

A listing of most hazardous materials types by area of concern and transportation modes which exist within the county are listed in LEPC documents and below:

1. Chemical distributors and/or users (including agricultural products)
2. Highways of major industrial traffic
3. Railroads
4. Pipeline
5. Airports
6. Gasoline, diesel, kerosene, heating oil, propane, service stations
7. Oil storage
8. Major waste source (municipal transfer station)

Major concerns for transportation related hazardous materials incidents are U.S. Route 6, Interstate 84, and State Routes 191, 652, and 590.

There once were two railroads that carried materials that could potentially impact the safety of Wayne County residents. One of these railroads, the Stourbridge, discontinued operations for several years but is expected to resume them in 2015. The other is Norfolk Southern, which is located in New York State. The Norfolk Southern rail lines run up the Delaware River, which separates Wayne County and New York. Norfolk Southern took over operation from ConRail approximately 26 miles of its Southern Tier Route along the Delaware River. A January 2001 listing of the top 50 commodities showed that approximately 6,000 car loads of hazardous materials were transported along this line in the previous year — liquefied petroleum amounted to 1,900 car loads. In January 2005, Norfolk Southern leased this line to Central New York Railroad, which is owned by the New York, Wayne and Western Railroad. This railroad discontinued traffic on the lines and has abandoned plans to improve the track but is keeping it patrolled and maintained for potential use or expansion (Summer 2014).

There is one natural gas pipeline that crosses the county, and two small airports, one located near Honesdale, the other located in Sterling Township; however, no incidents have occurred.

Interstate 84 is being used to transport low-level radioactive waste. Facilities located near main transportation routes are as follows: Route 191 — two schools, one nursing home. Route 6 — two schools, one hospital, and 2 shopping malls.

4.4.14. Levee Failure

4.4.14.1. Location and Extent: Levee failures, like dam failures, have the potential to place large numbers of people and great amounts of property at risk. Unlike dams, levees are built parallel to a river or another body of water to protect the population and structures behind it from risks of casualty or damage during flooding events. Levees do not serve a purpose beyond flood protection and, sometimes, as recreational space — unlike dams which can serve to store water or generate energy in addition to protecting areas from flooding.

Levee failures can be caused by a number of factors, and they can cause catastrophic effects. Damage to the area beyond a levee if it fails could be more significant than if the levee was not present (FEMA, 2008). Levees are designed to provide a specific level of protection, so flooding events could overtop the levees if these events exceeded the levee specifications. Additionally,

levees can also fail if they are allowed to decay or deteriorate, so regular maintenance of levees is critical.

Division	Org	FEMA Region	Cong. District	State	County	System Name	Segment	Sponsor(s)	Length (Miles)	Centerlines	Closure Structure Lines	Floodwall Lines	Crossing Points	Pump Station Points	Corps Program
North Atlantic	Phila.	Region 3	PA-10	PA	Wayne	Hawley	1	Hawley Borough, Wayne County, Pa	.89	<u>5</u>	<u>2</u>	<u>5</u>	<u>11</u>	<u>0</u>	Yes

Figure 4.17

Source: U.S. Army Corps of Engineers

The levee in Figure 4.17 was identified in the National Levee Database from the United States Army Corps of Engineers. At the Borough of Hawley, a swing gate and panel gate closure project have been completed. The swing gate now serves a railroad crossing of the flood control levee, and can be closed in minutes. The removable aluminum panel system provides rapid flood protection at the Church Street crossing of the levee. Both closures form a watertight barrier, and replace the labor intensive and time-consuming sand-bagging. When the Lackawaxen River reaches extreme flood stage, the existing levee system and installed closures will protect the northwest section of town from floodwaters.

4.4.14.2. Range of Magnitude: A levee failure or breach causes flooding in landward areas adjacent to the structure. The failure of a levee or other flood protection structure could be devastating depending on the level of flooding for which the structure is designed and the amount of landward development present. Large volumes of water may be moving at high velocities, potentially causing severe damage to buildings, infrastructure, trees and other large objects.

The environmental impacts of a levee failure result in significant water quality and debris disposal issues. Flood waters will back up sanitary sewer systems and inundate waste water treatment plants, causing raw sewage to contaminate residential and commercial buildings and the flooding waterway. The contents of unsecured containers of oil, fertilizers, pesticides and other chemicals get added to flood waters. Hazardous materials may be released and distributed widely across the floodplain. Water supplies and waste water treatment could be off-line for weeks. After the flood waters subside, contaminated and flood damaged building materials and contents must be properly disposed. Contaminated sediment must be removed from buildings, yards and properties. In addition, severe erosion is likely which can impact local ecosystems.

Levee failures are generally worse when they occur abruptly with little warning and result in deep, fast-moving water through highly developed areas. Since the only levee in Wayne County is located in one of the densest areas of the county, this concern is real for the residents of Hawley.

4.4.14.3. Past Occurrences: There have been no known levee failures in Wayne County.

4.4.14.4. Future Occurrences: Similarly to dam failures, given certain circumstances, levee failures can occur at any time. However, the probability of future occurrence can be reduced through proper design, construction and maintenance measures. Most levees are designed to meet a specified level of flooding. While FEMA focuses on mapping levees that will reduce the risk of a 1%-annual-chance flood, other levees may be designed to protect against smaller or larger floods. Design specifications provide information on the percent-annual-chance flood a structure is expected to withstand, provided that it has been adequately constructed and maintained. If the levee in Wayne County is properly maintained, the future occurrence of levee failure will continue to be considered *unlikely*.

4.4.14.5. Vulnerability Assessment: A levee typically protects the buildings and population within a 2,000 foot buffer. Critical facilities and parcels within a 2,000 foot buffer of the Hawley levee would be in danger from the effects of severe flooding if the levee failed. If population grows in the area protected by the levee, the risk to the residents and structures in this area will also increase.

4.4.15 Terrorism (Excerpted from the 2013 Commonwealth All-Hazards Mitigation Plan)

4.4.15.1 Location and Extent: Terrorism is a threat everywhere, but there are a number of important considerations in evaluating terrorism hazards, such as the existence of facilities, landmarks, or other buildings of international, national, or regional importance. High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Furthermore, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail (FEMA, April 2009). Nonetheless, terrorism can take many forms and terrorists have a wide range of personal, political, or cultural agendas. Therefore, there is no location that is not a potential terrorist target.

Of particular concern to Pennsylvania in general (and Wayne County in particular) are the many critical facilities upon which our residents depend. Police stations, hospitals, military installations, fire stations, schools, wastewater treatment plants, and nuclear power generation stations along with critical infrastructure such as bridges, tunnels, electric generation and distribution facilities, public water supplies, and government buildings may be potential terrorist targets. Damage to these facilities and infrastructure could cripple transportation routes and commerce. Additionally, there are over 3,300 SARA Title III facilities (33 of them in Wayne County) as well as many transportation routes vital to the entire nation traversing the Commonwealth, making intentional hazard material releases a potential threat to citizens and the environment.

4.4.15.2 Range of Magnitude: The term “terrorism” refers to intentional, criminal, malicious acts, but the functional definition of terrorism can be interpreted in many ways. Officially, terrorism is defined in the CFR as “...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives” (28 CFR §0.85). Terrorists use threats to create fear, to try to convince citizens of the powerlessness of their government, and/or to get publicity for their cause.

Terrorist attacks can take many forms, including agro-terrorism, arson/incendiary attack, armed attack, assassination, biological agent, chemical agent, cyber-terrorism, conventional bomb, hijackings, intentional hazardous material release, kidnapping, nuclear bomb and radiological agent

(FEMA April 2009). Explosives have been the traditional method of conducting terrorism, but intelligence suggests that the possibility of biological or chemical terrorism is increasing. The severity of terrorist incidents depends upon the method of attack, the proximity of the attack to people, animals, or other assets and the duration of exposure to the incident or attack device.

For example, chemical agents are poisonous gases, liquids or solids that have toxic effects on people, animals, or plants. Many chemical agents can cause serious injuries or death. In this case, severity of injuries depends on the type and amount of the chemical agent used and the duration of exposure. Biological agents are organisms or toxins that have illness-producing effects on people, livestock and crops. Some biological agents cannot be easily detected and may take time to develop. Therefore, it can be difficult to know that a biological attack has occurred until victims display symptoms. In other cases, the effects are immediate. Those affected by a biological agent require the immediate attention of professional medical personnel. Some agents are contagious which may result in the need for victims to be quarantined.

Cyber-Terrorism: In recent years, cyber-terrorism has become a larger threat than in years past. Cyber-terrorism can be defined as activities intended to damage or disrupt vital computer systems. These acts can range from taking control of a host website to using networked resources to directly cause destruction and harm. Cyber-terrorists can be difficult to identify because the internet provides a meeting place for individuals from various parts of the world. Individuals or groups planning a cyber-attack are not organized in a traditional manner, as they are able to effectively communicate over long distances without delay. One of the more prominent groups involved in large-scale hacking events recently is the group “Anonymous.” They have been known to overtake websites, and alter the content that is presented to the public. The largest threat to institutions from cyber-terrorism comes from any processes that are networked and controlled via computer. The Pennsylvania Criminal Intelligence Center (PACIC) issues monthly Critical Infrastructure/Key Resources and cyber reports (including prevention tips) via its list serve EVERYONE@LISTSERV.STATE.PA.US and site: SP-ProtectPA@pa.gov.

Active shooters, as defined by the U.S. Department of Homeland Security, is an individual actively engaged in killing or attempting to kill people in a confined area; in most cases, active shooters use firearm[s] and there is no pattern or method to their selection of victims. Recent high-profile incidents involving active shooters include: the Sandy Hook Elementary school shootings in Newtown, Connecticut and the shooting in the Aurora, Colorado movie theater in 2012 and the shooting in Tucson, Arizona involving U.S. Representative Gabrielle Giffords in 2011. Historical active shooter events include the Virginia Tech shootings, the Columbine High School shootings and the University of Texas, Austin shootings. No substantive research has yet been compiled to address the potential vulnerability to an active shooter incident. As a very open, public society, these incidents are easier to accomplish for those bent on doing harm. Some of these incidents have occurred in public places, and some in places that are considered more restricted (like elementary schools and high schools). There is no discernible pattern to the location chosen by the shooter.

Instances of terrorism in the Commonwealth have thus far been limited; in the September 11, 2001 attacks, while United Flight 93 crashed in Pennsylvania, its target lay elsewhere. In this incident, four individuals hijacked the plane with the intent of crashing it into a target in Washington, DC. They failed to reach their destination, and all 40 passengers and crew members on board perished.

The worst-case scenario for a terrorism event in Pennsylvania would be if a “dirty bomb” combining radioactive material with conventional explosives were to be detonated in Center City Philadelphia at lunchtime on a weekday. At that time of day and location, a significant number of individuals would be exposed to the bomb’s radiation both at the time of detonation and after the fact as the radiation spread. The explosive device could damage or even topple buildings, spark utility outages citywide, and/or ignite large-scale urban fires.

4.4.15.3 Past Occurrences: According to the 2013 *Commonwealth All-Hazards Mitigation Plan*, a total of 2,833 incidents of suspected terrorist activity and threats were reported to the Pennsylvania Emergency Incident Reporting System (PEIRS) between 2001 and 2009. The vast majority of these reports were of bomb threats – both general and at schools. During that same time period, there were 2,773 reports of suspicious activity, devices, packages, substances. There is a clear spike in both sets of reports following the jitters of September 2001.

4.4.15.4 Future Occurrences: Based on historical events, Pennsylvania can expect to experience several terrorist incidents and suspicious activities each year. Note that this estimate is based on the occurrence of past events over a short period of time and is not the result of detailed statistical sampling. Although previous events have not resulted in what are considered significant terrorist attacks, the severity of a future incident cannot be predicted with a sufficient level of certainty. Prediction of terrorist attacks is almost impossible because terrorism is a result of human factors. As long as fringe groups maintain radically different ideas than that of the government or general population, terrorism is a possibility.

4.4.15.5 Vulnerability Assessment: The probability of Wayne County becoming a terrorism target should remain relatively low; however, because of its proximity to other more vulnerable areas, it is no less in the realm of possibility. Further, and according to the county 2010 Comprehensive Plan Update, “there is a relentless push westward of development from the New York metropolitan area.” The County would experience significant emergency management and infrastructure issues with the influx of people from the metropolitan area seeking refuge or protection with friends and family who are already here.

Although the county does not have a large number of facilities that might be considered targets of terror, it does have the types of facilities that are considered soft (or vulnerable) targets, such as school complexes, shopping areas, and government buildings – including jails, water distribution systems and dams, power plants and communications systems. Protection of the databases and infrastructure that run or assist with running Wayne County government, public services, energy generation and water supplies are not protected with world class state-of-the art mechanisms. Any vulnerability that could allow access to sensitive data or processes puts the county’s ability to protect, feed, and communicate with its citizens, its neighbors and its State government in jeopardy. Other seasonal soft targets, such as campgrounds and resorts, abound.

4.4.16 Transportation Incidents

For this analysis, a transportation incident is defined as a situation involving highway, air or rail-travel, resulting in death, serious injury, extensive property loss or damage or situations that cause delays or closures. Accidents related to hazardous materials are considered as part of the hazardous materials section. This analysis includes the location of all public and private airports,

locations of passenger and freight rail lines and highways where major accidents are likely to occur.

4.4.16.1 Location and Extent: The highway system consists of 6.3 miles of interstate, 748.2 miles of State and Federal highways and 337.4 miles of secondary and municipal routes for a total of 1,091.9 miles. The major highways in Wayne County are as follows: U.S. Route 6, Interstate 84, and State Routes 191, 652 and 590. One hundred percent of the school students attending the county's three school districts requires transportation.

There are two small airports in Wayne County, Cherry Ridge Airport located in Cherry Ridge Township and Spring Hill Aviation located in Sterling Township.

4.4.16.2 Range of Magnitude: Traffic of all types along all of the roadways within the county has increased tremendously over the past several years. Unfortunately many of the roads were not designed to handle the volume. Many have little or no shoulder and many larger vehicles, including school buses, pass each other with only limited distance between them.

Marcellus Shale Formation – Neighboring counties attest to the exponential increase in truck traffic on the back roads in support of natural gas drilling operations. Due to the amounts of water needed for the drilling technology, large numbers of large water-bearing trucks are a constant challenge to the road network and its infrastructure.⁷ According to the magazine, *The Municipal*, the “73,000- to 80,000-pound load vehicles make thousands of trips through small towns and over rural roads not designed for this type of weight. These roads, which may only have two inches of asphalt over dirt, quickly “alligator” and deform, or deteriorate rapidly back to dirt roads.” Figures 4.18 and 4.19 accompanied *The Municipal* article of November 7, 2013.



Figure 4.18
Source: The Wayne Independent



Figure 4.19
Source: The Wayne Independent

4.4.16.3 Past Occurrences: From 1980 to 2006, there were 230 fatalities from transportation accidents in Wayne County as recorded by the Wayne County Coroner's Office. Since the writing of the mitigation plan in 2008, another 51 are recorded. The county comprehensive plan also notes an alarming increase in pedestrian accidents along Route 6.

⁷ The next update of the county comprehensive plan will document plans and resources identified for this issue.

There have been no major air accidents within the county. To date, Spring Hill Aviation has not had a reported accident. However, there have been small plane accidents that include the following:

June 29, 1992, a small plane was observed flying at low altitude just before striking the trees in Mount Pleasant Township resulting in one fatality and one seriously injury.

August 1, 1992, a single engine plane had started to turn and descend and it struck the ground. It was believed that the pilot had a heart attack while in flight which caused the plane crash. The pilot was killed.

December 16, 1993, witnesses in White Mills Texas Township observed the plane in a rolling maneuver, followed by the separation of the left wing which caused the plane to crash into the trees, killing the two people on board.

October 21, 1994, a Cessna 172 was substantially damaged during a forced landing at Cherry Ridge Airport. There were no injuries.

July 22, 1995, a Pitts S-2S, impacted trees while performing aerobatics during an air show near the Cherry Ridge Airport. The pilot received serious injuries and the airplane was substantially damaged.

October 16, 1995, a Piper PA-32-260, was substantially damaged during a forced landing at the Cherry Ridge Airport. The pilot and passenger were not injured.

December 12, 1999, an Israel Aircraft Industries airplane was destroyed after impacting terrain near Gouldsboro, Lehigh Township. The two certified airline pilots and a passenger were fatally injured.

April 22, 2001, a Cessna 172 K was substantially damaged during a landing at Cherry Ridge Airport. The pilot was not injured.

June 11, 2001, a turbine-powered Cessna, was destroyed during a forced landing near Honesdale. The two certified pilots and passenger were fatally injured.

May 30, 2002, a Cessna was destroyed when it impacted terrain in Mount Pleasant Township. The pilot and passenger were fatally injured.

March 15, 2003, a Cessna was substantially damaged when it collided with a snow bank during the landing rollout at Cherry Ridge Airport. There were no injuries.

In May of 2012, there were three small airplane crashes within three days of each other, resulting in three fatalities and four injuries.

Other than a flood-damaged trestle bridge in Hawley, there have been no accidents, injuries or destruction of property on the Stourbridge rail line.

4.4.16.4 Future Occurrences: According to the county Comprehensive Plan, the school population is declining and the percentage of the population that is aging is striking. This suggests

a possible exchange of transportation hazards from bus accidents to auto accidents.⁸

4.4.16.5 Vulnerability Assessment: Rail traffic has declined in the area since the mid-1970s. The Norfolk Southern Railway impacts the county from New York and its original plans to increase traffic along the route have not materialized and do not appear that they will at any time soon. Wayne County also is in close proximity of Wilkes-Barre-Scranton Airport in Avoca, Pennsylvania and is in its approach patterns.

The county is host to only six miles of interstate highway, where the most serious accidents are known to occur due to volume and heavy freight vehicles; more miles of interstate highway are not planned. However, considering the current transportation network within this rural county and the steady increase in local, tourist (especially during the peak travel and hunting seasons June through December) and aging driver traffic, it can be assumed that unless the highways are improved or controlled or supplemented with mass transit system support to coincide with the traffic volumes and hazards (see footnotes 4 and 5), the number of accidents and fatalities will continue to increase. Incidents involving air or rail should remain low.

⁸ The next revision of the county comprehensive plan will document plans and resources identified for this issue.

4.5 Wayne County Hazard Vulnerability Summary

4.5.1 Methodology

The first vulnerability analysis for the County was drafted in the late-1980's. The Wayne County Emergency Management Agency developed the County's full Hazard Vulnerability Analysis in August 2006 and it is updated in this Plan Update with the assistance of the Wayne County Emergency Management Agency, the Plan Update planning committee, the county's local Emergency Management Coordinators (EMCs) and the Wayne County Local Emergency Planning Committee (LEPC).

Natural hazards, primarily flood events, continue to pose the most serious and most repetitive threat to life and property within the county. The consensus among the participants surveyed in the hazard identification process selected three natural hazards of most concern to them as emergency managers and those are the ones on which most emphasis is placed in this Plan Update.

Table 4.5.1 Risk Assessment – Cumulative responses to survey of hazards in Wayne County

H = HIGH (extremely concerned); M = Medium (moderately concerned); L = Low (marginally concerned)

Municipality	Flood	Winter Storm	Wind	Drought	Earthquake	Dam Failure	Hazardous Materials/Shale	Fire	Transportation	Energy	Nuclear Power Plant	Terrorism	Cyber Crime
COUNTY	H	M	H	M	L	M	M	M	M	H	L	L	M
Berlin	M	H	M	H	L	L	M	M	M	M	L	L	L
Bethany	H	H	M	H	L	L	L	M	L	M	L	L	L
Buckingham	H	H	M	H	L	H	L	H	L	M	L	L	L
Canaan	H	H	M	H	L	M	M	M	H	M	L	L	L
Cherry Ridge	H	H	M	H	L	M	M/L	M	H	H	L	M	M
Clinton	H	H	M	H	L	L	L/M	H	M	H	L	L	L
Damascus	H	H	M	H	L	H	L/H	L	L	M	L	L	M
Dreher	H	H	M	H	L	M	L	L	M	M	L	L	L
Dyberry	H	H	M	H	L	M	L	L	M	M	L	L	L
Hawley	H	H	M	H	L	M	L	L	L	M	L	L	L
Honesdale	M	H	M	H	L	L	L	L	L	L	L	L	L
Lake	M	H	M	H	L	L	L	L	L	L	L	L	L
Lebanon	H	H	M	H	L	L	L	L	L	M	L	L	L
Lehigh	H	H	M	H	L	M	H	M	M	H	L	L	L
Manchester	H	H	M	H	L	M	L	L	M	M	L	L	L
Mt. Pleasant	H	H	M	H	L	M	L	L	M	L	L	L	L
Oregon	H	H	M	H	L	L	L/M	L	L	L	L	L	L
Palmyra	H	H	M	H	L	M	L	L	M	M	L	M	L
Paupack	M	H	H	M	L	M	M	M	M	L	L	L	L
Preston	H	H	M	H	L	M	M	M	L	M	L	L	L
Prompton	H	H	M	H	L	H	M	M	M	M	L	L	L
Salem	H	H	M	H	L	M	M	L	M	M	L	L	L
Scott	H	H	M	H	L	L	L/H	H	H	L	L	M	L
S. Canaan	H	H	M	H	L	H	M	L	M	H	L	L	L
Starrucca	H	H	L	H	L	H	M	L	M	M	L	L	L
Sterling	H	H	L	H	L	L	M	L	M	L	L	L	L
Texas	H	H	M	H	L	L	L	M	H	H	L	L	M
Waymart	H	H	M	H	L	H	L	L	M	L	L	L	M

Using the Severity and Risk Factor Index tool in the federal mitigation toolbox, values were obtained by assigning varying degrees of risk to each hazard profiled in this Plan Update in order to arrive at relative risk scores, and therefore prioritize these hazards as ranked against one another. This prioritized ranking allows Wayne County officials, emergency managers and mitigation specialists to award scarce resources where they are best targeted.

4.5.2 Ranking

THREAT EVENT	PROBABILITY	SEVERITY	RISK FACTOR
			RELATIVE RISK
	<i>Relative likelihood this will occur</i>	<i>Relative Severity (Overall Impact)</i>	<i>(Probability times severity)</i>
SCORE	1 = N/A 2 = Doubtful 3 = Possible 4 = Probable 5 = Inevitable	1 = Minimal 2 = Minor 3 = Moderate 4 = Significant 5 = Severe	1 = Lowest 25 = Highest

4.5.2.1 Ranking Results

Table 4.5.2.1 Ranking Results			
THREAT EVENT	PROBABILITY	SEVERITY	RISK FACTOR
	<i>Relative likelihood this will occur</i>	<i>Relative Severity (Overall Impact)</i>	<i>RELATIVE RISK (Probability times severity)</i>
Drought	3	3	9
Earthquake	2	3	6
Flooding	5	4	20
Winter Storm	5	3	15
Dam Failure	3	2	6
Energy Emergencies	3	3	9
Fire	4	1	4
Fixed Nuclear Facilities	2	2	4
Hazardous Materials (includes fracking)	4	2	8
Terrorism (includes cyber-crime)	2	4	8
Transportation Accidents	5	1	5

4.5.3 Potential Loss Estimates⁹

General Building Stock Damage

Housing stock and businesses in the 100-year floodplain number 838, according to the Wayne County Planning Department in 2014, or 1.99% of all structures. This number represents \$94,386,400 in assessed improvement value against a backdrop of \$4,215,967,927 in total assessed improvements in the county. The software known as Hazards U.S. (HAZUS) estimates that about 193 of these buildings will be at least moderately damaged. This is over 66% of the total number of buildings in the scenario. There are an estimated 96 buildings that will be completely destroyed.

Essential Facility Damage: None.

Induced Flood Damage/Debris Generation

HAZUS estimates the amount of debris that will be generated by the 100-year flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris. The model estimates that a total of 28,222 tons of debris will be generated. Of the total amount, Finishes comprises 31% of the total, Structure comprises 39% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 1,129 truckloads (@25 tons/truck) to remove the debris generated by the flood.

Social Impact/Shelter Requirements

HAZUS estimates the number of households that are expected to be displaced from their homes due to the 100-year flood and the associated potential evacuation. HAZUS also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 837 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 1,896 people (out of a total population of 51,548) will seek temporary shelter in public shelters.

4.5.4 Future Development and Vulnerability

To identify areas of future development in Wayne County, the 2010 Comprehensive Plan was reviewed as part of the Plan Update. As part of the planning process for the Comprehensive Plan, the natural resource information was combined and synthesized to illustrate the relative level of constraints affecting various areas of Wayne County (*Figure 4.20*). These features, including floodplains, wetlands, slopes, and hydric soils, represent environmentally sensitive natural and scenic resources as well as potential constraints for future development.

Floodplains and wetlands, and the waterways around which they often cluster, are generally precluded from development due to the flood risk and the substantial and still evolving regulatory framework that controls the degree and type of disturbance permitted in these areas. Floodplains and wetlands qualify as being very severe constraints for development and represent ~6.3% and ~6.6% of total county acreage, respectively. Steeply sloped areas pose severe constraints for most development (~6.6% of total county acreage), while hydric soils represent moderate constraints for development (~6.7% of total county acreage). The balance of the county has only slight

⁹ Building stock is not significantly changed from the 2008 plan; hence, the earlier HAZUS results are included here.

development limitations. The data sources for this map, compiled by the Wayne County Planning/GIS Department, are: the U.S. Department of Agriculture, Natural Resources Conservation Service, 2008; the U.S. Department of Homeland Security, Federal Emergency Management Agency, 2013; the U.S. Department of the Interior, Fish and Wildlife Service, 2013; and the Wayne County Department of Planning/GIS, 2014 (Derek F. Williams, April 2014).

Over the course of the past decade, the average number of new development lots was 130. The year with the most new lots developed was 2005, with 279. The 71 new lots in 2014 represent the third lowest yearly total of the past decade, and reflect the declining population of the county. A total of 124 subdivision or land development applications were reviewed in 2014 by the Wayne County Planning Department, down from 300+ in 2005.

All of Wayne County's critical facilities and key resources (see list at [Appendix C](#)) may be at some degree of risk to one or more of the hazards profiled in this Plan Update. Of particular concern is loss of power to any of them or worse, several of them in the same event. Hence, one important mitigation project in Section 6 is the purchase of generators for those facilities that have not yet acquired them.

Potential Development Constraints, Wayne County

Floodplains, Hydric Soils, Steep Slopes, and Wetlands

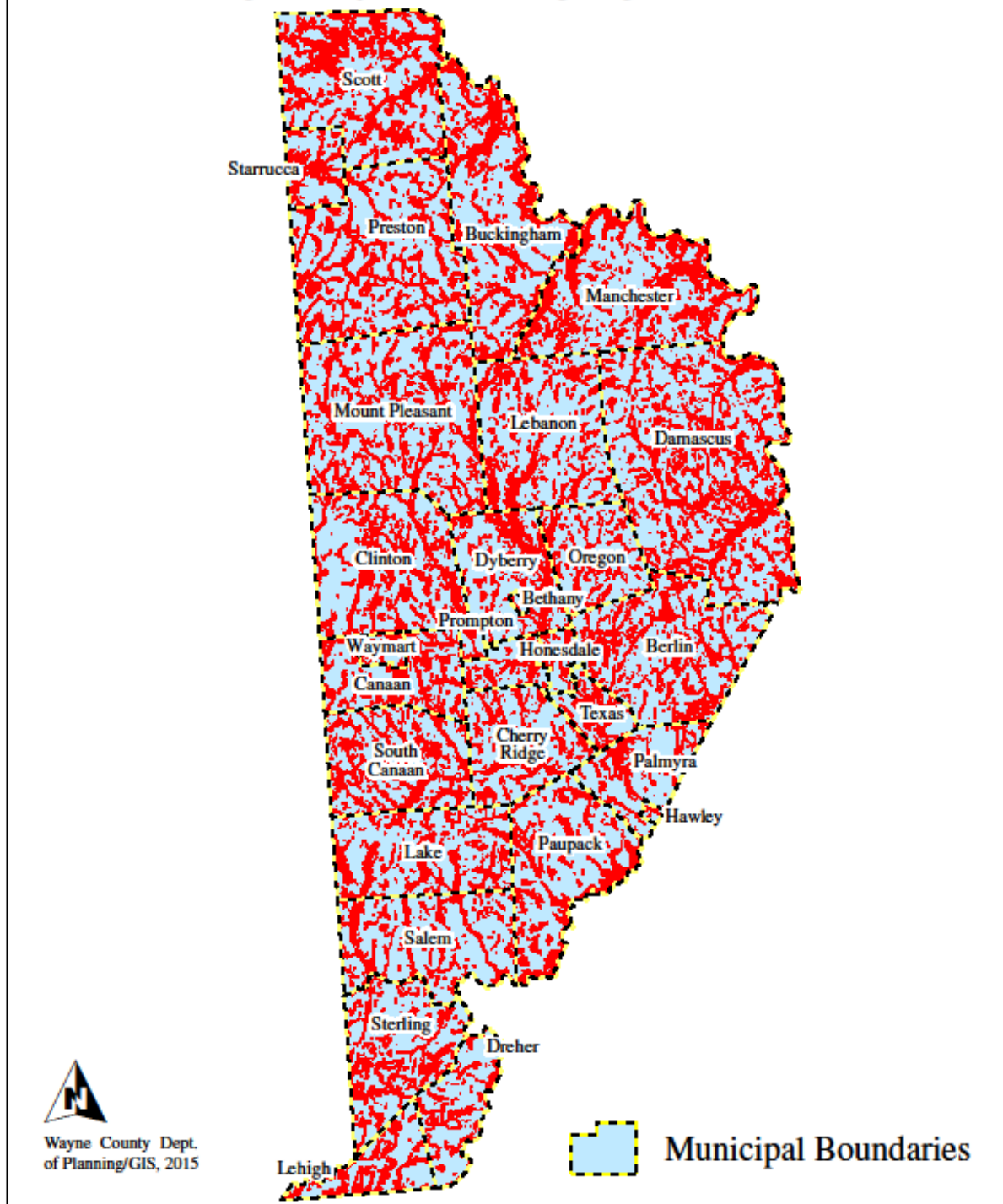


Figure 4.20
Source: Wayne County Planning Department

Section 5 — Capability Assessment

5.1 Federal Requirements for the Planning Process:

§201.6(b): Review and incorporate, if appropriate, existing plans, studies, reports, and technical information.

5.2 Update Process Summary

Wayne County has a number of resources it can access to implement hazard mitigation initiatives, including emergency response measures, local planning and regulatory tools, administrative assistance and technical expertise, fiscal capabilities, and participation in local, regional, state, and federal programs. The presence of these resources enables community resiliency through actions taken before, during, and after a hazard event.

The 2008 Hazard Mitigation Plan identified the most commonly used resources available in Wayne County to support hazard mitigation. The 2008 capabilities chapter addressed municipal and local, county, state, and federal capabilities; this information was incorporated into the 2015 Plan Update by updating and arranging the existing information to match the sections for Emergency Management, Participation in the NFIP, Planning and Regulatory Capability, Administrative and Technical Capability, Fiscal Capability, Political Capability, Self-Assessment, and Existing Limitations in the State Standard Operating Guide. Information in the capability section was updated and augmented through information collected on capability assessments completed at the stakeholder meetings. The 2015 Plan Update provides an updated inventory of the most critical local planning tools available within each municipality and a summary of the fiscal and technical capabilities available through programs and organizations outside of the County. It also identifies emergency management capabilities and the processes used for implementation of the National Flood Insurance Program.

While the capability assessment serves as a good instrument for identifying local capabilities, it also provides a means for recognizing gaps and weaknesses that can be resolved through future mitigation actions. The results of this assessment lend critical information for developing an effective mitigation strategy.

5.3 Capability Assessment Findings

Based on the capability analysis, Wayne County is in good condition to assess its current resources and begin to address the legal, regulatory, administrative, fiscal and other capabilities which it currently has at its disposal to address the potential hazards to which the County and its local municipalities are vulnerable. But there are some areas where improvements can be made. Table 5.3.1 depicts the county's 2013-14 self-assessment of its capabilities:

JURISDICTION: 22 Townships, Six Boroughs

Table 5.3.1 Self-Assessment							
Planning and Regulatory Tool/Program	In Place	Date	In Dev .	Agency Responsible	Effect +/0/-	Change Since Last Plan +/-	Comments
Hazard Mitigation Plan			X	Commissioners, County EMA		+	
Emergency Operations Plans	X	See last column		County & Municipal EMAs	+		County EOP March 2012; all municipal EOPs are current within three years
Disaster Recovery Plan	X	3/2012		County EMA	+	+	
Evacuation Plan	X	3/2012		County EMA	+	0	Hawley borough, too – plus a siren system for Lake Wallenpaupack dam break
COOP/COG	X			County Commissioners	+	+	Municipal Template available Summer 2013
NFIP Membership	X	5/16/13		County Planning Dept.	+	+	New Flood Insurance Rate Maps (FIRMs) for all 28 municipalities; all NFIP compliant but one (see page 58.)
Community Rating System				All Municipalities	-	0	Potential mitigation strategy
Floodplain Regulations	X	5/16/13		County and Municipalities	+	+	
Floodplain Man. Plan	X	5/16/13		County and Municipalities	+	+	New FIRMs May 2013; see page 63
Zoning Regulations	X			All Municipalities	0	0	See zoned municipalities in section 5.3.3.
Subdivision Regulations	X			25 Municipalities	0	0	25 of 28 municipalities maintain independent subdivision regulations; Dyberry, South Canaan and Prompton are governed by the County SALDO.
Compreh. Land Use Plan	X			County Planning Dept.	+	0	Updated in 2010.
Open Space Plan	X			County Planning Dept.	+	0	
Storm Water Man. Plan	Yes/ No			Municipalities	+	0	About half and half; the municipalities that adjoin or encompass major run-off tributaries do; see page 63
Natural Resources	X			County Planning Dept.	+	0	Part of the county comprehensive plan
Economic Development	X			County Economic Dev. Corporation (WEDCO)	+	0	Wayne Economic Development Corporation
Historic Preservation	X			Wayne County Historical Society captures historical preservation activity.	+	0	The municipalities of Buckingham, Clinton, Honesdale, Mt. Pleasant, Sterling and Waymart also maintain historic preservation efforts.
Farmland Preservation	X			Wayne County Agricultural Preservation Board	+	0	Included in county comprehensive plan.

Planning and Regulatory Tool/Program	In Place	Date	In Dev	Agency Responsible	Effect +/0/-	Change Since Last Plan +/-	Comments
Building Code	X			Townships and Boroughs			Some adopted BOCA.
Fire Code	X						Part of the Building Code
Storm Ready	Yes			County EMA			

Administrative and Technical Tool/Program	Y	No	Agency Responsible	Comments
	e			
	s			
Planners for land use/land development	X		County planning dept.	
Planners or engineers with knowledge of hazards	X		County engineer	
Engineers or staff trained in building and infrastructure construction (inspectors)	X		County engineer	Many municipalities maintain contracts for specialized services such as these
Emergency manager	X		County and all 28 municipalities	
Floodplain manager	X		County and all 28 municipalities	Building permit officers
Land surveyors	X		County	Many municipalities maintain contracts for specialized services such as these
Scientists or staff familiar with community hazards	X			At county level
GIS or HAZUS	X		County planning dept.	At county level; will assist any municipality upon request
Grant writers or fiscal staff to handle complex grants	X		County	A handful of municipalities, too

Financial Resources	Y	No	Agency Responsible	Comments
	e			
	s			
Capital Improvement Programming	X		County Commissioners	
CDBG Grants	X		County Redevelopment Authority	Hawley, Honesdale and Salem boroughs, too
Special Purpose Taxes		X		
Gas/Electric Utility Fees		X		Exceptions: Clinton, Hawley and Waymart do
Water/Sewer Fees		X		Exceptions: Clinton and Waymart do
Storm Water Utility Fees		X		
Development Impact Fees		X		
General Obligation, Revenue or Special Tax Bonds	X			County has bonds; \$1 million of county bond funds went to build a new county emergency operations/911 center after the previous one was flooded multiple times.
Partnering or Inter-Governmental Cooperation Agreements	X		County & all 28 Municipalities	Emergency Services, Northeast Regional Task Force
EMPG		X		
HMGP		X		
HSGP		X		

Political Capability	SCORE 0 (low) to 5 (high)	Political Capability	SCORE 0 (low) to 5 (high)
Berlin Township	5	Manchester Township	
Bethany Borough	0	Mt. Pleasant Township	4
Buckingham Township	3	Oregon Township	5
Canaan Township	3	Palmyra Township	4
Cherry Ridge Township	2	Paupack Township	5
Clinton Township	2	Preston Township	2
Damascus Township	2	Prompton Borough	
Dreher Township		Salem Township	4
Dyberry Township		Scott Township	2
Hawley Borough	4	South Canaan Township	
Honesdale Borough	4	Starrucca Borough	
Lake Township	2	Sterling Township	1
Lebanon Township	3	Texas Township	
Lehigh Township		Waymart Borough	5

Where no scores are noted, results were unobtainable as of the writing of this Plan Update.

5.3.1 Planning and Regulatory Capability

While there are many opportunities and avenues for implementing hazard mitigation opportunities throughout the County, there are two basic approaches, which are key:

- 1) Development and implementation of local land use tools; and
- 2) Administrative planning, partnership, and educational initiatives.

Both of these approaches can provide significant and "cost effective" opportunities for hazard mitigation.

The approach which uses land use tools and ordinances is aimed at minimizing impacts of hazards on our residents and communities by developing provisions in local ordinances, such as subdivision, zoning, floodplain, storm water, building permit or other such ordinances, that provide standards which when implemented can help to minimize the impact of some types of hazards on our County and communities by integrating preventive measures into these local ordinances.

Wayne County has no zoning ordinance administered at the County level. There are three municipalities in Wayne County that have not adopted a Subdivision and Land Development Ordinance (SALDO); they are Dyberry, South Canaan Township and Prompton Borough and their land subdivision requirements are administered by the Wayne County Planning Commission. Clinton Township adopted their own SALDO, effective January 1, 2008, shortly after the crafting of the original hazard mitigation plan. The remaining 25 townships and boroughs have adopted individual ordinances and land development decisions are made locally. However, the County does have a review and comment role in these 25 municipalities.

In Wayne County, all land use controls are at the local Township and Borough levels. Figure 5.1 summarizes the most recent 16 basic land use ordinances that are used by Wayne County municipalities, and lists the municipalities' most recent adoption of these ordinances.

Wayne County municipalities make important land use decisions based on their municipal ordinances. With the current estimated losses in population the County is experiencing, municipalities are continuing their efforts in updating their comprehensive plans and land use ordinances to address the losses in light of the robust growth that preceded them (2010 census 52,822; 2013 estimate 51,548 – 2.4%).

In November of 2005, the Wayne County Planning/GIS Department hosted a course entitled "Basic Course for Planning Commissioners". It was primarily designed for new planning commissioners. Several municipal representatives from Wayne County attended. The goal of the three-session course was to provide planning commissioners with the basic information they need to effectively serve on a planning commission. At the writing of this Plan Update, the Wayne County Planning Department continues to host planning schools on various topics related to land use planning on an as needed basis depending on level of local interest and amount of subdivision and land development activity throughout the county. The planning schools provide an important education service to both local government and members of the public. The sessions, taught by certified instructors assigned by the Pennsylvania Municipal Planning Education Institute, consist of lectures, discussions, and hands-on exercises.

In April of 2006, the Planning Department hosted a course entitled "What You Should Know In Reviewing Site Plans". It was designed for planning commissioners, elected officials, and the public. Several municipal representatives from Wayne County, Pennsylvania and Sullivan County, New York attended. The goal of the course was to provide an understanding of how to achieve community character through site plan review.

The Wayne County Planning/GIS Department has continued to maintain the County's 911 physical address system through the utilization of Geographic Information Systems (GIS). The project was completed in 2005, and was originally undertaken to increase the speed and effectiveness of emergency personnel dispatches.

The Department is responsible for the assignment of new physical addresses for all new residential and commercial structures in the County. In addition to the assignment of new physical addresses, the Planning Department also works with the 911 Office, the United States Postal Service and the public to resolve any problems with the new physical address system. *The assignment of new addresses with GIS allows the Planning Department staff to track the areas of the County where development is*

occurring. A total of 277 physical addresses were issued for newly proposed residential or commercial structures in 2006.

- In 2007: 219
- In 2008: 180
- In 2009: 173
- In 2010: 220
- In 2011: 107
- In 2012: 106
- In 2013: 130

A large portion of the development occurred in the municipalities that adjoin Lake Wallenpaupack in the southeast portion of the County. It should be noted that three Wayne County municipalities had a physical 911-address system in place prior to the County's re-addressing project. In addition to these three municipalities, several developments either had their own system of 911 addresses or a hybridized system of old and new addresses. The department has been working to fully integrate the physical 911 address schemes in these developments with the system in place in the rest of the county.

In September of 2007, the Wayne County Agricultural Land Use Study was completed. The study covers the time period between 1959 and 2002. The intent of the study was to examine land use change in Wayne County over that 43-year period. It provided new information on the County's changing land use, in particular, agricultural land use. A grant award in the amount of \$67,900 was received from the Pennsylvania Department of Community and Economic Development aided in the preparation of this project. The study demonstrates the pattern of land use change in the past and helps local municipalities in their planning efforts. Although the main emphasis is agricultural land use, it will provide land use information for the entire County by incorporating all land use/land cover in the analysis. This land use information has been used by a number of townships and boroughs in their local planning efforts. Requests have also been made for future land use data by municipalities. As of December 31, 2013, 14 of the county's 28 municipalities have adopted municipal zoning ordinances, mainly along the Route 6 corridor, southern Wayne County (I-84 area) and the north central portion of the county (Damascus and Lebanon townships).

The Wayne County Planning Department has undertaken the task of recreating some of the County's older municipal zoning maps. The intent of this project was to provide maps to those municipalities that could benefit from the use of new color zoning maps.

Wayne County Municipal Ordinance/Regulations

Municipality	Building Code	Building Permit	Comprehensive Plan	Fire Prevention	Holding Tanks	Junkyards	Official Map	Parking	Planning Commission	Plumbing	Road	Shade Tree	Sign	Subdivision	Act 537 Sewage	Zoning
Berlin	X	X							X		X			X	X	
Bethany	X	X	X			X			X		X		X	X	X	X
Buckingham	X	X	X						X	X	X			X	X	
Canaan	X	X	X		X	X		X	X		X		X	X	X	X
Cherry Ridge	X	X				X			X		X			X	X	X
Clinton	X	X	X		X	X		X	X		X			X	X	
Damascus	X	X	X			X			X		X			X	X	X
Dreher	X	X	X		X	X			X		X		X	X	X	X
Dyberry	X	X									X			C	X	
Hawley	X	X	X	X	X	X		X	X		X		X	X	X	X
Honesdale	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
*Lake	*	*	X		X				X	X	X			X	X	
*Lebanon	*	*	X			X			X		X			X	X	X
*Lehigh	*	*	X		X			X			X		X	X	X	X
Manchester	X	X	X						X	X	X			X	X	
Mount Pleasant	X	X	X			X			X		X			X	X	
Oregon	X	X	X			X			X	X	X			X	X	
Palmyra	X	X	X			X		X	X	X	X		X	X	X	X
Paupack	X	X	X			X		X	X		X		X	X	X	X
Preston	X	X	X					X	X	X	X			X	X	
*Prompton	*	*									X			C	X	
Salem	X	X	X	X	X	X			X	X	X			X	X	
Scott	X	X	X		X					X	X		X	X	X	
South Canaan	X	X				X					X			C	X	
Starrucca	X	X	X		X			X			X			X	X	
Sterling	X	X	X		X	X		X	X		X		X	X	X	X
Texas	X	X	X		X	X					X			X	X	X
Waymart	X	X	X			X		X	X		X		X	X	X	X

x - represents a municipality adopted ordinance or plan

c - Wayne County has a Subdivision Ordinance, which is in effect in Dyberry, South Canaan Townships and Prompton Borough.

The source of this information is from a questionnaire supplied to and completed by each municipality.

*These townships/boroughs have opted out of the program and do not enforce the States Uniform Construction Code (UCC) locally. Property owners need to hire a certified third party agency to enforce the residential requirements of the UCC. The Department of Labor and Industry is responsible for commercial code enforcement.

Figure 5.1

Source: Wayne County Comprehensive Plan

Participation in the National Flood Insurance Program: All but one of its municipalities in Wayne County are participants in the National Flood Insurance Program. (The borough of Prompton, at the writing of this plan update, is awaiting re-instatement to the program after updating its ordinance.) Property insurance coverage is high, but claims are not. See Tables 4.4.3.5.1 and 4.4.3.5.2. The County in 2013 received an update of the municipalities' Flood Insurance Rate Maps (FIRMs). The County will continue to encourage all municipalities to participate in the NFIP.

Emergency Response Planning: The municipalities, along with other agencies, assist the County in planning for:

- Municipal Emergency Operations Plans (EOPs)
- Medical Facilities
- Nursing Homes, Personal Care Facilities, Day Care, Special Needs, Schools
- Dams
- Special Events, i.e., the Wayne County Fair, Honesdale July 4th activities, Green-Dreher-Sterling Fair, Roots and Rhythm Music Arts Festival, Open Houses, annual tabletop exercise at Wallenpaupack Plan and Play, etc.

Evacuation Planning: Each municipality is responsible for developing an evacuation plan for its geographic area. However, the County is in the early stages of developing an evacuation plan at the County level and also at the Northeast Regional Task Force level. These plans will address the following basic scenarios:

- Evacuation of a large population or geographic area within the Northeast Regional Task Force area.
- Mass exodus of population from another area (e.g. New York City) entering the Wayne County region.
- Wayne County as host to a large influx of evacuees.

5.3.2 Administrative and Technical Capability

Emergency Management

The Wayne County Emergency Management Agency coordinates countywide emergency management efforts. Each municipality has a designated local emergency management coordinator (EMC) who possesses a unique knowledge of the impact hazard events have on his/her community. The Emergency Management Services Code (PA Title 35) sets several requirements for municipalities. Municipalities are supported in disaster mitigation, preparedness, response and recovery by the County, PEMA, and FEMA. Emergency management capabilities for the municipal, county, state, and federal levels are outlined below.

In the event of an impending emergency or disaster, the County would activate its Emergency Operations Center (EOC). The purpose of the EOC is to manage the emergency response and coordinate the distribution of resources to a disaster incident. Highly trained and experienced personnel staff the EOC when it is activated and becomes operational. Capable individuals having the authority, flexibility, imagination and initiative needed to make command and coordination decisions (relative to their fields of expertise) necessary during emergency operations are recruited. EOC staffing includes the following disciplines: Transportation, Firefighting, Communications/RACES, Public Works and Engineering, Emergency Management, Mass Care/Housing and Human Services, Public Health and Medical Services, Urban Search and Rescue (through regional task force), Oil and Hazardous Materials Response, Public Safety and Security, and External Affairs. When activated, the EOC is in constant communication with the 9-1-1 center to ensure coordination of activities.

The Wayne County Emergency Management Agency (EMA) capabilities fall under two broad categories: Emergency Service Measures and Public Information Programs. Emergency service measures protect people during and immediately following a disaster and include warning and notification systems, emergency response planning, and evacuation.

Wayne County operates as an Emergency Alert System (EAS) initiating station. The EAS is an alert system for disseminating emergency information and warnings to the general public within the County, utilizing the resources of the Broadcast and Cable Industries. The EAS System allows state and local officials to quickly send out important area specific state and local information and it also recognizes the need to provide emergency information to people whose first language is not English. The EAS system has the capability of providing alerts in the language normally used by the station or cable system such as the Spanish language.

High Risk	High Risk, High Frequency	High Risk, Low Frequency
Low Risk	Low Risk, High Frequency	Low Risk, Low Frequency
	High Frequency	Low Frequency
	Everything emergency managers do falls into one of these boxes.	<i>But it's the top right box that is most worrisome because it is where errors are most likely to occur.</i>

Figure 5.2

Source: Gordon Graham, Risk Manager

Wayne County Emergency Management Agency/ 911 Center

Wayne County operates a 9-1-1 Center. The 9-1-1 is a nationally recognized telephone number used for reporting all types of emergencies – Police, Fire, and Emergency Medical. An emergency is a fire, automobile accident, robbery, burglary, prowler outside a home, or when someone is sick or injured so badly that they need to go to the hospital. The 9-1-1 System is also equipped and ready to accept calls from deaf persons utilizing a teletypewriter (TTY) text telephone, sometimes known as a telecommunications device for the deaf (TDD). The Wayne County 9-1-1 Center has completed a Standard Addressing Project which included computerized mapping of streets and roads with address information critical for emergency response purposes. Standard Addressing also helps the EMA Office during and after a disaster when doing damage assessment.

Currently, 9-1-1 calls and emergency communications are handled by the Wayne County Communications Center for all the municipalities. The Wayne County 911 Center dispatches for 23 volunteer fire departments, 14 volunteer ambulance corps, three advanced life support services and four municipal police departments in addition to receiving the 911 calls for the geographic areas served by the Pennsylvania State Police. Under a mutual aid program for fire companies, available firefighters and equipment are coordinated from all fire companies using Emergency Services Number (ESN) maps and box plans.

The Wayne County Emergency Management Agency and 911 Center previously (1975-2010) were located in the basement of the Court House Annex, 925 Court Street, Honesdale. Because of repeated incidents of flooding, both the County EMA and 911 Center were permanently relocated to a new facility in 2010 at 43 Volunteer Drive, Honesdale, far above any floodplain. The building is approximately 6,806 square feet in size. There is adequate space for the handling of major emergencies, training, storage of specialized equipment and vehicles.



Figure 5.3

Source: Wayne County Emergency Agency

The county owns three towers — one in the Borough of Honesdale, one in Dreher Township and one in Canaan Township. The county also leases 3 additional tower sites — one in Berlin Township, one in Manchester Township and one in Mount Pleasant Township.

The county also owns a mobile command vehicle that is used during major disasters and has the

ability to be used as a secondary dispatch point for 911 if the need should arise. The vehicle was purchased and equipped using LEPC funds, Act 165 grants and homeland security funding.

Municipal Emergency Management

All municipalities in Wayne County have Emergency Management Coordinators. Pennsylvania Title 35, Chapter 7500, outlines the responsibilities of municipalities for emergency management: <http://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/35/35.HTM>. The municipal coordinators meet quarterly for appropriate training and updates. They were an integral part of the development of this Plan Update.

All the fire departments that operate in Wayne County are independent contractors. Each municipality, because they are required by law to provide fire protection, has contracted with an existing fire department. All the fire departments that service Wayne County were encouraged by the Wayne County Fire Chiefs' Association to develop box plans, which specify what additional fire departments will respond in to certain areas of each fire department's primary jurisdiction for specific classes of incidents (structure fires, motor vehicle accidents, brush fires, etc.). All the fire departments that serve Wayne County have box plans.

Monitoring Systems: The municipalities may also be equipped with several systems to monitor emergency information and warnings. They include: Pennsylvania Emergency Incident Reporting System (PEIRS), Radio Amateur Civil Emergency Services (RACES) and National Oceanic and Atmospheric Administration (NOAA) Weather Radios.

2015 Wayne County Fire Departments:	
Lake Ariel Fire Co 1 PO Box 31 1381 Lake Ariel Hwy Lake Ariel, Pa. 18436 570-698-5340	Northern Wayne Fire Co 3 1633 Crosstown Hwy Lakewood, Pa. 18439 570-798-2335
Hawley Fire Co 9 PO Box 61 17 Columbus Ave Hawley, Pa. 18428 570-226-9820	Seelyville Fire Co 12 1200 Bridge St. Seelyville, Pa. 18431 570-253-1425
Honesdale Fire Co 3 958 Main St. Honesdale, Pa. 18431 570-253-6389	Lakeville Fire Co 18 10 Daniels Rd. Lakeville, Pa. 18438 570-226-2607
Beach Lake Fire Co 21 PO Box 122 Beach Lake, Pa. 18405 570-729-7779	Greene Dreher Fire Co 23 PO Box 420 460 Crestmont Dr. Newfoundland, Pa. 18445 570-676-4207

2015 Wayne County Fire Departments:

Welcome Lake Fire Co 26 99 Cosgrove Rd. Beach Lake, Pa. 18405 570-729-7331	Pleasant Mt. Emergency Services Co 28 161 Great Bend Tpke Pleasant Mt., Pa. 18453 570-448-2963
White Mills Fire Co 32 PO Box 273 695 Texas Palmyra Hwy White Mills, Pa. 18473 570-253-4433	Largedale Fire Co. PO Box 556 523 Goosepond Rd. Lake Ariel, Pa. 18436 570-689-9457
Forest City Fire Co 41 PO Box 73 380 Railroad St. Forest City, Pa. 18421 570-785-3226	Browndale Fire Co 43 PO Box 10 620 Marion St. Forest City, Pa. 18421 570-785-5300
Gouldsboro Fire Co 55 PO Box 301 490 Main St. Gouldsboro, Pa. 18424 570-842-2663	Equinunk Fire Co 65 2625 Hancock Hwy Equinunk, Pa. 18417 570-224-6611
Hamlin Fire & Rescue Co 67 PO Box 116 582 Hamlin Hwy Hamlin, Pa. 18427 570-689-9093	Maplewood Fire Co 68 PO Box 527 Lake Ariel, Pa. 18436 570-689-7313
Waymart Fire Co 75 PO Box 186 Waymart, Pa. 18472 570-488-6131	Prompton Fire & Rescue Co 94 PO Box 145 638 Prompton Rd. Prompton, Pa. 18456

2015 Wayne County Emergency Medical Services Departments:

Tusten Volunteer Ambulance PO Box 34 Narrowsburg, NY 12764 845-252-3336	Pleasant Mount Emergency Services 161 Great Bend Tpke Pleasant Mt, Pa. 18453 570-448-2963
Northern Wayne Fire & Ambulance 1633 Crosstown Hwy Lakewood, Pa. 18439 570-798-2335	Newfoundland Ambulance PO Box 222 Newfoundland, Pa. 18445 570-676-4142
Hawley Ambulance 219 River St. Hawley, Pa. 18428 570-499-7514	Damascus Twp. Vol. Ambulance Corps PO Box 63 Damascus, Pa. 18415

2015 Wayne County Emergency Medical Services Departments:	
Forest City Ambulance PO Box 151 Forest City, Pa. 18421	Hamlin Fire & Rescue EMS PO Box 16 Hamlin, Pa. 18427
Waymart Volunteer Ambulance PO Box F Waymart, Pa. 18472	White Mills Ambulance PO Box 273 White Mills, Pa. 18473
Gouldsboro Ambulance PO Box 255 Gouldsboro, Pa. 18424	Commonwealth Ambulance Scranton, PA.

Administrative and technical actions and techniques can be used to continue to update and identify potential hazards as well as mitigation actions for these hazards. The planning process and these administrative techniques can also be used to educate municipal officials, planning commissions and local citizens on the critical nature of some of the identified hazards as well as the importance of laying the groundwork for prevention of hazards and/or mitigation of the impacts should they occur. Through these administrative and planning initiatives, the County and/or municipal governments may develop programs which can provide funds for assisting with the implementation of preventive measures.

An excellent example of the County's use of administrative means to address hazard mitigation issues can be seen in the application of mitigation in drought situations. Because the make-up of the drought task force is very similar to the makeup of the county's Local Emergency Planning Committee (LEPC) as per Act 165, whenever a drought emergency is declared by the Governor, Wayne County uses the LEPC as the nucleus for the drought task force and appoints additional members who can add expertise for the issues at hand. Over 90% of the County's drinking water is supplied by on site private individual wells, so education and outreach become critical factors. Use of existing education networks such as the County Conservation District educational program and website, the county website and the created and established partnerships provide important avenues for hazard mitigation in this regard.

Additionally, the creation of partnerships whether they are multi-municipal, county-municipal, county state, or public-private can provide important opportunities for implementation of hazard mitigation techniques.

Twenty-five out of 28 municipalities responded to the Capability Assessment Questionnaire. Out of the twenty-five municipalities, 14 had storm water regulations: the Boroughs of Bethany, Hawley and Waymart and Mount Pleasant, Oregon, Palmyra, Lake, Lehigh, Damascus, Dyberry, Lebanon, South Canaan, Sterling and Texas townships.

The Borough of Hawley, and the townships of Lake, Sterling, Dreher, Damascus, Lehigh, Texas, South Canaan, Oregon, Mount Pleasant, Lebanon, Dyberry and Scott have floodplain management ordinances in place.

Funding for all storm water planning efforts is a critical factor in compiling and updating plans in the County's Act 167 designated watersheds and other areas of the County. Ordinance updates are normally adopted by municipalities in conjunction with the completion of these storm water management plans. All 28 municipalities participated in the countywide storm water management plan Phase I that was completed in December 2008.

Administrative means, including such avenues as local land use regulations, state and local building codes, community and open space planning and educational outreach through non-traditional partnerships can be important tools in significantly mitigating the impact of natural hazards on the probability of future losses. Prevention and education will be key areas where Wayne County and its local communities will focus hazard mitigation efforts, thereby providing the most cost-effective means of reducing the probability of future losses to residents and communities. See figure 5.1 from the 2013 Wayne County Annual Report.

Partnerships

The 2010 Wayne County Comprehensive Plan outlines important strategies which will assist Wayne County and its municipalities to efficiently and pro-actively address the growth issues through the end of 2020. One of the most important strategies to the success of any of these efforts will be the ability of the County and its municipalities to create and sustain long-term partnerships both at the local, state and federal government level as well as with local business, utilities, private communities, civic and volunteer organizations and other appropriate non-traditional partners. Creation of these workable partnerships will be critical to both the implementation of action steps in this Plan Update but also to the public and municipal outreach and education identified in the Comprehensive Plan. Overall, these partnerships must be created and/or in place to provide for the success of any hazard mitigation program for the county.

Multi-Municipal and Municipal/County Partnerships

In recent years, the value of inter-municipal cooperation has been widely promoted to local municipal officials by many organizations and state agencies. The Pennsylvania Municipalities Planning Code provides specific authority for multi-municipal comprehensive plans and cooperative zoning. The Pennsylvania Intergovernmental Cooperation Law authorizes two or more local governments to jointly cooperate in the exercise or in the performance of their respective governmental functions, powers or responsibilities. Simply stated, a local municipality may cooperate with any other municipality to undertake any function the municipality is authorized to perform under the respective municipal code.

Local governments can work together on land use planning and management, open land preservation, resource conservation and environmental protection, watershed/storm water management, floodplain and hazard mitigation as well as sharing of fire and/or emergency provision of services. These issues certainly transcend municipal boundaries and can perhaps be best addressed from an area-wide perspective. The county can partner with joint municipal efforts to assist with facilitation, technical planning expertise or other expertise as requested.

The county assisted three groups in Wayne County with their regional planning efforts: 1) Hawley Borough, Lake, Palmyra and Paupack townships adopted the Lake Region Comprehensive Plan in 2007-2008; 2) the East Central Wayne County Comprehensive Plan was adopted in 2008 by Damascus, Manchester and Oregon townships; and 3) the Central Wayne Comprehensive Plan

was adopted by Bethany and Honesdale boroughs and Texas Township in 2010. Preston and Mount Pleasant Townships have submitted a grant application to DCED to update their plans also. The Dreher-Lehigh-Sterling Comprehensive Plan was adopted in the latter part of 1996. Salem Township completed a new comprehensive plan by working with Jefferson and Madison Townships in Lackawanna County.

The county works closely with the townships and boroughs to provide updated GIS mapping help. Recently formed county/municipal and multi-municipal planning groups and local watershed associations are examples of how issues can be addressed across boundaries through partnerships.

After three consecutive years of floods, Manchester Township residents formed a watershed alliance in their area in 2009.

Other Partners

Wayne County is a voting member of the Northeast Pennsylvania Regional Counter-Terrorism Task Force. The task force is one of nine in Pennsylvania that are beneficiaries of the federal Homeland Security Grant Program (HSGP). The HSGP funds personnel and projects to benefit the public safety of the eight-county region and reduce risk to all hazards. Early in its award days, the HSGP was terrorism-centric, but has since expanded its mission to include all hazards. It is not, however, yet eligible to fund mitigation projects as of the writing of this Plan Update.

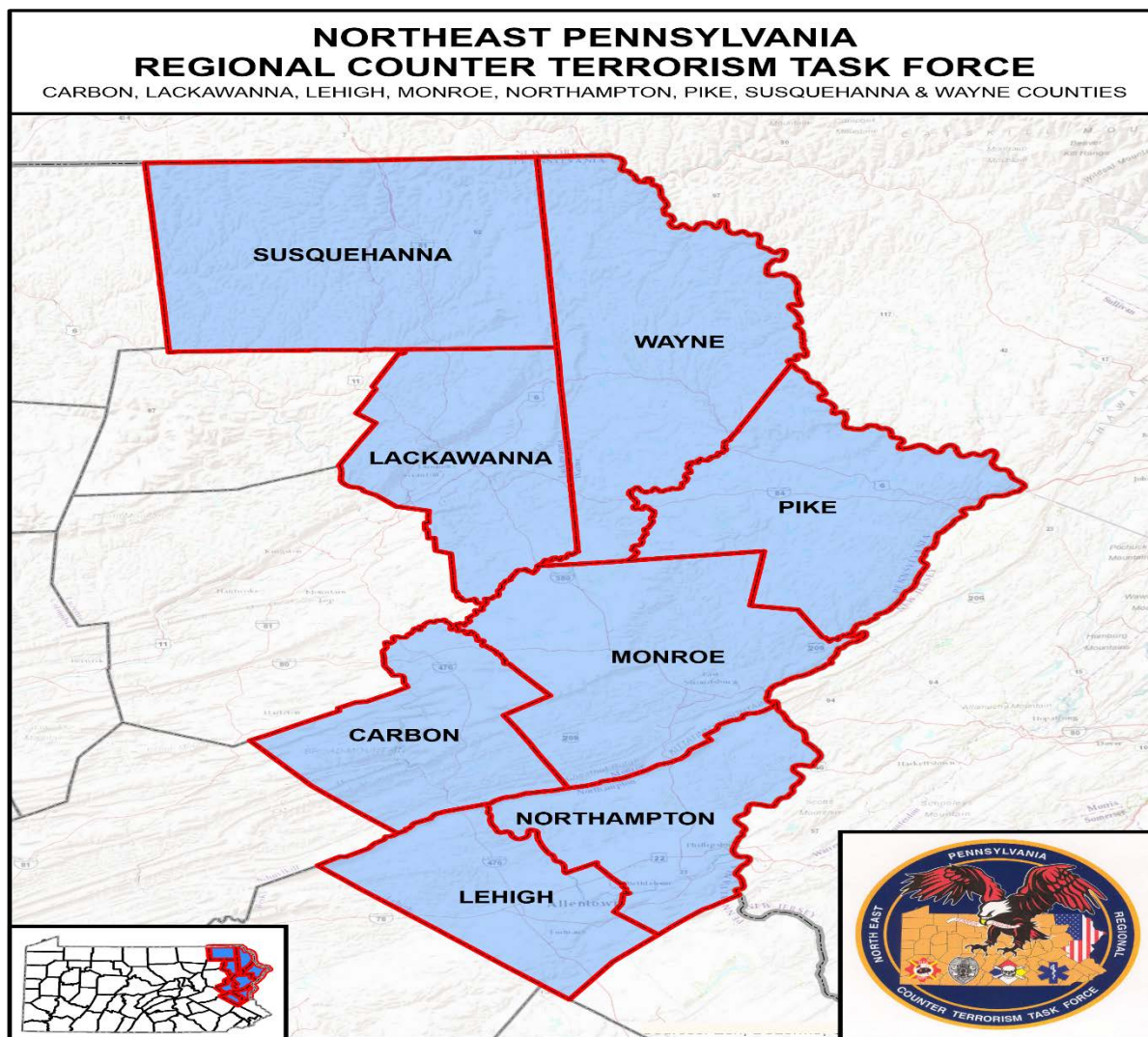


Figure 5.4
Source: Wayne County Emergency Management Agency

Watershed associations and conservancies can be major participants in water resource, floodplain and storm water management planning. Wayne County currently has several such organizations playing an active role in the County.

The Lackawaxen River Conservancy, with many of its members located along the Lackawaxen River Corridor, has played a key role in planning and education. Currently, members have been actively working with the PPL electric company and local government officials to address flooding mitigation issues in the Borough of Hawley. This group, as well as the Wayne County Emergency Management Agency, has played a significant role in developing "spill protocol" with PPL for addressing some of the downstream flooding issues along the Lackawaxen River, which have been compounded by the necessity for the company to "spill" the dam during flood events.

Additionally, Delaware Highlands Conservancy is a local land conservancy working within the County. Regional, state and national land trusts and conservancies can also play an important role in open land protection as mentioned above.

The Lake Wallenpaupack Watershed Management District (LWWMD), established in 1979, is a multi-governmental and citizen based non-profit corporation designed to manage water quality including storm water issues within the four-county Lake Wallenpaupack watershed.

Most organizations of these types provide grass roots citizen support which can assist with education and outreach on important issues. Watershed volunteers can also provide important input on the science of water resources through monitoring programs.

Watersheds can be planning and management areas for stream conservation and protection, storm water management, water supply budgeting, watershed based zoning, and integrated resource planning. Getting citizen-based groups such as watershed organizations involved with municipal planning in hazard mitigation efforts can provide a comprehensive approach to addressing hazard mitigation opportunities and can provide important education and outreach to the local residents.

Upper Delaware Council

The Upper Delaware Council, Inc. (UDC) was unique in the world of river conservation and management when established in 1988 because it represented a formal partnership of local, state, and federal governments and agencies which have joined together to manage the Upper Delaware Scenic and Recreational River, a true national treasure.

The Council's existence evolved from special provisions in the 1978 legislation which designated the Upper Delaware River as a component of the National Wild and Scenic Rivers System, and called for development of a management plan and a program providing for the coordinated implementation and administration of the plan. To that end, the Upper Delaware Council was formed in 1988: <http://www.upperdelawarecouncil.org/>

What sets this [River Management Plan](#) apart is the commitment to local land use controls and voluntary actions by landowners to protect the resources on their own private property, as opposed to federal ownership of the land in the river corridor.

As the driving force behind the River Management Plan, the UDC provides a mechanism to address actions by local, state, and federal agencies which affect the river valley.

The Council membership operates under a long-term, renewable Cooperative Agreement with the National Park Service. [Voting members](#) are the two states (New York and Pennsylvania) and presently 13 out of the 15 local governments which border on the Upper Delaware River. In New York, these include the Town of Hancock in Delaware County, and Towns of Fremont, Delaware, Cohecton, Tusten, Highland, and Lumberland in Sullivan County, and the Town of Deerpark in Orange County. In Pennsylvania, members are the Townships of Berlin and Damascus in Wayne County, and Townships of Lackawaxen, Shohola, and Westfall in Pike County. The Delaware River Basin Commission is a non-voting member of the Council. The Wayne County Townships of Buckingham and Manchester are eligible to join the Council as voting members, but have not joined as of the writing of this Plan Update. The representatives from local government in Pennsylvania and New York as well as the National Park Service, local businesses, civic groups, and the public participate in monthly planning sessions.

Specialized Planning and Best Management Practices

Administrative avenues for hazard mitigation should also include the integration of Best Management Practices in future development and storm water management activities. Working with local governments to integrate design criteria which highlight best management practices is an active and ongoing goal of both the County Conservation District and Planning Department. Act 167 Storm Water Management planning, particularly in critical watershed areas throughout the County, and participation in regional storm water management initiatives which affect Wayne County's ability to address hazard mitigation in the County, are important tools in the overall approach of hazard mitigation. The County will continue to utilize both the locally adopted Lackawaxen Storm Water Management Plan and the Wallenpaupack Creek Storm Water Management Plan – which cover the majority of the county – as critical floodplain management tools until State funding becomes available for further watershed studies.

Role of Open Space and Green Space Planning

Open space planning identifies existing open spaces, their importance, areas that should be protected, and means of protecting and acquiring those open spaces. Techniques could include donation of natural areas, purchase of open space, recreation, or natural area parcels through outright acquisition or through purchase of conservation easements from willing sellers through the use of recreation fees, tax revenue, grants, bond issues, or any combination of these techniques. Other combinations of methods and options also exist and are considered in a planning effort.

The County will work closely with municipalities in this planning effort to identify and prioritize important natural areas and sensitive natural resources which are in need of protection, but also to consider the need for municipalities to protect critical floodplain areas and groundwater recharge areas which can be important in hazard mitigation efforts.

5.3.3 Financial Capability

A critical key to the implementation of any plan, whether it is a county or municipal comprehensive plan, hazard mitigation plan or emergency preparedness plan is the financial resources to accomplish the priority projects identified. As listed above, there are key areas where Wayne County's capabilities could be strengthened with sufficient funding to address important preventative measures. All municipalities have been moving forward with updates to their Municipal Comprehensive Plans and land use ordinances. The municipalities and the County have taken an active role in seeking funds for these planning efforts.

The County pursued funding through the Pennsylvania Department of Environmental Protection (PA DEP) for use in development of countywide storm water management plans in critical Wayne County watersheds where growth rates are the highest. The County was awarded a State Department of Community and Economic Development (DCED) grant in the amount of \$51,500 to complete an update to the existing 1994 County Comprehensive Plan; this Land Use Planning and Technical Assistance Program (LUPTAP) grant enabled the county to complete an update to its comprehensive plan, which was adopted by the Wayne County Commissioners on September 28, 2010.

The County does currently and has in the past made full use of Community Development Block Grant funds for community revitalization. Included in one set of block grant funding was a bridge

replacement in Starrucca Borough, and street and road improvements for Clinton, Canaan, Berlin and Texas townships and Hawley Borough. Mount Pleasant Township received a block grant to improve its community center. Planning staff has assisted local communities with seeking grant funding and writing grants specific to sources such as the U.S. Department of Homeland Security – Assistance to Firefighters Grant Program, and other sources.

The County will be making use of the funding opportunities available through the Pennsylvania Emergency Management Agency (PEMA) and the Federal Emergency Management Agency (FEMA) as possible sources for implementation actions identified in this Hazard Mitigation Plan Update.

The Federal Hazard Mitigation Assistance (HMA) Program, administered by the Federal Emergency Management Agency, provides planning and project funding to assist communities in reducing or eliminating the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). NFIP-compliant communities with approved flood mitigation plans can apply for grants for such projects as the elevation, acquisition, and relocation of NFIP-insured structures. Unfortunately, funding for this program generally falls far short of requests for assistance.

All of the above sources of funding can provide important opportunities for Wayne County's implementation of this Plan Update. Recognizing that many of these sources have limited funds or require matching funds for which the county or its municipalities are under-prepared, the County will work with its municipalities to provide as many opportunities for planning and hazard mitigation funds as possible, maximizing the use of taxpayer dollars. Wherever possible, county and municipal funding will be used to leverage funds from state, federal or other sources.

The multi-municipal, county-municipal, public-private, and public-volunteer and civic organization partnerships identified in the previous section of this Capability Analysis will also be an important aspect of seeking funds for implementation.

5.3.4 Education and Outreach

The Wayne County Commissioners announced a new initiative, *Wayne Tomorrow!*, in August 2012 to help guide future development and enhance the quality of life in Wayne County. This project establishes an inclusive process for on-going dialogue and creates a shared vision that will build the county's communities. The initiative will use data and recommendations from the Wayne County 2010 Update of the Comprehensive Plan as a base point. As an outcome, the Commissioners will create an action plan for moving forward using the goals and directives of the comprehensive plan, in conjunction with the common goals identified by *Wayne Tomorrow!* A visioning dialogue was begun in early 2012, and the framework is continuing to be developed to gather community input and participation. Five (5) key areas were identified: Agriculture, Business & Economic Development, Quality of Life, Sustainability, and Workforce/Education. The key areas were identified as important factors in their own right, but the interwoven relationships of these key areas are considered the backbone to creating a future in Wayne County.

Workgroups in each of the key areas include individuals who have geographic, demographic and industry/organizational diversity and who are committed to developing mutual respect and recognition of a shared goal and desire to create a vibrant Wayne County for future generations. Surveys, listening sessions and public forum opportunities are on-going for the vision of *Wayne Tomorrow!* through 2025.

Public Information Programs: During the capability assessment process, none of the municipalities nor any local EMA coordinators indicated he or she offers or engages in any type of public information programs other than passing along information disseminated by County EMA. The County EMA conducts multiple public education and outreach programs each year, and both its website and the county website promote preparedness and response actions for Wayne County residents and businesses. However, during the capability assessment process, one specific education program was determined to be needed throughout the county: information and outreach to insurance agents. Many insurance agents are telling citizens they cannot purchase flood insurance because they are not in a floodplain; this is inaccurate information.

Outreach Projects: Local fire and EMS services provide public safety information to local schools as well as other civic organizations on personal safety and fire prevention and home escape plans.

Citizen Corps: The county Citizen Corps Program, as of the writing of this Plan Update, is gaining strength and developing goals and objectives for public safety outreach activity, plans and kits in neighborhoods, communities and across the county. The Wayne County Citizen Corps officially came into existence at the signing of its congratulatory/award letter on May 28, 2014 from the PEMA State Citizen Corps Program Coordinator.

Section 6 — Mitigation Strategy

6.1 Federal Requirements for the Mitigation Strategy:

§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.*

§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.*

§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.*

§201.6(c)(3)(iii): *[The mitigation strategy section shall include] an action plan describing 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.*

§201.6(c)(3)(iv): *For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.*

6.2 Mitigation Goals and Objectives

Based on the risk assessment and hazard questionnaire, the goals and objectives of the 2008 plan have been determined to remain of greatest benefit in helping to reduce hazards to people, property, and infrastructure:

Goal 1— PROTECT LIFE AND PROPERTY IN HAZARD AREAS

- Remove and or limit structures that would be placed in the floodplains or below dams.
- Implement mitigation activities that will encourage environmental protection of natural resources.
- Direct development away from areas within the floodplains or have significant limitations for growth.
- Encourage municipalities with significant building to adopt regulations requiring new construction to meet or exceed the minimum requirements of established building codes.
- Include identified hazards into land use planning tools such as local comprehensive plans or land use studies.

Goal 2— PROVIDE FOR EMERGENCY SERVICES

- Continue to support emergency services by identifying any special needs (such as equipment or training) that would improve their response to all hazards.
- Assist local jurisdictions in improving or reviewing emergency evacuation routes especially below high hazard dams.

Goal 3— INCREASE PUBLIC AWARENESS

- Continue to educate and develop programs that will instruct the public on how to respond to and prepare for all natural hazards, especially floods, winter storms, drought and high wind.
- Target awareness campaigns where human-caused hazards consistently risk life and property, such as temporary poor road infrastructure or risky driving habits.

The Wayne County Comprehensive Plan identifies the following broad goals for the future direction of the County and the protection of the health, safety and welfare of Wayne County residents.

- Enhance the services provided to the population of Wayne County, through expanded training and financial support for volunteer providers so as to fill in gaps left by disappearance of some services and embellish the quality of those remaining.
- Preserve and enhance the small town rural quality of the County.
- Maintain and protect the County's natural resources.
- Promote the availability of recreational facilities and attractions.
- Promote economic development while avoiding any negative impact on the natural beauty and resources of our community and environment.
- Provide necessary and desirable community facilities.
- Provide and maintain an adequate transportation network.
- Maintain and improve the supply of affordable housing.
- Promote energy conservation.

The two plans are complementary to one another and support public safety and mitigation opportunities in a broad fashion. In a specific fashion, local ordinances are referenced in both plans as preventions of new development in Special Flood Hazard Areas.

6.3 Identification and Analysis of Mitigation Techniques

Wayne County has selected the following Hazard Mitigation Techniques for addressing the critical natural and human-caused hazards of concern to our communities.

Prevention

Property Protection

Emergency Services

Structural Projects

Natural Resource Protection

Public Information Programs

Prevention

Preventative activities are those that are performed to keep hazard related issues from exacerbating in the community. They are effective in reducing a community's future vulnerability, particularly in areas where development has not occurred. Examples of preventative activities include: zoning and subdivision regulations; building code; hazard mapping; open space preservation; floodplain regulations; storm-water management; drainage system maintenance; and capital improvements programming.

Property Protection

Property protection measures include those actions that can be undertaken by private homeowners so their structures can: better withstand hazard events, be removed from hazardous locations, or can be insured to cover potential losses. Examples include: acquisition; relocation; building elevation; critical facilities protection; retrofitting (i.e., wind proofing, flood proofing, seismic design standards, etc.); insurance; and safe room construction.

Emergency Services

Although emergency services are not necessarily considered mitigation techniques, these services minimize the impact of a hazard on people and property. Actions taken immediately prior to, during, or in response to a hazard event include: warning systems; search and rescue operations; evacuation planning and management; and flood fighting techniques.

Structural Projects

Structural mitigation projects are designed to reduce the impact of hazards by building new structures or hardening existing structures. Structural projects are usually designed by engineers and managed or maintained by public works staff. Examples include: reservoirs; levees, dikes, and floodwalls; detention and retention basins; channel modification; and storm sewer construction.

Natural Resource Protection

Natural resource protection activities include those actions that can reduce the impact of hazards by preserving or restoring the function of natural systems. Natural systems that can be classified as high hazard areas include floodplains, wetlands and barrier islands. Thus, natural resource protection can serve the dual purpose of protecting lives and property while enhancing water quality or recreational opportunities. These actions are usually implemented by parks, recreation or conservation agencies. Examples include: floodplain protection; fire resistant landscaping; erosion and sediment control; wetland restoration; habitat preservation; and slope stabilization.

Public Information Programs

Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate the hazards, and may also include participation in national programs. Examples include, but are not limited to: radio or television spots, websites with maps and information, provide information and training, NFIP outreach, StormReady, and Firewise Communities.

6.4 Wayne County Hazard Mitigation Action Plan

The following Wayne County Hazard Mitigation Opportunity Projects have been identified in this Plan Update. This list has been assembled from the County and Municipal Hazard Mitigation Questionnaires and Project Forms circulated as part of this planning process.

The projects list has been further outlined and prioritized in the Wayne County Hazard Mitigation Municipal Projects Table which follows. Prioritization was completed using the STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, Environmental) Action Evaluation approach with emphasis on Wayne County priority hazard impacts as identified and the municipal priorities identified to address these hazards. The elements considered in the STAPLEE approach are those criteria considerations which the County and its municipalities also considered in the evaluation prioritization of projects.

Implementation of the projects will be based on project priority, cost effectiveness and technical feasibility. The County will work towards implementation of all hazard mitigation opportunities. Funding will be pursued based on priority status; however, should funds become available for projects of lesser priority, the County and municipalities will work towards immediate implementation. A cost-benefit review will be done all projects stating that the benefits will be Low, Medium or High. All actions and projects will emphasize cost effective and technically feasible actions.

The county's declared mitigation strategy (and technique) is: 1) protection of critical facilities and public infrastructure for the continued delivery of needed citizen services and the continuity of government, 2) upgrades to storm drainage projects where critical facilities or infrastructure are at risk, 3) and/or another strategy or technique needed to prevent loss of life. Based on the STAPLEE evaluation, the declared strategy above, and the likelihood of cost effectiveness, the prioritization of projects are denoted in Table 6.4.1.

**TABLE 6.4.1
WAYNE COUNTY HAZARD MITIGATION PROJECTS**

Hazard	Action	Municipality	Priority	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
Flood	Flood protection project for 4th Street area	Honesdale		New	Millions	No	Mayor
Flood	Flood protection project for Equinunk Village	Damascus Twp.		New	Millions	No	Chief Elected Official
Flood	Flood protection project	Hawley		New	Millions	No	Mayor
Flood	Remove gravel bars Wallenpaupack Creek	Dreher Twp.	1	New / Existing	Local/HMA \$10,000	Yes	Chief Elected Official

Hazard	Action	Municipality	Priority	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
Flood	Tributary to Wallenpaupack Creek (confluence to fairgrounds) Clear brush, debris, etc.	Dreher Twp.	2	New / Existing	Local/HMA \$10,000	Yes	Chief Elected Official
Flood	Tributary to Wallenpaupack Creek (rear hotel property) Clear brush, debris, etc; remove fill at State Highway culvert crossing	Dreher Twp.	3	New/Existing	Local/HMA \$15,000	Yes	Chief Elected Official
Flood	Remove T-walls and rubble from Shadigee Creek	Starrucca Borough	4	New/Existing	Local/HMA \$15,000	Yes	Chief Elected Official
Flood	Replace bridge over Lackawaxen River Rte. 611	Mt. Pleasant Twp.	5	New/Existing	Local/HMA \$300,000	Yes	Chief Elected Official
Flood	Replace bridge on Chinaman Road; install retaining walls; stream clean up	Preston Twp.	6	New/Existing	Local/HMA \$300,000; \$10,000; \$10,000	Yes	Chief Elected Official
Flood	Add new River gauges on tributaries feeding into the Lackawaxen River	Canaan, Scott & Buckingham Twps. and Honesdale Borough	Low	New/Existing	National Weather Service and Pa.	Yes	Chief Elected Officials
Flood	Stream bed restoration; storm water management program	Damascus Township	Medium	New	Local/HMA \$150,000; \$25,000	Yes	Chief Elected Official
Flood	Storm drainage and culvert clean-out; Phase I storm water mitigation plan & infrastructure; Phase II storm water	Hawley Borough	Underway *	Existing	PLGT funds/DCED grant/HMA \$30,000; \$228,000; \$110,000	Yes	Chief Elected Official
Flood	Storm clean-out from Big Brooks, Lower Woods and Duck Harbor; storm water drainage, breach Lower Woods pond	Lebanon Township	Medium	New	Local/HMA \$30,000	Yes	Chief Elected Official
Flood	Flood insurance agent/Public Information Program	County/All	7	New	HMA \$15,000	Yes	County Commissioners and Chief Elected Municipal Officials

Hazard	Action	Municipality	Priority	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
Flood	Family Disaster Planning	County/All	Medium	New	HMA \$15,000	Yes	County Commissioners and Chief Elected Municipal Officials
Flood	Continue NFIP compliance	All	8	New / Existing	Local/FEMA	Yes	County Commissioners and Chief Elected Municipal Officials
Flood	Continue to implement floodplain ordinances and standards	All	9	New / Existing	Local	Yes	County Commissioners and Chief Elected Municipal Officials
Flood	Verify & Collect data on Repetitive Loss	Wayne County	Medium	New / Existing	Local	Yes	County Commissioners
Flood	Complete Phase I & II County Wide Storm Water Man. Plans	Wayne County / All Municipalities	High	New 2019 / Existing	DEP/Wayne County \$180,000	Yes	County Commissioners and Municipal Officials
Drought	Prepare news releases on how to conserve water at all times	Wayne County	Medium	New / Existing	N/A	Yes	County Commissioners
Drought	Encourage the purchase of crop insurance by all farm owners in the county	Wayne County	Medium	New	Loan assistance program? PSAs (\$10K per year)	Yes	County Commissioners
Fire and Wildfire	Apply for Assistance to Firefighters Grant to improve communications between fire departments	Wayne County	10	New	Wayne County /Dept. Of Homeland Security FEMA (AFG)	Yes	County Commissioners
Winter Storms	Continue to maintain & update Wayne County Severe Situation Emergency Plan	Wayne County	Medium	Existing	N/A	Yes	County Commissioners
Winter Storms	Purchase of emergency generators for critical facilities	See List at Appendix C	Medium	New	\$300,000	Yes	EMA

Hazard	Action	Municipality	Priority	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
Wind Storms & Tornadoes	Continue to upgrade communications capability to become "Storm Ready"	Wayne County	Medium	Existing	PEMA	Yes	EMA
Dam/Levee Failures	Continue to be involved in reviewing Emergency Action Plans for dams within Wayne County	Wayne County / Borough of Hawley	High	New / Existing	N/A	Yes	County Commissioners
Dam/Levee Failures	Notification System for estimated 15,000 downstream population	Prompton Dam	Medium**	New	Local/FEMA	Yes	Commissioners and Chief Elected Official
Radon	Mandatory radon testing prior to real estate sales	Wayne County	High	New	Private funds	Yes	County Commissioner s/PA Association of Realtors
Earthquakes	Education and Outreach	Wayne County	Low	New	Local/FEMA	Yes	EMA
Energy Emergencies	Education and Outreach	Wayne County	Low	New	Local/FEMA	Yes	EMA
Fixed Nuclear Facilities	Education and Outreach	Wayne County	Low	New	PPL	Yes	EMA
Hazardous Materials	Education and Outreach	Wayne County	Low	New	Local/FEMA	Yes	EMA
Terrorism	Education and Outreach	Wayne County	Low	New	Local/FEMA	Yes	EMA
Transportation Incidents	Education and Outreach	Wayne County	Low	New	Local/FEMA	Yes	EMA
Subsidence	Education and Outreach/Promotion of subsidence insurance	Clinton Township / Wayne County	Low	New	Local/FEMA	Yes	EMA
All Hazards	Update County Comprehensive Plan	Wayne County / All Municipalities	High	Existing / 2019	Grant/County \$125,000	Yes	County Commissioner s and Municipal Officials

Hazard	Action	Municipality	Priority	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
All Hazards	Education and Outreach/Generator Safety	Wayne County / All Municipalities	High	New	\$25,000/year	Yes	EMA
All Hazards	Collect missing data for all types and numbers of future buildings, infrastructure and critical facilities	Wayne County	Medium	New / Existing	County	Yes	County Commissioners
All Hazards	Identify hazard projects for the next update to County Hazard Mitigation Plan	Lehigh Twp.	Medium	New / Existing	N/A	Yes	Chief Elected Official

*The Hawley storm water management replacement project includes Chestnut, Wamgum, River, Keystone, Church and Pine Streets. Bids were accepted until March 11, 2015 until 3 p.m.

**A mitigation project by the Army Corps of Engineers upgraded the spillway at Prompton Dam in 2011 as part of the federal government's economic stimulus plan. An evaluation and/or study may be a future project to ensure notification of downstream residents.

Municipality	Action	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
Honesdale	Flood protection project for 4 th Street area	New	Millions	No	Mayor
Damascus Twp.	Flood protection project for Equinunk Village	New	Millions	No	Chief Elected Official
Hawley	Flood protection project	New	Millions	No	Mayor
Hawley	Storm drainage, culvert clean-out; storm water infrastructure	Underway	PLGT & DCED funds; \$30K, 228K, 110K	Yes	Mayor
Dreher Twp.	Remove gravel bars Wallenpaupack Creek	New / Existing	Local/HMA \$10,000	Yes	Chief Elected Official
Dreher Twp	Tributary to Wallenpaupack Creek (confluence to fairgrounds) Clear brush, debris, etc.	New / Existing	Local/HMA \$10,000	Yes	
Dreher Twp	Tributary to Wallenpaupack Creek (rear hotel property) Clear brush, debris, etc; remove fill at State Highway culvert crossing	New / Existing	Local/HMA \$15,000	Yes	

Municipality	Action	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
Starrucca Boro	Remove T-walls and rubble from Shadigee Creek	New / Existing	Local/HMA \$15,000	Yes	Chief Elected Official
Mt. Pleasant Twp.	Replace bridge over Lackawaxen River Rte. 611	New / Existing	Local/HMA \$300,000	Yes	Chief Elected Official
Preston Twp.	Replace bridge on Chinaman Road; install retaining walls; stream clean up	New / Existing	Local/HMA \$300,000; \$10,000; \$10,000	Yes	Chief Elected Official
Canaan Twp.	Add new River gauges on tributaries feeding into the Lackawaxen River	New / Existing	National Weather Service and PA.	Yes	EMA
Damascus Twp.	Stream bed restoration; storm water management program	New	Local/HMA \$150,000 and \$25,000	Yes	Chief Elected Official
Scott Twp.	Add new River gauges on tributaries feeding into the Lackawaxen River	New / Existing	National Weather Service and PA	Yes	EMA
Lebanon Twp.	Storm clean-out from Big Brooks, Lower Woods and Duck Harbor; storm water drainage, breach Lower Woods pond	New / Existing	Local/HMA \$30,000	Yes	Chief Elected Official
Buckingham Twp.	Add new River gauges on tributaries feeding into the Lackawaxen R.	New / Existing	National Weather Service and PA	Yes	EMA
Prompton Boro	Prompton Dam notification system/plan	New	Local/HMS	Yes	Chief Elected Official
Berlin Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Bethany Boro	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Cherry Ridge Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Dyberry Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Lake Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Lehigh Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA

Municipality	Action	New / Existing	Funding/Cost Estimate	Cost Effective	Project HMPO for this action
Manchester Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Oregon Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Palmyra Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Paupack Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Salem Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
South Canaan Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Sterling Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Texas Twp.	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
Waymart Boro	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA
County and All Townships	Education/ Outreach; Generator Safety; Generators for CI/KR	New	Local/HMA	Yes	EMA

6.5 Implementation Plan

Some of the smaller, low budget mitigation projects will stay reflected on the municipal Emergency Management Coordinator (EMC) quarterly training meeting agendas until completed or dismissed. Once a significant funding source (and match) have been identified for this plan as a whole, the Board of Wayne County Commissioners will summon the county Emergency Management Coordinator and Planning Department Director and all the local EMCs and their elected officials to a coordination meeting. The meeting will be facilitated by a neutral official and a plan of action crafted. All the projects in this plan will receive attention during the meeting in case a re-prioritization is needed based on facts or occurrences after this Plan Update was completed.

6.6 Successes of the 2008 Mitigation Plan

Successful mitigation activity since 2008 includes:

- The County's Comprehensive Plan update completed in 2010;
- The municipal adoption and implementation of the FEMA/FIRM floodplain maps that became effective on May 16, 2013;

- Prompton Borough working with FEMA representatives to have its jurisdiction re-evaluated and studied to correct potential floodplain errors identified on the 2013 FEMA maps; and
- This plan update and its prompting of repeated discussions at the county's municipal emergency management coordinators' quarterly training meetings and Local Emergency Planning Committee (LEPC) meetings.

Section 7 — Plan Maintenance

7.1 Federal Requirements for the Plan Maintenance:

§201.6(c)(4)(i): The plan maintenance process includes a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

§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.

§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.

7.2 Update Process Summary

Hazard mitigation planning in Wayne County is a function of both the Wayne County Emergency Management Agency and the Wayne County Planning Office. These agencies coordinate and manage the preparation, maintenance, and updating of the County's Hazard Mitigation Plan in concert with the Wayne County Comprehensive Plan, and any other County or local emergency related planning.

The hazard mitigation plan is required to include a formal plan maintenance process to ensure that the plan remains an active and relevant document. The plan maintenance process includes a method and schedule for monitoring, evaluating and updating the plan at least every five years and describes how, when and by whom the work will be done. This section also includes an explanation of how local governments intend to incorporate their mitigation actions into any existing planning mechanisms they have such as comprehensive plans and ordinances. Further, a description of how the public will be involved in the plan maintenance is outlined below.

The Disaster Mitigation Act of 2000 specifies the requirements to maintain the County's hazard mitigation plan.

7.3 Monitoring, Evaluating, and Updating the Plan (§201.6(c)(4)(i))

The Local Emergency Planning Committee (LEPC) will meet on an annual basis or after any disaster declaration to specifically discuss the effectiveness of this Plan Update and provide for any needed updates. Representatives from the Wayne County Planning Department will also be included in this annual review or disaster declaration meeting. The Wayne County Emergency Management Coordinator is responsible for contacting committee members and for organizing the meetings.

The meetings will be held each year approximately on the anniversary of the Plan Update approval date. Municipal involvement will continue to be the responsibility of the Wayne County Emergency Management Coordinator, who will monitor the progress of the mitigation actions during the year by including an agenda item on mitigation for the quarterly municipal coordinator meetings. The Wayne County Emergency Management Coordinator will document and report the findings to the committee at the annual LEPC meeting. The Wayne County Emergency Management Coordinator will continue efforts to work with municipalities to improve the

regional planning process. The Wayne County Planning Department will provide technical planning assistance in this effort.

During the annual meetings, the planning committee will evaluate a variety of issues including whether:

- The goals of the Plan Update address current and expected conditions;
- The nature, magnitude or type of risks have changed;
- Current resources are appropriate (or inadequate) for implementing the plan;
- There are implementation problems or coordination issues with other agencies;
- Outcomes have occurred as expected; and
- Agencies and other partners participated as originally proposed.

Additional meetings may be scheduled as needed to complete the annual evaluation process. The planning committee will prepare an annual report that summarizes the findings of the evaluation and identifies any proposed amendments to the Plan Update. Proposed plan amendments may take one of two forms — plan supplement or Plan Update #2. A plan supplement may include data updates, analysis updates, addition of, or revision to, municipal projects, mapping updates or other revisions of a minor nature. Plan Update #2 is required when proposed changes include revised goal statements, revised project prioritization methodology, addition of hazards for detailed study, revision to the mitigation strategy (other than new municipal projects) or other revisions that represent a significant adjustment to the coordination relationship between involved parties. The Wayne County Emergency Management Coordinator will submit the annual report including any proposed plan supplement or Plan Update #2 to the municipalities. Proposed Plan Updates would need to be adopted by the participating municipalities with appropriate opportunity for public input.

The Wayne County Planning Department completed the update of its Comprehensive Plan in 2010. The Wayne County Hazard Mitigation Plan will be updated again – unless updated by the annual process described above – within five years of FEMA approval of this Plan Update (anticipated Autumn 2015). This will allow the County to simultaneously integrate the planning process and strengthen public participation.

7.4 Incorporation into Other Planning Mechanisms (§201.6(c)(4)(ii))

Each participating municipality is responsible for implementing its specific mitigation actions identified in this Plan Update. This includes incorporating these actions into other planning documents such as comprehensive plans and zoning ordinances as necessary. Municipalities are responsible for obtaining funds from outside sources to implement the mitigation actions. The Wayne County Planning Department can provide technical and planning assistance to the municipalities in seeking funding for projects and/or for integrating mitigation actions into planning and regulatory documents at the local level.

Finally, the Wayne County Emergency Management Coordinator is responsible for implementing mitigation and operations plan inter-connections as identified in the footnotes throughout this Plan Update.

7.5 Continued Public Involvement (§201.6(c)(4)(iii))

The public involvement process during the five-year update cycle will include appropriate updates on the county website. The plan will be made available for review and comment annually and/or after each major hazard/disaster event. The plan will daily be available for review at the Wayne County Emergency Management Office, Wayne County Board of Commissioners Office, Wayne County Planning Department and the Wayne County website. The planning committee will review the comments received and make changes as it deems appropriate.

Appendix A

Plan Updates

Appendix B

Hazus-MH: Flood Event Report

Appendix C

Critical Facilities List

Key for the critical facilities as indicated on Municipal Maps

ID	CONTROL	NAME	LATITUDE	LONGITUDE
1	041021	67 EMS HIDEOUT SUBSTATION	41° 26' 35.391''' N	75° 20' 37.095''' W
2	000006	BEACH LAKE FIRE DEPARTMENT	41° 35' 55.873''' N	75° 9' 9.640''' W
3	108606	BREEZEWOOD ACRES COMMUNITY FIRE	41° 15' 24.464''' N	75° 22' 42.408''' W
4	117269	BROWDALE FIRE COMPANY	41° 39' 12.622''' N	75° 27' 18.637''' W
5	006021	DAMASCUS AMBULANCE	41° 41' 36.962''' N	75° 6' 50.708''' W
6	106269	DAMASCUS FIRST RESPONDER	41° 48' 19.397''' N	75° 11' 24.063''' W
7	001082	EQUINUNK FIRE COMPANY #1	41° 51' 11.011''' N	75° 13' 39.255''' W
8	006006	EQUINUNK FIRE COMPANY #2	41° 45' 17.844''' N	75° 11' 9.732''' W
9	110924	GOULDSBORO AMBULANCE	41° 14' 37.973''' N	75° 27' 30.829''' W
10	110924	GOULDSBORO FIRE DEPARTMENT	41° 14' 37.973''' N	75° 27' 30.829''' W
11	008142	GREEN-DREHER FIRE COMPANY	41° 18' 25.185''' N	75° 19' 19.244''' W
12	037074	HAMLIN FIRE AND RESCUE	41° 24' 13.228''' N	75° 24' 15.288''' W
13	037074	HAMLIN FIRE AND RESCUE	41° 24' 13.228''' N	75° 24' 15.288''' W
14	011565	HAWLEY AMBULANCE	41° 28' 35.702''' N	75° 11' 9.421''' W
15	023975	HAWLEY FIRE DEPARTMENT	41° 28' 39.019''' N	75° 11' 7.168''' W
16	011331	HAWLEY POLICE DEPARTMENT AND BOROUGH BUILDING	41° 28' 46.266''' N	75° 11' 2.382''' W
17	012931	HONESDALE FIRE COMPANY #1	41° 34' 11.607''' N	75° 15' 16.651''' W
18	015099	HONESDALE FIRE COMPANY #2	41° 33' 55.250''' N	75° 15' 0.217''' W
19	012697	HONESDALE FIRE COMPANY #3	41° 34' 38.662''' N	75° 15' 28.498''' W
20	012794	HONESDALE POLICE DEPARTMENT	41° 34' 28.001''' N	75° 15' 25.523''' W
21	041009	LAKE ARIEL FIRE DEPARTMENT	41° 27' 8.129''' N	75° 23' 0.922''' W
22	041021	LAKE ARIEL FIRE DEPARTMENT HIDEOUT SUBSTATION	41° 26' 35.391''' N	75° 20' 37.095''' W
23	027408	LAKE ARIEL FIRE DEPARTMENT SOUTH CANAAN SUBSTATION	41° 30' 36.362''' N	75° 24' 52.493''' W
24	100042	LAKEVILLE FIRE DEPARTMENT	41° 26' 30.936''' N	75° 16' 13.100''' W
25	122535	LAKEVILLE FIRE DEPARTMENT WLE SUBSTATION	41° 24' 0.361''' N	75° 16' 25.989''' W
26	037116	LEDGEDALE FIRE DEPARTMENT	41° 23' 53.228''' N	75° 19' 9.777''' W
27	015622	LEHIGH TOWNSHIP POLICE DEPARTMENT	41° 14' 34.224''' N	75° 27' 16.342''' W
28	041066	MAPLEWOOD FIRE DEPARTMENT	41° 25' 58.086''' N	75° 26' 17.911''' W
29	008128	NEWFOUNDLAND AMBULANCE	41° 18' 26.760''' N	75° 19' 24.786''' W
30	115063	NORTHERN WAYNE FIRE AND RESCUE	41° 51' 38.303''' N	75° 22' 17.689''' W
31	115063	NORTHERN WAYNE FIRE AND RESCUE	41° 51' 38.303''' N	75° 22' 17.689''' W
32	052784	PA STATE POLICE	41° 30' 38.350''' N	75° 16' 45.955''' W
33	011565	PIKE ALS	41° 28' 35.702''' N	75° 11' 9.421''' W

ID	CONTROL	NAME	LATITUDE	LONGITUDE
34	115839	PLEASANT MOUNT EMERGENCY SERVICES	41° 44' 27.6048''' N	75° 27' 11.3391''' W
35	115839	PLEASANT MOUNT EMERGENCY SERVICES	41° 44' 27.6048''' N	75° 27' 11.3391''' W
36	022968	PLEASANT MOUNT EMERGENCY SERVICES	41° 44' 25.893''' N	75° 25' 57.085''' W
37	026289	PROMPTON FIRE COMPANY	41° 34' 55.802''' N	75° 19' 27.371''' W
38	001752	SCI WAYMART FIRE COMPANY	41° 34' 29.980''' N	75° 25' 47.983''' W
39	028013	SEELEYVILLE FIRE COMPANY	41° 34' 37.608''' N	75° 16' 50.191''' W
40	012124	TEXAS FIRE COMPANY #4	41° 33' 41.880''' N	75° 15' 27.302''' W
41	029285	WAYMART AMBULANCE	41° 34' 42.853''' N	75° 24' 28.042''' W
42	029270	WAYMART FIRE COMPANY	41° 34' 57.239''' N	75° 24' 32.626''' W
43	055923	WAYMART POLICE DEPARTMENT	41° 34' 50.652''' N	75° 24' 38.657''' W
44	012124	WAYNE AMBULANCE	41° 33' 41.880''' N	75° 15' 27.302''' W
45	100042	WAYNE AMBULANCE LAKEVILLE SUBSTATION	41° 26' 30.936''' N	75° 16' 13.100''' W
46	012098	WAYNE COUNTY DETECTIVE	41° 34' 29.332''' N	75° 15' 13.853''' W
47	000023	WAYNE COUNTY EMA	41° 34' 3.384''' N	75° 11' 45.217''' W
48	012081	WAYNE COUNTY PARK STREET COMPLEX	41° 34' 26.431''' N	75° 15' 40.248''' W
49	012097	WAYNE COUNTY PROBATION DEPARTMENT	41° 34' 27.709''' N	75° 15' 13.766''' W
50	037091	WAYNE COUNTY SENIOR CENTER HAMLIN	41° 24' 18.787''' N	75° 24' 33.281''' W
51	011333	WAYNE COUNTY SENIOR CENTER HAWLEY	41° 28' 44.502''' N	75° 10' 58.805''' W
52	013112	WAYNE COUNTY SENIOR CENTER HONESDALE	41° 34' 32.745''' N	75° 15' 13.456''' W
53	012098	WAYNE COUNTY SHERIFF DEPARTMENT	41° 34' 29.005''' N	75° 15' 12.390''' W
54	012081	WAYNE COUNTY STOURBRIDGE PROJECT	41° 34' 27.994''' N	75° 15' 40.020''' W
55	012041	WAYNE MEMORIAL HOSPITAL	41° 34' 36.088''' N	75° 15' 37.358''' W
56	012782	WAYNE MEMORIAL MAPLE AVE	41° 34' 30.167''' N	75° 16' 7.134''' W
57	000025	WELCOME LAKE FIRE DEPARTMENT	41° 34' 51.940''' N	75° 5' 25.681''' W
58	029253	WHITE MILLS COMMUNITY AMBULANCE	41° 31' 29.775''' N	75° 12' 39.876''' W
59	028006	WHITE MILLS FIRE AND AMBULANCE	41° 31' 37.674''' N	75° 12' 22.971''' W
60	028006	WHITE MILLS FIRE AND AMBULANCE	41° 31' 37.674''' N	75° 12' 22.971''' W

Appendix D

Municipal Adoptions