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Executive Summary

The Henry County Natural Hazard Mitigation Plan was developed in accordance with The Disaster Mitigation Act of 2000 with the purpose of ensuring that Henry County has existing goals and objectives for the mitigation of future damage caused by natural disasters. A core committee was organized to develop the plan. In 2010 the process of revising, amending, and updating this plan began.

The plan began by identifying the natural hazards that are most prevalent in Henry County. These natural hazards were determined to be tornadoes, winter storms/blizzards, thunderstorms, and floods. A profile of each one of these hazards was then conducted to determine the number and severity of the past disasters. To determine what structures are at risk from these natural disasters, a community profile was conducted to determine the location of critical facilities and structures in the floodplain. Critical facilities consist of structures such as hospitals, schools, police and fire stations, water and wastewater facilities, utilities, grain elevators, mobile home parks and elderly/handicap care facilities. Based on this information, all of the structures in Henry County are at risk from damage from tornadoes, winter storms/blizzards and thunderstorms, due to the randomness of these storms, and about 2.5% of the structures in Henry County are at risk to damage from floods.

By knowing what is at risk, the process of developing the mitigation plan began. This consisted of determining problem statements, goals, objectives and action items for each one of the natural hazards. State and local capability assessments were then completed to help determine what programs, policies, regulations, funding and practices are currently in place to facilitate, support or hinder the action items. With the state and local capability assessments complete, the mitigation actions were evaluated and prioritized for the development of the mitigation implementation strategy. The mitigation implementation strategy lists the actions along with the responsible parties, beneficiaries, cost and proposed timeline for completion.

1.0 Introduction

The Stafford Act, as amended, requires that a natural hazards mitigation plan meeting program criteria be developed, in order that communities will be eligible for future pre-disaster and post-disaster mitigation program funds. The purpose of this plan is to ensure that the community has existing goals and objectives, in addition to a well-thought-out process for mitigating future damages, before approving projects.

The Disaster Mitigation Act of 2000 is the latest legislation to improve the planning process and was put into motion on October 10, 2000, when the President signed the Act (Public Law 106-390). The legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. To implement these requirements, Federal Emergency Management Agency (FEMA) prepared an Interim Final Rule, published in the Federal Register on February 26, 2002, at 44 Code of Federal Regulations Parts 201 and 206, which establishes planning and funding criteria for states and local communities.

Hazard mitigation is any action that reduces the effects of future disasters. Mitigation, also known as prevention, encourages long-term reduction of hazard vulnerability. The goal of mitigation is to save lives and reduce property damage.

To aid in the revision process the 2008 FEMA publication "Local Multi-Hazard Mitigation Planning Guidance" was used. Each section of the plan was updated with current information; then the FEMA crosswalk was used to ensure all essential information was included within the plan. Special attention was given to plan language; where necessary wording was improved for clarity. All sections and appendices were evaluated for revision as part of the plan update process.

1.1 Planning Grant

On September 7th, 2010, the Henry County Commissioners signed the Pre-Disaster Mitigation Planning Grant Application for submittal to the Ohio Emergency Management Agency (OEMA). A letter dated September 27th, 2010, from Ohio Public Safety, Emergency Management Agency indicated that Henry County had received the planning grant. The federal and state funding for this planning grant was $7,510 (75%) with a local in-kind match of $2,503 (25%). The total grant amount was $10,013. The grant performance period was set as August 16, 2010, to August 16, 2012. For this community continue to receive project funding, a updated and revised Federal Emergency Management Agency (FEMA) approved plan is needed by November 1, 2011. Therefore, it is the County's intention to have an approved plan by November 1, 2011.

1.2 Geographic Area of Plan

The preparation of the Henry County Natural Hazard Mitigation Plan was developed to include all of the municipalities and townships located in Henry County, Ohio. The

following tables list the jurisdictions involved and both the executive representative and a planning representative (where applicable).

Name of Jurisdiction	Type of Jurisdiction	Executive Representative	Planning representative
Henry	County	Commissioner(s)	County Engineer
Bartlow	Township	Trustee(s)	Zoning Inspector
Damascus	Township	Trustee(s)	Zoning Inspector
Flatrock	Township	Trustee(s)	Zoning Inspector
Freedom	Township	Trustee(s)	Zoning Inspector
Harrison	Township	Trustee(s)	Zoning Inspector
Liberty	Township	Trustee(s)	Zoning Inspector
Marion	Township	Trustee(s)	Zoning Inspector
Monroe	Township	Trustee(s)	Zoning Inspector
Pleasant	Township	Trustee(s)	Zoning Inspector
Napoleon	Township	Trustee(s)	Zoning Inspector
Richfield	Township	Trustee(s)	Zoning Inspector
Ridgeville	Township	Trustee(s)	Zoning Inspector
Washington	Township	Trustee(s)	Zoning Inspector
Deshler	Village	Mayor	n/a
Florida	Village	Mayor	n/a
Hamler	Village	Mayor	n/a
Holgate	Village	Mayor	n/a
Liberty Center	Village	Mayor	Zoning
Malinta	Village	Mayor	n/a
McClure	Village	Mayor	n/a
New Bavaria	Village	Mayor	n/a
Napoleon	City	Mayor	City Engineer

As such, all governing bodies were invited to be part of the planning process and were allowed input during the plan development. A letter was sent inviting them to the September 10th, 2010, All-hazards meeting, where they were asked for involvement and input in the mitigation plan and process. All of the townships and municipalities were sent letters on March 28, 2011, asking them to complete a survey. They survey asked questions regarding the level of concern they had about natural hazards and ranking potential activities. Copies of the completed surveys are located in Appendix F. They were sent another letter in April for input on specific areas that needed to be addressed and possible mitigation activities.

1.3 Core Committee

The Henry County Planning Commission was identified as the lead agency in completing the plan. To assist the Planning Commission, a core committee was formed; this committee will include the Director of the Henry County Emergency Management Agency, Director of the Henry County Planning Commission, county and local government representatives and other interested parties. To enlist volunteers for the

committee, letters were sent to the township and municipal officials, local fire and police departments, county offices, and other interested parties, to invite them to an initial meeting that was scheduled for September 10th, 2010. Also, a press release was submitted and printed in the *Northwest Signal* to invite any interested citizen to be involved in the planning process and to be part of the core committee. The core committee consisted of the following:

Tracy Busch	Director, Henry County EMA
Anne Goon	Henry County Health Department
Jeanie Detmer	Director, Henry County Chapter of the American Red Cross
John J. Nye	Henry County Sheriff
Bob Weitzel	City of Napoleon Police Chief
Dexter Benecke	Chief, Ridgeville Fire and Rescue
Rich Myers	Henry County Commissioner
John Steele	Deputy Director, EMA
Michelle Rychener	Representative of Henry County Hospital
Chad Lulfs	Napoleon City Engineer
Scott Buddlemeyer	Henry County South Joint Ambulance District
Gloria Arps	Public Health Emergency Coordinator
Nick Rettig	Director, Henry County Planning Commission

The Henry County Planning Commission also took the main role of writing the plan and developing the drawings.

In addition to the committee the revision process was managed by Calvin Stevens, technical information on the SKYWARN network was provided by Keith Hosman.

Once the core committee was established, regularly scheduled meetings were held to develop the plan.

1.4 Core Committee Meetings

January: The core committee met to review the state of the plan revision. A further meeting was to obtain input from local jurisdictions.

July 7, 2011: A meeting was held for representatives of vulnerable populations. This included schools, long term care facilities, and other groups. A survey was given to obtain information about the needs and resources of their facilities.

July 22, 2011: The core committee was briefed on the status of this revision and made plans to develop problem statements, goals, and objectives…

July 26-27, 2011: Meeting with local subdivision representatives to inform them of the status of plan revision and to ask for input.

August 31, 2011: The core committee met to review the status of mitigation actions from the 2004 plan and to develop new actions for the next five year phase.

1.5 Public Communication

During the initial plan regular meetings were held which were open to the public. These meetings were announced via the local newspaper and radio station. In addition residents have responded by contacting the Emergency Management Agency directly, or through their elected officials, about mitigation issues including road improvements related to flooding, homes in flood zones, and the vulnerability of local trailer parks.

Prior to Henry County receiving the grant, the Henry County Planning Commission passed out surveys at the Henry County Fair in August 2010. This survey was to get the public's level of concern of different natural hazards, as well as getting insight on what type of projects they would recommend to mitigate these hazards. This same survey was given to municipal and township officials and the core committee. These surveys were determined to be representative because the survey asked for location of residency and the returned surveys indicated a variety of locations in Henry County. A total of 26 surveys were received, and a summary of the results and the completed surveys are located in Appendix F. An additional survey was conducted during the 2011 County Fair.

To alert the public and other organizations about the planning process, letters were sent to the neighboring counties, the political subdivisions in Henry County, area fire chiefs, Henry County Offices, such as the Sheriff, Engineer, Health Department, Soil & Water Conservation District, OSU Extension, Local Emergency Planning Committee, EMS, area utilities, farm bureau and the Henry County chapter of the Red Cross. Letters were also sent to the municipal and township officials to keep them updated on the planning process. Copies of these letters are located in Appendix F. A public notice was publicized in the *Northwest Signal* to inform the general public about the planning process and how they could be involved. To keep the public informed, additional articles were published in the *Northwest Signal* throughout plan development (Appendix H).

Once the draft plan was complete, the public was able to view it at the Henry County Planning Commission web site at www.henrycountyplanning.com and make comments.

The first public meeting was the September 10th, 2010, All-hazards meeting. The public was also able to comment on the plan at the public meeting that was held on June 3, 2004. A few comments were received from the public meeting and the plan was revised accordingly to address these comments. A newspaper article was printed in *The Crescent-News* on June 4, 2004 that summarized the public meeting (Appendix H).

A meeting was held on June 7, 2010 with the representatives of facilities that serve vulnerable populations. A letter was sent to all educational, health care, and senior care facility as well as the mobile home parks. At this meeting a form was distributed to

gather information on the site specific needs and challenges of each facility. 12 forms were collected. The letter and forms are located in Appendix F.

Two meetings were held to brief township trustees and local city and village councils on the state of this plans revision, as well as the achievements since implementing the original plan. A letter was mailed on July 13, 2011 with the meetings scheduled for the morning of July 26, 2011 and the evening of July 27, 2011.

1.6 Incorporation of Existing plans and information

The County Planner and Flood Plain Administrator provides information on flood zones and NFIP compliance (Appendix H-Flood Regulations). The Community Improvement Corporation brings awareness of potential new businesses and industries which may have specific vulnerabilities or hazards (Appendix H-CIC minutes). The Henry County Soil and Water Conservation District also provides information with regard to natural resources and ditch maintenance programs. Local residents are personally sought out for information on local flooding and weather conditions.

1.7 Mitigation Plan Adoption

Throughout the development of this plan, letters were sent to the townships and municipalities updating them on the progress of the plan and asking for their input on the plan. The letters also indicated that they would need to take formal action on the plan to remain eligible for mitigation dollars. These communities were also given draft copies of the plan for review prior to adoption. The county and participating jurisdictions listed in section 1.2 intend to formally adopt this plan by Resolution following federal approval. Copies of adoption resolutions will be located in Appendix G.

2.0 Hazard Analysis

Hazard analysis is the foundation upon which all emergency planning efforts in the community are built. Hazard analysis provides an understanding of the potential threats facing the community. By pinpointing the exact location, extent and magnitude of past disasters and by examining new or emerging risks, it is possible to determine the probability of such events occurring and the vulnerability of people and property. By reviewing this information along with relevant land use, geographic, economic, and demographic information, local officials can make assumptions about which segments of the community might be impacted by various types of hazards. This in turn allows them to set priorities and goals for mitigation prior to an incident occurring.

Hazard analysis can be broken down into four basic steps:

1. Identify the hazards.
2. Profile each hazard.
3. Develop a community profile.
4. Conduct a vulnerability analysis and estimate losses.

2.1 Identification of Hazards

The first step in hazard analysis involves the identification of those natural hazards to which the community is susceptible. To help determine which natural hazards affect Henry County, a number of different methods were employed. They included a questionnaire and a search of historical records for past hazards that occurred in Henry County. The questionnaire was completed by the core committee, sent to all of the townships and municipalities (see Section1.2) and was given to the general public at the Henry County Fair in August 2010.

The questionnaire asked "How concerned are you about the following disasters affecting Henry County?" The hazards listed included drought, earthquake, flood, thunderstorm/lightning, wild fire/forest fire, wind storm/tornado, winter storm/blizzard and other. The response was based on a level of concern ranging from extremely concerned (1) to not concerned (5). The results of the questionnaire indicated the following:

Hazard	Percentage Indicating Extremely or Very Concerned
Wind storm/tornado	54%
Winter storm/blizzard	35%
Thunderstorm/lightning	19%
Flood	12%
Drought	8%
Wild fire/forest fire	0%
Earthquake	0%

To determine what past hazards have occurred in Henry County, a number of different sources of information were reviewed. They consisted of newspapers, history books in

the library, National Oceanographic and Atmospheric Administration (NOAA) website, United States Geologic Survey (USGS) website, and Federal Emergency Management Agency (FEMA) website. Information was also obtained from citizens with historical information and governmental agencies that have natural hazard information. Other plan reviewed included the Henry County Comprehensive Plan and the Henry County Emergency Operations Plan.

The following table identifies the hazards that were determined to be most prevalent in Henry County.

Hazard	How identified	Why identified
Tornado	• Public Input • Review of Past disasters • Risk Assessments	• Frequently causes damage
Winter storm/blizzard	• Public Input • Review of Past disasters • Risk Assessments	• Frequently causes damage
Thunderstorm	• Public Input • Review of Past disasters • Risk Assessments	• One of the forces causing flooding • Frequently causes damage
Flood	• Review of FIRMs • Public Input • Review of Past disasters • Risk Assessments	• Flooding occurs along a numbers of rivers and creeks throughout the County • There are structures within areas that are identified as a special flood hazard area

Other hazards that were evaluated included droughts, wildfires and earthquakes, but were determined to be a low risk to Henry County. The results of the evaluation are included in the following paragraphs.

[Your User1]

2.1.1 Drought

Drought refers to an extended period of time with deficient rainfall relative to the statistical mean for a region. They are measured using the Palmer Severity Scale in which a score of 0 is a normal climate and negative numbers indicate a drought (Appendix H - NOAA). The severity of a drought is dependent on its duration,

intensity and geographic extent. During severe droughts, agricultural crop yields are reduced and a shortage of water for human and industrial consumption can occur.

Droughts have minimal impact on buildings, with the primary damage being to agriculture. Based on 2011 crop estimates, as much as $145,399,460 of production crops may be vulnerable, in addition to livestock and other natural resources. The following table breaks this into the three major crops in the area.

Product	Bushels harvested	Cost / Bushel	Harvest value
Corn	11,438,000	$6.46	$73,889,480
Soybeans	4,691,000	$11.78	$55,259,980
Wheat	2,500,000	$6.5	$16,250,000

All of Henry County is vulnerable to drought conditions including the jurisdictions listed in Section 1.2. With a majority of Henry County being agricultural and with a number of houses on wells for their water supply, droughts can and have affected Henry County. However, it is also difficult to determine losses from droughts and to accurately predict future occurrences and magnitude. Regional drought events are listed in Appendix B. Based on this information the chance of an extreme drought occurring is 65% in any year.

2.1.2 Wildfire/Forest Fire

A wildfire is an uncontrollable fire spreading through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed, spread quickly, and are usually signaled by dense smoke that fills the area for miles around.

Wildfire behavior is based on three primary factors: fuel, topography and weather. The type and amount of fuel, as well as its burning qualities and level of moisture, affect wildfire potential and behavior. The continuity of fuels expressed in both horizontal and vertical components is also a factor, in that it expresses the pattern of vegetative growth and open areas. Topography is important because it affects the movement of air (and thus the fire) over the ground surface. The slope and shape of terrain can change the rate of speed at which fire travels. Weather affects the probability of wildfire and has a significant effect on its behavior. Temperature, humidity and wind (both short and long term) affect the severity and duration of wildfires.

The Ohio Division of Foresrty implements the National Fire Protection Association's Firewise program. This program encourages communicates and homeowners to reduce their vulnerability to forest fires. Among other tools is a scoring assessment. The scoring brackets are:
0-19: Lowfire risk
20-50: Moderate fire risk
51-80: High fire risk

81 or more: Extreme fire risk
Typical homes within the City of Napoleon scored 22 resulting in moderate vulnerability to fire. While local variations in vegetation and other factors exist this may be considered a baseline for all jurisdictions within Henry County until a more in depth assessment may be obtained.

Even though Henry County has heavily wooded areas such as the Maumee State Forest and Mary Jane Thurston State Park, the weather conditions and the flat topography minimize the risk of wildfires. The biggest hazard for wildfires in Henry County is when land owners burn ditch banks and the fire gets out of control and burns the vegetation in the field. For this reason all of Henry County is vulnerable to wildfires including the jurisdictions listed in Section 1.2. In the worst case scenario of a catastrophic countywide event the combined value of agricultural commodities, valued property, and buildings is $20,016,517,380.

Type	Estimated value
Crop	$145,399,460
Land	$170,117,920
Buildings	$19,701,000,000

2.1.3 Earthquakes

An earthquake is a sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of earth's tectonic plates. The severity of these effects is dependent on the amount of energy released from the fault epicenter. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure.

One way to measure earthquakes is by determining peak ground acceleration (PGA). PGA is a measurement of the strength of ground movements. The website http://geohazards.cr.usgs.gov displays information regarding the probability of earthquakes and their severity. Based on the Peak Acceleration (%g) with 10% Probability of Exceedance in 50 years, USGS Map, October 2002, the value for Henry County is approximately 2.8% g (which is relatively low). This means that an earthquake with a PGA of 2.8% has a 10% chance of being exceeded over a 50-year period.

In addition to the PGA the Modified Mercalli Intensity (MMI) scale is used. The MMI has 12 levels of classification and is based on observed damage and the perceptions of survivors. While not a useful measurement for prediction it can be used when considering building structure vulnerability.

Given the wide area which earthquakes affect, all of Henry County is considered vulnerable including the jurisdictions listed in Section 1.2. Specific events are listed in Appendix B. Based on the events listed the probability of a quake occurring in Henry county or an adjacent county is 10% in any year.

A damage estimate was conducted using the Hazus-MH to simulate a major earthquake directly under the city of Napoleon. The following table lists potential damage values and injuries. Transport infrastructure is largely unaffected. Utility infrastructure is greatly reduced for the first week following the event.

Building type	Damage estimate in $	Number of injuries
Residential	$94,610,000	
Non-residential	$55,330,000	
Serious Injuries		9
Critical Injuries		1
Fatalities		2

Historically, Henry County has experienced earthquakes, but they have been small, and damage has been minimal.

Even though droughts, earthquakes and wildfires have occurred or could occur in Henry County, the core committee determined that these hazards were a low risk for Henry County.

Appendix A of this plan includes the Vulnerability Map and Electric System Map that shows the location of the county's infrastructure, critical facilities and structures within the special flood hazard areas.

2.2 Profiling Hazard Events

Based on the identification of what natural hazards can occur in Henry County, it was determined that the most prevalent are tornadoes, winter storm/blizzards, thunderstorms and flooding. To get an indication of how bad these natural hazards can get, research on past hazards was completed. The following information contains past natural hazard events.

2.2.1 Tornado

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long.

Tornadoes are among the most unpredictable of weather phenomena. While tornadoes can occur almost anywhere in the world, they are most prevalent in the United States. Tornadoes can occur in any state but are more frequent in the Midwest, southeast and southwest. Tornado season runs ordinarily from March through August; however, tornadoes can strike at any time of the year, if the essential conditions are present.

Fujita Tornado Measurement Scale		
F0	Gale tornado (40-72 mph)	Light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.
F1	Moderate tornado (73-112 mph)	Moderate damage. The lower limit is the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads.
F2	Significant tornado (113-157 mph)	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
F3	Severe tornado (158-206 mph)	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
F4	Devastating tornado (207-260 mph)	Devastating damage. Well-constructed houses leveled; structure with weak foundation blown off some distance; cars thrown and large missiles generated.
F5	Incredible tornado (261-318 mph)	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 yards; trees debarked; incredible phenomena will occur.

[Your User2]Thunderstorms and hurricanes spawn tornadoes when cold air overrides a layer of warm air, causing the warm air to rise rapidly. The winds produced from hurricanes, earthquake-induced fires, and wildfires have also been known to produce tornadoes. In Henry County, tornadoes are typically spawned from thunderstorms.

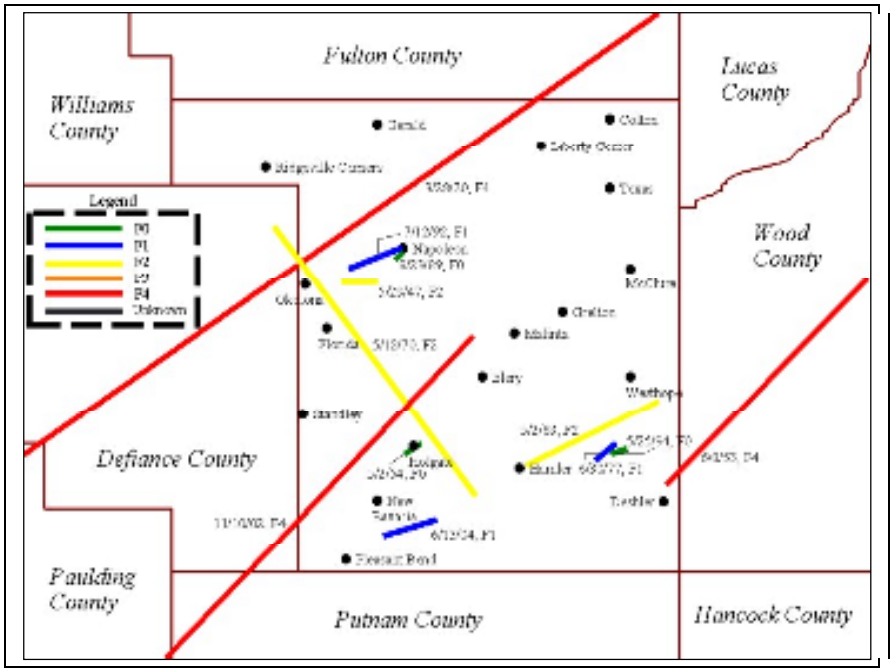
To learn information on past tornadoes in Henry County, the Tornado Project web site at www.tornadoproject.com/alltorns/ohtorn2.htm was reviewed. It contained information for tornadoes in Henry County from 1950 to 1995. Also, the National Climatic Data Center (NCDC) website for storm events in Henry County contained information for events from 1950 to 2011. This information, combined with information obtained from books and newspapers at the library, resulted a tabulation of the following information. Appendix B contains more information on these hazard events. The approximate location for these tornadoes is shown in a picture that follows. The information was obtained from the NOAA website.

Bartlow Twp.
1953 Tornado

Henry County Tornadoes

Date	Location	Deaths	Injuries	Damage	F Scale
6/29/1906	Holgate	0	4	Unknown	unknown
5/19/1919	Napoleon	0	0	Unknown	unknown [Your User3]

3/28/1920	Napoleon & Freedom Twps	0	3	$500,000	F4
5/29/1947	Napoleon Twp	unknown	unknown	Unknown	F2
6/8/1953	Bartlow Twp	5	1	Unknown	F4
5/2/1954	Holgate	0	0	Unknown	F0
5/12/1970	Marion, Pleasant, Flatrock & Napoleon Twps	0	0	$25,000	F2
5/1973	Malinta	0	0	Unknown	unknown
6/30/1977	Bartlow Twp	0	0	$3,000	F1
5/2/1983	Marion & Richfield Twps	0	0	$2,500,000	F2
8/23/1989	Napoleon	0	0	$25,000	F0
7/12/1992	Napoleon Twp	0	1	$25,000	F1
5/25/1994	Bartlow Twp	0	0	Unknown	F0
11/11/2002	Pleasant, Flatrock & Monroe Twps	0	0	$10,000	F0
6/13/2004	Pleasant Twp.	0	0	$75,000	F1
06/05/2010	Liberty Twp.	0	0	Unknown	F2

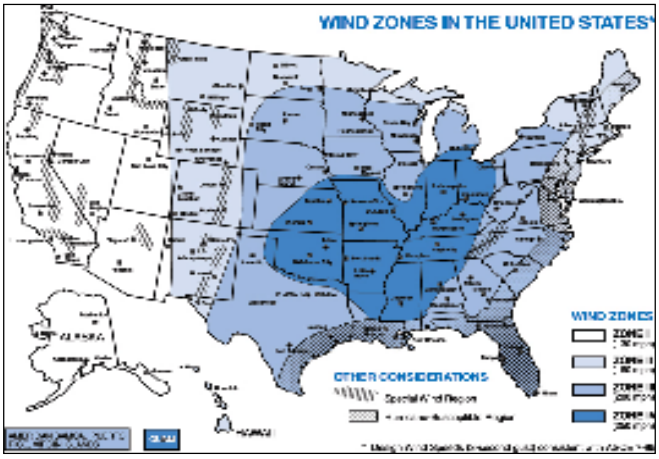


NOAA

Henry County has also been affected by storms with strong winds. Typically [Your User4]associated with thunderstorms, these windstorms have caused property damage and personal injury in the past. The damage is usually associated with downed trees or power poles, broken windows, damaged vehicles and some damage to structures. There have been numerous reports of gusts in excess of 50 mph throughout Henry County.

Wind speeds of 80 mph were reported on November 11, 2002, near Hamler and were responsible for the derailment of a train. This wind was thought to be downburst winds from the collapse of a parent supercell that produced an F0 tornado in Pleasant, Flatrock and Monroe Townships in Henry County and a F4 tornado in Van Wert County, Ohio.

To determine the "Design Wind Speed" for Henry County, the FEMA web site was reviewed. From [Your User5]Publication 320 *Taking Shelter from the Storm: Building a Saferoom in Your House* (see adjacent insert), Henry County is located in Zone IV, which is associated with wind speeds of 250 mph.



2.2.2 Winter Storm/Blizzard

Each year, Henry County receives approximately 37 inches of snow. The snow comes in the form of snow flurries to blizzards. A blizzard is defined as winds of 35 mph or more with snow reducing visibility to less than ¼ mile for at least 3 hours.

For winter storms to form, they need three key components: cold air, moisture and lift. For snow and ice to form, the temperature must be below freezing in the clouds and near the ground. Water evaporating from bodies of water, such as large lakes, is an excellent source of moisture. Lift causes moisture to rise and form clouds and precipitation. An example of lift is warm air colliding with cold air and being forced to rise.

[Your User6]

January 25, 1978, was the beginning of what has been known as the "Blizzard of '78". The storm began as freezing rain that turned into snow. By the early morning

on January 26, 1978, there were six to eight inches of snow on the ground, and the snow was still falling. From January 25 to January 29, over 12 inches of snow fell. Combined with wind gusts up to 45 mph, temperatures of 11 degrees Fahrenheit and snowdrifts 20 feet high, this was a major storm. By noon on January 26, Governor Rhodes declared the state a Civil Defense state of emergency. On January 27, 1978, the state was declared a national disaster area. The southern half of the county was without electricity and heat for over three days. Due to the continued drifting of roads, it took a week to open many of the county roads. US 6 was closed for three days. By January 29, 1978, most roads in the county were open to one lane width. At least one person died in Henry County from the storm.

The NCDC website for storm events in Henry County contained information for events from 1950 to 2011. They indicated 25 other events of heavy snow, ice or extreme cold. The information relative to deaths, injuries and damage is for the area impacted, which is typically multiple counties and not limited to just Henry County. Appendix B contains more information on these hazard events.

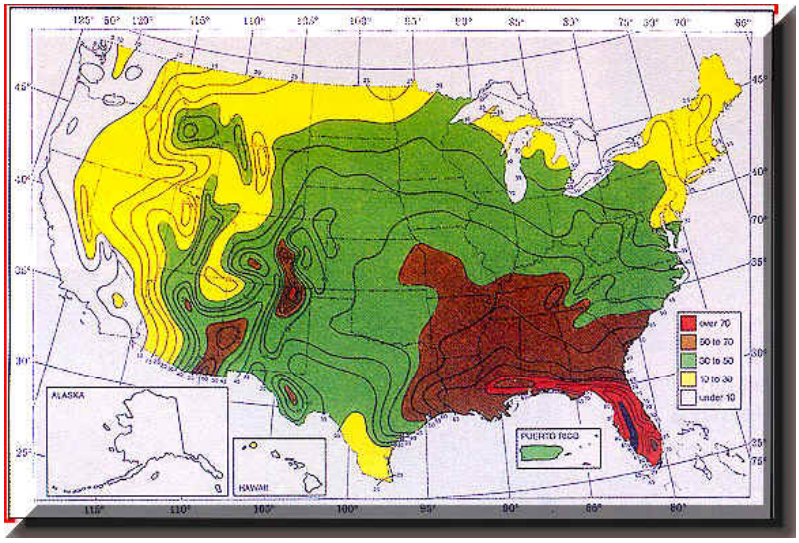
Winter Storms in Henry County

Date	Type	Deaths	Injuries	Damage
1/25/1978	Blizzard	unknown	unknown	unknown
[Your User7]2/ 25/1993	Heavy Snow	0	0	$500,000
12/26/1993	Extreme Cold	1	0	$500,000
2/25/1994	Heavy Snow	0	0	$50,000
1/21/1995	Heavy Snow	0	0	$500,000
2/11/1995	Extreme Cold	4	0	$100,000
4/4/1995	Extreme Cold	0	0	$0
4/10/1995	Glaze	0	0	$150,000
12/9/1995	Extreme Cold	0	0	$210,000
12/9/1995	Extreme Cold	0	1	$2,000
12/13/1995	Ice Storm	0	0	$60,000
2/2/1996	Extreme Cold	1	0	$3,400,000
3/19/1996	Heavy Snow	0	0	$352,000
1/10/1997	Extreme Cold	4	0	$195,000
3/13/1997	Ice Storm	0	0	$200,000
1/13/1998	Glaze	0	4	$0
1/2/1999	Heavy Snow	0	0	$0
3/11/2000	Heavy Snow	0	0	$0
12/13/2000	Heavy Snow	0	0	$0
12/25/2002	Heavy Snow	0	0	$0
2/22/2003	Heavy Snow	0	0	$0
12/22/2004	Winter Storm	0	0	$0

1/5/2005	Winter Storm	0	0	$0
1/22/2005	Winter Storm	0	0	$0
12/8/2008	Heavy Snow	0	0	$0
12/9/07	Ice Storm	0	0	$0
12/15/2007	Winter Storm	0	0	$0
2/1/2008	Winter Storm	0	0	$0
4/4/2008	Winter Storm	0	0	$0
12/19/2008	Ice Storm	0	0	$0
1/9/2007	Heavy Snow	0	0	$0
2/9/20010	Winter Storm	0	0	$0
12/12/2010	Winter Storm	0	0	$0
2/5/2011	Heavy Snow	0	0	$0
2/25/2011	Heavy Snow	0	0	$0

2.2.3 Thunderstorm

Thunderstorms can bring heavy rains (which can cause flash flooding), strong winds, hail, lightning, and tornadoes. According to NOAA, Henry County can expect between 30-50 days of thunderstorms per year (see insert).[Your User8]



Thunderstorms affect relatively small areas, when compared with hurricanes and winter storms. Despite their small size, all thunderstorms are dangerous. The typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Every thunderstorm needs moisture to form clouds and rain, unstable air, as in warm air, that can rise rapidly, and lift in the form of cold or warm fronts, sea breezes, mountains, or the sun's heat. Thunderstorms may occur singly, in clusters, or in lines. Thus, it is possible for several thunderstorms to affect one location in the course of a few hours. Some of the most severe weather occurs when a single thunderstorm affects one location for an extended time. Of the estimated 100,000 thunderstorms that occur each year in the United States, about 10 percent are classified as severe.

All thunderstorms contain lightning. Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When buildup becomes strong enough, lightning appears as a "bolt." This flash of light usually occurs between the clouds and the ground. A bolt of lightning reaches a temperature approaching 50,000 degrees Fahrenheit in a split second. The rapid heating and cooling of air near the lightning causes thunder.

Hail is formed by strong rising currents or air within the storm, called updrafts, carrying water droplets to a height where freezing occurs. Ice particles grow in

size, become too heavy to be supported by the updraft, and fall to the ground. Large stones fall at speeds faster than 100 mph.

The National Weather Service considers a thunderstorm severe if it produces hail at least ¾ inch in diameter, winds of 58 mph or stronger, or a tornado.


Colwell's Garage after storm March 19, 1947

Deshler Thunderstorm March 19, 1947

In the past, all areas of Henry County have seen numerous thunderstorms. Typically, the damage associated with these storms, when the storms did not cause floods or develop tornadoes, were associated with hail damage, downed trees and power poles, and lightning strikes to structures. The NCDC website for storm events in Henry County contained information for events from 1950 to 2011. They indicated 23 events of hail larger than 0.75 inches. The largest hail event recorded was in Hamler on September 25, 1994. During that event 2-inch hail was reported which caused $500,000 in property damage and $500,000 in crop damage. During another thunderstorm on May 1, 2003, the local newspaper, *Northwest Signal*, indicated that a barn was struck by lightning and was destroyed. The NCDC website also indicated 67 events of high winds associated with thunderstorms. The damage reported with these storms was typically downed tree limbs and power poles. A thunderstorm with high winds on May 17, 1999 near Ridgeville Corners caused $20,000 in property damage.

Holgate Thunderstorm August 8, 1979

Based on information from other reference material, there were some other thunderstorms in Henry County that caused damage. They include the March 19, 1947 storm that caused a reportedly thousands of dollars damage to Colwell's Garage and the B&O Freight Hose in Deshler. Debris blocked Main Street for 24 hours and the residents of Deshler were without electricity for 26 hours. No lives were lost. Another thunderstorm hit the southern portion of Henry County on August 8, 1979. The storm caused power

outages in Holgate and New Bavaria and many trees were downed causing damage in Holgate and Hamler. There were no reported injuries or deaths.

The following tables indicate the thunderstorms that contained hail or high winds. This information was obtained form NCDC's web site and the damage totals are not necessarily limited to just Henry County. Many of these events do not have damage values. This is due to the difficulty of obtaining such information. Appendix B contains more information on these hazard events.

Hail Events in Henry County

Date	Injury	Death	Property Damage	Crop Damage
6/7/1980	0	0	$0	$0
[Your User 5/2/1983	0	0	$0	$0
3/28/1985	0	0	$0	$0
5/17/1986	0	0	$0	$0
8/26/1986	0	0	$0	$0
6/8/1987	0	0	$0	$0
6/29/1987	0	0	$0	$0
5/9/1988	0	0	$0	$0
8/12/1988	0	0	$0	$0
6/17/1992	0	0	$0	$0
7/20/1992	0	0	$0	$0
9/25/1994	0	0	$500,000	$500,000
7/15/1995	0	0	$0	$0
6/27/1998	0	0	$0	$0
8/24/1998	0	0	$0	$0
5/17/1999	0	0	$0	$0
6/9/1999	0	0	$0	$0
5/9/2000	0	0	$0	$0
8/2/2000	0	0	$0	$0
5/25/2002	0	0	$0	$0
8/4/2003	0	0	$0	$0

Thunderstorm Events with High Winds in Henry County

Date	Injury	Death	Property Damage	Crop Damage
3/19/1947	0	0	$1,000's	$0
4/5/1957	0	0	$0	$0
6/30/1977	0	0	$0	$0
8/27/1978	0	0	$0	$0
8/8/1979	0	0	$0	$0
5/30/1980	0	0	$0	$0
6/7/1980	0	0	$0	$0
4/28/1981	0	0	$0	$0
6/8/1981	0	0	$0	$0
6/15/1982	0	0	$0	$0
9/6/1983	0	0	$0	$0
8/14/1985	0	0	$0	$0
5/6/1986	0	0	$0	$0
7/12/1986	0	0	$0	$0
7/25/1986	0	0	$0	$0
8/26/1986	0	0	$0	$0
6/3/1989	0	0	$0	$0
6/22/1989	0	0	$0	$0
8/5/1989	0	0	$0	$0
3/27/1991	0	0	$0	$0
7/29/1991	0	0	$0	$0
5/17/1992	0	0	$0	$0
6/17/1992	0	0	$0	$0
7/14/1992	0	0	$0	$0
7/20/1992	0	0	$0	$0
8/31/1993	0	0	$50,000	$5,000
6/13/1994	0	1	$50,000	$0
6/20/1994	0	0	$0	$0
11/1/1994	0	1	$500,000	$0
11/27/1994	0	1	$50,000	$0
11/28/1994	0	0	$500,000	$0
4/11/1995	0	0	$0	$0
6/26/1995	0	0	$2,000	$0
7/13/1995	0	0	$6,000	$0
7/15/1995	0	0	$2,000	$0
8/17/1995	0	0	$0	$0
10/5/1995	0	0	$80,000	$0
10/24/1995	0	0	$25,000	$0
11/11/1995	0	0	$260,000	$0
1/27/1996	0	0	$0	$0
2/10/1996	0	0	$45,000	$0
5/9/1996	0	0	$20,000	$0
7/24/1996	0	0	$0	$0

7/30/1996	0	0	$0	$0
10/30/1996	0	0	$0	$0
2/27/1997	0	0	$180,000	$0
5/18/1997	0	0	$2,000	$0
7/8/1997	0	0	$4,000	$0
3/28/1998	0	0	$1,000	$0
5/31/1998	0	0	$35,000	$0
7/21/1998	0	0	$0	$0
8/24/1998	0	0	$10,000	$0
11/10/1998	0	0	$0	$0
5/17/1999	0	0	$20,000	$0
6/9/1999	0	0	$0	$0
5/9/2000	0	0	$0	$0
8/2/2000	0	0	$0	$0
8/6/2000	0	0	$0	$0
6/12/2001	0	0	$0	$0
3/9/2002	0	0	$0	$0
7/26/2002	0	0	$0	$0
11/10/2002	0	0	$0	$0
4/20/2003	0	0	$5,000	$0
7/6/2003	0	0	$0	$0
7/8/2003	0	0	$0	$0
7/20/2003	0	0	$0	$0
8/26/2003	0	0	$0	$0
11/12/2003	0	0	$0	$0
5/23/2004	0	0	$0	$0
2/1/2008	0	0	$0	$0
4/4/2008	0	0	$0	$0
12/19/2008	0	0	$0	$0
1/9/2007	0	0	$0	$0
2/9/20010	0	0	$0	$0
12/12/2010	0	0	$0	$0
2/5/2011	0	0	$0	$0
2/25/2011	0	0	$0	$0

2.2.4 Flood

Floods are natural events for rivers and streams. Excess water from snowmelt or rainfall accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands adjacent to rivers that are subject to recurring floods.

Several factors determine the severity of floods, including rainfall intensity (or other water source) and duration. A large amount of rainfall over a short period of time can result in flash flood conditions. A small amount of rain can also result

in floods in locations where the soil is saturated from a previous wet period or if the rain is concentrated in an area of impermeable surfaces.

Topography and ground cover are also contributing factors for floods. Water runoff is greater in areas with steep slopes and little or no vegetative ground cover.

Frequency of inundation depends on climate, soil, and channel slope. In regions where substantial precipitation occurs in a particular season each year, or in regions where annual flooding is derived principally from snowmelt, the floodplains may be inundated nearly every year. In regions without extended periods of below-freezing temperatures, floods usually occur in the season of highest precipitation. In areas where flooding is caused by melting snow and occasionally compounded by rainfall, the flood season is spring or early summer.

For Henry County, flooding can and has occurred throughout the year. The Maumee River has gone above flood level in the winter and spring because of snow melt and the breaking up of ice on the river, and also in the summer due to heavy rains. Flooding along creeks in Henry County, such as School Creek and South Turkeyfoot Creek, usually occurs because of heavy rainfall events.

To determine areas that are at risk during floods, the flood insurance rate maps (FIRM) were reviewed. [Your User10] For the unincorporated areas of Henry County, special flood hazard areas (SFHA) are indicated along the Maumee River, Beaver Creek, Owl Creek, Garrett Creek, Van Hyning Creek, Konzen Ditch, North Turkeyfoot Creek, Dry Creek, South Turkeyfoot Creek, Bad Creek, Coon Creek, Big Creek, School Creek, Wade Creek, and Little Turkeyfoot Creek and some unnamed tributaries. The maps for the SFHA along the Maumee River indicate the location of Zone AE, the base floodplain where base flood elevations are provided. A portion of the Maumee River is also designated as a floodway, which is the stream channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without raising the water surface elevation by more than one foot. The maps for the other SFHA indicate Zone A, the base floodplain mapped by approximate methods with base flood elevations not shown.

In Napoleon, the SFHA are indicated along the Maumee River, Oberhaus Creek, Van Hyning Creek and Garrett Creek. The maps for the SFHA along the Maumee River indicate the location of Zone AE, the base floodplain where base flood elevations are provided, and Zone X (shaded), the area between the limits of the 100-year and 500-year floods. A portion of the Maumee River is also designated as a floodway, which is the stream channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without raising the water surface elevation by more than one foot. The maps for the other SFHA indicate Zone A, the base floodplain mapped by approximate methods with base flood elevations not shown.

In Florida, the SFHA is indicated along the Maumee River. The maps for the SFHA along the Maumee River indicate the location of Zone AE, the base floodplain where base flood elevations are provided. A portion of the Maumee River is also designated as a floodway, which is the stream channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without raising the water surface elevation by more than one foot.

In Liberty Center, the SFHA is indicated along Dry Creek. The map for this area indicates Zone A, the base floodplain mapped by approximate methods with base flood elevations not shown.

In Hamler, the SFHA is indicated along South Turkeyfoot Creek. The map for this area indicates Zone A, the base floodplain mapped by approximate methods with base flood elevations not shown.

In Deshler, the SFHA is indicated along Brush Creek. The map for this area indicates Zone A, the base floodplain mapped by approximate methods with base flood elevations not shown. However, Deshler is not in the National Flood Insurance Program.

The Villages of Malinta, McClure and New Bavaria do not have SFHA and are not in the National Flood Insurance Program.

These SFHA are indicated on the Vulnerability Map, located in Appendix A.

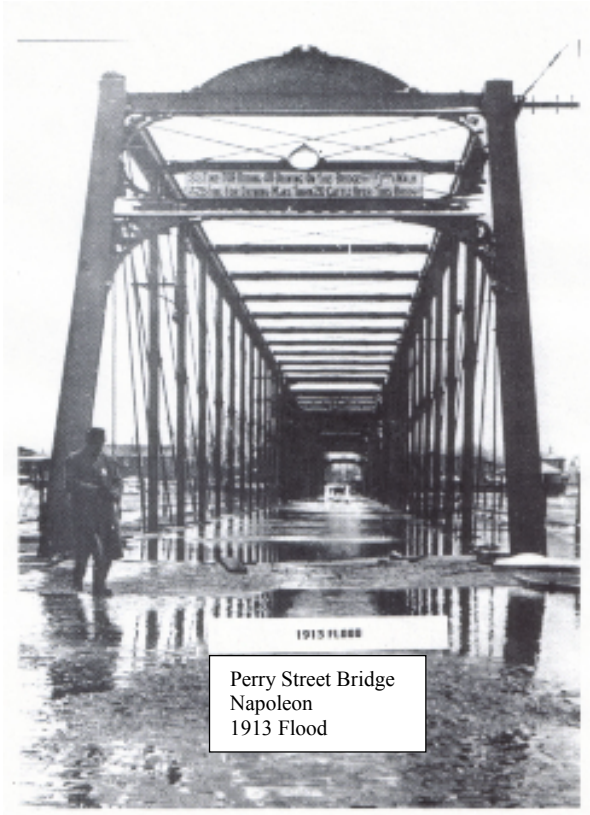
In addition to these areas, there is another location in Henry County that is not designated as a special flood hazard area but has a history of flooding and causing damage to the surrounding properties. This area is School Creek in and around Holgate. This area is indicated on the Vulnerability Map in Appendix A and was based on previous floods and the area identified in the May 3, 1974, FIA Flood Hazard Boundary Map for Holgate, Ohio. On May 29, 1979, this area was changed to indicate “No Special Flood Hazard Area”.

The 100-year flood designation applies to the area that has a 1 percent chance, on average, of flooding in any given year. However, a 100-year flood could occur two years in a row, or once every ten years. The 100-year flood is also referred to as the base flood. The special flood hazard area identified on the FIRM is the 100-year floodplain.

In the City of Napoleon, a gauge is located in the Maumee River. This gauge has measured the height of the river since 1905. During that time, the river has exceeded flood stage at least 19 times. The flood stage is 12.0 feet (636.71 ft NGVD 29). Based on information from the National Weather Service River Forecast Center, the historical crests of the Maumee River in Napoleon are as follows:

25.0 ft on March 27, 1913
19.5 ft on February 11, 1959

[Your User11]19.5 ft on February 14, 1918
19.4 ft on February 28, 1936
18.8 ft on March 2, 1910
18.0 ft on March 20, 1912
17.54 ft on March 15, 1982
17.13 ft on January 1, 1991
16.75 ft on January 25, 1999
16.7 ft on March 11, 2009
16.65 ft on January 14, 2005
16.0 ft on February 16, 1950
15.99 ft on February 26, 1985
14.45 ft on March 15, 2003
14.2 ft on Febuary 13, 2009
13.94 ft on June 16, 1981
13.8 ft on January 6, 1993
13.5 ft on June 3, 1997
13.2 ft on April 14, 1994
13.1 ft on February 21, 1994
13.05 ft on May 11, 2003
12.8 ft on June 15, 2004
12.78 ft on March 2, 2011
12.69 ft on January 16, 2007
12.41 ft on March 3, 2007
12.34 ft on April 28, 2011
12.13 ft on Febuary 9, 2005


Perry Street Bridge
Napoleon
1913 Flood

In Napoleon along the Maumee River, at 12 feet the water will cause flooding of farmland and possibly some secondary roads along the Maumee River. At 15 feet, the floodwaters will threaten some buildings in the east end of Napoleon and cause several roads to be impassable. At 17 feet, massive flooding will occur. Residents in areas adjacent to the Maumee River and its tributaries should prepare for extensive flood losses.

Only four of the flooding events that exceeded flood stage along the Maumee River had reported damage associated with them as indicated in NCDC's web page on storm events. The include: January 6, 1993 with $500,000 in property damage, April 14, 1994 with $50,000 in property damage, June 3, 1997 with $30,000 in property damage and $20,000 in crop damage and January 25, 1999 with $18,000 in property damage.

The flood of 1913 affected the largest area of all of the floods listed in this plan. Not only did this flood have the highest recorded level on the Maumee River in Napoleon, but the villages of


Deshler
1913 Flood

Deshler, Florida, Hamler, and Holgate were also affected. Information on the dollar amount of damage done by this flood was not found, but it was noted that at least one person died from the flooding.

In addition to those 19 flooding events on the Maumee River, t[illegible]t least two times that bridges [illegible]umee River sustained damage due to ice. These include in 1893 when ice destroyed the bridge in Florida and in 1878 when ice destroyed the Perry Street Bridge in Napoleon.

Hamler 1913 Flood

1913 Flood, Church Street looking east

Other flooding events within Henry County that were not associated with the Maumee River include the following.

In 1929, Hamler flooded due to rising water of South Turkeyfoot Creek. No information of damage or injuries was found.

On July 15, 1972, Deshler received over 4 ½ inches of rain in [illegible]ne hour during the afternoon. This was preceded by 2 inches of rain th[illegible]. All of the rain caused many of the streets in town to flood and basements to be flooded. No information of damage or injuries was found.

Florida 1913 Flood

On December 30, 1992, the Liberty Center area received 2-inches of rain in a short period of time which resulted in the flooding of Maple Street, Oaks Trailer Court and the railroad underpass on County Road T.

On August 5, 1998, the southern portion of Henry County sustained flooding damage due to heavy rains. As indicated by the NCDC's web page of storm events, $150,000 of property damage and $50,000 of crop damage was reported with no injuries or deaths.

On April 20, 2000, 8 inches of rain fell resulting in flooding in Hamler and Holgate. In Hamler, South Turkeyfoot Creek flooded and caused damage to 63 homes. In Holgate, School Creek flooded and damaged 52 homes, destroying 3 homes.

On March 1, 2001, 3.7 inches of rain fell in 6 hours, and School Creek in Holgate once again flooded and damaged 48 homes.

Appendix B contains more information on these hazard events.

2.3 Community Profile

Henry County is situated in northwest Ohio and consists of 13 townships, 8 villages and 1 city. The County is mainly rural, and most of the land is designated as farmland. Most of the commercial and industrial development in the County is in the City of Napoleon, population 8,749, which is the County's most populated area and is along the Maumee River. The 2010 census indicated a population of 28,215 in Henry County. Based on projections for the Office of Strategic Research, Ohio Department of Development, the population for Henry County in 2020 will be 29,990 and in 2030, the population will be 30,110. Residential growth in Henry County has recently decreased. New growth has been mostly in the northern portion of the County in Washington Township, Liberty Township, Freedom Township, the Village of Liberty Center and the City of Napoleon. These trends are expected to continue with the majority of the growth expected in and around existing municipalities. New growth in Henry County is expected to be outside the flood hazard area. The unincorporated areas of Henry County, along with the other National Flood Insurance Program (NFIP) communities of Napoleon, Liberty Center, Florida and Hamler, have regulations that require new structures to conform to regulations that are designed to minimize losses due to flood conditions.

Then Henry county government appoints a Flood Plain Administrator. This administrator maintains, monitors, and enforces all flood regulations, policies, and flood maps for the jurisdictions of the county. The administration of flood policies and the NFIP continues throughout the year. The current flood maps were produced effective 12-05-1995 and were adopted effective on the same date.

The climate in Henry County is mild, with an annual average high temperature of 59 degrees Fahrenheit and an annual average low temperature of 39 degrees Fahrenheit. On average, there are only about 14 days warmer than 90 degrees Fahrenheit and 17 days colder than 5 degrees Fahrenheit. Average precipitation is about 33 inches per year, with 37 inches of snow per year. The average wind speed is around 10 knots.

This plan identifies a number of critical facilities located in the County. These critical facilities are shown on the Vulnerability Map located in Appendix A. A critical facility was defined as one of the following:

- Essential facilities that are essential to the health and welfare of the whole population and are especially important following hazard events. These include hospitals, police stations, fire stations, landfills and schools.
- Transportation systems including airports, bridges, railways and roadways.
- Lifeline utility systems such as water treatment systems, wastewater treatment systems, oil/propane/natural gas facilities, power substations, and communication systems.
- Hazardous material facilities that include fertilizer and farm chemical suppliers.

- Vulnerable populations such as mobile home parks and elderly/handicap care facilities.
- Economic impact facilities such as the Campbell Soup Company and grain elevators.

Based on these criteria, the following critical facilities in Henry County were identified as follows:

- 1 Hospital
- 17 Police and fire stations
- 16 Schools
- 1 Landfill
- 1 Airport
- 5 Bridges over the Maumee River
- 32 locations on roadways that experience high water
- 26 Water and wastewater systems
- 24 Oil/propane/natural gas facilities
- 18 Power substations
- 13 Telephone exchanges
- 29 Telecommunication towers
- 12 Farm service facilities
- 7 Mobile home parks
- 7 Elderly/handicap care facilities
- 15 Grain elevators

Also shown on the Vulnerability Map located in Appendix A are the locations of the 16 warning sirens that are located throughout Henry County, water mains, sewer mains and underground natural gas pipelines that run throughout Henry County.

Due to current Homeland Security issues, the location of critical facilities will remain confidential and will not be made available to the general public. This information will be made available to the review agencies.

The structures that are at risk of flooding are also shown on the Vulnerability Map located in Appendix A. These structures are located in the 100-year floodplain as determined by information received from the Ohio Department of Natural Resources (ODNR) in GIS format. Not specifically highlighted on the Vulnerability Map are the 18 structures that are defined as repetitive loss structures by FEMA. Repetitive loss structures include any currently insured building with two or more flood losses (occurring more than 10 days apart) greater than $1,000 in any 10-year period since 1978.

Of the critical facilities, four have been determined to be in the flood hazard area. One elderly care facility, one telephone exchange, one water tower and a portion of one mobile home park are located within the 100-year flood zone. However, the facilities were constructed on fill material or were elevated such that their lowest floor elevation is above the flood elevation and should not experience any impact from a 100-year flood. Floodwaters do impact roadways in 32 locations in Henry County

For the other hazards, tornadoes, winter storm/blizzards, and thunderstorms, the entire county will be considered the hazard area, since these hazards can occur anywhere in Henry County and all of the critical facilities identified could be impacted by any of these hazards.

Although not located in Henry County, there are two nuclear power plants in close proximity that could impact the county should a natural disaster damage or disable either one of the generating facilities. These nuclear power plants are the Fermi II power plant in Monroe County, Michigan and the Davis Besse plant in Ottawa County. Even though these plants have been designed to withstand the worst weather that could be expected in the area, any potential damage from weather-related natural events is difficult to predict. However, based on the prevailing winds, most of the radioactive material would be carried to the east or northeast, which is away from Henry County.

The following table indicates information regarding existing structures in Henry County and their value. The structures susceptible to floods include the structures in the 100-year floodplain and the structures in the School Creek Flood Area.

Occupancy Class	Total Assets	Flood	Tornado*	Winter Storm / Blizzard*	Thunderstorm*
Residential	11,452	314	11,452	11,452	11,452
Commercial	1,039	12	1,039	1,039	1,039
Industrial	236	0	236	236	236
Agricultural	4,089	0	4,089	4,089	4,089
Religion / Non-Profit	129	0	129	129	129
Government	587	1	587	587	587
Education	52	0	52	52	52
Number of Buildings	17,584	327	17,584	17,584	17,584
Approximate Value ($M)	19,701	23.2	19,701	19,701	19,701
Number of People	28,215	410	28,215	28,215	28,215

* These hazards are random in nature and could affect any portion of the county
Source: Henry County Auditor in 2003 Dollars

Based on current zoning restrictions no new developments are planned for flood zones. There are no unique vulnerabilities to any planned or potential buildings, infrastructure, or critical facilities.[Your User12]

2.4 Vulnerability Analysis and Loss Estimation

The last part of the Hazard Assessment is to conduct a vulnerability analysis and estimate losses due to future natural hazard events. Based on the guidance document "Understanding Your Risks, Identifying Hazards and Estimating Losses", the information required for this task includes the level of damage from a hazard event in terms of the asset's structural and content replacement value and function. At this time, Henry

County does not have that information readily available. Instead, the level of damage from a natural hazard will be determined by historical data.

2.4.1 Tornado

Due to the random nature of tornadoes, the entire area of Henry County is vulnerable to a tornado[Your User13]. Depending of the location of the tornado strike and the strength of the tornado, the damage can vary. Light damage will occur if the tornado strike is in an open area of Henry County where the population is less dense. Greater damage will occur if the tornado strike is in a more densely populated area with many homes and businesses. The effects of future tornadoes and wind storms will fluctuate.

The critical facilities listed in this plan are also vulnerable to tornadoes. Mobile homes are defenseless against high winds and tornadoes. Without basements or shelters, the residents of mobile homes are at great risk to suffer injury or death. Elderly/handicapped care facilities could also sustain heavy losses since they contain a large population with limited mobility. Large populations could also be impacted if services such as water treatment plants, wastewater treatment plants, communication facilities or other utility services are damaged by tornadoes. Emergency services, such as fire, police, EMS and care facilities, could be slowed if their facilities were damaged.

Of the 16 tornadoes that are listed in this plan, only 7 reported damage figures. The information indicated a total of 5 deaths and 5 injuries for those events. Damage caused by past tornadoes has ranged from $3,000 for the June 30, 1977, F1 tornado that struck in Bartlow Township to $2.5 million for the May 2, 1983, F2 tornado that struck in Marion and Richfield Townships. Total damage amounts are $3,088,000. The most deadly tornado was the June 6, 1953, F4 tornado that struck in Bartlow Township and killed 5 people and injured 1.

Based on this information, the expected damage from a tornado is $450,000 of damage with little or no injuries or deaths. However, it is very possible that more damage with injuries and deaths could occur. Based on historical occurrences the annual chance of a tornado occurring is 16%; however given the unpredictability of this hazard it should be assumed that the annual chance of occurrence is 100%.

2.4.2 Winter Storm/Blizzard

Winter storms and blizzards typically are widespread and affect large areas. The entire area of Henry County can be affected by these storms. [Your User14]The damage caused by these storms can vary depending on the intensity and duration of the storm. Therefore, predicting future damage based on past winter storms is difficult.

The largest impact of these storms is typically on the roadway system. With the accumulation of snow and the blowing and drifting, travel on the roads can be difficult. A lot of time, money and effort is spent on maintaining traffic flow on the roadway systems. When the roadway system becomes impacted, emergency response by fire, police and EMS services are delayed. Also affected are the overhead utility lines. With ice accumulation and wind, these utility lines can break or be broken by falling tree limbs causing the loss of service to its customers. Extended periods without these services, specifically electricity, can lead to serious injury.

The data for the 21 winter storms that were identified in this plan is limited, especially when considering information specifically for Henry County. Typical damage from future winter storms is expected to be low, less than $50,000 with no injuries or deaths. This is less than 1 percent of the value of all the structures in Henry County. However, it is very possible that more damage with injuries and deaths could occur. Based on historical occurrences the annual chance of a winter storm or blizzard occurring is 51%; however given the unpredictability of this hazard it should be assumed that the annual chance of occurrence is 100%. When factoring in heavy snow and extreme cold events the chance of occurrence increases to 102%.

2.4.3 Thunderstorm

Thunderstorms can affect any area of Henry County[Your User15]. Every structure is vulnerable to damage caused by lightning, hail, and the high winds that are associated with these storms. The extent of this damage can vary depending on the area affected by the storm and the severity of the storm.

Typically, the damage is associated with broken windows or dented cars due to hail. Hail can also cause damage to crops. The high winds can down tree limbs and cause roof damage. The high winds can also cause disruptions in electrical service if power poles are knocked down or falling tree limbs break the power lines. Depending on the location of the disruption, a large population of people can be without power for a period of time.

The data from the 21 hail events and 69 high wind events from thunderstorms that were identified in this plan is limited. The damaged caused by hail was only available with one of the 21 events. This storm had $500,000 of property damage and $500,000 of crop damage with no injuries or deaths due to 2-inch hail on September 25, 1994 near Hamler. For thunderstorms with high winds, 25 of the 69 events indicated damage, although not always limited to just Henry County. There were 13 events of high wind that did indicate damage specific to Henry County. The total damage caused by these 13 storms was $201,000 in property damage and $5,000 in crop damage with no deaths and 1 injury. Based on this information, typical damage expected from thunderstorms is $15,000 in property damage with some crop damage and no deaths or injuries. Based on historical occurrences the annual chance of a major thunderstorm occurring is 53%;

however given the unpredictability of this hazard it should be assumed that the annual chance of occurrence is 100%.

2.4.4 Flood

Within Henry County, floods can affect 314 residential structures, 12 commercial structures, and 1 government structure. These structures have been determined to be within a special flood hazard area, as identified by all of the FIRMs associated with Henry County, or are within the School Creek Flood Area. [Your User16]These structures have been determined to have a value of approximately $23.2 million, which is 2.4% of the value of all the structures in Henry County.

Of the 327 structures, 25 of these structures have also been labeled as repetitive loss structures by FEMA. Of these structures, 18 are in the unincorporated areas of Henry County, 4 are in Napoleon and 3 are in Holgate. One structure is a multi-family unit; all others are single family residential units. Total payout for structural damage to these repetitive loss structures since 1978 has been $534,912.54. The payout for damage to contents of those same properties has been $193,164.30, yielding a total payout of $694,966.84.

The jurisdictional breakdown of the 327 structures include: 113 structures in the unincorporated area of Henry County, 115 structures (11 commercial) in Napoleon, 20 structures (1 commercial) in Hamler, 1 structure in Liberty Center, 26 structures (1 government) in Deshler, 0 structures in Florida and 52 structures in Holgate (School Creek Flood Area).

The replacement value for these structures has been estimated to be:

Henry County	$7,106,000
Napoleon	$9,564,000
Holgate	$3,414,000
Hamler	$1,199,000
Deshler	$1,866,000
Liberty Center	$ 51,000
Florida	$ 0

However, during a flood event, it is not likely that the entire structure would be damaged. Therefore, to determine the potential loss from a flooding event, some percentage of the replacement value was used. This percentage typically is based on the type of structure and the depth of flooding. Since the type of structures vary throughout Henry County and the depth of flooding is not known for these structures, an assumed value for building damage that represents a typical situation was used. The building damage was determined from *FEMA Benefit-Cost Analysis Full Data Module 3/10/99*, for a one or two story house with basement and a two feet flood depth and the building damage was indicated at 20%

The potential loss for the structures are as follows:

Henry County	$1,421,200
Napoleon	$1,912,800
Holgate	$ 682,800
Hamler	$ 239,800
Deshler	$ 373,200
Liberty Center	$ 10,200
Florida	$ 0

Flood damage can vary depending on a number of factors, such as type of structure, depth and velocity of floodwaters, and others. Not only are there losses to structures, but losses occur to the structure's contents as well. Floods can also affect the roadways. There are 32 locations throughout Henry County that have high water conditions during certain heavy rain events. These high water areas cause the road to be impassable and can delay emergency vehicles.

Of the critical facilities, four have been determined to be in the flood hazard area. One elderly care facility, one telephone exchange, one water tower and a portion of one mobile home park are located within the 100-year flood zone. However, the facilities were constructed on fill material or were elevated such that their lowest floor elevation is above the flood elevation and should not experience any impact from a 100-year flood.

The flood of 1913 affected the largest area of all of the floods listed in this plan. Not only did this flood have the highest recorded level on the Maumee River in Napoleon, but the villages of Deshler, Florida, Hamler, and Holgate were also affected. Information on the dollar amount of damage done by this flood was not found, but it was noted that at least one person died from the flooding.

Another costly flood occurred in Hamler and Holgate in 2000, when 118 houses were affected by flood water. Total damage numbers were not available for this event, but there were no reports of any deaths or injuries.

Of the 35 flooding events listed in this plan, five had damage estimates associated with them. In total, $748,000 in property damage and $70,000 in crop damage occurred with no injuries or deaths. On average, there was $150,000 in property damage and $15,000 in crop damage per flooding event. However, even though not documented, other floods probably did have greater damage associated with them. In the future, depending on the location and severity of the flood, damage could be greater. Based on historical occurrences the annual chance of a flood occurring is 48%; however given the unpredictability of this hazard it should be assumed that the annual chance of occurrence is 100%.

3.0 Mitigation Plan

Hazard mitigation planning is the coordination of actions taken to reduce injuries, deaths, property damage, economic losses, and degradation of natural resources due to natural or human-caused hazard events. Hazard mitigation actions have long-term and cumulative benefits over time.

An effective mitigation plan provides documentation of valuable local knowledge on the most efficient and effective ways to reduce losses from hazard events. The benefits of preparing a mitigation plan include:

- More direct access to a wide range of technical and financial resources for mitigation projects and initiatives. Not only will the jurisdiction have the benefit of a well-thought-out blueprint for executing projects efficiently, but also several federal and state emergency management programs require hazard mitigation plans as prerequisites to award funds.
- The mitigation planning process promotes the development of an informed citizenry who are knowledgeable about their vulnerability to hazards and the options for reducing their losses, thus creating an advocacy group that will support plan implementation.
- Integration of mitigation strategies with other community needs and goals. The mitigation planning process encourages the mitigation strategy to be developed in light of economic, social, and political realities.
- Improved ability to recover after a disaster. Having a hazard mitigation plan in place when a disaster strikes will greatly improve the response and recovery process and ensure that long-term mitigation issues are addressed.

The mitigation plan consists of developing problem statements for each hazard identified in the hazard assessment and then determining goals and objectives that will lead to action items to eliminate or reduce the potential losses identified in the hazard assessment. These action items are then evaluated and prioritized into an implementation strategy in which responsible agencies are identified and time frames for completing the actions are listed.

3.1 Problem Statements, Goals, Objectives and Action Items

In revising this plan the core committee met to discuss the status of existing mitigation actions and to develop new actions. This meeting was followed by email correspondence to refine the actions developed.

During the course of the meeting clear goals emerged that are all-hazards by nature, and are seen as essential to the needs of Henry County. Not all goals and actions deal with structural improvements but all address vital interests of the county and protect both new and existing structures. Below is a listing of these common goals and the types of actions they include.

1. Protect public with information and communication: These include actions with educate the public on hazards, readiness, and safety. These also include actions detailing with community warning methods such as outdoor warning sirens.

2. Ensure resident health during recovery: These actions will enable the expedient delivery of aid and the restoration of services such as safe water.
3. Reduce losses to lives and property: These actions will directly protect the populace whether by property improvements, land use controls, or land maintenance.

The existing problem statements remain accurate and correspond to the revised goals in this plan.

In addition to the revised problem statements, goals, objectives, and actions many of the actions from the previous plan will continue. These can be found in Appendix I.

After the problem statements were determined, the core committee established a list of goals to correspond to these problem statements. These goals are general guidelines that explain what the County wants to achieve.

From these goals, the core committee established objectives. These objectives are more specific and narrower in scope than the goals. They expand on the goals and provide more detail on ways to accomplish the goals.

Once the problem statements, goals, and objectives were established, the core committee began to identify potential mitigation actions. The action items are directly related to meeting the listed goals and objectives.

The following list details the problem statements, goals, objectives and action items identified for each natural hazard as determined by the core committee.

3.1.1 Tornado

Problem Statements:

- Tornadoes are unpredictable.
- Tornadoes happen suddenly.
- Warning system needs improvement.
- Lack of shelters – specifically for mobile home parks.
- Lack of trained personnel for damage assessments.

Goal 1: Protect public with information and communication.

Objectives:

- Improve resident notification.
- Educate and inform public.

Action Items:

- Countywide siren policy
- Siren encoder for remote activation

- Community event notification
- Spotter training notice
- Implement social media plan
- Increase public awareness of preparedness activity and resources
- Siren policy education

Goal 2: Ensure resident health during recovery.

Objective:

- Protect critical resources
- Expedite recovery.

Action Items:

- Damage reporting.
- Water treatment plant facility.

Goal 3: Reduce losses to lives and property.

Objectives:

- Direct protection of vulnerable residents.

Action Items:

- Shelters for mobile home parks.

3.1.2 Winter Storms/Blizzards

Problem Statements:

- Wind and freezing rain can cause downed power lines.
- Heavy snow and ice hampers rescue efforts.
- Winter storms and blizzards can be unpredictable.
- Residents can be unprepared by having an insufficient supply of medicine, food and fuel.
- Key personnel may not have transportation available to travel through deep snow.

Goal 1: Protect public with information and communication.

Objectives:

- Improve resident notification

- Educate and inform public.

Action Items:

- Community event notification.
- Implement social media plan
- Increase public awareness of preparedness activity and resources

3.1.3 Thunderstorms

Problem Statements:

- High winds and falling tree limbs can cause downed power lines.
- Downed trees and power lines hamper rescue efforts.
- Thunderstorms can be unpredictable.
- Residents can be unprepared by having an insufficient supply of medicine, food and fuel.

Goal 1: Protect public with information and communication.

Objectives:

- Improve resident notification
- Educate and inform public.

Action Items:

- Community event notification.
- Implement social media plan.
- Increase public awareness of preparedness activity and resources.

Goal 2: Ensure resident health during recovery.

Objectives:

- Protect critical resources
- Expedite recovery.

Action Items:

- Damage reporting.
- Water treatment facility.

3.1.4 Floods

Problem Statements:

- Henry County has 18 repetitive loss structures as defined by FEMA.
- There are many seasonal mobile homes impacted by flood waters along the Maumee River.
- School Creek has flooded twice in the last four years impacting the residents in the Holgate Area.
- The breaking up of ice on the Maumee River can cause damage.

Goal 1: Protect public with information and communication.

Objectives:

- Improve resident notification.
- Educate and inform public.

Action Items:

- Community event notification.
- Implement social media plan.
- Increase public awareness of preparedness activity and resources.

Goal 2: Ensure resident health during recovery.

Objectives:

- Protect critical resources.

Action Items:

- Water treatment facility.

Goal 3: Reduce losses to lives and property.

Objectives:

- Restore and maintain river flow.

Action Items:

- Resume dredging of Maumee River.

3.2 State and Local Capability Assessments

After the core committee determined the problem statements, goals, objectives and mitigation action items, the core committee reviewed and analyzed the state and local programs, policies, regulations, funding, and practices currently in place that either facilitate, support or hinder mitigation in general. This inventory is called a capability assessment.

The state capability assessment and local capability assessment is located in Appendix C. The capability assessments include an inventory of the agency's mission, program and policies, and an analysis of its capacity to carry them out.

Agencies listed in the state capability assessment will play a significant role in the implementation of many of the mitigation action items by supplying technical, administrative, regulatory or financial assistance. These agencies include Ohio Emergency Management Agency, Ohio Department of Natural Resources – Division of Water, Ohio Environmental Protection Agency, American Red Cross and others.

Agencies listed in the local capability assessment identify agencies in Henry County that could be involved in mitigation activities. These agencies would be responsible for the planning and implementing the mitigation activities. The primary county agency responsible for mitigation is the Henry County Emergency Management Agency. The Henry County Emergency Management Agency serves as a conduit for all state and federal programs and funding for mitigation activities as well as disaster response planning and execution. Other agencies include the Henry County Chapter of the American Red Cross, Henry County Soil and Water Conservation District, local governments and others.

During the revision process the local capability assessment was reviewed and found satisfactory. No new agencies were added to the capability assessment.

3.3 Evaluate, Select and Prioritize Mitigation Actions

With the potential mitigation actions determined and the capability assessments complete, the core committee began the process of evaluating the mitigation actions. The evaluation process that was used was the process outlined in FEMA 386-3 "Developing the Mitigation Plan".

This evaluation criteria included:

- Social – Is the action socially acceptable; is it compatible with present and future community values?
- Technical – Is the measure technically feasible?
- Administrative – Does the community have the capability to implement and maintain the action?
- Political – Is there public support both to implement and maintain the action?
- Legal – Does the community have the authority to implement the proposed action?
- Economic – Is the action cost-effective?
- Environmental – Does this action affect the environment?

These evaluation criteria aspects were compared to the mitigation actions to allow the core committee to weigh the pros and cons of each mitigation action. The process involved the core committee reviewing each criterion and determining whether or not each proposed mitigation action would be favorable. A (+) indicates that the proposed mitigation action would be viewed favorably, and a (-) indicates that there are shortcomings that would hinder the proposed mitigation action. If there is little impact

on criteria an (n) for neutral is used. If the evaluation criteria was not applicable to the proposed mitigation action then (n/a) was used. The results of this evaluation are located in Appendix D. Based on these results, it was determined that all of the proposed actions are appropriate for Henry County. Therefore, the next step involves prioritizing the proposed mitigation actions.

To rank the proposed mitigation actions, the core committee used a numerical ranking for each proposed action for each natural disaster. Each core committee member reviewed each proposed mitigation action and ranked then based on which action would have the biggest impact on the greatest amount of people at the most economical cost. Detailed cost benefit reviews will be conducted during implementation, however during prioritization an estimate will be used. Once complete, the individual rankings were compiled and the overall numbers were used to rank the proposed mitigation action. The results of the rankings are shown in Appendix D in the priority column of the evaluation.

3.4 National Flood Insurance Program: Evaluation of Actions

Several FEMA publications on the NFIP and the Community Rating System were reviewed including the "NFIP CRS Coordinators Manual" and the "CRS Credit for Flood Warning Programs." Based on this guidance many of the proposed actions are deemed appropriate as part of continued compliance with the communities flood protection strategy. Specifically the improvements of resident notification, community event reporting, citizen education, and the resumed river dredging are targeted at mitigating the effects of seasonal flooding.

3.5 Mitigation Implementation Strategy

Now that the proposed mitigation actions have been evaluated and prioritized, the core committee established the implementation strategy for the selected mitigation actions. As shown in Appendix E, the implementation strategy lists the beneficiaries, responsible parties, responsibilities of the parties, technical assistance resources, task summary, cost estimate, material list and time frame for each selected mitigation action.

3.6 Mitigation Plan Monitoring

Once the mitigation plan is adopted and in place, a committee will be established to monitor the plan. This will include ensuring that the plan is being implemented and that new information is being reviewed for inclusion into the plan. The monitoring plan consists of quarterly updates and an annual plan review meeting. The quarterly updates are to be performed by the responsible party for an action as outlined in the implementation strategy; a standard form will be provided for this report. The reports will be collected by the Emergency Management Agency. The quarterly reports will be due in the months of March, June, September, and December. The annual plan review will take place in the month of January, and may be combined with existing planning meetings. Standard forms are provided for evaluation of mitigation actions, hazard assessment, and plan revision. All forms are available in Appendix K. This committee will also ensure that the plan is revised at least every five years, as required. Depending on the updates needed, the plan may be revised more often.

Mitigation actions that are based on local zoning regulations will be send the local zoning authority for recommended inclusion into their current zoning codes. This will involve sending the recommendation to all of the townships and municipalities, since all of the townships in Henry County have zoning resolutions and most of the municipalities do as well. For any municipality that does not currently have zoning codes, they will still receive the recommendation to implement some type of ordinance to accomplish the same objective. Where appropriate, the Henry County Comprehensive Plan and Henry County Emergency Operations Plan will be revised as well to reference the Henry County Natural Hazard Mitigation Plan.

The committee will include the Director of the Henry County Emergency Management Agency, Director of the Henry County Planning Commission, county and local government representatives and other interested parties.

3.7 Continued Public Involvement

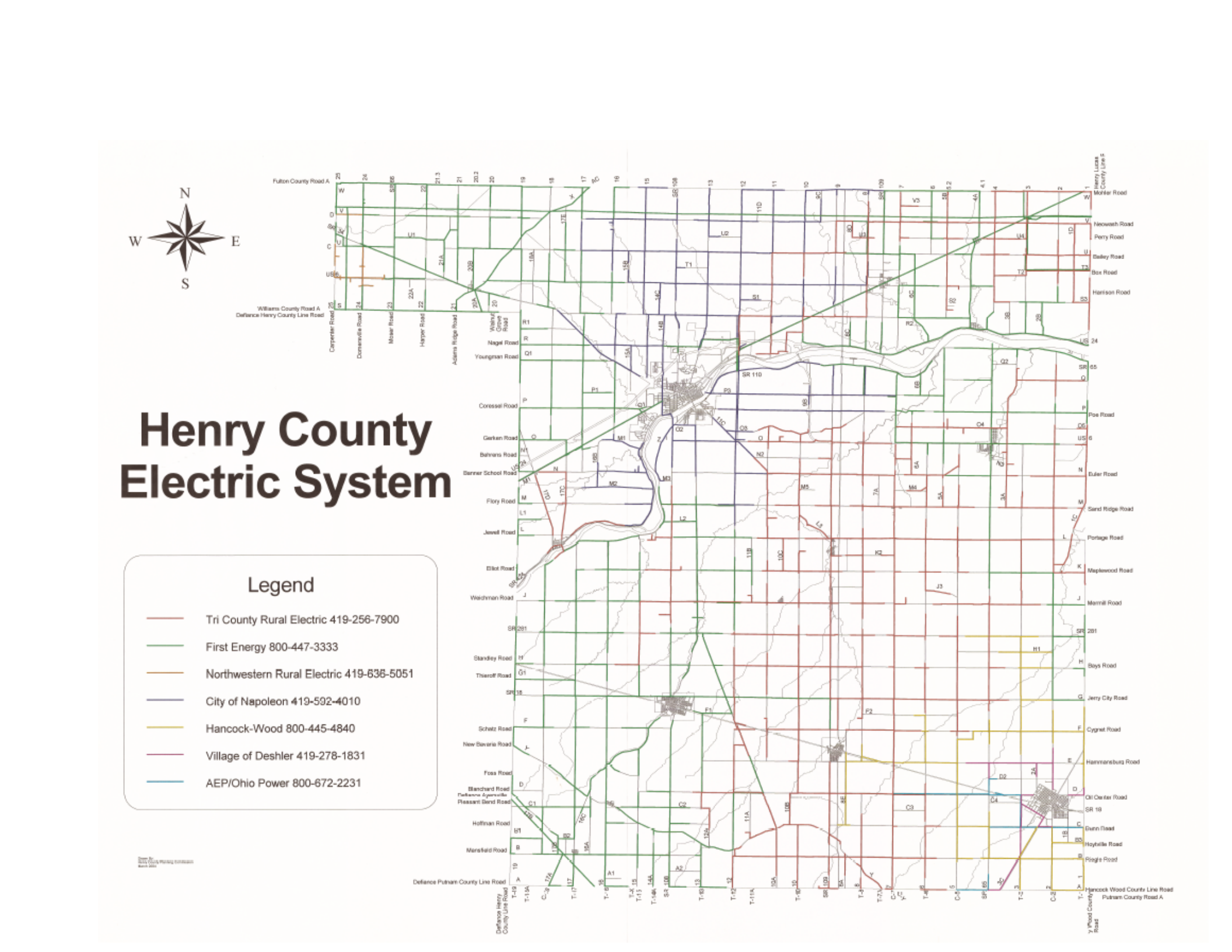
Throughout the monitoring process, the general public will be invited to participate. Notices of the annual plan review will be made through local media channels. Comments, questions, and suggestions made concerning the plan throughout the year will be collected and filed with plan documents. All comments are considered equally in making revisions and amendments to this plan.

The Henry County Natural Hazard Mitigation Plan will be available for review on the Henry County Planning Commission web site at www.henrycountyplannning.com and in print at other locations.

APPENDIX A

Vulnerability Map
Electric System Map

Henry County Electric System



Legend

- Tri County Rural Electric 419-256-7900
- First Energy 800-447-3333
- Northwestern Rural Electric 419-636-5051
- City of Napoleon 419-592-4010
- Hancock-Wood 800-445-4840
- Village of Deshler 419-278-1831
- AEP/Ohio Power 800-672-2231

Henry County Natural Hazard Mitigation Plan Vulnerability Map

Drawn By: Henry County Planning Commission, March 2004

APPENDIX B

Natural Hazard Events

TORNADO			
Natural Hazard	Community	Date	Description
Tornado	Holgate	3/29/1906	Two block area damaged. Destroyed Mink & Weber Store, Many sheds, fences and chimneys destroyed. Masonic Hall damaged. 4 injuries.
Tornado	Napoleon	5/19/1919	Damage to Fairgrounds
Tornado	Napoleon & Freedom Twps	3/28/1920	56 Barns and 24 homes destroyed. $500,000 damage. 3 injuries.
Tornado	Napoleon Twp	5/29/1947	
Tornado	Bartlow Twp	6/8/1953	Mother and her 4 children killed. 1 injured in Deshler. Houses and barns damaged. 1,000 turkeys killed.
Tornado	Holgate	5/2/1954	
Tornado	Marion, Pleasant, Flatrock & Napoleon Twps	5/12/1970	$25,000 in damage
Tornado	Malinta	5/1973	Damaged Trees, overturned railroad boxcar
Tornado	Bartlow Twp	6/30/1977	One barn destroyed. 6 migrant cabins destroyed. $3,000 damage.
Tornado	Marion & Richfield Twps	5/2/1983	$2,500,000 damage. Many barns and homes destroyed.
Tornado	Napoleon	8/23/1989	$25,000 damage.
Tornado	Napoleon Twp	7/12/1992	$25,000 damage. Roof blown off house.
Tornado	Bartlow Twp	5/25/1994	Tornado touchdowned near State Route 18 and Road 5 for a short period.
Tornado	Pleasant, Flatrock & Monroe Twps	11/11/2002	$10,000 damage. 22 train cars knocked off track near Hamler.
Tornado	Pleasant Twp.	6/13/2004	2 barns destroyed and several houses damaged. Trees and power lines down.
Tornado	Liberty Twp.	06/05/2010	EF-2 Trees down truck flipped over before crossing into Fulton County

SNOW STORM/BLIZZARD			
Natural Hazard	Community	Date	Description
Blizzard	Countywide	1/25/1978	Over 12 inches of snow fell. Combined with wind gusts up to 45 mph, temperatures of 11 degrees Fahrenheit and snowdrifts 20 feet high. By noon on January 26, Governor Rhodes declared the state a Civil Defense state of emergency. On January 27, 1978, the state was declared a national disaster area. The southern half of the county was without electricity and heat for over three days. Due to the continued drifting of roads, it took a week to open many of the county roads. US 6 was closed for three days. By January 29, 1978, most roads in the county were open to one lane width. At least one person died in Henry County from the storm.
Heavy Snow	Northern Ohio	2/25/1993	$500,000 damage. 4 inches of snow
Extreme Cold	Northern Ohio	12/26/1993	$500,000 damage.
Heavy Snow	Northern Ohio	2/25/1994	$50,000 damage. 4-6 inches of snow with wind of 20 mph gusting up to 45 mph. County roads impassable.
Heavy Snow	Northern Ohio	1/21/1995	$500,000 damage. 7.8 inches in Henry County.
Extreme Cold	Northern Ohio	2/11/1995	$100,000 damage. Below zero temperatures
Extreme Cold	Northern Ohio	4/4/1995	Record Cold
Glaze	Northern Ohio	4/10/1995	$150,000 damage.
Extreme Cold	Northern Ohio	12/9/1995	$210,000 damage. Cold air and wind.
Extreme Cold	Statewide	12/9/1995	$2,000 damage. 1 injured.
Ice Storm	NW Ohio	12/13/1995	$60,000 damage. Snow and freezing rain.
Extreme Cold	Northern Ohio	2/2/1996	$3,400,000 damage. Below zero temperatures.
Heavy Snow	Northern Ohio	3/19/1996	$352,000 damage. 6 inches of snow with drifting. 30-40 mph

			winds.
Extreme Cold	Northern Ohio	1/10/1997	$195,000 damage.
Ice Storm	NW Ohio	3/13/1997	$200,000 damage. Freezing rain with ¼ - ½ inch of ice.
Glaze	Henry County	1/13/1998	4 injured. A combination of occasional rain, freezing rain, sleet and snow, particularly on Tuesday the 13th, caused icy roads, bridges, sidewalks and other exposed surfaces. Many schools were closed. Hospital emergency rooms treated numerous ice related injuries (mostly from slips and falls). Even salt trucks had trouble negotiating the icy roads - at least two of them tipped over. This event did not meet winter storm criteria
Heavy Snow	Northern Ohio	1/2/1999	7 inches of snow. Level 2 snow emergency.
Heavy Snow	Northern Ohio	3/11/2000	6-8 inches of snow
Heavy Snow	Northern Ohio	12/13/2000	6-8 inches of snow
Heavy Snow	Northern Ohio	12/25/2002	6-8 inches of snow
Heavy Snow	Northern Ohio	2/22/2003	6-8 inches of snow
Winter Storm	Northern Ohio	12/22/2004	6-14 inches of snow
Winter Storm	Northern Ohio	1/5/2005	2-4 inches of snow. ¼ inch of ice. Numerous accidents reported.
Winter Storm	Northern Ohio	1/22/2005	7-9 inches of snow.
Heavy Snow	Northern Ohio	12/8/2005	6-8 inches of snow.
Ice Storn	Northern Ohio	12/9/2007	¼–1/3 inches of ice.
Winter Storm	Northern Ohio	12/15/2007	4-7 inches of snow. 1/3 inch of ice.
Winter Storm	Northern Ohio	2/1/2008	6-8 inches of snow.
Winter Storm	Northern Ohio	4/4/2008	1-4 inches of snow. 1/4 inch of ice
Ice Storm	Northern Ohio	12/19/2008	¼-1/2 inches of ice.
Heavy Snow	Henry, Williams County	1/9/2007	5-9 inches of snow.
Winter Storm	Northern Ohio	2/9/20010	8-10 inches of snow.
Winter Storm	Henry, Fulton County	12/12/2010	3-6 inches of snow.
Heavy Snow	Northern Ohio	2/5/2011	5-7 inches of snow.
Heavy Snow	Northern Ohio	2/25/2011	6-7 inches of snow.

THUNDERSTORM			
Natural Hazard	Community	Date	Description
High Winds	Deshler	3/19/1947	Colwell's Garage and B&O Freight House damaged. $1,000's in damages. Debris blocked Main Street for 24 hours. No electricity for 26 hours.
High Winds	Henry County	4/5/1957	
High Winds	Henry County	6/30/1977	
High Winds	Henry County	8/27/1978	
High Winds	Holgate, New Bavaria, Hamler	8/8/1979	Power outages in Holgate and New Bavaria. Trees down in Holgate and Hamler.
High Winds	Henry County	5/30/1980	52 knot winds
Hail	Henry County	6/7/1980	1.75 inch hail.
High Winds	Henry County	6/7/1980	65 knot winds
High Winds	Henry County	4/28/1981	2 Barns and some equipment damaged
High Winds	Henry County	6/8/1981	Mobile Home destroyed, House damaged.
High Winds	Henry County	6/15/1982	Roof taken off barn
Hail	Henry County	5/2/1983	1 inch hail.
High Winds	Henry County	9/6/1983	Trees downed. 52 knot winds
Hail	Henry County	3/28/1985	1.75 inch hail.
High Winds	Henry County	8/14/1985	House fire due to lightning. Tress downed.
High Winds	Henry County	5/6/1986	
Hail	Henry County	5/17/1986	1.75 inch hail.
High Winds	Henry County	7/12/1986	
High Winds	Henry County	7/25/1986	Garage and utility shed destroyed.
Hail	Henry County	8/26/1986	0.75 inch hail.
High Winds	Henry County	8/26/1986	Water in Malinta Elementary School classrooms
Hail	Henry County	6/8/1987	0.75 inch hail. Power outages
Hail	Henry County	6/29/1987	1 inch hail.
Hail	Henry County	5/9/1988	0.75 inch hail.
Hail	Henry County	8/12/1988	1 inch hail
High Winds	Holgate	6/3/1989	Barn blew down near Holgate
High Winds	Henry County	6/22/1989	
High Winds	Henry County	8/5/1989	
High Winds	Henry County	3/27/1991	
High Winds	Henry County	7/29/1991	
High Winds	Henry County	5/17/1992	
Hail	Henry County	6/17/1992	0.75 inch hail.

High Winds	Henry County	6/17/1992	
High Winds	Henry County	7/14/1992	
Hail	Henry County	7/20/1992	1 inch hail.
High Winds	Henry County	7/20/1992	
High Winds	Napoleon	8/31/1993	$50,000 in property damage. Tress downed, roof damage at house in Napoleon, Local crop damage. $5,000 in crop damage.
High Winds	Napoleon	6/13/1994	$50,000 in damage. Storm caused semi to overturn.
High Winds	Hamler	6/20/1994	62 mph winds
Hail	Hamler	9/25/1994	2 inch hail. $500,000 in Property damage and $500,000 in crop damage. Corn, Soybean, Tomato crop damage. Strong wids broke windows, damaged siding, roofs and cars.
High Winds	Northern Ohio	11/1/1994	$500,000 in damage.
High Winds	Northern Ohio	11/27/1994	$50,000 in damage.
High Winds	Northern Ohio	11/28/1994	$500,000 in damage.
High Winds	Hamler	4/11/1995	Winds up to 70 mph reported. Trees downed.
High Winds	Ridgeville Corners	6/26/1995	$2,000 in damage. Tree limbs and power lines downed.
High Winds	Henry County	7/13/1995	$6,000 in damage.
Hail	Napoleon	7/15/1995	Hail with strong winds
High Winds	Napoleon	7/15/1995	$2,000 in damage. Several trees down. Hail.
High Winds	Henry County	8/17/1995	Large limbs down
High Winds	Northern Ohio	10/5/1995	$80,000 in damage.
High Winds	Northern Ohio	10/24/1995	$25,000 in damage. Trees and power lines down. Wind gusts up to 50 mph.
High Winds	Northern Ohio	11/11/1995	$260,000 in damage. Wind gusts up to 60 mph. Trees and power lines down.
High Winds	Northern Ohio	1/27/1996	Tree limbs and power lines. 60 mph winds.
High Winds	Northern Ohio	2/10/1996	$45,000 in damage. Wind gusts up to 40-60 mph.
High Winds	Ridgeville Corners, McClure	5/9/1996	$20,000 damage. Power pole and trees down. Barn damaged and some roof damage reported

			near Ridgeville Corners. Trees Down in McClure.
High Winds	Napoleon	7/24/1996	Trees down. 55 knot winds.
High Winds	Holgate	7/30/1996	50 knot winds. Tree limbs down
High Winds	New Bavaria	10/30/1996	50 knot winds. Trees down
High Winds	Northern Ohio	2/27/1997	$180,000 in damage. Tree limbs and power lines down. Vehicles damaged. Metal roof blown off building in McClure
High Winds	Ridgeville and Freedom Twps. Liberty Center	5/18/1997	$2,000 in damage. Collapsed grin elevator in Gerald. House and garage damaged in Liberty Center. 67 mph winds.
High Winds	Hamler, Ridgeville Corners	7/8/1997	$4,000 damage. Trees and limbs down. 61 mph winds reported.
High Winds	Liberty Center, Holgate	3/28/1998	$1,000 damage. Trees down. 53 knot winds
High Winds	Napoleon	5/31/1998	$35,000 in damage. Power lines down in Napoleon.
Hail	McClure	6/27/1998	1 inch hail.
High Winds	McClure	7/21/1998	Trees and power lines down. 5500 customers out of power
Hail	Napoleon	8/24/1998	0.75 inch hail.
High Winds	Napoleon	8/24/1998	Telephone poles down. Streets in Liberty Center flooded. $10,000 in damage. 52 knot winds
High Winds	Napoleon	11/10/1998	Trees down
Hail	Ridgeville Corners	5/17/1999	0.75 inch hail.
High Winds	Henry County	5/17/1999	$20,000 damage. Tress and power lines down.
Hail	Ridgeville Corners	6/9/1999	1 inch hail.
High Winds	Ridgeville Corners	6/9/1999	Power lines down
Hail	Deshler, Malinta	5/9/2000	1 inch hail.
High Winds	Ridgeville Corners, Liberty Center	5/9/2000	Power outage in Liberty Center
Hail	Holgate, Liberty Center	8/2/2000	1.75 inch hail in Liberty Center, 0.75 inch hail in Holgate.
High Winds	Napoleon, Liberty Center	8/2/2000	Power outage in Napoleon. Tree limbs down in Liberty

			Center. 52 knot winds.
High Winds	Henry County	8/6/2000	Tree limbs down
High Winds	Holgate, Liberty Center	6/12/2001	Trees down
High Winds	NW Ohio	3/9/2002	50-70 mph winds
Hail	Florida, Napoleon, Okolona	5/25/2002	1 inch hail in Okolona, 1.25 inch hail in Florida, 1.75 inch hail in Napoleon.
High Winds	Napoleon	7/26/2002	Power lines and power pole down north of Napoleon
High Winds	Hamler	11/10/2002	Power outages, Rail cars knocked over. Emergency management reported a train was derailed by high winds estimated to be near 80 mph. This wind was likely downburst winds from the collapse of the parent supercell that produce a tornado farther west in Henry minutes earlier.
High Winds	Napoleon	4/20/2003	$5,000 in damage. Roof blown off horse barn. Tress and power lines down. 50 knot winds.
Lightning	Liberty Center	5/1/2003	Lightning destroyed barn.
High Winds	Florida	7/6/2003	Tree down. 50 Knot winds
High Winds	Liberty Center	7/8/2003	Power lines down. 50 knot winds
High Winds	McClure, Liberty Center	7/20/2003	Trees down. 50 knot winds
Hail	Hamler	8/4/2003	0.75 inch hail
High Winds	Florida	8/26/2003	Tree limbs and power lines down. 50 knot winds
High Winds	NW Ohio	11/12/2003	65 mph winds
High Winds	Holgate, Napoleon, Deshler	5/23/2004	Tree limbs and power lines down. 50 knot winds.
High Winds	New Bavaria	06/14/2004	50 knot winds
High Winds	County wide	05/13/2005	55 knot winds
High Winds	Liberty Center	06/05/2005	51 knot winds
High Winds	Florida	07/25/2005	50 knot winds
High Winds	New Bavaria	11/02/2005	50 knot winds $15,000 damage
Hail	Malinta	05/25/2006	.88 inch hail
High Winds	Hamler	06/21/2006	60 knot winds $2,000 damage
High Winds High Winds Hail	Deshler Malinta Malinta	07/02/2006	55 Knots $5,000 Damage 60 Knots .75 inch hail $10,000 crop dmg

Hail	Florida		1.00 inch hail
High Winds	Gerald	05/15/2007	50 knots
High Winds	Westhope	12/23/2007	61 knots
Hail	Gerald	06/21/2008	.75 inch hail
High Wind	Napoleon	07/08/2008	$10,000 damage
High Wind	County wide	09/14/2008	50 knots
High wind	County wide	2/11/2009	50 knots
High Wind	County wide	12/09/2009	50 knots
High Wind	Napoleon	04/25/2010	56 knots $10,000 damage

FLOOD			
Natural Hazard	Community	Date	Description
Flood	Napoleon	1878	Perry Street bridge in Napoleon destroyed by ice flow
Flood	Florida	1893	Florida Bridge destroyed by ice flow
Flood	Henry County	3/2/1910	Maumee River crests at 18.8 ft.
Flood	Henry County	3/20/1912	Maumee River crests at 18 ft.
Flood	Napoleon, Deshler, Hamler, Holgate, Florida	3/27/1913	Maumee River crests at 25 ft. 135 homes in Napoleon are damaged. Napoleon Humane Society took care of 150 families.
Flood	Henry County	2/14/1918	Maumee River crests at 19.5 ft.
Flood	Hamler	1929	Streets flooded
Flood	Henry County	2/28/1936	Maumee River crests at 19.4 ft.
Flood	Henry County	2/16/1950	Maumee River crests at 16 ft. East end of Napoleon flooded. Several houses in Napoleon had water in them.
Flood	Henry County	2/11/1959	Maumee River crests at 19.5 ft.
Flood	Deshler	7/15/1972	4 ½ inches of rain in less than one hour in afternoon preceded by 2 inches in the morning caused streets and basements to flood
Flood	Henry County	6/16/1981	Maumee River crests at 13.94 ft.
Flood	Henry County	3/15/1982	East side of Napoleon Flooded. Maumee River crests at 17.54 ft.
Flood	Henry County	2/26/1985	Maumee River crests at 15.99ft.
Flood	Henry County	1/1/1991	Campgrounds along SR 110, Mary Jane Thurston Park, East Riverdowns Park, Myerholtz Park, Ritter Park flooded. Maumee River crests at 17.13 ft.
Flood	Liberty Center	12/30/1992	2 inch rain. Maple Street, Railroad underpass on Road T and Oaks Trailer Court flooded
Flood	Henry County	1/6/1993	Maumee River crests at 13.8 ft. Camp sites along State Route 110 flooded. Mary Jane Thurston Park Flooded.
Flood	Henry County	2/21/1994	Maumee River crests at 13.1 ft.

Flood	Henry County	4/14/1994	Maumee River crests at 13.2 ft.
Flood	Henry County	6/3/1997	Maumee River crests at13.5 ft.
Flood	Southern Henry County	8/5/1998	Heavy rains cause $150,000 in property damage and $50,000 in crop damage. Southern half of the county sustained the worst flooding. Many rural county roads were washed out to some degree with extensive damage to lowland agricultural farm fields.
Flood	Henry County	1/25/1999	Maumee River crests at 16.75 ft. Six homes on Catherine Drive in Texas damaged.
Flood	Holgate, Hamler	4/20/2000	8 inches of rain flood the streets of Hamler and Holgate. 63 homes in Hamler damaged. Holgate has 52 homes damaged and 3 destroyed.
Flood	Holgate	3/1/2001	3.7 inches of rain fell in 6 hours flooding Holgate. 48 homes damaged.
Flood	Henry County	3/15/2003	Maumee River crests at 14.45 ft.
Flood	Henry County	5/11/2003	Maumee River crests at 13.05 ft.
Flood	Henry County	6/13/2004	Maumee River crests at 12.8 ft.
Flood	Henry County	1/14/2005	Maumee River crests at 16.65 ft.
Flood	Henry County	2/9/2005	Maumee River crests at 12.13 ft.
Flood	Henry County	1/16/2007	Maumee River crests at 12.69 ft.
Flood	Henry County	3/3/2007	Maumee River crests at 12.41 ft.
Flood	Henry County	2/13/2009	Maumee River crests at 14.2 ft.
Flood	Henry County	3/11/2009	Maumee River crests at 16.7 ft.
Flood	Henry County	3/2/2011	Maumee River crests at 12.78 ft.
Flood	Henry County	4/28/2011	Maumee River crests at 12.34 ft.

EARTHQUAKE			
Natural Hazard	Community	Date	Description
Earthquake	Lucas County	10/28/1926	MMI=III
Earthquake	Lucas County	10/28/1926	MMI=IV
Earthquake	Lucas County	01/18/1948	MMI=III
Earthquake	Wood County	09/29/1974	Magnitude=3.0
Earthquake	Lucas County	01/18/1984	MMI=V
Earthquake	Wood County	07/14/1992	MMI=III
Earthquake	Lucas County	10/04/1992	MMI=III
Earthquake	Lucas County	10/10/1993	Magnitude=2.0
Earthquake	Wood County	11/09/1993	MMI=III

DROUGHT			
Natural Hazard	Community	Date	Description
Drought	Northwest Ohio	February,1895	Severe drought
Drought	Northwest Ohio	March,1895	Moderate drought
Drought	Northwest Ohio	April,1895	Severe drought
Drought	Northwest Ohio	May,1895	Severe drought
Drought	Northwest Ohio	June,1895	Severe drought
Drought	Northwest Ohio	July,1895	Extreme drought
Drought	Northwest Ohio	August,1895	Moderate drought
Drought	Northwest Ohio	September,1895	Extreme drought
Drought	Northwest Ohio	October,1895	Moderate drought
Drought	Northwest Ohio	April,1896	Severe drought
Drought	Northwest Ohio	May,1896	Severe drought
Drought	Northwest Ohio	September,1897	Extreme drought
Drought	Northwest Ohio	October,1897	Extreme drought
Drought	Northwest Ohio	June,1898	Moderate drought
Drought	Northwest Ohio	April,1899	Extreme drought
Drought	Northwest Ohio	June,1899	Moderate drought
Drought	Northwest Ohio	August,1899	Extreme drought
Drought	Northwest Ohio	October,1899	Moderate drought
Drought	Northwest Ohio	November,1899	Extreme drought
Drought	Northwest Ohio	April,1900	Severe drought
Drought	Northwest Ohio	May,1900	Severe drought
Drought	Northwest Ohio	September,1900	Severe drought
Drought	Northwest Ohio	October,1900	Severe drought
Drought	Northwest Ohio	February,1901	Moderate drought
Drought	Northwest Ohio	July,1901	Severe drought
Drought	Northwest Ohio	October,1901	Extreme drought
Drought	Northwest Ohio	November,1901	Extreme drought
Drought	Northwest Ohio	January,1902	Moderate drought
Drought	Northwest Ohio	February,1902	Moderate drought
Drought	Northwest Ohio	April,1902	Moderate drought
Drought	Northwest Ohio	August,1902	Moderate drought
Drought	Northwest Ohio	May,1903	Moderate drought
Drought	Northwest Ohio	September,1903	Severe drought
Drought	Northwest Ohio	September,1904	Moderate drought
Drought	Northwest Ohio	October,1904	Moderate drought
Drought	Northwest Ohio	November,1904	Extreme drought
Drought	Northwest Ohio	January,1905	Moderate drought
Drought	Northwest Ohio	March,1905	Moderate drought
Drought	Northwest Ohio	February,1906	Moderate drought
Drought	Northwest Ohio	April,1906	Severe drought
Drought	Northwest Ohio	May,1906	Severe drought
Drought	Northwest Ohio	February,1907	Moderate drought
Drought	Northwest Ohio	June,1908	Moderate drought

Drought	Northwest Ohio	August,1908	Moderate drought
Drought	Northwest Ohio	September,1908	Extreme drought
Drought	Northwest Ohio	October,1908	Severe drought
Drought	Northwest Ohio	November,1908	Extreme drought
Drought	Northwest Ohio	December,1908	Extreme drought
Drought	Northwest Ohio	April,1910	Moderate drought
Drought	Northwest Ohio	August,1910	Extreme drought
Drought	Northwest Ohio	May,1911	Extreme drought
Drought	Northwest Ohio	July,1911	Severe drought
Drought	Northwest Ohio	November,1912	Moderate drought
Drought	Northwest Ohio	June,1913	Severe drought
Drought	Northwest Ohio	August,1913	Moderate drought
Drought	Northwest Ohio	May,1914	Moderate drought
Drought	Northwest Ohio	June,1914	Moderate drought
Drought	Northwest Ohio	July,1914	Extreme drought
Drought	Northwest Ohio	September,1914	Severe drought
Drought	Northwest Ohio	November,1914	Severe drought
Drought	Northwest Ohio	March,1915	Moderate drought
Drought	Northwest Ohio	April,1915	Extreme drought
Drought	Northwest Ohio	April,1916	Moderate drought
Drought	Northwest Ohio	July,1916	Extreme drought
Drought	Northwest Ohio	November,1916	Moderate drought
Drought	Northwest Ohio	March,1918	Moderate drought
Drought	Northwest Ohio	June,1918	Moderate drought
Drought	Northwest Ohio	July,1918	Moderate drought
Drought	Northwest Ohio	February,1919	Moderate drought
Drought	Northwest Ohio	June,1919	Severe drought
Drought	Northwest Ohio	September,1919	Moderate drought
Drought	Northwest Ohio	February,1920	Moderate drought
Drought	Northwest Ohio	May,1920	Moderate drought
Drought	Northwest Ohio	June,1921	Severe drought
Drought	Northwest Ohio	July,1921	Severe drought
Drought	Northwest Ohio	June,1922	Moderate drought
Drought	Northwest Ohio	October,1922	Moderate drought
Drought	Northwest Ohio	November,1922	Extreme drought
Drought	Northwest Ohio	August,1924	Moderate drought
Drought	Northwest Ohio	October,1924	Extreme drought
Drought	Northwest Ohio	November,1924	Moderate drought
Drought	Northwest Ohio	April,1925	Severe drought
Drought	Northwest Ohio	June,1925	Moderate drought
Drought	Northwest Ohio	August,1925	Moderate drought
Drought	Northwest Ohio	May,1926	Moderate drought
Drought	Northwest Ohio	September,1927	Moderate drought
Drought	Northwest Ohio	October,1927	Moderate drought
Drought	Northwest Ohio	May,1928	Severe drought
Drought	Northwest Ohio	September,1928	Severe drought

Drought	Northwest Ohio	March,1929	Moderate drought
Drought	Northwest Ohio	April,1930	Severe drought
Drought	Northwest Ohio	May,1930	Extreme drought
Drought	Northwest Ohio	June,1930	Severe drought
Drought	Northwest Ohio	July,1930	Extreme drought
Drought	Northwest Ohio	August,1930	Severe drought
Drought	Northwest Ohio	September,1930	Moderate drought
Drought	Northwest Ohio	October,1930	Severe drought
Drought	Northwest Ohio	November,1930	Extreme drought
Drought	Northwest Ohio	December,1930	Extreme drought
Drought	Northwest Ohio	January,1931	Extreme drought
Drought	Northwest Ohio	February,1931	Extreme drought
Drought	Northwest Ohio	March,1931	Severe drought
Drought	Northwest Ohio	February,1932	Moderate drought
Drought	Northwest Ohio	April,1932	Moderate drought
Drought	Northwest Ohio	May,1932	Extreme drought
Drought	Northwest Ohio	August,1932	Severe drought
Drought	Northwest Ohio	June,1933	Extreme drought
Drought	Northwest Ohio	July,1933	Extreme drought
Drought	Northwest Ohio	October,1933	Moderate drought
Drought	Northwest Ohio	November,1933	Extreme drought
Drought	Northwest Ohio	January,1934	Moderate drought
Drought	Northwest Ohio	February,1934	Moderate drought
Drought	Northwest Ohio	April,1934	Moderate drought
Drought	Northwest Ohio	May,1934	Extreme drought
Drought	Northwest Ohio	June,1934	Severe drought
Drought	Northwest Ohio	July,1934	Extreme drought
Drought	Northwest Ohio	October,1934	Extreme drought
Drought	Northwest Ohio	November,1934	Extreme drought
Drought	Northwest Ohio	December,1934	Extreme drought
Drought	Northwest Ohio	January,1935	Moderate drought
Drought	Northwest Ohio	February,1935	Moderate drought
Drought	Northwest Ohio	April,1935	Moderate drought
Drought	Northwest Ohio	May,1936	Extreme drought
Drought	Northwest Ohio	June,1936	Extreme drought
Drought	Northwest Ohio	July,1936	Severe drought
Drought	Northwest Ohio	August,1936	Moderate drought
Drought	Northwest Ohio	March,1937	Moderate drought
Drought	Northwest Ohio	October,1938	Severe drought
Drought	Northwest Ohio	May,1939	Extreme drought
Drought	Northwest Ohio	August,1939	Severe drought
Drought	Northwest Ohio	September,1939	Severe drought
Drought	Northwest Ohio	January,1940	Severe drought
Drought	Northwest Ohio	July,1940	Extreme drought
Drought	Northwest Ohio	September,1940	Moderate drought
Drought	Northwest Ohio	October,1940	Moderate drought

Drought	Northwest Ohio	February,1941	Severe drought
Drought	Northwest Ohio	February,1941	Severe drought
Drought	Northwest Ohio	March,1941	Severe drought
Drought	Northwest Ohio	April,1941	Extreme drought
Drought	Northwest Ohio	May,1941	Severe drought
Drought	Northwest Ohio	September,1941	Severe drought
Drought	Northwest Ohio	April,1942	Moderate drought
Drought	Northwest Ohio	June,1943	Moderate drought
Drought	Northwest Ohio	November,1943	Severe drought
Drought	Northwest Ohio	December,1943	Extreme drought
Drought	Northwest Ohio	January,1944	Severe drought
Drought	Northwest Ohio	June,1944	Moderate drought
Drought	Northwest Ohio	July,1944	Extreme drought
Drought	Northwest Ohio	September,1944	Moderate drought
Drought	Northwest Ohio	October,1944	Severe drought
Drought	Northwest Ohio	November,1944	Extreme drought
Drought	Northwest Ohio	December,1944	Moderate drought
Drought	Northwest Ohio	January,1945	Moderate drought
Drought	Northwest Ohio	August,1945	Moderate drought
Drought	Northwest Ohio	January,1946	Moderate drought
Drought	Northwest Ohio	March,1946	Moderate drought
Drought	Northwest Ohio	April,1946	Severe drought
Drought	Northwest Ohio	September,1946	Severe drought
Drought	Northwest Ohio	February,1947	Severe drought
Drought	Northwest Ohio	March,1947	Moderate drought
Drought	Northwest Ohio	October,1947	Moderate drought
Drought	Northwest Ohio	October,1949	Moderate drought
Drought	Northwest Ohio	November,1949	Severe drought
Drought	Northwest Ohio	May,1950	Moderate drought
Drought	Northwest Ohio	July,1951	Moderate drought
Drought	Northwest Ohio	August,1951	Extreme drought
Drought	Northwest Ohio	October,1951	Moderate drought
Drought	Northwest Ohio	June,1952	Severe drought
Drought	Northwest Ohio	July,1952	Moderate drought
Drought	Northwest Ohio	August,1952	Moderate drought
Drought	Northwest Ohio	October,1952	Severe drought
Drought	Northwest Ohio	November,1952	Extreme drought
Drought	Northwest Ohio	December,1952	Moderate drought
Drought	Northwest Ohio	February,1953	Moderate drought
Drought	Northwest Ohio	June,1953	Moderate drought
Drought	Northwest Ohio	August,1953	Severe drought
Drought	Northwest Ohio	September,1953	Severe drought
Drought	Northwest Ohio	October,1953	Extreme drought
Drought	Northwest Ohio	November,1953	Extreme drought
Drought	Northwest Ohio	December,1953	Extreme drought
Drought	Northwest Ohio	January,1954	Moderate drought

Drought	Northwest Ohio	February,1954	Severe drought
Drought	Northwest Ohio	May,1954	Moderate drought
Drought	Northwest Ohio	September,1954	Severe drought
Drought	Northwest Ohio	April,1955	Moderate drought
Drought	Northwest Ohio	May,1955	Moderate drought
Drought	Northwest Ohio	August,1955	Moderate drought
Drought	Northwest Ohio	December,1955	Severe drought
Drought	Northwest Ohio	October,1956	Severe drought
Drought	Northwest Ohio	November,1956	Severe drought
Drought	Northwest Ohio	March,1957	Severe drought
Drought	Northwest Ohio	July,1957	Moderate drought
Drought	Northwest Ohio	August,1957	Severe drought
Drought	Northwest Ohio	February,1958	Moderate drought
Drought	Northwest Ohio	March,1958	Severe drought
Drought	Northwest Ohio	June,1959	Moderate drought
Drought	Northwest Ohio	August,1959	Severe drought
Drought	Northwest Ohio	September,1959	Moderate drought
Drought	Northwest Ohio	March,1960	Severe drought
Drought	Northwest Ohio	April,1960	Extreme drought
Drought	Northwest Ohio	September,1960	Extreme drought
Drought	Northwest Ohio	November,1960	Severe drought
Drought	Northwest Ohio	December,1960	Extreme drought
Drought	Northwest Ohio	January,1961	Severe drought
Drought	Northwest Ohio	April,1962	Severe drought
Drought	Northwest Ohio	May,1962	Moderate drought
Drought	Northwest Ohio	June,1962	Extreme drought
Drought	Northwest Ohio	August,1962	Severe drought
Drought	Northwest Ohio	January,1963	Moderate drought
Drought	Northwest Ohio	February,1963	Moderate drought
Drought	Northwest Ohio	May,1963	Moderate drought
Drought	Northwest Ohio	June,1963	Moderate drought
Drought	Northwest Ohio	September,1963	Extreme drought
Drought	Northwest Ohio	October,1963	Extreme drought
Drought	Northwest Ohio	November,1963	Extreme drought
Drought	Northwest Ohio	December,1963	Extreme drought
Drought	Northwest Ohio	January,1964	Severe drought
Drought	Northwest Ohio	February,1964	Severe drought
Drought	Northwest Ohio	May,1964	Severe drought
Drought	Northwest Ohio	July,1964	Moderate drought
Drought	Northwest Ohio	September,1964	Severe drought
Drought	Northwest Ohio	October,1964	Severe drought
Drought	Northwest Ohio	November,1964	Extreme drought
Drought	Northwest Ohio	May,1965	Extreme drought
Drought	Northwest Ohio	June,1965	Severe drought
Drought	Northwest Ohio	July,1965	Moderate drought
Drought	Northwest Ohio	December,1965	Moderate drought

Drought	Northwest Ohio	March,1966	Severe drought
Drought	Northwest Ohio	June,1966	Severe drought
Drought	Northwest Ohio	January,1967	Moderate drought
Drought	Northwest Ohio	June,1967	Extreme drought
Drought	Northwest Ohio	August,1967	Moderate drought
Drought	Northwest Ohio	February,1968	Severe drought
Drought	Northwest Ohio	April,1968	Moderate drought
Drought	Northwest Ohio	February,1969	Severe drought
Drought	Northwest Ohio	March,1969	Severe drought
Drought	Northwest Ohio	January,1970	Moderate drought
Drought	Northwest Ohio	August,1970	Moderate drought
Drought	Northwest Ohio	March,1971	Moderate drought
Drought	Northwest Ohio	April,1971	Extreme drought
Drought	Northwest Ohio	October,1971	Severe drought
Drought	Northwest Ohio	November,1971	Severe drought
Drought	Northwest Ohio	September,1973	Moderate drought
Drought	Northwest Ohio	July,1974	Extreme drought
Drought	Northwest Ohio	May,1975	Moderate drought
Drought	Northwest Ohio	April,1976	Severe drought
Drought	Northwest Ohio	May,1976	Moderate drought
Drought	Northwest Ohio	December,1976	Moderate drought
Drought	Northwest Ohio	January,1977	Moderate drought
Drought	Northwest Ohio	February,1977	Moderate drought
Drought	Northwest Ohio	May,1977	Extreme drought
Drought	Northwest Ohio	February,1978	Severe drought
Drought	Northwest Ohio	September,1978	Severe drought
Drought	Northwest Ohio	March,1979	Severe drought
Drought	Northwest Ohio	February,1980	Moderate drought
Drought	Northwest Ohio	January,1981	Severe drought
Drought	Northwest Ohio	March,1981	Severe drought
Drought	Northwest Ohio	April,1982	Moderate drought
Drought	Northwest Ohio	July,1982	Moderate drought
Drought	Northwest Ohio	October,1982	Severe drought
Drought	Northwest Ohio	January,1983	Moderate drought
Drought	Northwest Ohio	February,1983	Moderate drought
Drought	Northwest Ohio	March,1983	Moderate drought
Drought	Northwest Ohio	August,1983	Severe drought
Drought	Northwest Ohio	September,1983	Moderate drought
Drought	Northwest Ohio	January,1984	Moderate drought
Drought	Northwest Ohio	June,1984	Extreme drought
Drought	Northwest Ohio	April,1985	Extreme drought
Drought	Northwest Ohio	September,1985	Severe drought
Drought	Northwest Ohio	January,1986	Moderate drought
Drought	Northwest Ohio	March,1986	Moderate drought
Drought	Northwest Ohio	April,1986	Severe drought
Drought	Northwest Ohio	May,1986	Moderate drought

Drought	Northwest Ohio	February,1987	Severe drought
Drought	Northwest Ohio	March,1987	Moderate drought
Drought	Northwest Ohio	May,1987	Moderate drought
Drought	Northwest Ohio	September,1987	Moderate drought
Drought	Northwest Ohio	November,1987	Severe drought
Drought	Northwest Ohio	April,1988	Moderate drought
Drought	Northwest Ohio	May,1988	Extreme drought
Drought	Northwest Ohio	June,1988	Extreme drought
Drought	Northwest Ohio	August,1988	Moderate drought
Drought	Northwest Ohio	March,1990	Severe drought
Drought	Northwest Ohio	May,1991	Severe drought
Drought	Northwest Ohio	June,1991	Extreme drought
Drought	Northwest Ohio	July,1991	Severe drought
Drought	Northwest Ohio	August,1991	Moderate drought
Drought	Northwest Ohio	October,1991	Moderate drought
Drought	Northwest Ohio	November,1991	Extreme drought
Drought	Northwest Ohio	December,1991	Moderate drought
Drought	Northwest Ohio	February,1992	Moderate drought
Drought	Northwest Ohio	May,1993	Severe drought
Drought	Northwest Ohio	August,1993	Extreme drought
Drought	Northwest Ohio	September,1994	Moderate drought
Drought	Northwest Ohio	October,1994	Severe drought
Drought	Northwest Ohio	March,1995	Severe drought
Drought	Northwest Ohio	September,1995	Moderate drought
Drought	Northwest Ohio	August,1996	Severe drought
Drought	Northwest Ohio	April,1997	Severe drought
Drought	Northwest Ohio	May,1998	Moderate drought
Drought	Northwest Ohio	September,1998	Severe drought
Drought	Northwest Ohio	November,1998	Moderate drought
Drought	Northwest Ohio	December,1998	Moderate drought
Drought	Northwest Ohio	March,1999	Moderate drought
Drought	Northwest Ohio	May,1999	Severe drought
Drought	Northwest Ohio	June,1999	Extreme drought
Drought	Northwest Ohio	July,1999	Moderate drought
Drought	Northwest Ohio	September,1999	Severe drought
Drought	Northwest Ohio	November,1999	Severe drought
Drought	Northwest Ohio	December,1999	Moderate drought
Drought	Northwest Ohio	March,2000	Moderate drought
Drought	Northwest Ohio	January,2001	Moderate drought
Drought	Northwest Ohio	March,2001	Moderate drought
Drought	Northwest Ohio	July,2002	Severe drought
Drought	Northwest Ohio	August,2002	Extreme drought
Drought	Northwest Ohio	March,2003	Moderate drought
Drought	Northwest Ohio	April,2003	Moderate drought
Drought	Northwest Ohio	June,2005	Extreme drought
Drought	Northwest Ohio	May,2007	Extreme drought

Drought	Northwest Ohio	June,2007	Severe drought
Drought	Northwest Ohio	September,2007	Moderate drought
Drought	Northwest Ohio	April,2008	Moderate drought
Drought	Northwest Ohio	August,2008	Moderate drought
Drought	Northwest Ohio	March,2009	Moderate drought
Drought	Northwest Ohio	November,2009	Moderate drought
Drought	Northwest Ohio	April,2010	Severe drought
Drought	Northwest Ohio	August,2010	Moderate drought
Drought	Northwest Ohio	September,2010	Moderate drought

APPENDIX C

State Capability Assessment
Local Capability Assessment

Agency Name	Programs, Plans, Policies, Regulations, Funding or Practices	Point of Contact	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Ohio Emergency Management Agency - Fiscal	All OEMA/FEMA Funds	Rita Steele (614) 889-7184	X			Releases all funds associated with EMA activities
Ohio Emergency Management Agency - Recovery	IA & PA Programs	Kay Phillips (614) 889-7176		X		406 public assistance mitigation funds
Ohio Emergency Management Agency - Operations	All field coordination	Rich Lauffer (614) 799-3682	X	X		Supports all OEMA functions at the county level
Ohio Department of Natural Resources – Division of Water	All floodplain management	Cindy Crecelius (614) 265-6750	X	X		Administer NFIP compliance
Department of Development – Office of Housing & Community Partnership	CDBG program	Lisa Patt-McDaniel (614) 466-2285	X	X		Able to leverage matching funds for projects
Public Utilities Commission of Ohio	Regulates all Ohio utilities	Alan Schriber (800) 686-7826		X		Provides support for all utility issues
Ohio Environmental Protection Agency	Environmental Hazard Issues	Mike Czeczele (419) 373-3146		X		Deals with all environmental hazards
Department of Health	All disease and agent health threats	(614) 466-0265		X		Addresses any health issues associated with project location or development
American Red Cross	Addresses any unmet family needs	Suzy Davidson (614) 251-1448		X		Assists families in areas outside grant funding for immediate needs
Ohio Department of Transportation	Infrastructure issues	Todd Audet (419) 353-8131		X		Liaison to all ODOT resources involved in project
Department of Education	School facility issues	Virginia Jacobs (419) 999-4219		X		Addresses all educational related issues in project
Division of Administrative Services	All state funding	Scott Johnson (614)466-6511		X		Controls all financial activity within the State of Ohio
Controlling Board	Responsible for all state funding matches to Federal funding	N/A		X		Historically the Board has matched all Federal mitigation dollars doubling funding allocated for projects

Agency Name	Programs, Plans, Policies, Regulations, Funding or Practices	Point of Contact	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Henry County Emergency Management Agency (Mitigate from, prepare for, respond to and aid in the recovery from catastrophic disasters and hazardous material accidents)	Federal Grants	Tracy Bush (419)592-4876	X	X		EMA influences and coordinates federal, state, and local government's emergency preparedness policies.
Henry County Engineer (Maintain records and surveys of county roads, bridges, tax maps. Advise and provide engineering services to the thirteen townships regarding maintenance and construction.	Ohio Public Works	Randy Germann (419) 592-2976	X			
Henry County Auditor (Data Processing. Responsible to account for all money received by County and issue warrants in payment of all County obligations)	General Fund	Ida Bostelman (419) 592-1956	X			

Agency Name	Programs, Plans, Policies, Regulations, Funding or Practices	Point of Contact	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Henry County Commissioners (The legislative authority, hold title to all County property, controls purchasing and contracting for goods and services, is the budget and appropriating authority for County)	General Fund	(419)592-4876	X	X		Approves most county expenditures, appoints members to various boards and commissions, performs any function to render any service that it considers appropriate.
Ohio State University Extension		Nancy Stehulak (419)592-0806	X	X		Provides research based educational programs for all county residents.
Henry County Sheriff	General Fund	John Nye (419)592-8010	X			Provides patrols for the citizens in all unincorporated areas of Henry County.
Henry County Soil & Water Conservation District (Promotes conservation of our soil, water, and other natural resources through educational programs, informational services and technical assistance)	ODNR, Grants	Bob George (419) 592-0881	X	X		Focus on natural resource problems and solutions.
Henry County Planning Commission (Coordinator for the Henry County Natural Hazard Mitigation Plan and floodplain administrator for Henry County's unincorporated areas.)	General Fund	Tim Schumm (419) 599-7370	X			

Agency Name	Programs, Plans, Policies, Regulations, Funding or Practices	Point of Contact	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
Henry County Chapter of the American Red Cross (Provides blood services and disaster relief)	Nonprofit Organization	Jackie Miller (419) 592-4806	X			
Salvation Army (Provides emergency assistance and services for the needy)	Nonprofit Organization	(419)241-1138	X			
National Weather Service	Federally Funded	7506 E 850 N Syracuse, IN 46567 (574) 834-1104	X			
Henry County Health Department (Promotes health and safety through policies and programs)	Tax revenue, grants	Hans Schmaizried (419) 599-5545	X			Aids in meeting the health needs of the residents and provides assistance and recovery efforts for safety, food, watering and disease control.
- Ohio Department of Natural Resources – Forestry	Federal/State Funding, sales	John Dorka (614) 265-6694	X			Promote and apply management for the sustainable use of Ohio's private and public lands
Public Utilities Commission of Ohio	General Revenue Funds Grants, Fees, Federal Assistance	Alan Schriber (800 686-7826	X			Assure all residential and business customers access to adequate, safe and reliable utilities.
Henry County Emergency Medical Service	General Fund	Nancy Hatfield (419) 592-1988	X			
Henry County Community Improvement Corporation	Special Revenue Funds	Phil Flavin (419) 592-4637	X			
First Call For Help (provides toll free information and referral services)	2-1-1 Service	Robert Dildine (419)599-1660	X			

Agency Name	Programs, Plans, Policies, Regulations, Funding or Practices	Point of Contact	Effect on Loss Reduction			Comments
			Support	Facilitate	Hinder	
United Way of Henry County (Locally based volunteer effort to increase the ability of people to care for one another)	Donations	Tom Mack (419)599-8176	X			
County's Township Trustees and Municipality Councils	Local tax funds	Various	X	X		
Henry County Department of Jobs and Family Services		(419) 592-0946	X			Works with American Red Cross

APPENDIX D

Evaluation of Alternative Mitigation Items

Priority	Criteria	Social		Technical			Administrative			Political			Legal			Economic				Environmental				
	Action Items	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Law
Tornado																								
1	Countywide siren policy	+	+	+	+	N	+	+	N	+	+	+	N	+	-	+	+	n/a	+	n/a	n/a	n/a	n/a	n/a
2	Siren encoder for remote activation	+	+	+	+	N	+	+	+	+	N	+	+	+	+	+	+	n/a	N	n/a	n/a	n/a	n/a	n/a
3	Community event notification	+	+	+	+	+	-	+	+	-	-	-	N	+	N	+	-	N	+	n/a	n/a	n/a	n/a	n/a
4	Spotter training notice	+	+	+	+	N	+	+	+	+	N	+	+	+	+	+	+	n/a	+	n/a	n/a	n/a	n/a	n/a
5	Implement social media plan	+	-	+	n/a	n/a	-	+	+	+	N	N	n/a	n/a	n/a	+	+	n/a	+	n/a	n/a	n/a	n/a	n/a
6	Increase public awareness of preparedness activity and resources	+	+	+	-	n/a	-	-	-	+	+	+	+	+	-	+	+	n/a	+	n/a	n/a	n/a	n/a	+
7	Siren policy education	+	+	+		+	+	+	+	+	N	+	+	+	n/a	N	+	N	+	n/a	n/a	n/a	n/a	n/a
8	Damage reporting	-	N	+	N	+	N	+	-	-	N	+	n/a	n/a	n/a	+	+	n/a	n/a	+	+	+	+	+
9	Water treatment plant	N	+	+	+	+	N	-	n/a	+	N	N	n/a	+	n/a	+	-	+	-	+	n/a	n/a	+	n/a
10	Shelters for mobile home parks	+	+	+	+	+	+	-	-	-	-	+	+	+	-	+	-	+	-	n/a	n/a	n/a	n/a	n/a
Winter Storm/Blizzard																								
1	Community event notification	+	+	+	+	+	-	+	+	-	-	-	N	+	N	+	-	N	+	n/a	n/a	n/a	n/a	n/a
2	Implement social media plan	+	-	+	n/a	n/a	-	+	+	+	N	N	n/a	n/a	n/a	+	+	n/a	+	n/a	n/a	n/a	n/a	n/a

Priority	Criteria	Social		Technical			Administrative			Political			Legal			Economic				Environmental				
	Action Items	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Law
3	Increase public awareness of preparedness activity and resources	+	+	+	-	n/a	-	-	-	+	+	+	+	+	-	+	+	n/a	+	n/a	n/a	n/a	n/a	+
4	Damage reporting	-	N	+	N	+	N	+	-	-	N	+	n/a	n/a	n/a	+	+	n/a	n/a	+	+	+	+	+
5	Water treatment plant	N	+	+	+	+	N	-	n/a	+	N	N	n/a	+	n/a	+	-	+	-	+	n/a	n/a	+	n/a
Thunderstorms																								
1	Community event notification	+	+	+	+	+	-	+	+	-	-	-	N	+	N	+	-	N	+	n/a	n/a	n/a	n/a	n/a
2	Implement social media plan	+	-	+	n/a	n/a	-	+	+	+	N	N	n/a	n/a	n/a	+	+	n/a	+	n/a	n/a	n/a	n/a	n/a
3	Increase public awareness of preparedness activity and resources	+	+	+	-	n/a	-	-	-	+	+	+	+	+	-	+	+	n/a	+	n/a	n/a	n/a	n/a	+
4	Damage reporting	-	N	+	N	+	N	+	-	-	N	+	n/a	n/a	n/a	+	+	n/a	n/a	+	+	+	+	+
5	Water treatment plant	N	+	+	+	+	N	-	n/a	+	N	N	n/a	+	n/a	+	-	+	-	+	n/a	n/a	+	n/a
Floods																								
1	Community event notification	+	+	+	+	+	-	+	+	-	-	-	N	+	N	+	-	N	+	n/a	n/a	n/a	n/a	n/a
2	Implement social media plan	+	-	+	n/a	n/a	-	+	+	+	N	N	n/a	n/a	n/a	+	+	n/a	+	n/a	n/a	n/a	n/a	n/a
3	Increase public awareness of preparedness activity and resources	+	+	+	-	n/a	-	-	-	+	+	+	+	+	-	+	+	n/a	+	n/a	n/a	n/a	n/a	+
4	Water treatment plant	N	+	+	+	+	N	-	n/a	+	N	N	n/a	+	n/a	+	-	+	-	+	n/a	n/a	+	n/a

Priority	Criteria	Social		Technical			Administrative			Political			Legal			Economic				Environmental				
	Action Items	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contribute to Economic Goals	Outside Funding Required	Effect on Land/Water	Effect on Endangered Species	Effect on HAZMAT/Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Law
5	Resume dredging of Maumee River	N	+	+	N	N	N	-	-	N	n/a	N	N	+	-	+	-	-	-	+	N	n/a	n/a	n/a

APPENDIX E

Implementation Strategy

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Material List	Time Frame
Tornado									
Countywide siren policy	Local governments, Fire and Police Departments	Henry County EMA, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure, Napoleon, New Bavaria, Ridgeville Twp, Freedom Twp, Liberty Twp, Washington Twp, Napoleon Twp, Harrison Twp, Damascus Twp, Flatrock Twp, Monroe Twp, Richfield Twp, Pleasant Twp, Marion Twp, Bartlow Twp	Discuss and develop policy	FEMA, OEMA	n/a	1. Gather current policies. 2. Discuss needs and conflicts of plans. 3. Form single county wide plan. 4. Review and approval.	n/a	n/a	1-2 years
Increase public awareness of preparedness activity and resources	Residents and Local governments	Henry County EMA	Develop program	FEMA, OEMA, Ohio state departments	DHS, Citizen Corp.	1.Establish working group to communicate more effectively to public preparedness activities. 2.Better utilization of social media	$5000	Brochures, PSA, from source agencies	Ongoing
Community event notification	Residents	Henry County EMA, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure, Napoleon, New Bavaria, Ridgeville Twp,	Develop and implement policy, Assess at interval	Chamber of Commerce, community leaders	n/a	1. Assess needs and vulnerabilities. 2. Determine potential effects on residents. 3. Develop program plan with required resources.	n/a	Coordination of databases	1-2 years

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Material List	Time Frame
		Freedom Twp, Liberty Twp, Washington Twp, Napoleon Twp, Harrison Twp, Damascus Twp, Flatrock Twp, Monroe Twp, Richfield Twp, Pleasant Twp, Marion Twp, Bartlow Twp, Either Police Depts, Sheriff, or both.							
Implement social media plan	Residents	Henry County EMA, Henry County government.	Develop program	OEMA, School districts, National Red Cross, FEMA	n/a	1.Continue to develop and utilize EMA web page and social media sites.	n/a	n/a	Ongoing
Siren policy education	Residents	Henry County EMA, all public safety and health, Department of Health, School districts.	Develop material and methods; distribute	Henry County Fire departments, OEMA, ODPS	n/a	1.Establish message 2. Requirements of communication methods. 3. Communication plan	n/a	PSA from source agencies.	Ongoing
Spotter training notice	Local governments, Fire and Police Departments	Henry County EMA	Develop material and distribute	NWS	n/a	1.Determine timeframe for advertising and means of communication. 2. Consider target groups (farmers, truckers, construction	n/a	PSA from source agencies	1 year

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Material List	Time Frame
						workers, retirees…)			
Siren encoder for remote activation	Local governments, Fire and Police Departments	Henry County EMA, Local governments, Fire and Police Departments	Develop policy, install equipment, train and drill on use.	Local communication vendors	Pending	1.Modify and update existing equipment	$200,000 for entire county	Various (based on siren type)	1-5 years
Damage reporting	Residents, Local governments, Fire and Police Departments	Henry County EMA	Develop program and find funding	County EOP and State damage assessment procedures	n/a	1.Reporting and assessment according to local procedures	n/a	n/a	1-3 years
Water treatment plant	Residents	Henry County government, City of Napoleon government	Develop plan, find funding	Federal, state, and local civil engineering depts. And water treatment regulations.	Pending	1.Determine vulnerability points in system.	Pending	Varies by project	1-5 years
Shelters for mobile home parks	Mobile Home Residents	Local governments, Developers	Develop proposal	County and City engineers.	Pending	1.Reavaluate zoning requirements	Varies by type and number of shelter(s)	Varies by type and number of shelter(s)	1-5 years
Winter Storm/Blizzard									
Community event notification	Residents	Henry County EMA, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure,	Develop and implement policy, Assess at interval	Chamber of Commerce, community leaders	n/a	1. Assess needs and vulnerabilities. 2. Determine potential effects on residents. 3. Develop program plan	n/a	Coordination of databases	1-2 years

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Material List	Time Frame
		Napoleon, New Bavaria, Ridgeville Twp, Freedom Twp, Liberty Twp, Washington Twp, Napoleon Twp, Harrison Twp, Damascus Twp, Flatrock Twp, Monroe Twp, Richfield Twp, Pleasant Twp, Marion Twp, Bartlow Twp, Either Police Depts, Sheriff, or both.				with required resources.			
Increase public awareness of preparedness activity and resources	Residents and Local governments	Henry County EMA	Develop program	FEMA, OEMA, Ohio state departments	DHS, Citizen Corp.	1.Establish working group to communicate more effectively to public preparedness activities. 2.Better utilization of social media	$5000	Brochures, PSA, from source agencies	Ongoing
Implement social media plan	Residents	Henry County EMA, Henry County government.	Develop program	OEMA, School districts, National Red Cross, FEMA	n/a	1.Continue to develop and utilize EMA web page and social media sites.	n/a	n/a	Ongoing
Damage reporting	Residents, Local governments, Fire and Police Departments	Henry County EMA	Develop program and find funding	County EOP and State damage assessment procedures	n/a	1.Reporting and assessment according to local procedures	n/a	n/a	1-3 years

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Material List	Time Frame
Water treatment plant	Residents	Henry County government, City of Napoleon government	Develop plan, find funding	Federal, state, and local civil engineering depts. And water treatment regulations.	Pending	1.Determine vulnerability points in system.	Pending	Varies by project	1-5 years
Thunderstorms									
Community event notification	Residents	Henry County EMA, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure, Napoleon, New Bavaria, Ridgeville Twp, Freedom Twp, Liberty Twp, Washington Twp, Napoleon Twp, Harrison Twp, Damascus Twp, Flatrock Twp, Monroe Twp, Richfield Twp, Pleasant Twp, Marion Twp, Bartlow Twp, Either Police Depts, Sheriff, or both.	Develop and implement policy, Assess at interval	Chamber of Commerce, community leaders	n/a	1. Assess needs and vulnerabilities. 2. Determine potential effects on residents. 3. Develop program plan with required resources.	n/a	Coordination of databases	1-2 years
Increase public awareness of preparedness activity and resources	Residents and Local governments	Henry County EMA	Develop program	FEMA, OEMA, Ohio state departments	DHS, Citizen Corp.	1.Establish working group to communicate more effectively to public preparedness activities. 2.Better utilization of social media	$5000	Brochures, PSA, from source agencies	Ongoing

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Material List	Time Frame
Implement social media plan	Residents	Henry County EMA, Henry County government.	Develop program	OEMA, School districts, National Red Cross, FEMA	n/a	1.Continue to develop and utilize EMA web page and social media sites.	n/a	n/a	Ongoing
Damage reporting	Residents, Local governments, Fire and Police Departments	Henry County EMA	Develop program and find funding	County EOP and State damage assessment procedures	n/a	1.Reporting and assessment according to local procedures	n/a	n/a	1-3 years
Water treatment plant	Residents	Henry County government, City of Napoleon government	Develop plan, find funding	Federal, state, and local civil engineering depts. And water treatment regulations.	Pending	1.Determine vulnerability points in system.	Pending	Varies by project	1-5 years
Floods									
Community event notification	Residents	Henry County EMA, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure, Napoleon, New Bavaria, Ridgeville Twp, Freedom Twp, Liberty Twp, Washington Twp, Napoleon Twp, Harrison Twp, Damascus Twp, Flatrock Twp, Monroe Twp, Richfield Twp, Pleasant Twp, Marion	Develop and implement policy, Assess at interval	Chamber of Commerce, community leaders	n/a	1. Assess needs and vulnerabilities. 2. Determine potential effects on residents. 3. Develop program plan with required resources.	n/a	Coordination of databases	1-2 years

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Material List	Time Frame
		Twp, Bartlow Twp, Either Police Depts, Sheriff, or both.							
Increase public awareness of preparedness activity and resources	Residents and Local governments	Henry County EMA	Develop program	FEMA, OEMA, Ohio state departments	DHS, Citizen Corp.	1.Establish working group to communicate more effectively to public preparedness activities. 2.Better utilization of social media	$5000	Brochures, PSA, from source agencies	Ongoing
Implement social media plan	Residents	Henry County EMA, Henry County government.	Develop program	OEMA, School districts, National Red Cross, FEMA	n/a	1.Continue to develop and utilize EMA web page and social media sites.	n/a	n/a	Ongoing
Water treatment plant	Residents	Henry County government, City of Napoleon government	Develop plan, find funding	Federal, state, and local civil engineering depts. And water treatment regulations.	Pending	1.Determine vulnerability points in system.	Pending	Varies by project	1-5 years
Resume dredging of Maumee River	Residents	Henry County government	Assess requirements and effect, develop program and find funding	Army Corps of Engineers.	Pending	1.Reinstate to increase drainage capacity.	Pending	Varies by technique.	1-5 years

APPENDIX F

Survey Result Summary
Communication Letters

Henry County Emergency Management Agency
Natural Hazard Mitigation Survey

1. How concerned are you personally about the following natural disasters effecting Henry County? (circle the corresponding number for each hazard)

Natural Hazard	Extremely concerned	Very concerned	Concerned	Somewhat concerned	Not concerned
Drought	1	2	3	4	5
Earthquake	1	2	3	4	5
Flood	1	2	3	4	5
Thunderstorm/Lightning	1	2	3	4	5
Wildfire/Forest fire	1	2	3	4	5
Windstorm/Tornado	1	2	3	4	5
Winterstorm/Blizzard	1	2	3	4	5
Other/plague	1	2	3	4	5

2. Rank the activities for each natural disaster that you think would be best able to reduce or eliminate the damage caused by natural hazards (1 being the best/most important)

Drought educational programs none needed other	
Flood stream restoration convert flood prone areas to parks Elevate houses Building relocation Educational programs none needed other	
wild fire / forest fire additional fire fighting equipment educational programs none needed other	
winterstorm / blizzard warning systems educational programs none needed other	
earthquake educational programs none needed other	
thunderstorm / lightning warning systems educational programs none needed other	
windstorm / tornado shelters near mobile home parks warning systems educational programs none needed other	

3. What township are you a resident of?

_____

4. Please list below any specific projects or areas in Henry County that you think should be evaluated (such as flood prone areas)

_____

5. Any other comments you wish to provide?

_____

_____

_____

_____

Survey Summary

Concern Level

Drought	3.88
Earthquake	4.85
Flood	3.42
Thunderstorm / lightning	3.50
Wild fire / forest fire	4.69
Windstorm / tornado	2.46
Winterstorm / blizzard	2.85

Activity Ranking

Flood	stream restoration	44
	convert flood prone areas to parks	38
	Elevate houses	36
	Building relocation	40
	Educational programs	34
	none needed	13
	other	2
wild fire / forest fire	additional fire fighting equipment	0
	educational programs	0
	none needed	0
	other	0
winterstorm / blizzard	warning systems	29
	educational programs	29
	none needed	16
	other	10
earthquake	educational programs	0
	none needed	0
	other	0
thunderstorm / lightning	warning systems	33
	educational programs	27
	none needed	15
	other	6
windstorm / tornado	shelters near mobile home parks	27
	warning systems	47
	educational programs	29
	none needed	10
	other	2

Good morning,

The Henry County Emergency Management Agency is revising the county's Natural Hazard Mitigation Plan. The purpose of this plan is to protect residents and limit the impact of common natural weather disasters such as tornados, floods, and blizzards by taking action before a disaster occurs.

Many projects are intended for all residents but special attention is given to essential services and structures as well as residents who might be more at risk during a natural disaster.

We have identified your facility as being important for either of the above reasons and would like your help in creating long term projects for this area. We would like to know what specific concerns you may have about how a disaster would affect your facility, residents, employees, and operations; we would also like to know if there are specific projects or actions that would limit a disasters impact which you would like considered by the county.

A meeting will be held on Thursday July 7th from 9 am to 11 am at the Emergency Management Agency, located next to the Henry County Commissioners office. The intention is to collect and understand your concerns and needs, to discuss potential projects, and to answer any questions you may have. If you are unable to attend you can contact this office by letter, phone, or email.

On the reverse is summarized information about the disasters common to Henry County to consider. Thank you very much and I hope to see you at the meeting.

Calvin Martin Stevens
Henry County Emergency Management Agency

Natural Hazard Mitigation Plan – Data Collection

Type (Circle One):School, Care Facility, Mobile Park
Name:
Location:
What are your problems, obstacles, or challenges?
Communication (can you receive and distribute warnings rapidly) (reverse 911, phone/txt/app warnings, sirens, weather radio, emergency alert system, etc.)
Population (include employees), challenges to population i.e. mobility (WHO is vulnerable)
Location, type/age of building, known challenges of site (i.e. fragile structure) and non-fixed vulnerability (i.e. busses (WHERE are your people at when vulnerable)
Needs availability i.e. oxygen or electricity (WHAT do you NEED for your people?)

All information confidential – for internal use only

From: Henry County EMA
Calvin Stevens

To:

Subject: Natural Hazard Mitigation Plan – Core planning group briefing

Good morning. I am holding a meeting on July 22nd at 9am in the EOC building. This meeting is to inform members on how the revision of the mitigation plan is proceeding. I do not expect it to take more than half an hour, unless there are many questions. Please attend if you can; if you cannot and would like specific issues brought up, or minutes of what was discussed, please contact the EMA office at 419-599-6432. Thank you very much.

Calvin Stevens

Good morning,

The Henry County Emergency Management Agency is revising the county's Natural Hazard Mitigation Plan. The purpose of this plan is to protect residents and limit the impact of common natural weather disasters such as tornados, floods, and blizzards by taking action before a disaster occurs.

To keep you informed of the revision process and to inform you of some of the projects underway we are hosting two open meetings. The first will be on the 26th of July at 11 am and the second will be on the 28th of July at 6 pm. These meetings will be held at the Emergency Management Agency, located next to the Henry County Commissioners office.

Some of the items to be covered are what natural hazards the county faces, their potential impact, vulnerable populations and facilities, current and future projects. There will be time to address any additional questions or concerns you may have.

Thank you very much,

Calvin Martin Stevens
Henry County Emergency Management Agency

Meeting Agenda

- Purpose of this meeting, and introductions.
- Review the Natural Hazard Mitigation plan
    - Introduction to plan
    - Hazard Assessment
    - Mitigation Plan
- Status of 2004 projects
    - Evaluate unfinished projects
- Develop Problem statements, Goals, Objectives, and Actions
    - 1 each minimum
        - Hazard, Problem/Goal, Objective, Action
- Prioritize actions, Assign actions to agencies
- Action progress update plan
    - Quarterly updates by assigned agency
- Mitigation Plan maintenance
    - Reestablish core committee
    - Annual meeting
    - Report to Commissioners

APPENDIX G

Adoption Documentation

RESOLUTION

IN THE MATTER OF THE HENRY COUNTY NATURAL HAZARD MITIGATION PLAN APPROVAL

On this ___th day of _____, 2012, _____ moved the adoption of the following **RESOLUTION**:

WHEREAS, the Federal Emergency Management Agency (FEMA) has established rules and regulations under 44 CFR Parts 201.6, which requires that

> "For disasters declared after November 1, 2004, a local government must have a mitigation plan approved pursuant to this section in order to receive HMGP project grants."; and

WHEREAS, The Henry County Emergency Management Agency has received a grant from FEMA to update and revise the previously adopted mitigation plan entitled the 'Henry County, Ohio Natural Hazard Mitigation Plan"; and

WHEREAS, in addition, it is understood that:

> "For multi-jurisdiction plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan"; and

WHEREAS, the FEMA regulation under 44 CFR Parts 201.6 requires:

> "Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan. For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted"; and

WHEREAS, the Board of Henry County Commissioners have reviewed revised and updated "Henry County, Ohio Natural Hazard Mitigation Plan";

NOW THEREFORE BE IT RESOLVED, that the _____ does hereby adopt the updated "Henry County, Ohio Natural Hazard Mitigation Plan", and

BE IT FURTHER RESOLVED, that the Henry County Emergency Management Agency prepare and submit to the Federal Emergency Agency in accordance with the draft rules and regulations published by FEMA, the Henry County, Ohio Natural Hazard Mitigation Plan; and

BE IT FURTHER RESOLVED, that _____ be and hereby is authorized and directed to certify copies of this resolution to the Henry County Emergency Management Agency.

_____ seconded the resolution and the roll being called upon for its adoption, the vote resulted as follows:

_____ YEA

(name)

_____ YEA

(name)

_____ YEA

(name)

Attest:

_____

(name)

APPENDIX H

References

References

Colwell, John J., "The First Hundred Years, A History of Deshler, Ohio 1876-1976", 1976

"Deshler, Ohio 1876-1976, A Historical Collection Compiled by the Chamber of Commerce for the Centennial Celebration in June of 1976", 1976

Federal Emergency Management Agency website http://fema.gov

Federal Emergency Management Agency Map Service Center: Flood Insurance Rate Maps

Federal Emergency Management Agency Publication 320, "Taking Shelter from the Storm: Building a Saferoom in Your House"

Federal Emergency Management Agency, "Getting Started; Building Support for Mitigation Planning", FEMA 386-1

Federal Emergency Management Agency, "Understanding Your Community's Risks; Identifying Hazards and Determining Risks", FEMA 386-2

Federal Emergency Management Agency, "Developing the Mitigation Plan; Identifying Mitigation Actions and Implementing Strategies", FEMA 386-3

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APPENDIX I

Status of 2004 plan actions

Current Status of Mitigation Activities Identified in 2004

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Status
Tornado								
Utilize an automated notification system to notify residents of tornado warnings	Residents	Henry County EMA	Implement system	Ohio EMA, National Weather Service, Sheriff	Federal Grants	1. Develop system 2. Input data	To be determined during project development	Near complete. Final vendor selection. Funding secured.
Distribute weather radios to vulnerable populations and interested residents	Residents	Henry County EMA	Determine need and find funding	Ohio EPA, FEMA	Federal grant	1. Review needs 2. Find funding 3. Distribute	$42 each	Complete. Radios distributed to public and parochial schools and critical facilities.
Review warning siren coverage and recommend new locations	Residents	Henry County EMA, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure, Napoleon, New Bavaria, Ridgeville Twp, Freedom Twp, Liberty Twp, Washington Twp, Napoleon Twp, Harrison Twp, Damascus Twp, Flatrock Twp, Monroe Twp, Richfield Twp,	Assess system and find grants	Ohio EMA	Federal matching grants	1. Review current layout 2. Review with local government 3. determine new locations 4. Implement	$15,000 per siren	Complete. Siren coverage adequate. Focus shifted to indoor warning systems.

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Status
		Pleasant Twp, Marion Twp, Bartlow Twp						
Develop/Distribute informational flyers on tornado safety, including the need for disaster supply kits. Make flyers specific to mobile homes, nursing homes and other vulnerable populations	Residents and local governments	Henry County EMA, American Red Cross, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure, Napoleon, New Bavaria	Develop material and distribute	FEMA, American Red Cross	Operating Budgets	1. Develop material 2. Distribute	$2,000	Complete. Ongoing updates to material.
Promote the weather spotter classes and increase the number of classes available	Local Governments, Fire and Police Departments	Henry County EMA	Develop program and find funding	National Weather Service	Federal Grant, Operating budget of fire and police dept.	1. Develop course 2. Promote course 3. Schedule classes	$25,000	Complete. Number of classes controlled by National Weather Service. Focus on advertisement.
Build shelters for residents of mobile home parks and seasonal homes	Mobile home park residents	Local governments, Developers	Determine need and find funding	FEMA, Ohio EPA, American Red Cross	Federal grants	1.Determine need 2. Locate funding 3. Implement	$30,000 per structure	Incomplete.
Initiate classes to train individuals to do damage assessment	Local governments	Henry County EMA, Local governments, Fire and	Determine needs and schedule class	Ohio EPA, FEMA	Federal grants	1. Determine needs 2. Develop	$50,000	Incomplete. Insufficient resources and manpower to maintain. Standardize assessment?

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Status
		Police Departments				program 3. Implement		
Winter Storm/Blizzard								
Work with critical facilities to coordinate emergency plans with County Plan	Local companies and local governments	Henry County EMA, Local governments	Develop plans	FEMA, Ohio EMA	Grants, Operating budgets	1. Contact facilities 2. Develop program	$30,000	Complete. Review corporate plans. LEPC, Health Department, school plans, continuous.
Distribute weather radios to vulnerable populations and interested residents	Residents	Henry County EMA	Determine need and find funding	Ohio EPA, FEMA	Federal grant	1. Review needs 2. Find funding 3. Distribute	$42 each	Complete
Encourage utility companies to develop tree management programs to minimize the threat of falling branches breaking utility lines	Utility Companies, Residents and local governments	Utility Companies, local governments and Henry County EMA	Discuss and develop program	Ohio EMA, FEMA, PUCO	Operating budget, Grants	1. Discus with utility companies 2. Develop program 3. Implement	To be determined during project development	Complete. Ridgeville, RETC, Toledo Edison; Toledo trimming in house.
Have educational programs/materials explaining winter storm safety, disaster supply kits and preparation, and the importance of tree trimming	Residents and local governments	Henry County EMA, American Red Cross, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta,	Develop material and distribute	FEMA, American Red Cross	Operating Budgets	1. Develop material 2. Distribute	$2,000	Complete. Ongoing.

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Status
		McClure, Napoleon, New Bavaria						
Encourage utility companies to bury utility lines when possible	Utility Companies, Residents and local governments	Utility Companies, local governments and Henry County EMA	Discuss	Ohio EMA, FEMA, PUCO	Operating budget, Grants	1. Discus with utility companies 2. Implement	To be determined during project development	Complete.
Thunderstorms								
Distribute weather radios to vulnerable populations and interested residents	Residents	Henry County EMA	Determine need and find funding	Ohio EPA, FEMA	Federal grant	1. Review needs 2. Find funding 3. Distribute	$42 each	Complete.
Encourage utility companies to develop tree management programs to minimize the threat of falling branches breaking utility lines	Utility Companies, Residents and local governments	Utility Companies, local governments and Henry County EMA	Discuss and develop program	Ohio EMA, FEMA, PUCO	Operating budget, Grants	1. Discus with utility companies 2. Develop program 3. Implement	To be determined during project development	Complete.

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Status
Develop/distribute material on thunderstorm safety, including information regarding disaster supply kits and the importance of tree trimming	Residents and local governments	Henry County EMA, American Red Cross, Deshler, Florida, Hamler, Holgate, Liberty Center, Malinta, McClure, Napoleon, New Bavaria	Develop material and distribute	FEMA, American Red Cross	Operating Budgets	1. Develop material 2. Distribute	$2,000	Complete. Ongoing.
Encourage utility companies to bury utility lines when possible	Utility Companies, Residents and local governments	Utility Companies, local governments and Henry County EMA	Discuss	Ohio EMA, FEMA, PUCO	Operating budget, Grants	1. Discus with utility companies 2. Implement	To be determined during project development	Complete.

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Status
Floods								
Implement the recommendation from the Henry County Soil and Water Conservation District and the Village of Holgate regarding School Creek. Actions could be: clearing logjams, creek reconstruction or the development of a wetlands retention area	Local residents and local governments	Henry County Soil and Water Conservation District and Holgate	Determine best option and implement	ODNR	Federal grants and operating budget	1. Determine best option 2. Develop action items 3. Find funding 4. Implement	To be determined during project development	Incomplete. Local rejection of plan.
Develop a voluntary program for the acquisition, relocation, or elevation of structures in the floodplain	Residents in floodplain	Local governments, Henry County EMA	Review at risk properties and determine actions	Ohio EMA, FEMA	Federal Grants	1. Review properties 2. Determine actions 3. Interface with residents	>$1,000,000	Incomplete. Still in progress.
Develop/distribute material about flood stage. Place markers to show past floods	Residents and local governments	Henry County EMA, American Red Cross, Local Governments	Develop material and distribute	FEMA, American Red Cross	Operating Budgets	1. Develop material 2. Distribute	$5,000	Near complete. All done except flood markers.

Action Items	Beneficiaries	Responsible Parties	Responsibilities of Parties	Technical Assistance Resources	Funding Sources	Task Summary	Cost Estimate	Status
Utilize an automated notification system to contact residents about flood warnings	Residents	Henry County EMA	Implement system	Ohio EMA, National Weather Service, Sheriff	Federal Grants	1. Develop system 2. Input data	To be determined during project development	Near complete.
Develop/distribute materials on flood safety, including information regarding disaster supply kits.	Residents and local governments	Henry County EMA, American Red Cross, Deshler, Florida, Hamler, Holgate, Liberty Center, Napoleon	Develop material and distribute	FEMA, American Red Cross	Operating Budgets	1. Develop material 2. Distribute	$2,000	Complete. Ongoing.

APPENDIX J

Summary of Repetitive Losses

(Information restricted, please contact the Henry County Emergency Management Agency for information)

APPENDIX K

Report and Evaluation Forms

Worksheet #1 Progress Report step 2

Progress Report Period: _____ (date) to _____ (date)

Project Title: _____ Project ID#: _____

Responsible Agency: _____

Address: _____

City/County: _____

Contact Person: _____ Title: _____

Phone #(s): _____ email address: _____

List Supporting Agencies and Contacts:

_____

_____

_____

Total Project Cost: _____

Anticipated Cost Overrun/Underrun: _____

Date of Project Approval: _____ Start date of the project: _____

Anticipated completion date: _____

Description of the Project (include a description of each phase, if applicable, and the time frame for completing each phase): _____

_____

_____

Milestones	Complete	Projected Date of Completion

Plan Goal(s)/Objective(s) Addressed:

Goal: _____

Objective: _____

Indicator of Success (e.g., losses avoided as a result of the acquisition program):

In most cases, you will list losses avoided as the indicator. In cases where it is difficult to quantify the benefits in dollar amounts, you will use other indicators, such as the number of people who now know about mitigation or who are taking mitigation actions to reduce their vulnerability to hazards.

_____

_____

Status (Please check pertinent information and provide explanations for items with an asterisk. For completed or canceled projects, see Worksheet #2 — to complete a project evaluation):

Project Status

☐ Project on schedule

☐ Project completed

☐ Project delayed*

*explain: _____

_____

☐ Project canceled

Project Cost Status

☐ Cost unchanged

☐ Cost overrun*

*explain: _____

_____

☐ Cost underrun*

*explain: _____

_____

Summary of progress on project for this report:

A. What was accomplished during this reporting period?

_____

_____

_____

_____

B. What obstacles, problems, or delays did you encounter, if any?

_____

_____

_____

C. How was each problem resolved?

_____

_____

_____

Next Steps: What is/are the next step(s) to be accomplished over the next reporting period?

Other comments:

Adapted from the North Carolina HMGP Progress Report Form at http://www.dem.doa.state.nc.us/mitigation/document_index.htm.

Worksheet #2 Evaluate Your Planning Team step 3

When gearing up for the plan evaluation, the planning team should reassess its composition and ask the following questions:	YES	NO
Have there been local staffing changes that would warrant inviting different members to the planning team?		
Comments/Proposed Action:		
Are there organizations that have been invaluable to the planning process or to project implementation that should be represented on the planning team?		
Comments/Proposed Action:		
Are there any representatives of essential organizations who have not fully participated in the planning and implementation of actions? If so, can someone else from this organization commit to the planning team?		
Comments/Proposed Action:		
Are there procedures (e.g., signing of MOAs, commenting on submitted progress reports, distributing meeting minutes, etc.) that can be done more efficiently?		
Comments/Proposed Action:		
Are there ways to gain more diverse and widespread cooperation?		
Comments/Proposed Action:		
Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning?		
Comments/Proposed Action:		

If the planning team determines the answer to any of these questions is "yes," some changes may be necessary.

Worksheet #3 Evaluate Your Project Results step 3

Project Name and Number: _____

_____

Project Budget: _____

_____

Project Description: _____

_____

_____

Associated Goal and Objective(s): _____

_____

_____

Indicator of Success (e.g., losses avoided): _____

_____

_____

Insert location map.
Include before and after photos if appropriate.

Was the action implemented? ☐ YES ☐ NO

IF **NO**

Why not?	YES	NO
Was there political support for the action?	☐	☐
Were enough funds available?	☐	☐
Were workloads equitably or realistically distributed?	☐	☐
Was new information discovered about the risks or community that made implementation difficult or no longer sensible?	☐	☐
Was the estimated time of implementation reasonable?	☐	☐
Were sufficient resources (for example staff and technical assistance) available?	☐	☐

IF **YES**

What were the results of the implemented action? _____

_____

_____

_____

_____

_____

_____

	YES	NO
Were the outcomes as expected? If No, please explain:		
Did the results achieve the goal and objective(s)? Explain how:		
Was the action cost-effective? Explain how or how not:		
What were the losses avoided after having completed the project?		
If it was a structural project, how did it change the hazard profile?		
Additional comments or other outcomes:		

Date: _____

Prepared by: _____

Worksheet #4 Revisit Your Risk Assessment step 4

Risk Assessment Steps	Questions	YES	NO	COMMENTS
Identify hazards	Are there new hazards that can affect your community?			
Profile hazard events	Are new historical records available?			
	Are additional maps or new hazard studies available?			
	Have chances of future events (along with their magnitude, extent, etc.) changed?			
	Have recent and future development in the community been checked for their effect on hazard areas?			
Inventory assets	Have inventories of existing structures in hazard areas been updated?			
	Is future land development accounted for in the inventories?			
	Are there any new special high-risk populations?			
Estimate losses	Have loss estimates been updated to account for recent changes?			

If you answered "Yes" to any of the above questions, review your data and update your risk assessment information accordingly.

Worksheet #5 Revise the Plan step 4

Prepare to update the plan.

When preparing to update the plan:	*Check the box when addressed:*
1. Gather information, including project evaluation worksheets, progress reports, studies, related plans, etc.	
Comments:	
2. Reconvene the planning team, making changes to the team composition as necessary (see results from Worksheet #2).	
Comments:	

Consider the results of the evaluation and new strategies for the future.

When examining the community consider:	*Check the box when addressed:*
1. The results of the planning and outreach efforts.	
Comments:	
2. The results of the mitigation efforts.	
Comments:	

3. Shifts in development trends.	
Comments:	
4. Areas affected by recent disasters.	
Comments:	
5. The recent magnitude, location, and type of the most recent hazard or disaster.	
Comments:	
6. New studies or technologies.	
Comments:	
7. Changes in local, state, or federal laws, policies, plans, priorities, or funding.	
Comments:	

8. Changes in the socioeconomic fabric of the community.	
Comments:	
9. Other changing conditions.	
Comments:	

Incorporate your findings into the plan.

When examining the plan consider:	*Check the box when addressed:*
1. Revisit the risk assessment. *(See Worksheet #4)*	
Comments:	
2. Update your goals and strategies.	
Comments:	
3. Recalculate benefit-cost analyses of projects to prioritize action items.	
Comments:	

Use the following criteria to evaluate the plan:

Criteria	YES	NO	Solution
Are the goals still applicable?			
Have any changes in the state or community made the goals obsolete or irrelevant?			
Do existing actions need to be reprioritized for implementation?			
Do the plan's priorities correspond with state priorities?			
Can actions be implemented with available resources?			

Comments: