

**NATURALHAZARD
MITIGATIONPLAN
FOR ALLEN COUNTY, OHIO
2015**

**Draft –
December
2015**

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EXECUTIVE SUMMARY

The consequences of man-made and natural hazards and disasters touch all places and people across the United States disrupting commerce, damaging property, and costing lives. Allen County, Ohio recognizes the effectiveness of proper mitigation planning to prepare for and minimize the social, environmental and economic costs of such events.

This Updated Plan outlines the hazards faced by Allen County and its residents based on historical and potential events. A rating is given to each hazard for the purposes of prioritizing the mitigation planning process. The Plan recognizes that not all mitigation is possible or cost effective. The Plan also recognizes that some local public and government officials will differ in their interpretation of realistic mitigation, realistic hazards and realistic prevention.

In 2013, meetings with various government officials, local service providers, state and the general public including those that comprise the Allen County Local Emergency Planning Committee, (hereinafter referred to as the LEPC), were held and input sought prior to the completion and submission of the 2013 Five Year Plan Update for approval. The draft Plan was made available to the general public in written and electronic formats for comment. The Plan was publicly reviewed and ultimately adopted by each of the 7 villages, 12 townships, 2 cities comprising Allen County, Ohio, as well as the Board of County Commissioners.

Allen County faces a number of hazards every day. During the last two decades we have faced the effects of damaging tornados, severe winter storms, high winds, freezing temperatures, flooding and more. We have learned from each disaster and each incident; and, our emergency services and response forces are better trained and better equipped to deal with these hazards than ever before.

However, Allen County remains vulnerable to a variety of hazards and those hazards have been identified. Because of the number of both natural and man-made hazards that have occurred and that have effectively been controlled, Allen County has a better understanding of the level of vulnerability and we have taken many steps, as outlined in this Plan, to mitigate our collective exposure. This Plan further outlines areas of concern and recommendations to address those hazards. It also lists those mitigation measures already in place. Allen County has assessed its vulnerability to hazards and they are incorporated herein.

1. The purpose of the Allen County Hazard Mitigation Plan is to protect the critical areas and facilities of the County that may be effected by natural hazards and to recommend potential solutions that may effectively reduce or even prevent catastrophic damages, casualties, physical or financial losses. A secondary purpose of this Plan is to ensure that a planning process is instituted to address natural hazards and that both local planning and public involvement is undertaken on a regular and ongoing basis.
- 2 Allen County identified the hazards that are addressed in this Plan. These hazards were identified through an extensive analysis and public planning process

that utilized input from the advisory committee and the LEPC, researching past disaster declarations in the County, a review of the county emergency operations plan, a review of current Flood Insurance Rate Maps (FIRMs), and risk assessments completed by the Allen County Emergency Management Agency (hereinafter referred to as the EMA) as part of its Hazardous Materials Emergency Plan.

3. The Regional Planning Commission provided considerable data regarding current and projected land use. This data was then analyzed to assess potential problem areas, including critical facilities. Initial data from this study was also used to determine those hazards that present the greatest risk to the County. Hazards were assigned a "risk value" by potential. This assignment was made upon the recommendations of the Allen County Office of Homeland Security, the LEPC, county service providers, and the public. Based upon the "risk value", analysis was made for those hazards with the highest ratings first. Additional, in depth analysis, was also performed on hazards with lower ratings pushing the Plan toward all hazard mitigation, as outlined in the Hazard Vulnerability Assessment section of this Plan.
4. The hazards identified include those listed below. Other natural or man-made hazards that could occur in other parts of the country (e.g.: coastal erosion/storms, volcanoes, hurricanes, tsunamis, grass fires, etc.) were not analyzed, because of: (1) the geographic location of Allen County; (2) the lack of any history of any such occurrence and the likelihood of such an occurrence being less than 1 percent; and, (3) no research indicating that such events are ever likely to occur. Therefore, only those hazards perceived as being serious threats were incorporated into this Plan: dam failure, drought/extreme heat, earthquakes, floods, severe winter storms and tornadoes were addressed. This is the second formal Hazard Mitigation Plan prepared by Allen County to address natural hazards. Future plans may wish to reinvestigate additional natural and/or hazards for incorporation. This Plan assumed that some natural hazards such as thunderstorms and wind storms would best be treated as would tornadoes.
5. Allen County conducted an in depth analysis of government documents paying particular attention to weather-related historical events. The Plan incorporates the physical elements and nature of Allen County and emphasizes its land use activities, population characteristics as well as local codes and practices in an attempt to recognize potential hazards and the vulnerabilities of the community. Allen County used existing FIRMs (flood insurance rate maps) from FEMA and incorporated that review into GIS maps. The results of this study resulted in the following information and documentation: identification of critical facilities; potential risk by hazard & respective rating; effectiveness of mitigation efforts; vulnerability assessment; historical events; and, maps.
6. The 2013 Allen County Hazard Mitigation was developed with the support and guidance of the Allen County Office of Homeland Security and Emergency Management. The documents format and planning process was guided by FEMA. The following points are highlighted in this Plan: conceptual issues; public planning process; development trends; legal issues; mitigation activities/measures; and, strategies to address warranted measures.

7. An "action plan" outlines the steps to be taken to achieve the Plan's stated goals, as well as time lines and the stakeholders who will have the responsibility for carrying out the action. Recognizing the availability of funds to undertake certain measures is limited, and that there are competing demands for federal, state and local monies based on local, national and international events, this document is expected to be used as a guide to further local emergency response planning efforts. This Plan, like all plans, will evolve as needs change and actions are taken. This Plan will need to be monitored, updated and revised based on local/state event experiences, as well as new planning tools/technologies methodologies, and the availability of funding to support mitigation efforts.
8. The 2013 Hazard Mitigation Plan was prepared by the Allen County Office of Homeland Security and Emergency Management and the County's 12 townships, 7 villages and 2 cities. All Allen County governments were invited to participate as were the adjacent counties. All were sent letters encouraging their participation and support. This document was approved and adopted by the various political subdivisions after subsequent review and commentary. A resolution attesting to their concurrence and Plan adoption is attached.

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SECTION 1 INTRODUCTION

1.1 Disaster Mitigation Act of 2000

On October 30, 2000, the President of the United States signed into law the Disaster Mitigation Act of 2000 (public law 106-390), to amend the Robert T. Stafford Disaster Relief Act of 1988. Among other things, this legislation reinforced the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide, and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities.

Some of the major provisions of the Disaster Mitigation Act of 2000 included:

- Funding of pre-disaster mitigation activities
- Developing experimental multi-hazard maps to better understand risks
- Establishing state and local government infrastructure mitigation planning requirements
- Defining how states can assume more responsibility in managing the Hazard
- Mitigation Grant Program (HMGP) Adjusting ways in which management costs for projects are funded

The mitigation planning provisions outlined in Section 322 of the Act establishes performance-based standards for mitigation plans and requires states to have a program to develop county government plans. The consequence for counties that fail to develop an infrastructure mitigation plan is the chance of a reduced federal share of damage assistance from 75% to 25% if the damaged facility has been damaged on more than 1 occasion in the preceding 10 year period by the same type of event. This document is the 2013 Allen County Natural Hazard Mitigation Plan.

1.2 Plan Advisory Committee

To seek support for updating the existing mitigation plan, the Allen County Office of Homeland Security and Emergency Management focused on the resources needed to update the existing hazard mitigation plan. Essential steps included identifying, organizing and re-assembling members of the community as well as technical expertise required during the plan update process.

As a result, the Allen County Office of Homeland Security and Emergency Management sought support and information from various jurisdictions, business, industry, non-profit organizations, other interested organizations and individuals. Obtaining the support of community and organizational leaders was the best foundation for the plan update effort. Pending Federal approval, the County and its participating jurisdictions intend to formally adopt this plan by passing a Resolution or Ordinance.

The 2013-2015 Plan Advisory Committee was formed by notifying and assembling individuals and organizations that previously served on the Committee when the plan was first adopted and Federally-approved.

In addition to participating jurisdictions, the contiguous counties to Allen County were also invited to attend and participate. These counties are:

Auglaize County
Hancock County
Hardin County

Putnam County
Van Wert County

Although representatives of these counties were invited, none chose to participate as most were conducting the same processes to update their mitigation plans.

Also, representatives were invited from business, commerce, industry, academia, non-profit organizations, interested parties and citizens.

As a result of assessing community support and inviting a comprehensive range of resources, the following team was assembled to update the Allen County Hazard Mitigation Plan:

2013-2015 Plan Advisory Committee

Organization	Name	Position / Title
County EMA	Dr. Russ Decker	Director
County EMA	Gene Davis	Deputy Director
LEPC	Dan Protsman	Member
Sheriff's Office	Jim Everette	Sheriff's Deputy
Co. Health Dept.	Bill Kelly	Director, Environmental
Co. Health Dept.	Tom Berger	Director, Emergency Prep
Red Cross	David Collins	Executive Director
Red Cross	Brenda Mead	Disaster Services
City of Bluffton	Rick Stanitoc	Mayor
Lima Fire Dept.	Mark Heffner	Chief
Lima Memorial	Kyle Erford	Emergency Planner
Allen Co. Soil & Water	Robert Hutchinson	Representative
St. Rita's Medical Center	Jeff Ramey	Police Chief
Bath Township	Joseph Kitchen	Fire Chief
Council on Aging	Diane Bishop	Director
INEOS	Joe Martz	Senior Safety & Security Engineer
INEOS	Chad Ulm	Safety and Security Engineer
American Trim	Robert Johnson	Environmental Engineer
Linde	Zach Streeter	Production Manager
Allied	Steve Carr	CEO
Husky Lima Refinery	W. D. Witsay	Fires Safety Specialist
General Dynamics Corp.	Trevor Violet	Sr. Environmental Engineer
InterDyne Corp.	Clint Rolland	Project Manager
Ford Motor Company	Kevin Bruin	Environmental Manager
Guardian Lima	Ron Lattrell	Environmental Health & Safety
Regional Plng. Commission	Thomas Mazur	Executive Director
P&G / Perry Fire Dept.	Dieter Wireman	Emergency Response Team
Ottawa River Coalition	Beth Seibert	Coordinator
Citizen	Carol Bertrand	Representative
Citizen	Jim Michael	Representative
Citizen	Dale Patton	Representative

COMMUNITY	PLANNING COMMISSION	COMPREHENSIVE PLANS	FLOODPLAIN REGULATIONS	BUILDING CODES ¹	ZONING ORDINANCES	CAPITAL BUDGET ²	PUBLIC WORKS BUDGET ²
Allen County	YES	YES	YES	YES	YES	(none)	Limited in-kind wages only.
City of Delphos	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
City of Lima	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Beaverdam	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Bluffton	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Cairo	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Elida	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Harrod	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Lafayette	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Spencerville	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.
Village of Fort Shawnee	YES / NO	YES / NO	YES / NO	YES	YES / NO	(none)	Limited in-kind wages only.

¹ All jurisdictions within the state now follow the State Building Code. (Ohio Administrative Code 4101:1.)

² Budget that would allow the jurisdiction to devote financial resources towards hazard mitigation activities.

NFIP Compliance and Floodplain Regulation

Mapping. The county underwent the floodplain map modernization process with FEMA and the Ohio Department of Natural Resources. This process began with a scoping meeting on June 5, 2008 with preliminary maps released on December 17, 2010 and an Open House conducted on February 15, 2011. The appeals and comment period was open on June 7, 2011 and closed on September 5, 2011. The Letter of Final Determination was issued on September 4, 2012. New floodplain maps were adopted by the county and became effective on March 4, 2013.

Floodplain Regulation. The Lima-Allen County Regional Planning Commission maintains the county's Flood Damage Reduction Resolution & Floodplain Management Regulations, March 2013. This regulation appoints a county Floodplain Administrator and specifies this position's duties and responsibilities. Some the duties include, but are limited to routine monitoring of the floodplain, enforcing regulations and providing community assistance such as encouragement for owners to maintain flood insurance. The regulation was formally adopted by the County Commissioners as Resolution #163-13.

Plan progress has been made to various areas. The advisory committee was given an update on the progress. The County has taken steps to increase the number of community warning sirens in the County. With this, a community education initiative was undertaken to ensure the citizens understand the appropriate response when sirens are activated. TV spots, along with information were made available on social media and the County EMA website instructing citizens on the appropriate steps to take when the sirens are activated. Emergency Response plans were reviewed yearly to ensure they accurately reflect the County's ability to respond known and unknown hazards. With this, a yearly exercise was completed with both private and public partners. After these exercises, suggested corrective actions are reviewed and implemented as needed. The County is also actively pursuing grant funding to remediate repetitive loss structures. We will continue to work with both state and federal officials to identify funds to move forward with projects identified in the plan.

Additionally, each of the jurisdictions were engaged as participants and given many chances to provide input to affect the plan's content. These opportunities were usually demonstrated during scheduled and special meetings, but also included conference calls, e-mail and correspondence by postal service. As a result, the jurisdictions' representatives presented the views of their communities during the update of the hazard analysis, risk assessment, vulnerability analyses. For the mitigation strategy, the representatives examined and evaluated mitigation goals and objectives from the perspective of the jurisdiction and offered what actions may be taken. They also presented the status of each mitigation action from the previously Federally-approved plan. Below is a summary of each participating jurisdiction and their representative:

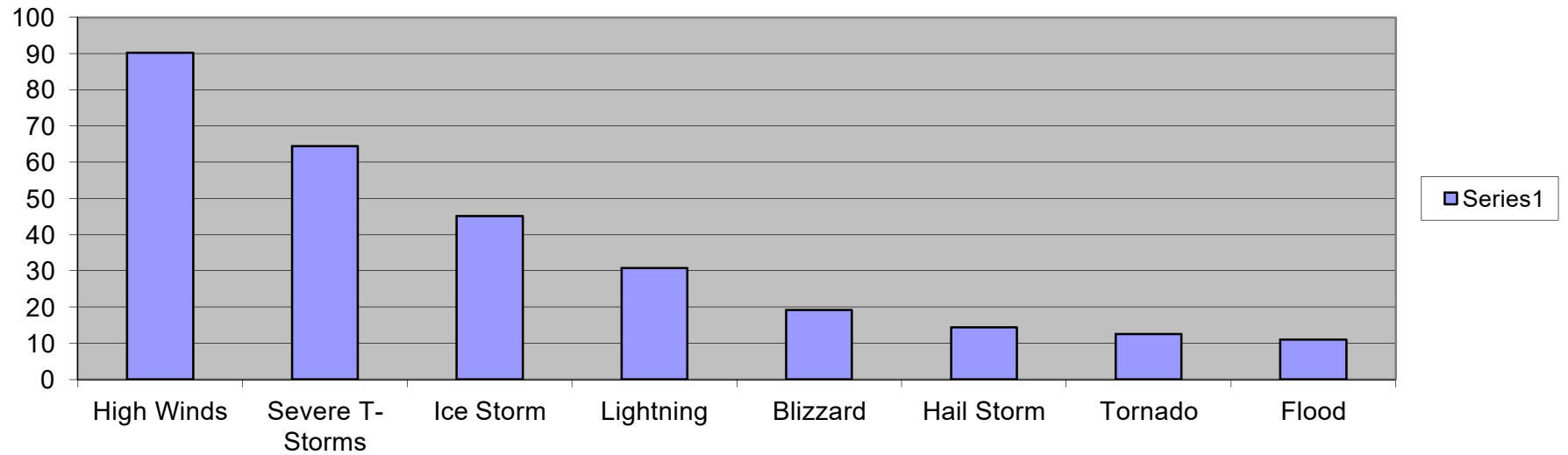
Participating Jurisdictions

Community	Position / Title	Agency / Organization
Allen County - Russ Decker	Director	Allen County EMA
City of Delphos – Greg Berquist	Safety Services Director	City of Delphos
City of Lima – Mark Heffner	Chief	Lima FD
Village of Beaverdam	Administrator	Mike Leis
Village of Bluffton	Administrator	James Mehaffie
Village of Cairo	Administrator	James Everett
Village of Elida	Administrator	Scott Fessler
Village of Harrod	Mayor	Sharon Rummer
Village of Lafayette	Mayor	Ronald Moots
Village of Spencerville	Mayor	Lynn Cummins

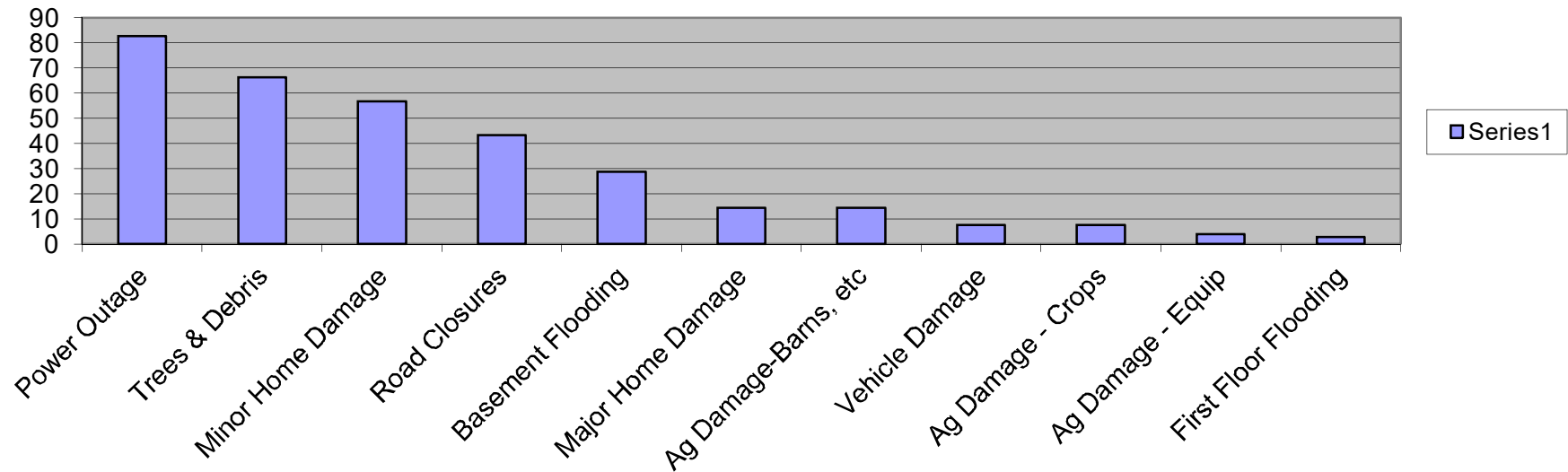
Engaging the Public

Advertised public meetings (appendix 1) were used to formally kick off the mitigation planning process and solicit public comment. Advertised meetings of the Local Emergency Planning Committee and the Citizens Advisory Committee augmented the ongoing commentary of the Plan's Advisory Committee. Input was solicited from representatives of local colleges and universities including, The Ohio State University, Rhodes State College, University of Northwestern Ohio and Bluffton University. Topical coverage across the community was widespread with both electronic and written media attending County Commissioners' meetings in which the draft Plan was discussed. The draft Plan was distributed to the Lima Public Library and local units of government for accessibility purposes. The draft Plan was posted to the web sites of the Allen County Office of Homeland Security, and the Allen County Emergency Management Agency for comment. This Plan and its contents were made available for review and comment with the staff of the Allen County Office of Homeland Security & Emergency Management, 333 N. Main Street, Lima, Ohio, Monday through Friday during normal business hours.

Allen County Citizen Survey of Natural Hazard Impacts 2008-2013



Allen County Citizen Survey of Storm Damage Experience 2008-2013



Assessing Risk

Next, Allen County and its communities reviewed and updated characteristics and potential consequences of hazards. The intent was to understand how much of the community could be affected by specific hazards and what the impacts would be on important community assets. The Plan Advisory Committee began with a review of the county and community inventory and revised data regarding its assets for residential, nonresidential and critical facilities. The Committee also reviewed each hazard event profile for description, location, extent, history and probability of occurrence. Based on the last several years, the Plan Advisory Committee adjusted the probability of each hazard according to history, location and variations of extent. Coupled with updated inventory data, the Plan Advisory Committee estimated the losses projected for the types of buildings, numbers and estimated damage in the County as a whole.

Mitigation Plan Development and Update

Armed with the understanding of the risks posed by hazards, the Plan Advisory Committee determined what their priorities should be and look at possible ways to minimize the effects of each hazard. This resulted in the updated Allen County Hazard Mitigation Plan: and the strategy for implementation. After examining existing mitigation goals and objectives, the Plan Advisory Committee also took new goals and objectives into consideration. A revised approach was formed that identified existing and new mitigation actions that re-prioritized. The Plan Advisory Committee prepared the implementation strategy that identifies the action, priority, timeline, lead organization and resources needed as well as status. This beginning section of the revised plan documents the planning process of the Allen County Plan Advisory Committee.

Implementing the Plan and Monitoring Progress

Allen County and its communities intend to bring the plan to life in a variety of ways ranging from implementing specific mitigation projects to changes in the day-to-day operation of local government. To ensure the success of this ongoing program, it is critical for the plan to remain relevant. This, it is important to conduct periodic evaluations and make revisions as needed.

After the State review and Federal approval of the updated Allen County Hazard Mitigation Plan, the County and each participating jurisdiction intend to pass a Resolution or Ordinance to formalize their adoption of this plan.

The plan and its results will be evaluated on a periodic basis to gauge its effectiveness. Some of the criteria include, but is not limited to:

How effective was the action to accomplish the end result?

Was the action worth the effort?

Did the action achieve the goal and it is worth it to repeat it in the future?

1.3 Role of the Advisory Committee

The Advisory Committee, prepared and submitted the *draft* Natural Hazard Mitigation Plan—its report, attachments and addendums with its recommendation to the consideration. The Advisory Committee works with Allen County EMA staff in monitoring the implementation of specific projects and strategies. Upon adoption, the Allen County Office of Emergency Management and Homeland Security submits the approved Plan to all political subdivisions within Allen County for monitoring purposes. Final approval of the document establishes the actions, deliverables/accomplishments and performance measures by annual element.

1.4 Chronology of Events

The following is a summary of events leading to the final approval of this Plan:

- **Data Collection.** Based on initial planning requirements, preliminary data collection, analysis and mapping began in March 2013.
- **Issues of Concern.** Based on prior input and data analysis completed by the LACRPC, a roster of key issues was prepared and reviewed for Advisory Committee discussion. Such discussion sessions were ongoing and finalized in October 2013.
- **Goals & Objectives.** Using Advisory Committee discussion and recommendations, goals and actions were developed for review and finalization during November 2013.
- **Action Plan.** The recommendations of the Advisory Committee were formulated into specific actions that were considered and incorporated into the final draft document by the Allen County Office of Homeland Security and Emergency Management before submitting to FEMA for review and comment.
- **Local Stakeholder Adoption.** The Plan will be circulated for review and comment by local political subdivisions prior to their adoption of a resolution attesting to the process, and the contents of the Plan.

1.5 Local Stakeholder Initiatives

A founding principle of the planning process is the recognition of the concerns and strategies developed by the various stakeholders across the community. Currently, the Allen County community is served by: the Regional Planning Commission, the Allen County EMA, the Allen County Office of Homeland Security, the Allen County Sheriffs Office, the Allen County Health Department, the Allen County Engineer's Office and the Allen County Chapter of the American Red Cross. Localized law enforcement, fire, and/or emergency medical service providers also exist to address and support natural hazard intervention and mitigation efforts typically supported by the Ohio Department of Transportation, the Ohio Emergency Management Agency and the Federal Emergency Management Agency.

1.6 Major Issues

Members of the Advisory Committee reviewed the specific issues from the initial plan over the course of plan preparation and found the items listed below to be current in 2013. A community survey was developed and distributed with over 400 responses received. The results of the survey are included in the appendix of this document.

- The state of awareness of the general public
- The ability of the local communities to support a mass evacuation
- The ability of local communities to notify residents and businesses in case of a weather related flooding event and provide the infrastructure and equipment at specific locations necessary to support mitigation efforts
- The ability of the local community to adequately protect a large population under threat of a severe tornado while at the Allen County Fairgrounds
- The need for increased governmental cooperation and attention to relationships that will nurture informational exchanges and improve emergency response

1.8 Existing Plans that were consulted while drafting the Allen County Hazard Mitigation Plan Include

- **Allen County Mitigation Plan (November 2006)**
This plan was consulted to assist with the background information for the risk assessment, vulnerability analysis, problem identification, goals and action plan component of the Plan update.
- **Allen County Emergency Operations Plan (April 2013)**
This plan was consulted to assist with the hazard identification component of the Plan update.
- **Ohio Enhanced Mitigation Plan (2014)**
This plan was consulted to assist with background information and hazard Identification.
- **Allen County Economic Development Strategic Plan (2014)**
This plan was consulted to assist with background information in Section 2.
- **Allen County Flood Damage Reduction Resolution & Floodplain Management Regulations (March 2013)**
These regulations were consulted to assist with the background information for the risk assessment, vulnerability analysis, problem identification, goals and action plan component of the Plan update concerning flooding.
- **Allen County and Local Storm Water Management Regulations** These regulations were consulted to assist with the background information for the risk assessment, vulnerability analysis, problem identification, goals and action plan component of the Plan update concerning flooding.
- **Allen County and Local Storm Water & Sediment Control Regulations**
These regulations were consulted to assist with the background information for

the risk assessment, vulnerability analysis, problem identification, goals and action plan component of the Plan update concerning flooding.

- **Allen County and Local Zoning and Subdivision Regulations**

These regulations were consulted to assist with the background information for the risk assessment, vulnerability analysis, problem identification, goals and action plan component of the Plan update concerning all hazards.

Allen County and its jurisdictions have limited hazard mitigation capabilities. Only the County has a Planning Commission and Comprehensive Plan which is countywide and includes all townships and jurisdictions. Each entity has floodplain regulations formally adopted by Resolution or Ordinance. As of the Spring of 2005, all entities in Ohio now follow the State Building Code. However, neither the County nor any of its jurisdictions have zoning ordinances. All health and safety regulations follow State law. Allen County and its jurisdictions have very limited financial resources. The County ranks as one of the lowest three least populated counties in the state. The County and its jurisdictions have adequate resources to operate and maintain public utilities and public facilities. However, considering the lower population numbers, a per capita income of \$22,295 and 18.6% of the population living below poverty level, the County and its jurisdictions do not have much flexibility in financial assets to accomplish mitigation tasks on their own.

SECTION 2 ALLEN COUNTY: SITE & SITUATION

Allen County, Ohio occupies a unique space on planet Earth as determined as much by its natural and human resources as its latitude and longitude. The identification of potential natural hazards impacting Allen County are a reflection of historical events coupled with an understanding of geographic and geologic facts. This community's site and situation reflecting its geographic location, natural resources and population need to be addressed in terms of its capacity to deal with such natural hazards.

The implications and/or consequences stemming from any number of natural hazards upon pre-existing or planned development and the community's emergency response is paramount in the public planning process. Section 2 attempts to highlight its geographic location, its organization and its climate and natural features including soils. This section concludes with an overview of local land use and a summary assessment of development patterns and the local regulatory climate regarding same.

2.1 Locational Attributes & Composition

Allen County is 407 square miles in total area, with 12.6 square miles situated within the municipal corporate limits of Lima. Lima, the Allen County seat, is located at 40.77 N latitude and 84.13 W longitude. The relative location of the City of Lima, is adjacent to I-75, 10 miles south of the junction of US 30. Map 1 suggests that Lima is the largest inland city in West Central Ohio and, therefore, acts as the center for a 10-county trading area serving approximately 475,000 people, including the adjacent counties of Hancock, Van Wert, Hardin, Putnam, and Auglaize. Map 2 suggests Lima is located within 500 miles of the 10 largest cities of the central states. Located midway between Detroit/Cincinnati, Toledo/Dayton, Cleveland/Indianapolis, and Columbus/Fort Wayne, Lima is strategically placed in relation to raw materials, transportation facilities, labor supply and trade markets.

Allen County, Ohio is composed of 12 townships: Amanda; American; Auglaize; Bath; Jackson; Marion; Monroe; Perry; Richland; Shawnee; Spencer; and, Sugar Creek and two cities Lima and Delphos. Within the townships are the 8 incorporated villages of Beaverdam, Bluffton, Cairo, Elida, Ft. Shawnee, Harrod, Lafayette, and Spencerville; as well as, 6 unincorporated villages including Gomer, Hume, Rockport, Westminster, Kemp, and Conant. Their forms of government are representative of the following types: Allen County - County Commissioners and Administrator; Cities and Villages - Mayor and Council; and, Townships - Trustees. Map 3 reflects the political boundaries of Allen County and its neighboring counties in the state of Ohio.

2.2 Climate & Natural Features

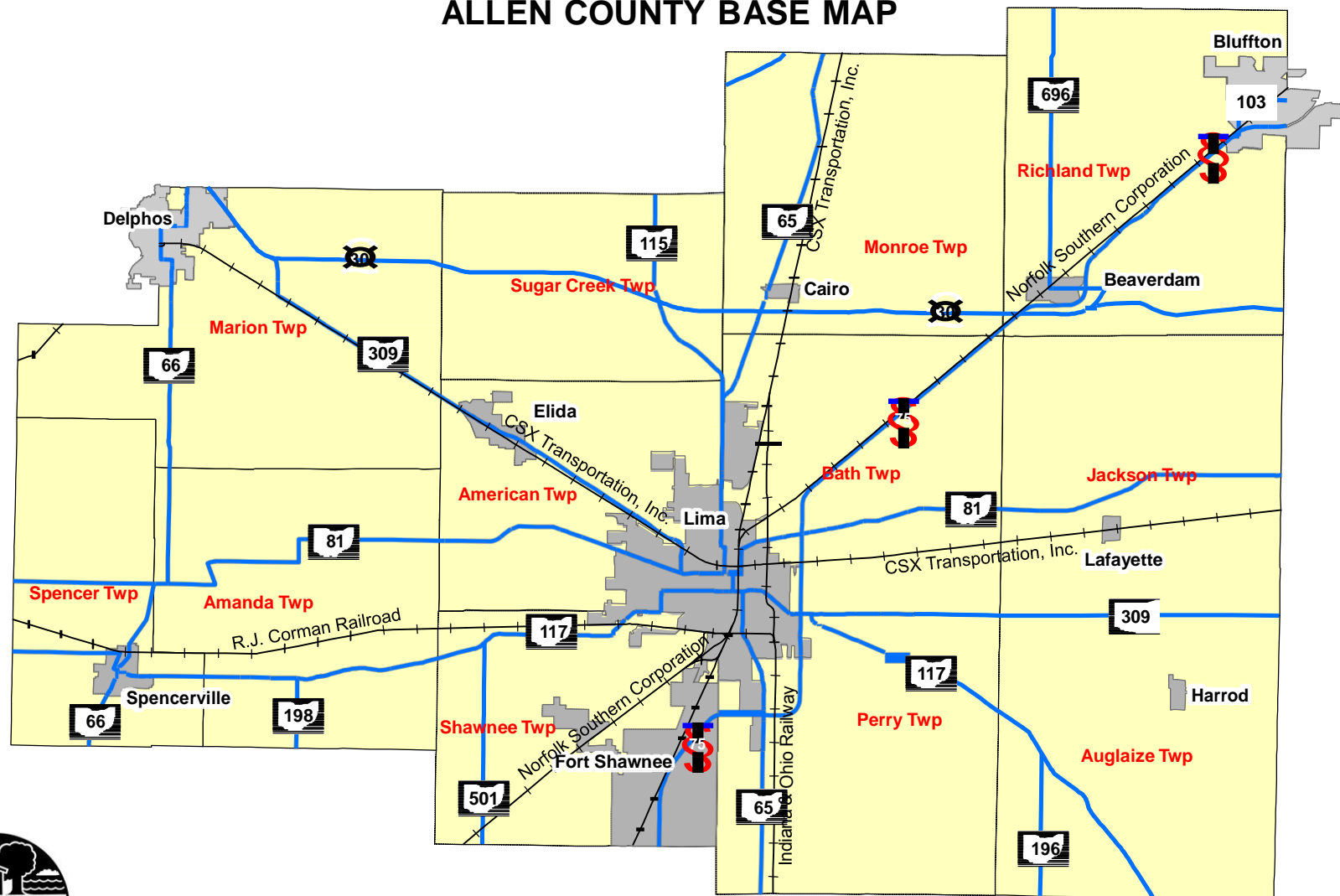
Allen County's global location results in a moist mid latitude climate with relatively cold winters, the characteristics of climates in North America. Allen County experiences this climate of warm summers and cold winters largely because of its general location on the North American land mass. The climate is somewhat moderated because of its proximity to the Great Lakes. The community

generally experiences distinct warm summers that contribute to a growing season that ranges from 5 to 6 months long. Summers are complete with humid evenings and thunderstorms. Winters are relatively cold with blustery winds and snowfall, sometimes with severe blizzards.

Allen County is an area of 260,366 acres located in West Central Ohio. The County is mostly level or gently sloping and is excellent for agriculture. Historically, the most significant geographical feature of Allen County is its rich soils due in part to its location within the Great Black Swamp. The Great Black Swamp encompassed almost 7,000 square miles of prime timber and flooded prairies. Once a glacial lake that covered much of northwest Ohio, this land harbored immense tracts of maple, hickory, birch, oak, and ash trees. But until the swamp was drained, little could be done to timber the stands of trees or utilize the incredibly rich soils.

There are 22 separate watersheds in Allen County. The primary waterways include the Auglaize and Ottawa rivers but there are a number of major and minor tributaries that today require bridges, drainage ditches, and special maintenance. Currently, the Allen County Engineer is responsible for maintaining 420 bridges, 154 miles of open-ditches, 20 miles of conduit, and 11 miles of waterways on permanent maintenance.

MAP 1 ALLEN COUNTY BASE MAP



MAP 2 PROXIMITY TO MAJOR MARKETS



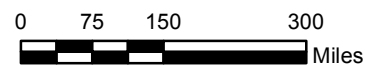
Distance From Lima to Other Major Cities

City, State	Mileage	Kilometers
Akron, OH	151	243
Buffalo, NY	336	541
Canton, OH	151	243
Chicago, IL	218	351
Cincinnati, OH	128	206
Cleveland, OH	149	240
Columbus, OH	94	151
Detroit, MI	139	224
Fort Wayne, IN	65	105
New York, NY	611	983
St. Louis, MO	380	612
Toledo, OH	80	129
Washington D.C.	464	747
Wheeling, WV	211	340
Youngstown, OH	199	211

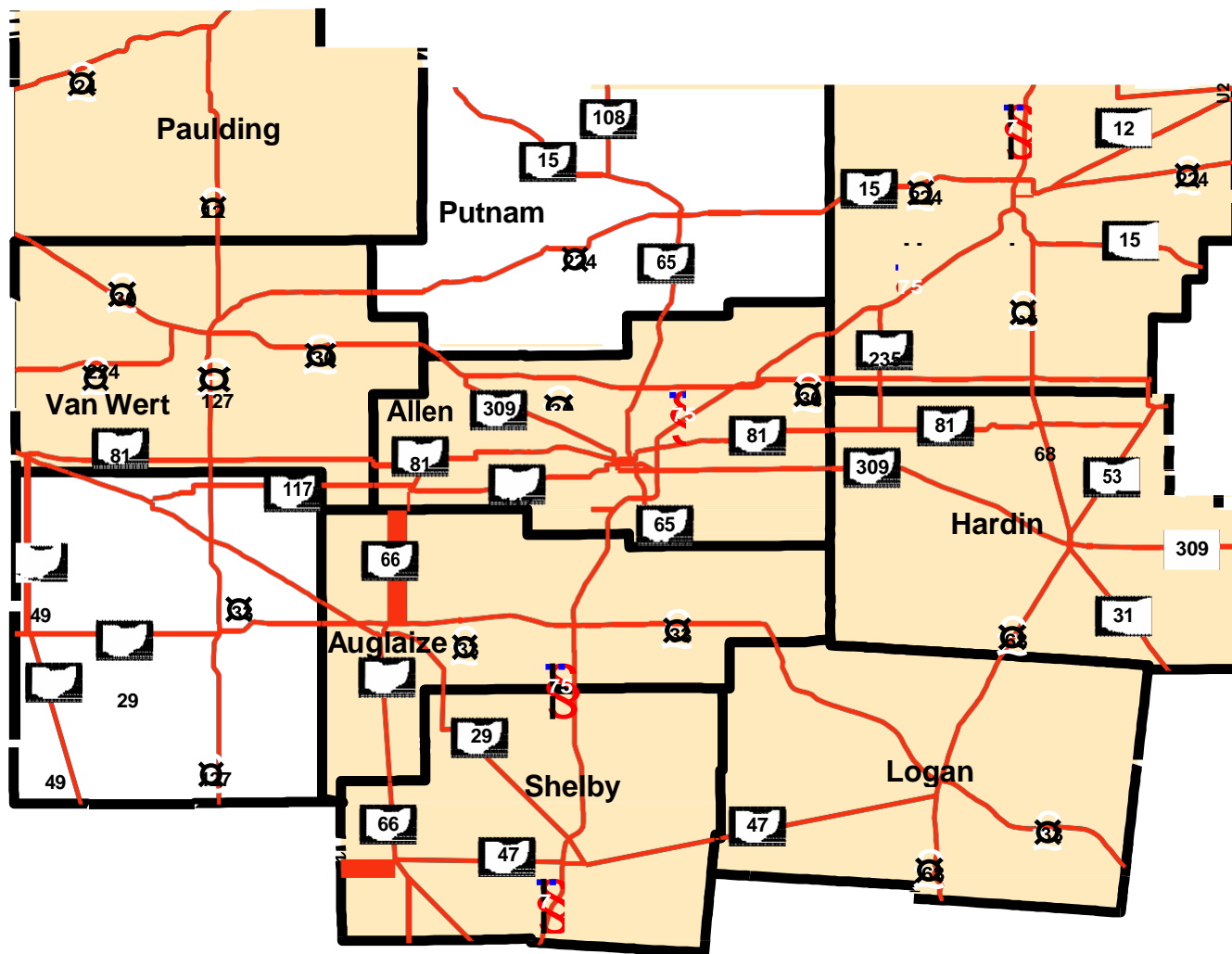


January 2013

Distance



MAP 3 ALLEN COUNTY TEN COUNTY TRADING AREA



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2.2.1 Climate

Allen County is relatively cold in winter and hot in summer. In winter, the average temperature is 27.9 degrees F and the average daily minimum temperature is 19.9 degrees. The lowest temperature on record, which occurred at Lima on January 19, 1994, is -21 degrees. In summer, the average temperature is 72.0 degrees and the average daily maximum temperature is 83.0 degrees. The highest recorded temperature, which occurred on July 15, 1936, is 109 degrees.

The average total annual precipitation is about 35.98 inches. Of this, 19.94 inches, or 55.4 percent, usually falls in May through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 4.38 inches on June 14, 1981. Thunderstorms occur on about 39 days each year, and most occur between April and September.

The average seasonal snowfall is 19.2 inches. The greatest snow depth at any one time during the period of record was 19 inches. On average, 40 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record was more than 18.0 inches on January 13, 1964.

The average relative humidity in mid afternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 82 percent. The sun shines 74 percent of the time possible in summer and 45 percent in winter. The prevailing wind is from the west/southwest. Average wind speed is highest, 12 miles per hour, from January through April.

2.2.2 Physiography, Relief & Drainage

Allen County was once beneath a large ice sheet. As the glacier melted and retreated, a large lake formed and covered much of northwest Ohio. Over time the geological processes resulted in a gently sloping terrain and productive soils but with relatively poor drainage. Map 4 illustrates local relief patterns extracted from the 1" National Elevation Database digital elevation model.

Allen County lies in 2 parts of the Central Lowland Physiographic Province. The extreme northwest part of the County is in the Erie-Huron Lake Plain; the rest of the County is on the Indiana and Ohio Till Plain. The relief in the County is quite variable. In the northwest, near Delphos, the landscape is subdued. This area was once part of a large glacial lake that covered part of Allen County. Hoytville and Nappanee soils are on the flat lake plains of the County.

The largest part of the County is part of the Indiana and Ohio Till Plain. The more sloping relief is along the major rivers and on dissected portions of the 3 end moraines. These are the Fort Wayne, Wabash, and St. Johns moraines. These end moraines formed during the last ice age when the ice front remained stationary for a period of time. Blount and Pewamo soils are found on the flatter ground moraines. Glynwood and Lybrand soils are on the more rolling terrain of the County. Other soils are on the

ground moraines, deltas and floodplains. The highest elevation in Allen County is 1,061 feet above sea level, in Auglaize Township. The lowest elevation is 760 feet, which is in Marion Township, where the Auglaize River exits the County. The Auglaize and Ottawa rivers and their tributaries drain most of Allen County. These 2 rivers flow northward and are part of the Maumee River basin. A small part of southeastern Allen County drains into the Scioto River watershed located in Auglaize County.

MAP 4
ALLEN COUNTY TOPOLOGICAL MAP

Legend

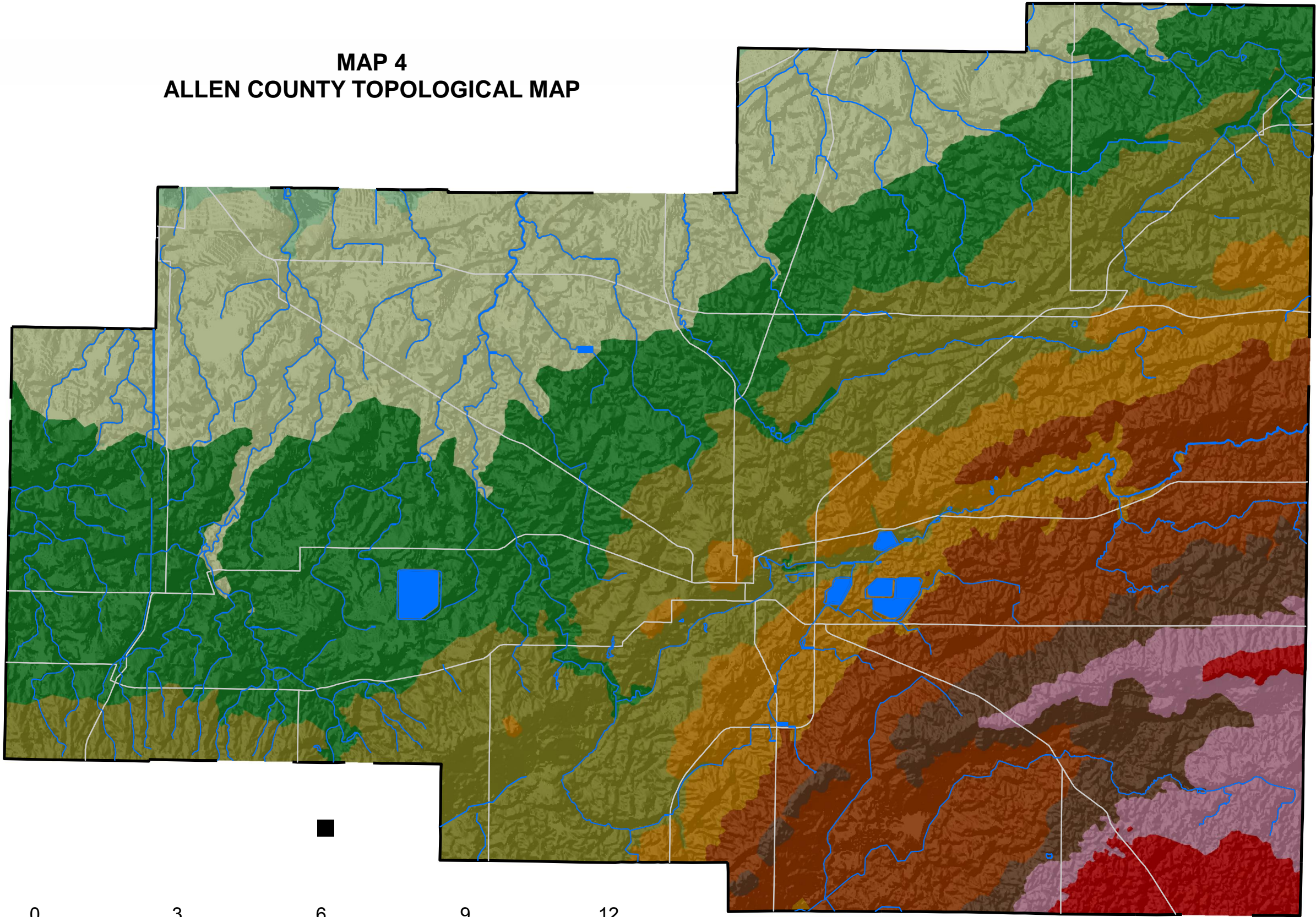
- State Highways
- River & Streams
- Reservoirs

Elevation

- 1023 - 1063
- 983-1023
- 944 - 983
- 904 - 944
- 865 - 904
- 824 - 865
- 785 - 824
- 765 - 785
- 744 - 765



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2.2.3 Floodplains& Wetlands

The relatively flat topography and riverine system of Allen County, coupled with the local climate and moderate precipitation, result in localized flooding and seasonal ponding. Given the community's relative position with respect to other West Central Ohio counties in the Maumee River watershed, the community occasionally experiences severe flooding.

Floodplains are those high hazard areas identified by the Federal Emergency Management Agency (FEMA) as areas with a 1 percent chance per annum of flooding. FEMA has identified 13,184.8 acres of high hazard flood areas in Allen County. Current Flood Plain maps are available online at the Allen County Auditor's website at allencountyohio.com. Map 5 details the parameters of the floodplains by their respective sub watershed area; however, the map fails to identify high hazard floodplain areas within the City of Lima or Bluffton due to density issues. Flooding has been confined largely to areas outside of the City of Lima since the flood of 1913 when thereafter channels of the Ottawa River were realigned and new bridges built, minimizing flooding.

Wetlands are lands that are flooded or saturated at or near the ground surface for varying periods of time during the year. Wetland delineations are predicated upon the United States Department of the Interior (USDI) and the National Wetlands Inventory. The mapped results of the USDI Wetlands Inventory (1994) are based upon survey work conducted by the United States Fish & Wildlife Service (FWS) using remote sensing and information obtained from United States Geological Survey (USGS) quadrangle maps. The FWS consider wetlands as lands transitional between terrestrial and aquatic systems where either (a) hydrophytes exist, (b) hydric soils are located, and/or (c) non-soil substrate is saturated or covered with water at some time during the growing season. Map 6 identifies wetlands documented by the USDI with FEMA identified floodplains. Because of the nature and size of the respective floodplain delineations, many of the wetlands areas are indistinguishable from the larger floodplain.

2.3 Soils, Hydric Soils & Prime Farmland

The vast majority of land in Allen County is considered agricultural; and, agriculture remains a major economic activity in the community. Most local agriculture focuses on grain production, primarily soybeans, corn and wheat. Crop productivity, depends in part, on soil characteristics including soil type by parent material, slope and drainage. An analysis of Allen County reveals broad areas that have distinctive patterns of soils, relief, and drainage. Although specific soil types may vary within, as will slope and depth of the soils, general soil patterns are useful in comparing the suitability of large tracts for general land uses including agriculture.

2.3.1 Soil Types & Limiting Factors

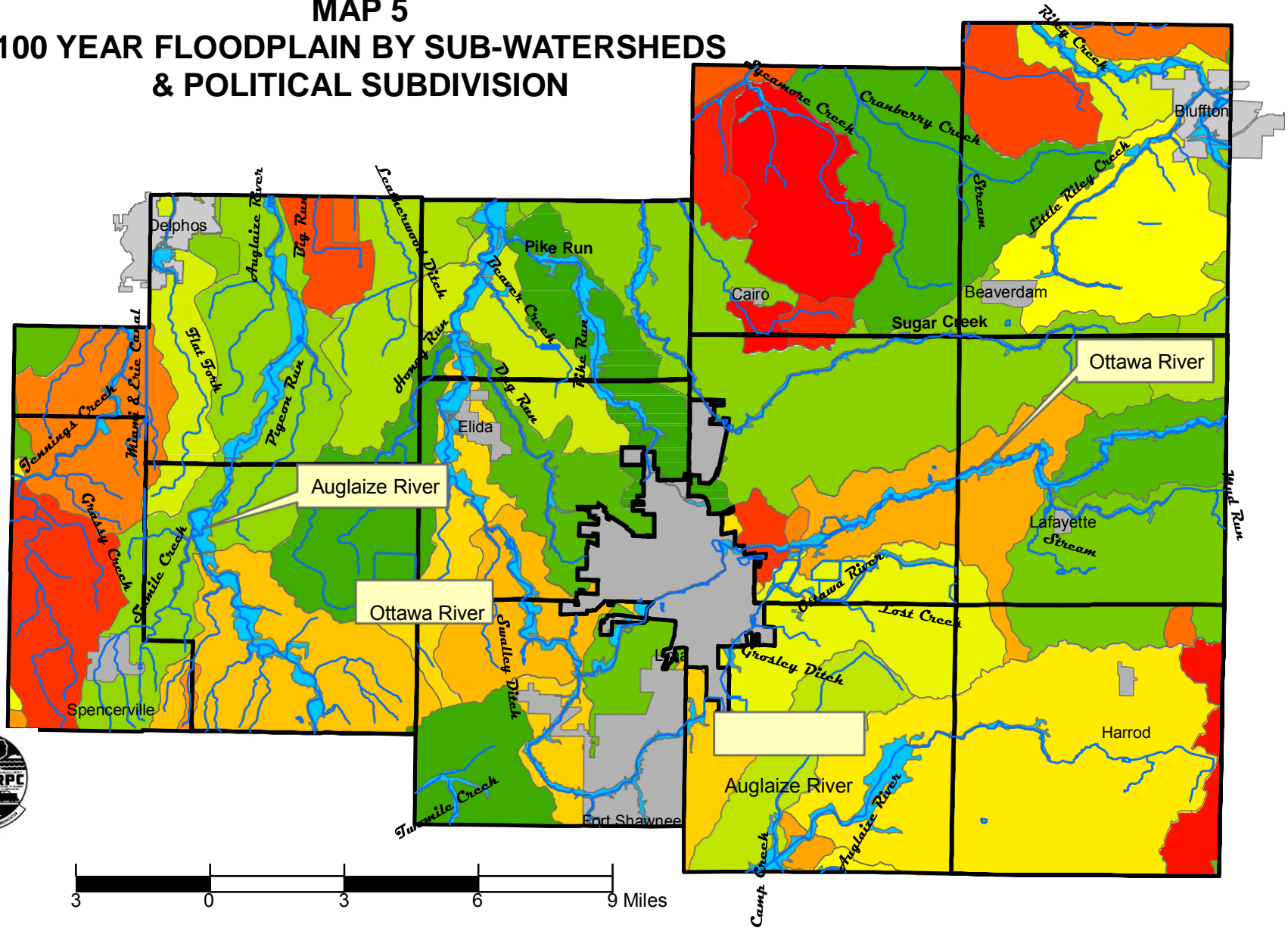
A detailed soil analysis, completed in 1996 and published in 2002 by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), found 69 different soil types in Allen County. The soil analysis is useful in assessing the characteristics of the various soils for: (1) characteristic properties, including permeability, depth, parent material, organic matter, and slope; (2) agricultural uses, including soil management concerns; and, (3) urban uses, including load bearing capacities, septic system suitability, and permeability. Allen County soils are presented by Hydrologic Soil Groups (HSG) on Map 7. Soil surveys classify soils by limiting factors that restrict their ability to support specific applications or uses. Three principal limiting

factors occur in the soils of Allen County according to the USDA-Soil Conservation Service (SCS), and include ponding, compaction, and erosion.

Collapsing the various soil types into more general soil classifications furthers the ability for comparison between tracts of land. There are 7 general soil types found to be representative of Allen County, including the following:

- **Blount-Pewamo:**Very deep, level to gently sloping, somewhat poorly drained, and very poorly drained soils that formed in till. Such soils are suitable for cropland, pasture, and woodlands. Concerns include seasonal wetness, erosion, ponding, and compaction.
- **Blount-Glynwood-Pewamo:**Very deep, level to strongly sloping, somewhat poorly drained, moderately well drained, and very poorly drained soils that formed in till. Such soils are suitable for cropland, pasture, woodland, and urban uses. Concerns include erosion, seasonal wetness, ponding, and compaction.
- **Pewamo-Blount:**Very deep, level to gently sloping, poor, and very poor drained soils that formed in till. Such soils are suitable for cropland, pasture, and woodland. Concerns stem from seasonal wetness, erosion, compaction, and ponding.
- **Cygnets-Renssler-Alvada:**Very deep, level or nearly level, moderately well drained, and very poorly drained soils that formed in loamy deposits and underlying till. Such soils are suitable for cropland and woodland. Concerns stem from seasonal wetness, compaction, and ponding.
- **Renssler-Cygnets-Gallman:**Very deep, level to strongly sloping, very poorly to moderately drained and well-drained soils that formed in loamy deposits largely and/or underlying till. Suitable uses include cropland, pasture, and woodland. Concerns include seasonal wetness, erosion, and ponding.
- **Hoytville-Shawtown:**Very deep, level to gently sloping, very poorly drained and moderately drained soils that formed in till or in stratified water-sorted deposits overlying till. Such soils are suitable for cropland. Concerns include seasonal wetness, ponding, high clay content, erosion, and compaction.
- **Westland-Gallman-Thackery:** Very deep, level to strongly sloping, very poorly drained, and moderately drained soils that formed in loamy deposits and the underlying outwash. Such soils are suitable for cropland and woodland. Concerns include seasonal wetness, erosion, compaction, and ponding.

MAP 5 **100 YEAR FLOODPLAIN BY SUB-WATERSHEDS** **& POLITICAL SUBDIVISION**






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MAP 6 ALLEN COUNTY FLOODPLAINS WITH WETLANDS

12

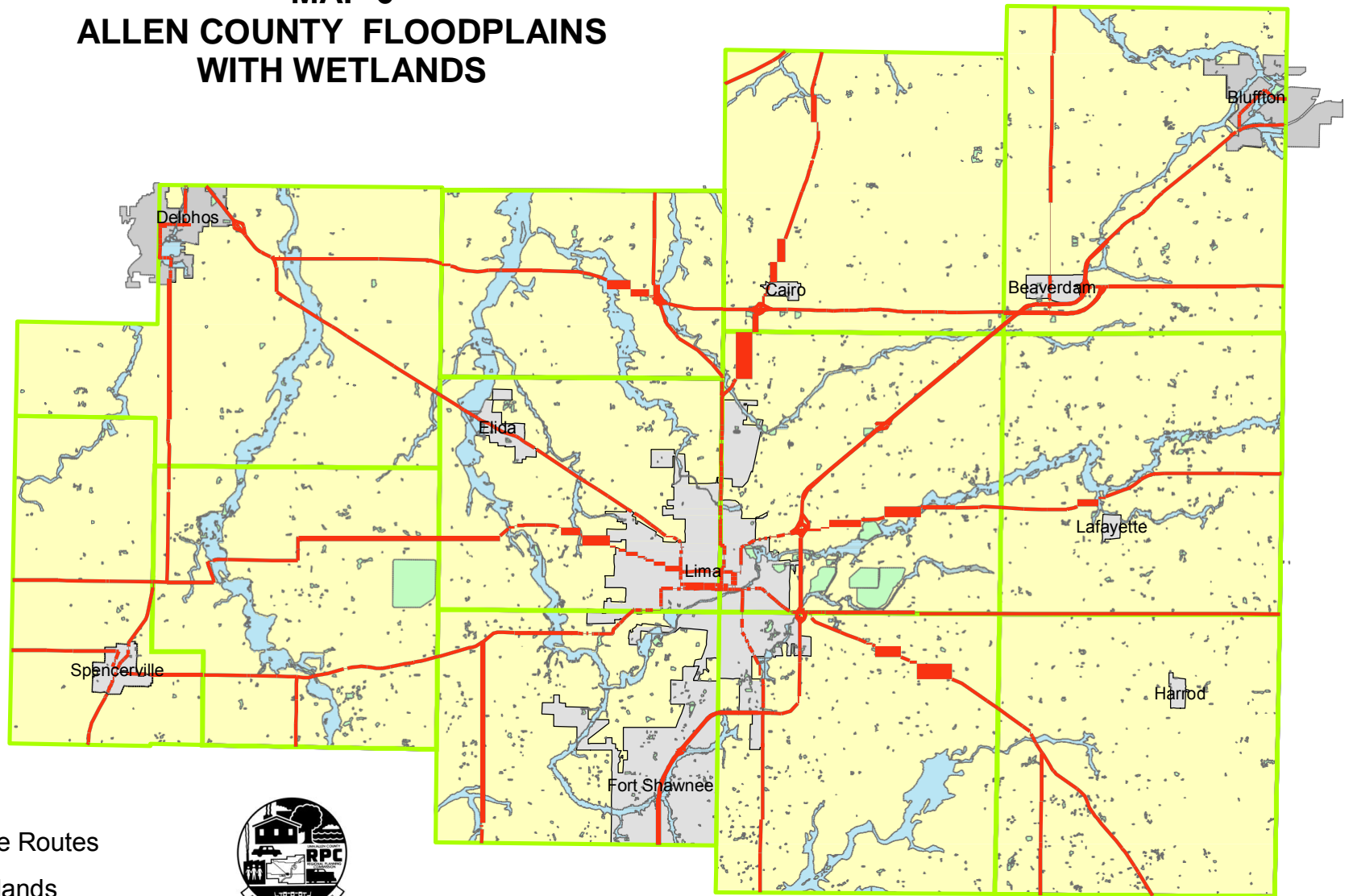
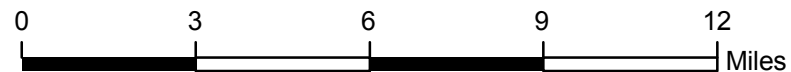


Legend

-  State Routes
-  Wetlands
-  100 Year Floodplain



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2.3.2 Hydric Soils

Based on a soils analysis completed by the USDA-NRCS, 17 soil types were classified as hydric soils. Hydric soils are soils that formed under conditions of saturation, flooding or ponding. Such soils tend to support the growth and regeneration of vegetation that depends on continued high water saturation. Some hydric soil types encounter periods when they are not saturated and depend on the existing water table, flooding, and ponding for survival. The presence of hydric soils is an indicator of wetlands and floodplain areas. However, hydric soil criteria must also meet EPA criteria in order for it to be classified as a wetland.

Hydric soils have a number of agricultural and nonagricultural limitations. Such limitations can be minimized with sound policy decisions predicated upon local land-use planning, conservation planning, and assessment of potential wildlife habitats. Hydric Soils are presented in Map 8.

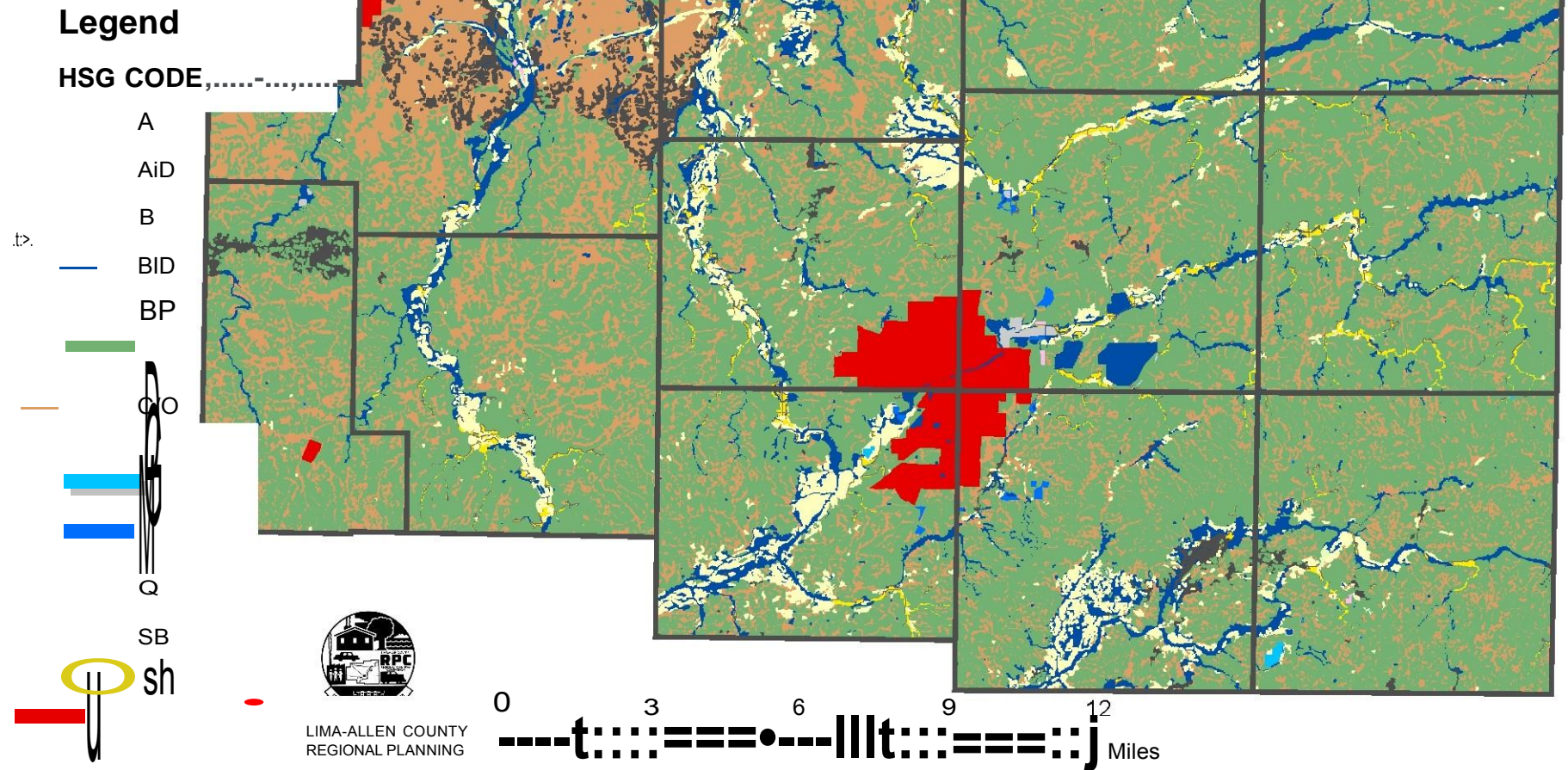
2.4 Land Use: Patterns & Conversion

The use of land is dependent upon or the result of, particular attributes including its size, shape and its relative location. The use of land is affected by a parcel's access or proximity to utilities, roadways, waterways, services, and markets. Environmental attributes and constraints, such as the presence of minerals, topography, scenic attributes, flooding, poor soils, etc., can also influence the use of land.

An analysis of the manner and extent to which land is used or employed over a period of time results in distinct patterns of use. General classifications of economic uses typically reflect agricultural, commercial, industrial, residential, recreational, utility/transportation, and public/quasi public land use patterns. Table 1 identifies the extent of specific land use activities by type and acreage. Map 9 identifies general patterns of land use in Allen County.

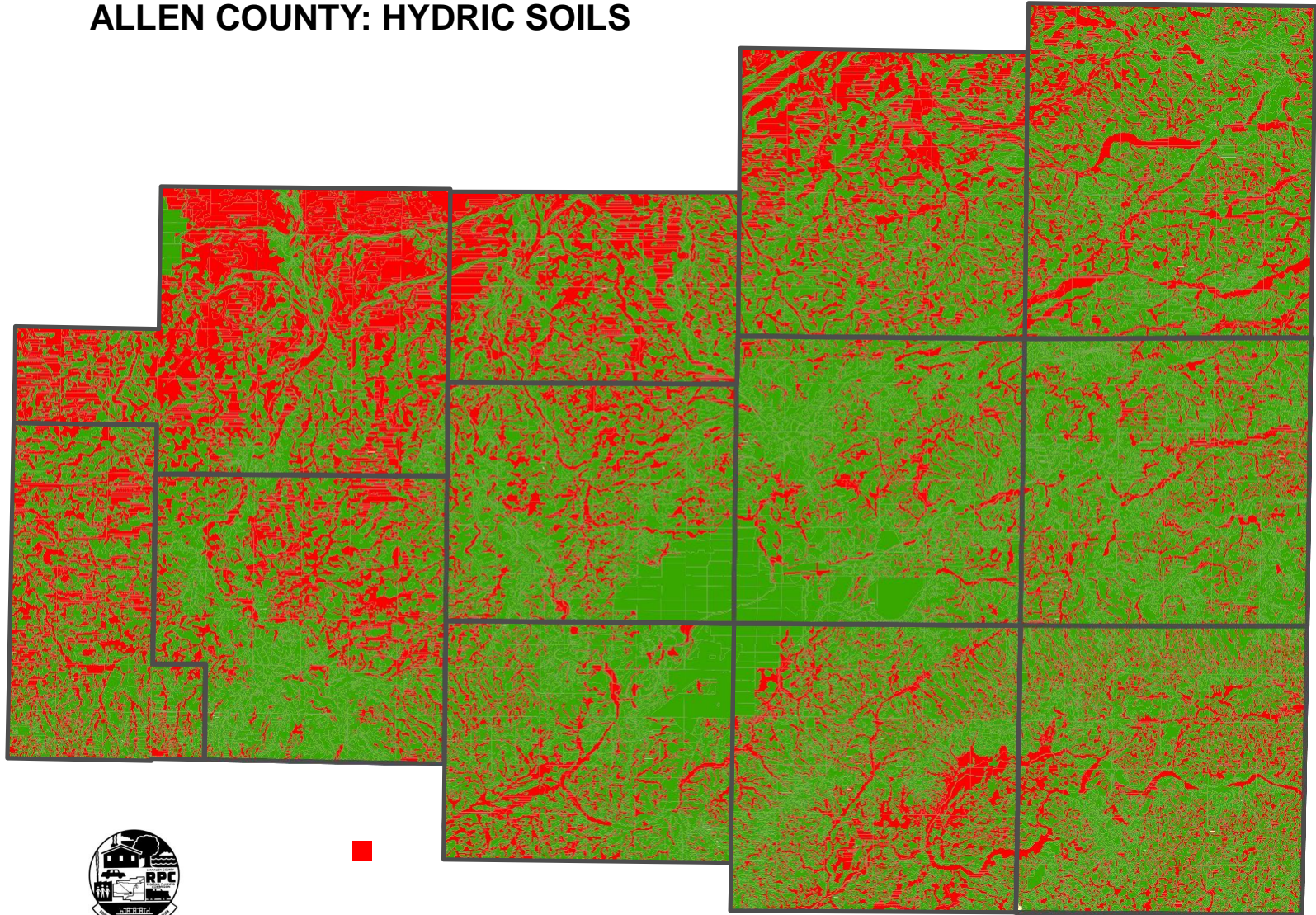
Over the last 40 years, land use conversion in Allen County has largely been confined to the Lima Urbanized Area. However, low-density residential strip developments are evident throughout the County. Major residential subdivision developments have occurred exclusively within the urbanized areas, nearly all within 3 miles of the City of Lima. The FIRE industries, Finance, Insurance and Real Estate, coupled with Government have remained anchors within Central Business Districts of Lima, Delphos, Bluffton Spencerville and Elida. Commercial and service activities, although once exclusively limited to urban confines, have spread to suburban areas. Clustered retail activities have migrated almost exclusively to 2 of the region's shopping centers located on the fringe of municipal utility service areas. Aging shopping centers more centrally located are currently in a state of decline. And, although manufacturing activities have largely been limited to older more developed tracts within or adjacent to the City of Lima, newer more modern industrial sites have been developed with ready access to I-75 and the area's state routes.

MAP7 ALLEN COUNTY: SOILS BY HYDROLOGIC SOIL GROUP




MAP 8 ALLEN COUNTY: HYDRIC SOILS

16



Legend

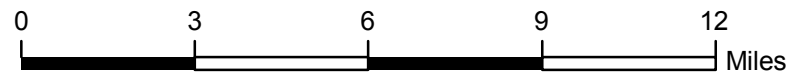
 Non-Hydric

Hydric Soils

 Hydric



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MAP 9 ALLEN COUNTY: GENERALIZED LAND USE

Legend

- Reservoirs
- Residential
- High Density Residential
- Recreation
- Commercial
- Industrial
- Quasi_Public
- Utilities



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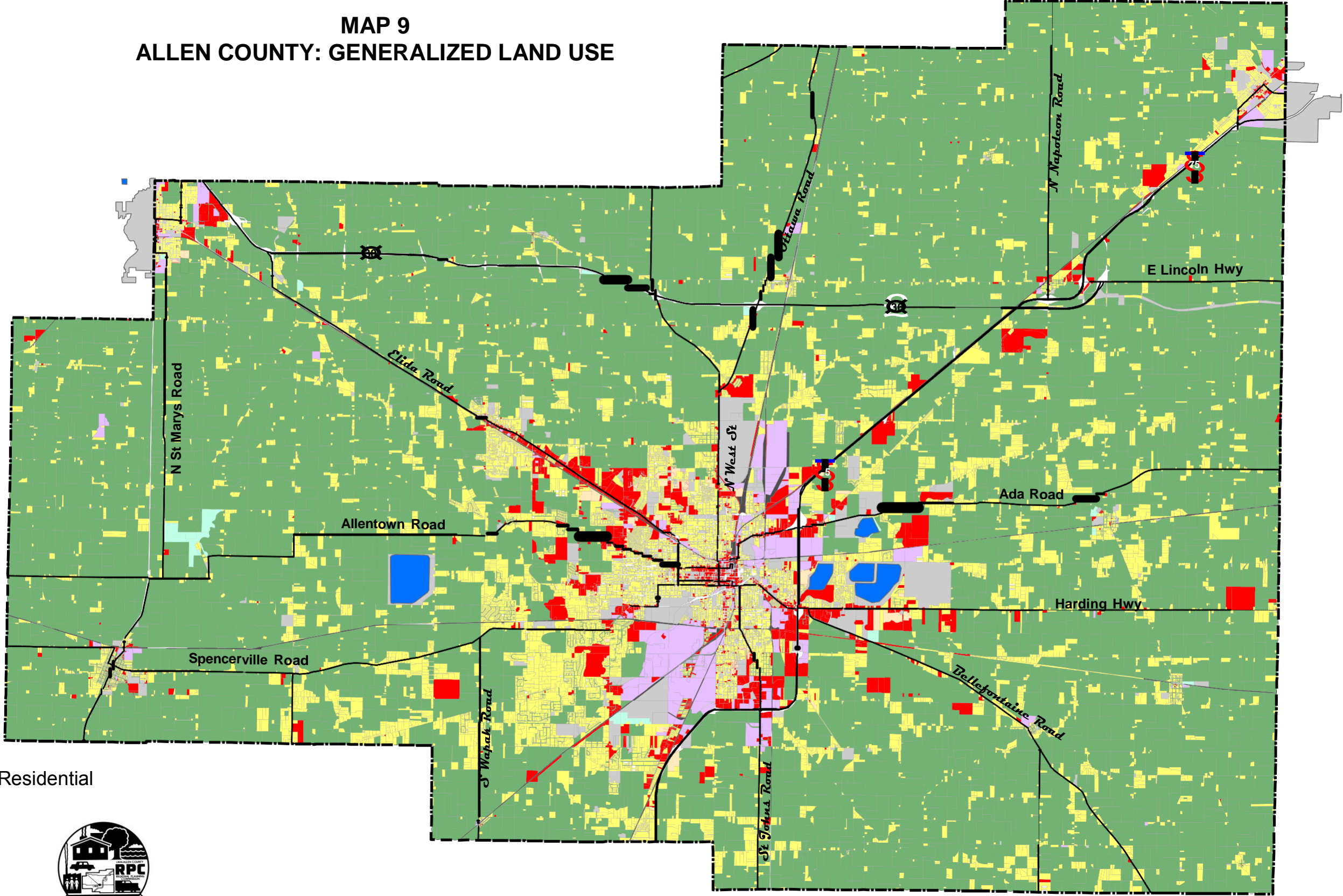
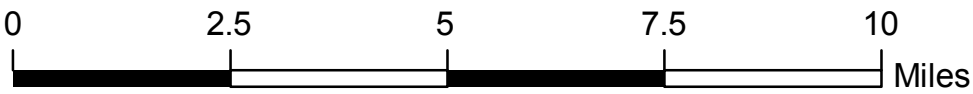


TABLE 1 LAND USE BY TYPE, ACRES & PARCEL					
Land Use Type	Total Acres	Percent of Total Area	Total Parcels	Percent Total Parcels	Mean Parcel Size
Agricultural Uses	197,762.4	76.5	4,757	9.1	41.6
Commercial Uses	6,662.3	2.6	3,851	7.4	1.7
Industrial Uses	4,251.4	1.6	551	1.1	7.7
Residential Uses	39,004.0	15.1	41,198	78.7	0.9
Public/Quasi Public Uses	7,074.5	2.7	1,638	3.1	4.3
Recreational Uses	2,262.9	0.9	74	0.1	30.6
Utilities Uses	1,397.9	0.5	257	0.5	5.4
Total	258,415.4	100.0	52,326	100.0	4.9
Note: Land use, acreage, and parcel data is reflective of 2006 Allen County Auditor data. Such data incorporates acreage consumed by land supporting transportation activities, some overlap also exists between industrial and utility acreage and between agricultural and residential due to residential and farming uses occurring on the same parcels. Statistical accuracy assumed at 98 th percentile.					

Furthered by easy access, availability of utilities and developable land, urban sprawl has slowly etched its presence across most of Allen County. Residential land use has been responsible for the bulk of rural to urban conversion. Between 1970 and 2000, platted residential subdivision developments consumed 2,252.7 acres outside of municipal boundaries. Such developments provided land for 4,324 residential units, using an average .52 acres per lot. Data for the same period reflected that 4,080.5 acres of undeveloped property was consumed for residential using the minor subdivision process. This process, that facilitates uncontrolled “shot gun” type development, provided 2,532 units, resulted in an average lot size of 1.61 acres.

A more recent analysis of land use change across all of Allen County was conducted over the 2002 through 2005 period. The 4-year analysis found residential uses consumed more than 1,500 acres while commercial consumed 330 acres. The total acreage dedicated to industrial uses actually dropped 2.99 percent and now comprise only 4,251.4 acres. The loss of farmland attributed to the various land use conversions reveal that 1,727 acres of agricultural land was consumed over the period as 131 acres, previously used for industrial uses, was converted to commercial. Table 2 identifies the components of change over the study period.

TABLE 2 ALLEN COUNTY LAND USE CHANGE 2002- 2005				
Year	Land Use by Type and Acreage			
	Residential	Commercial	Industrial	Agricultural
2002	37,469.7	6,331.4	4,382.5	199,489.4
2005	39,004.0	6,662.3	4,251.4	197,762.4
Net Gain/Loss	+1,534.3	+330.9	-131.1	-1,727

The relationship between the process of suburbanization, urban decentralization and land use conversion is complicated at best. Although regulatory controls, such as zoning and subdivision codes, and policies developed to control access management

and infrastructure investments have the means to control such sprawl, sprawl continues largely unabated due to fragmented legislative control and disjointed or nonexistent policies.

2.5 Summary of Site & Situation

The historical development process was heavily dependent upon agriculture which culminated in a modified natural landscape that revealed hundreds of miles of drainage ditches, and the removal of forests and large woodlots except in those low lying or wetland areas where agricultural pursuits were thought to be ineffective or non-economical. Although the modified landscape provided tillable lands for economic activities the ditches that drained farmlands ever faster furthered localized severe flooding, and the negative consequences of erosion and severe winds from storm events became more noticeable.

As the community's economic base shifted from an agricultural base to manufacturing, the community's density increased. The introduction of public utilities allowed increased concentrations of development in the urban core areas. Later as the automobile was introduced, the urban structure of the community changed further and the requisite construction of roads and bridges complicated the natural relationship between land use and drainage even further. Starting in the 1950s with the extension of public utilities many of the previous agricultural areas developed to serve the housing needs of an expanding population and a mixture of manufacturing and retail businesses. This growth was aided with the development of a very unique and forward thinking reservoir system that was predicated on the development of large upland reservoirs using the water of the Auglaize and Ottawa rivers.

Today's technologies and infrastructure have allowed residents, businesses, and visitors alike to spread across the local landscape and enjoy its unique natural features while contributing to a wide variety of economic activities. Growth in population and employment opportunities are not uniform across the community however. The percentage of population growth in several of the townships is experiencing double digit increases while some urban centers are experiencing double digit declines. And prime farmland is has been used indiscriminately for development, especially single-family home sites. Such unplanned development has resulted in uncoordinated and haphazard development and now requires the extension of expensive municipal infrastructure and services to address health, safety, and environmental concerns. The cumulative impact of sprawling unplanned development questions the community's collective ability to provide needed services including street maintenance and snow removal as well as police, fire and emergency medical services.

Such development coupled with the geographic features present critical insights into localized natural hazard mitigation planning. Such planning must recognize the potential to experience natural hazards and their associated impacts cognizant of the natural landscape as well as the man made landscape. The size, density, proximity and construction of the man made environment has been and will continue to be tested by natural hazards. Just how natural hazards will impact a community will be as dependent upon the characteristics of the hazard itself as it will be upon the community's ability to plan and regulate development as its ability to organize and respond to such events.

SECTION 3 HAZARD ANALYSIS

Section 3 of the Mitigation Plan attempts to identify and analyze hazards that have the potential to negatively impact Allen County and its' environs. This section of the plan includes five components: Hazard Identification, Profiles of Hazard Events, Community Profile, Vulnerability Analysis and Estimation of Losses. Based on historical data there are a number of natural disasters that have and will continue to have adverse effects on Allen County. There are also natural disasters that have as of yet had no recorded history in Allen County but have the potential to occur. Potential natural disasters include: Class I dam failures, droughts, earthquakes, floods, hailstorms, land subsidence, severe winter storms, tornadoes, and windstorms. Each of these natural disasters can cause varying degrees of difficulty for the county.

When discussing natural disaster issues it is important to focus on critical facilities that may be affected by the disaster. Critical facilities include hospitals, municipal buildings, schools, fire departments, law enforcement offices, correctional facilities, and nursing homes. It is also important to focus on the possible loss of life and property that may occur due to natural disasters. The purpose of mitigation is to limit the losses in these areas, most importantly limiting the loss of life whenever possible. Maps 10 through 13 depict the critical facilities located within the County and Map 14 shows the location of all major pipelines, electrical lines and electrical facilities within the County.

3.1 Methodology

The Hazard Identification component is designed to recognize particular types of natural disasters that have the potential of occurring within the County. Recorded incidences of past natural disasters were used to make this determination. The specific natural disasters impacting Allen County are listed in this section. This section stands alone and is considered to be the foundation for the remaining components of the Hazard Analysis section. With the exception of the Vulnerability Analysis component, the data and other pertinent information for each of the remaining hazard analysis components is contained under the headings for each specific natural hazard listed.

Profiles of Hazard Events identify past occurrences of natural disasters within Allen County. The information and data presented in these profiles were obtained through review of historical data from news media sources, County and City officials, the Ohio Department of Natural Resources, the National Weather Service and from the Ohio State University faculty. Internet websites were researched for information and numerical data. Data provided on the extent of damage and losses are as complete to the best of our knowledge from the research conducted on each type of natural disaster. Assessing these events is valuable in the mitigation process by focusing mitigation efforts on particular natural disasters deemed to be more pertinent to the County.

The Community Profile section compares overall County property data to those within the pertinent hazard area. The Lima-Allen County Regional Planning

Commission using GIS software compiled this property data. Individual parcels and property asset data were used in the determination of estimated losses as opposed to structural data. The parcel data reflects the occupancy types of the affected properties, i.e. residential, commercial, industrial, etc. The given occupancy type would indicate the relevant populations that would be associated with particular parcels.

The Vulnerability Analysis component is presented within the report in the form of aerial photographs and GIS based maps. Both are provided for County areas where localized hazard events are possible based on a dam failure and subsequent flooding. Mapping of generalized hazard events, such as drought, earthquake, severe winter storm and windstorm, are not included due to the general nature of such events and the potential impact on the entire County.

The Hazard Analysis component of the report quantifies monetary damages that could potentially occur to properties affected by a natural disaster. Estimations of losses are based on the projected area of land that would be affected by a natural disaster. Data included in this Hazard Analysis component, number of parcels and financial estimates, was calculated from County parcel data using GIS software.

MAP 10 ALLEN COUNTY CRITICAL FACILITIES

- Facilities



BlanchardValleyHospital



MedicalFacilities



NurseHomes



AllenCountyAirport
- Fire&Police



<all other values>
- TYPE



Fire Depts



Police Depts.



TRANSFER



ES202_PRIVATE



countyschools



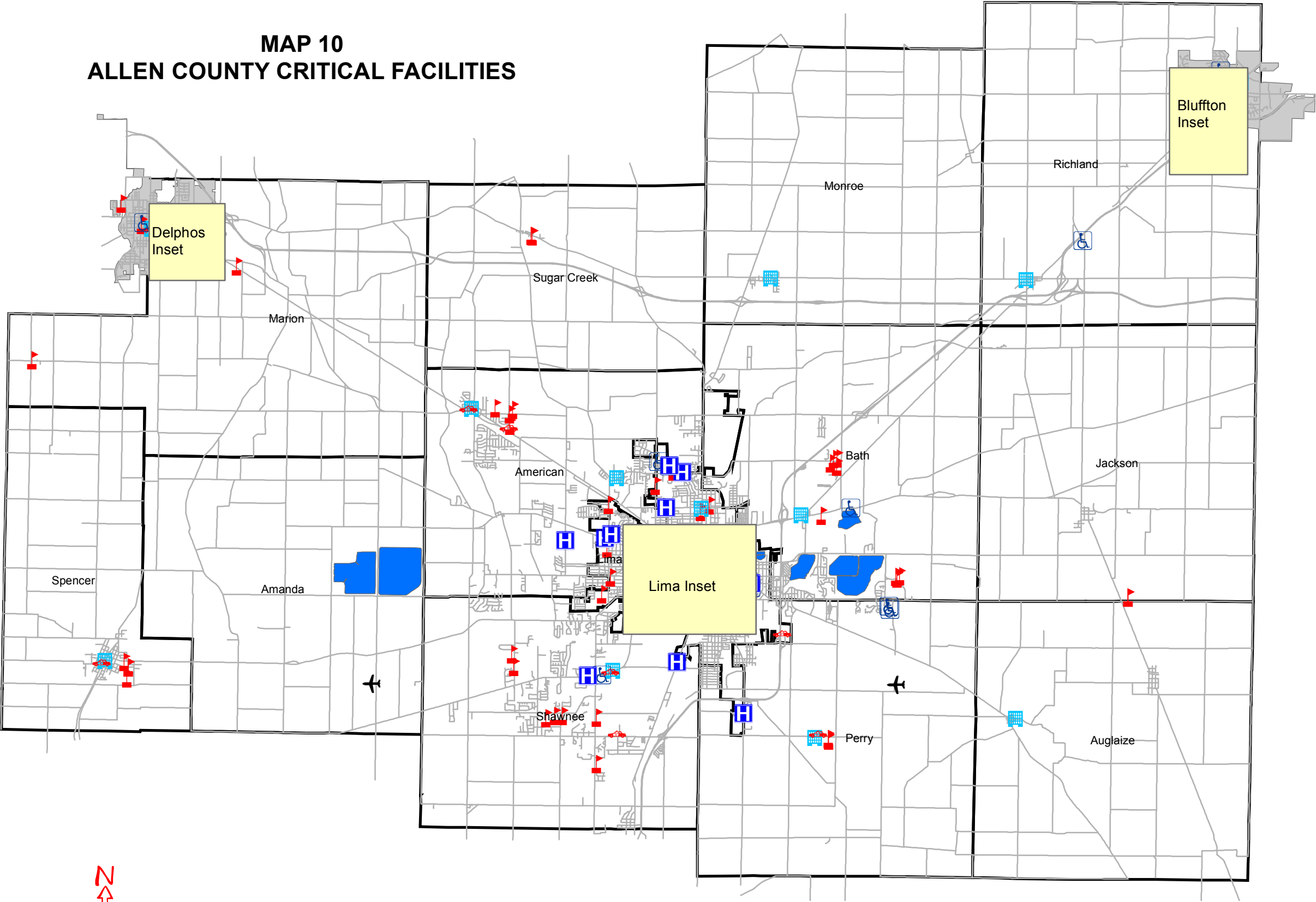
2005_Roads



reservoirs



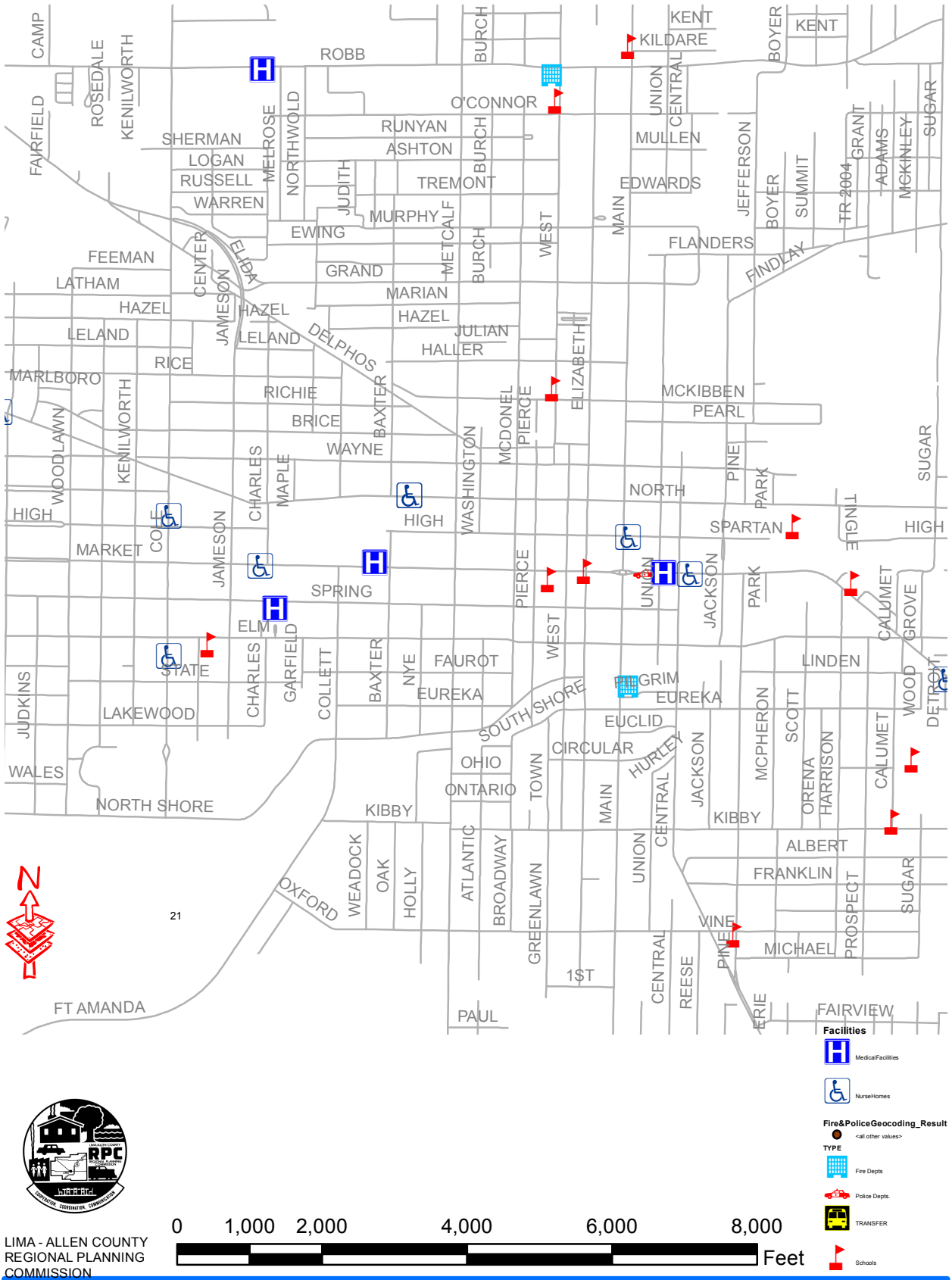
Municipalities



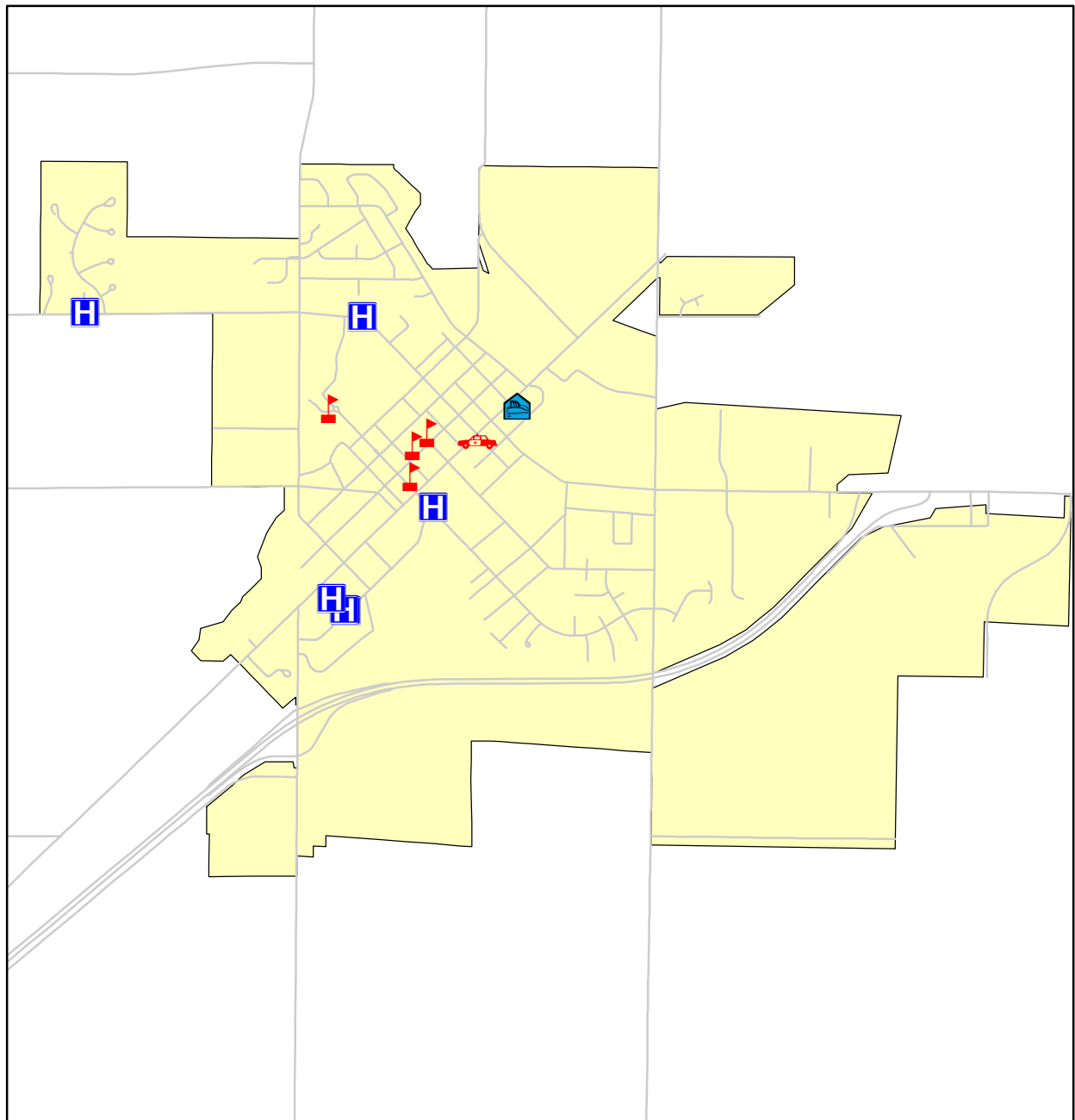
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MAP 11 LIMA CRITICAL FACILITIES










MAP 12 BLUFFTON CRITICAL FACILITIES



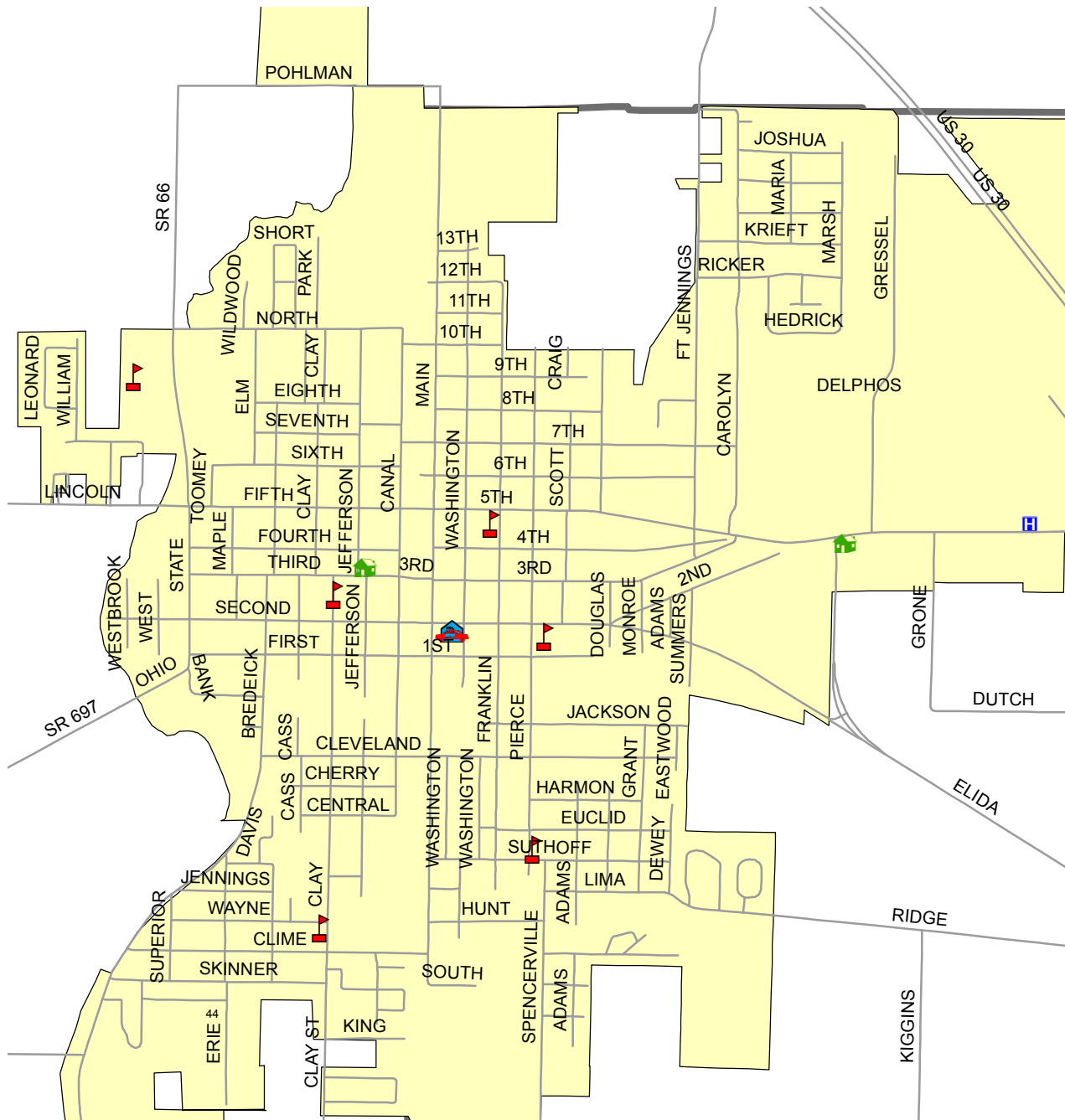
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1 inch = 2,500 feet








Facilities

-  Medical
-  Schools
-  RTA Transfer Center
-  Fire Depts.
-  Law Enforcement
-  Allen County Airport
-  Nursing Homes

MAP 13 DELPHOS CRITICAL FACILITIES



Facilities

-  Schools
-  RTA Transfer Center
-  Fire Depts.
-  Law Enforcement
-  Nursing Homes
-  Medical Facilities
-  Reservoirs

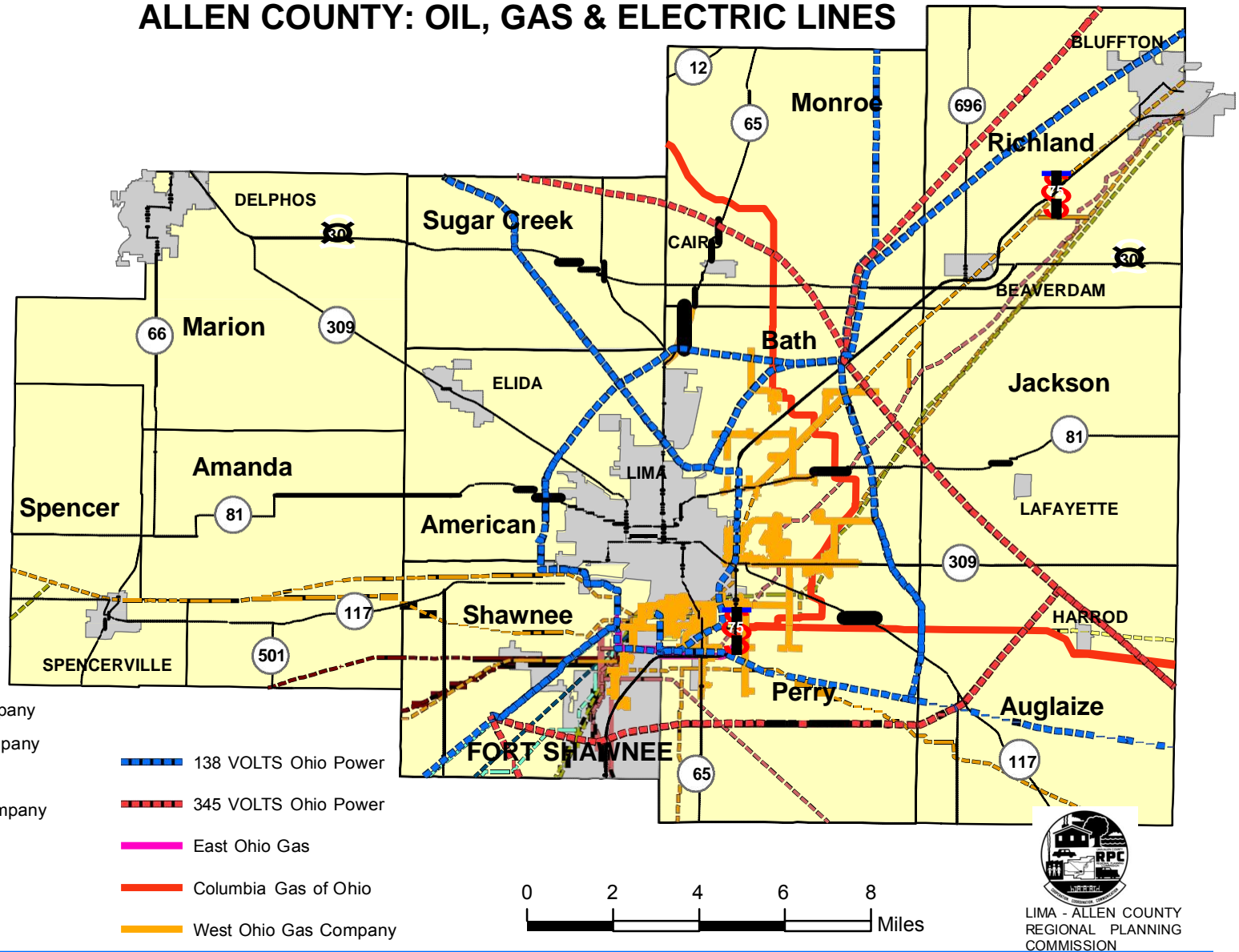


1 inch = 1,750 feet



LIMA - ALLEN COUNTY
REGIONAL PLANNING
COMMISSION

MAP 14 ALLEN COUNTY: OIL, GAS & ELECTRIC LINES



3.2 Dam Failure

A dam is a barrier constructed to hold back water and raise its level, the resulting reservoir being used in the generation of electricity or as a water supply.

According to the Ohio Department of Natural Resources (ODNR), Allen County is served by more than 50 dams of various sizes. Dams are categorized as classes 1 thru 5, with Class 1 dams being the largest. ODNR classifies dams on three (3) criteria including height, storage volume and potential downstream hazard. Storage volume is measured in acre-feet and one acre-foot is equal to one foot of water covering one acre of area. In order to classify a dam as Class I, only one of the following must be true: height greater than 60 feet, storage volume greater than 5,000 acre-feet, and probable loss of life, serious hazard to health, and structural damage to high value property.

The largest Class I dam in Allen County is the Bresler Reservoir located in Amanda Township. This reservoir is an up-ground reservoir with an earthen embankment used as a water supply for the City of Lima. Bresler Reservoir contains 4.9 billion gallons of water over 576 acres. This reservoir was built in 1970. Map 15 identifies the area immediately adjacent to Bresler Reservoir.

The Metzger and Ferguson reservoirs are co-located and will be discussed together throughout this report as they share a common embankment that could fail if any of the other embankments failed. Combined the reservoirs have a storage volume of 3.2 billion gallons over 500 acres. These reservoirs are also used as water supply for the City of Lima and were built in 1946 and 1959 respectively. Map 16 identifies the area immediately adjacent to the Metzger and Ferguson reservoirs.

The final Class I dam located within Allen County is the Lost Creek Reservoir located in Bath Township. The Lost Creek Reservoir was built in 1917 and had its' crest raised three feet prior to 1974. This reservoir provides water for the City of Lima and holds 8.2 million gallons on 121 acres. Map 17 identifies the area immediately adjacent to the Lost Creek Reservoir.

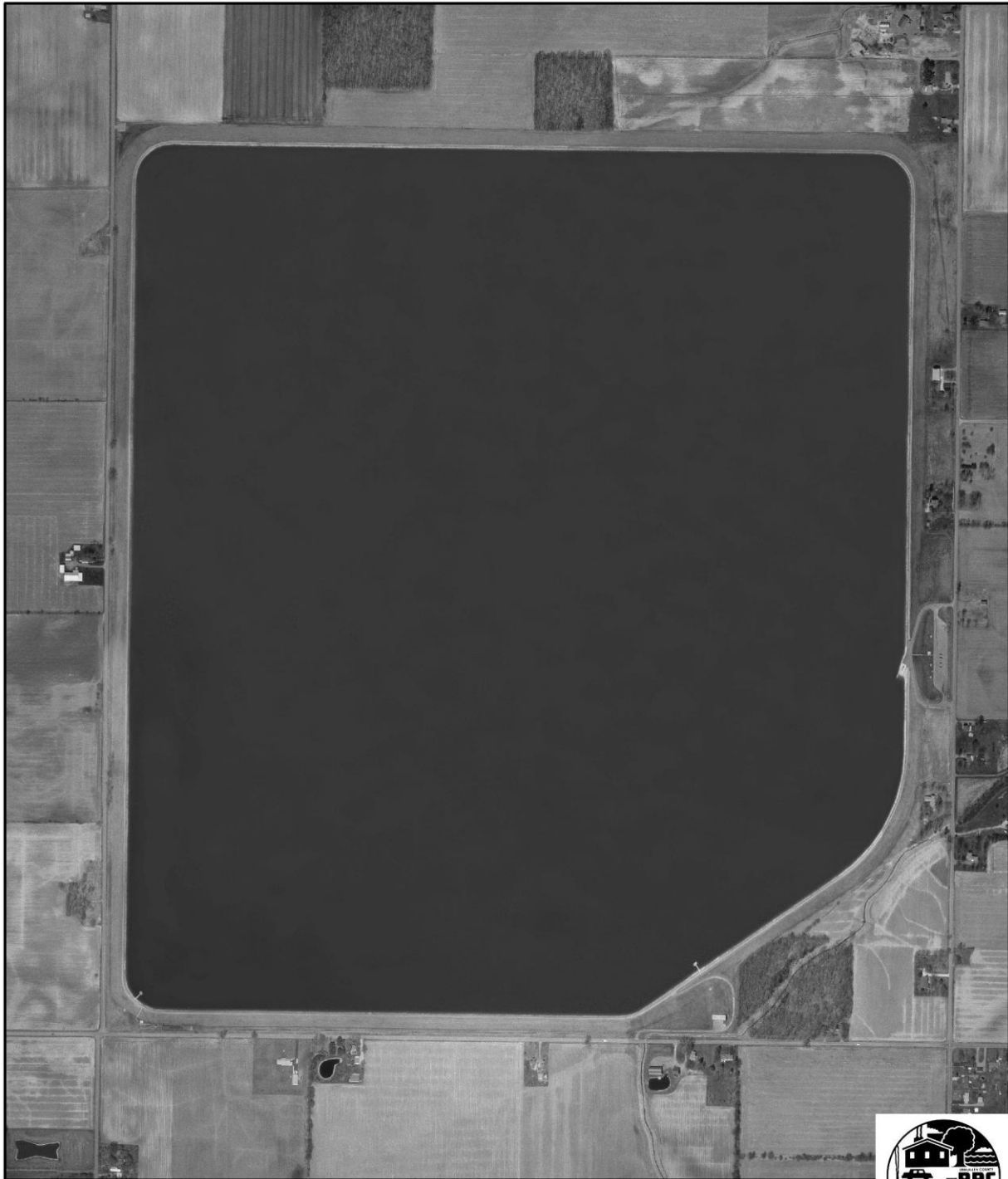
3.2.1 Profile of Hazard Event – Class I Dams

There have been no failures of any of the Allen County dams mentioned previously. The probability of a Class I dam failure is considered low.

3.2.2 Community Profile – Class I Dams

Should a breach of one of the aforementioned Class I dams occur it is likely that the result would be residential and commercial property damage. Adjacent roadways and agricultural properties would also be damaged. Health hazards could be realized depending on which dam was breached. Map 18 depicts the likely area that would be affected with a breach of the Metzger & Ferguson reservoirs. Table 3 presents the number and value of parcels that would be affected by a breach of the Metzger & Ferguson reservoirs as both a total value and as a percentage of the whole.

MAP15
ALLEN COUNTY
BRESLER RESERVOIR 500' VULNERABILITY ZONE



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1 inch equals 1,000 feet

MAP16
ALLEN COUNTY
FERGUSON & METZGER RESERVOIR 500' VULNERABILITY ZONE



1 inch equals 1,000 feet



LIMA- ALLEN COUNTY
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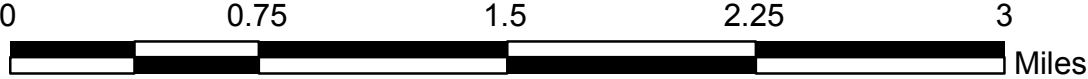
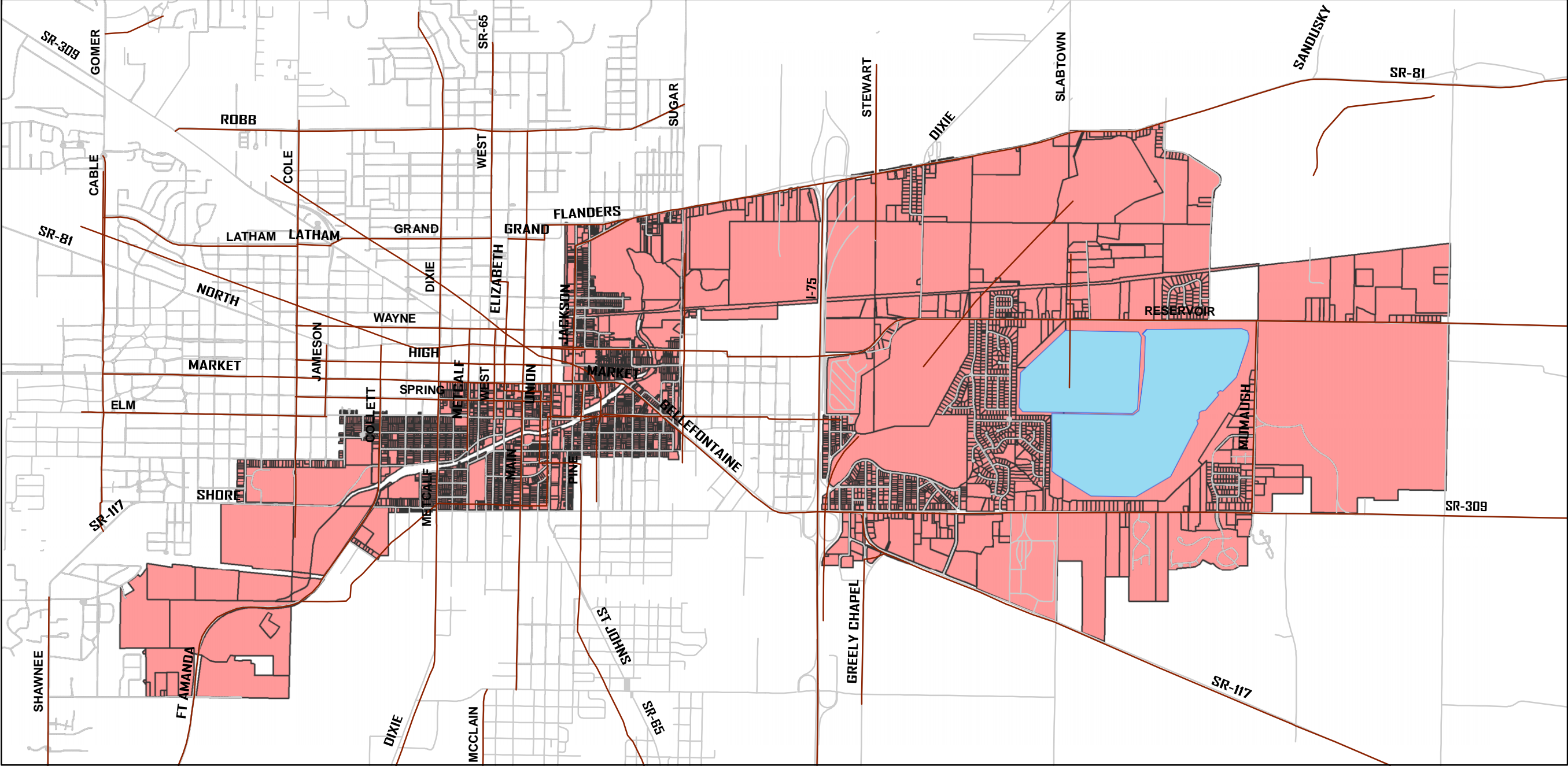
**MAP17
ALLEN COUNTY
LOST CREEK RESERVOIR 500' VULNERABILITY ZONE**



LIMA- ALLEN COUNTY
REGIONAL PLANNING
COMMISSION

1 inch equals 500 feet

MAP 18 FERGUSON & METZGER RESERVOIR EVACUATION AREA



UMA - ALLEN COUNTY
REGIONAL PLANNING
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**TABLE 3
COMMUNITY PROFILE – METZGER & FERGUSON
RESERVOIRS**

Type of Parcel (Occupancy Class)	Number of Parcels			Value of Parcels		
	# in County	# in Hazard Area	% in Hazard Area	\$ in County	\$ in Hazard Area	% in Hazard Area
Residential	41,189	3,054	7.4%	\$3,060,081,970	\$177,103,180	5.8%
Commercial	3,792	531	14.0%	\$614,041,590	\$76,351,880	12.4%
Industrial	551	81	14.7%	\$256,038,290	\$13,786,600	5.4%
Agricultural	4,383	8	0.2%	\$221,683,640	\$901,550	0.4%
Recreation	53	3	5.7%	\$17,018,200	\$1,062,300	6.2%
Quasi-Public	1,642	304	18.5%	\$584,149,120	\$93,355,940	16.0%
Total	51,610	3,981	7.7%	\$4,753,012,810	\$362,561,450	7.6%

There have been no studies completed for Bresler or Lost Creek reservoirs and it is thus not possible to determine the areas that would be affected by a breach of either of these dams.

3.2.3 Estimation of Losses – Class I Dams

Evaluating the information provided in Table 3 it is estimated that there would be significant losses experienced with the failure of the Metzger and Ferguson reservoir dam. Using the Metzger & Ferguson reservoirs as a benchmark it is assumed that the failure of either of the two remaining dams would cause significant losses. It is projected that there is a possibility for the loss of life with a failure of any of these dams. Table 4 presents an estimate of the losses to property should a failure of the Metzger & Ferguson reservoirs occur.

**TABLE 4
ESTIMATION OF LOSSES-METZGER & FERGUSON
RESERVOIRS**

Type of Parcel (Occupancy Class)	Number of Parcels in Hazard Area	Value of Parcels in Hazard Area
Residential	3,054	\$177,103,180
Commercial	531	\$76,351,880
Industrial	81	\$13,786,600
Agricultural	8	\$901,550
Recreation	3	\$1,062,300
Quasi-Public	304	\$93,355,940
Total	3,981	\$362,561,450

Without a probable flood study it is not possible to determine the losses that would occur with a breach of the Bresler or Lost Creek Reservoirs.

Locations of Dam & Reservoirs - 2015

ALLEN COUNTY, OHIO

- Locations of Dam & Reservoirs - 2015

Sources: US Army Corps of Engineers, National Inventory of Dams
US Geological Survey

Dam Name	Other Dam Name	NIDID	Hazard Potential *	Owner Type	Owner Name	NID Height (ft.)	NID Storage	Primary Purpose	All Purposes	Dam Type	River	Nearest City *	Distance To City (mi.) *	State	Condition Assessment *	Condition Assessment Detail *
WILLIAMS RESERVOIR		OH03174	High	Local Government	CITY OF LIMA	53	18682	Water Supply	Water Supply	Earth	HONEY RUN	LIMA	3	O H	SATISFACTORY	MEETS APPLICABLE HYDROLOGIC AND SEISMIC REGULATORY CRITERIA
BRESLER UPGROUND RESERVOIR		OH00525	High	Local Government	CITY OF LIMA	37.5	18140	Water Supply	Water Supply	Earth	MCBRIDE DITCH - OFFSTREA	ELIDA	4.55	O H	SATISFACTORY	MEETS APPLICABLE HYDROLOGIC AND SEISMIC REGULATORY CRITERIA
LOST CREEK UPGROUND RESERVOIR		OH00522	High	Local Government	CITY OF LIMA	38	3113	Water Supply	Water Supply	Earth	OTTAWA RIVER - OFFSTREA	LIMA	0.03	O H	NOT RATED	OTHER
METZGER UPGROUND RESERVOIR		OH00521	High	Local Government	CITY OF LIMA	45	4346	Water Supply	Water Supply	Earth	OTTAWA RIVER - OFFSTREA	LIMA	0.07	O H	SATISFACTORY	MEETS APPLICABLE HYDROLOGIC AND SEISMIC REGULATORY CRITERIA
FERGUSON UPGROUND RESERVOIR		OH00520	High	Local Government	CITY OF LIMA	49	8259	Water Supply	Water Supply	Earth	OTTAWA RIVER - OFFSTREA	LIMA	0.07	O H	SATISFACTORY	MEETS APPLICABLE HYDROLOGIC AND SEISMIC REGULATORY CRITERIA
SCHOONOVER LAKE DAM		OH00523	Low	Local Government	CITY OF LIMA	16.5	214	Recreation	Recreation	Earth	TRIBUTARY TO OTTAWA RIVER	LIMA	0.07	O H	NOT RATED	-
ROBBINS POND DAM		OH02749	Low	Private	THEODORE KNOTT, DAVE KRIEDEL, AND DAN	18	109	Recreation	Recreation	Earth	TRIBUTARY TO OTTAWA RIVER	ALLEN TOWN	3	O H	SATISFACTORY	MEETS APPLICABLE HYDROLOGIC AND SEISMIC REGULATORY CRITERIA
REFINERY UPGROUND WEST RESERVOIR	WEST RESERVOIR	OH00527	Low	Private	LIMA REFINING COMPANY	9.19	152	Other	Other	Earth	OTTAWA RIVER - OFFSTREA	ALLEN TOWN	7.42	O H	SATISFACTORY	MEETS APPLICABLE HYDROLOGIC AND SEISMIC REGULATORY CRITERIA
WIESER LAKE DAM		OH00526	Low	Private	SUSAN WIESER, JIM LYLE	14.9	76.2	Recreation	Recreation	Earth	TRIBUTARY TO OTTAWA RIVER	ALLEN TOWN	5.2	O H	SATISFACTORY	MEETS APPLICABLE HYDROLOGIC AND SEISMIC REGULATORY CRITERIA
SWING BRIDGE LAKE DAM		OH00529	Low	Private	BLUFFTON UNIVERSITY	18.69	56.79	Recreation	Recreation	Earth	TRIBUTARY TO RILEY CREEK	PANDORA	1.5	O H	NOT RATED	-
KINGSWOOD VILLAGE LAKE DAM		OH01141	Significant	State	OHIO DEPARTMENT OF TRANSPORTATION	13.6	46	Recreation	Recreation	Earth	TRIBUTARY TO OTTAWA RIVER	ALLEN TOWN	5.7	O H	NOT RATED	-
LIMA UPGROUND RESERVOIR		OH00528	Significant	Local Government	JOHNNY APPLESEED METRO PARK	25	1573	Recreation	Recreation	Earth	OTTAWA RIVER - OFFSTREA	LIMA	3	O H	NOT RATED	-

DAM INCIDENT PAST EVENTS
- Allen County, Ohio --

NID No.	STRUCTURE NAME	HAZARD POTENTIAL	INCIDENT DATE	INCIDENT	DAM FAILURE
OH00522	Lost Creek Upground Reservoir	High	6/14/2000	Concrete Deterioration	No
OH00523	Schoonover Lake Dam	Low	6/13/2000	Inadequate Spillway Capacity	No

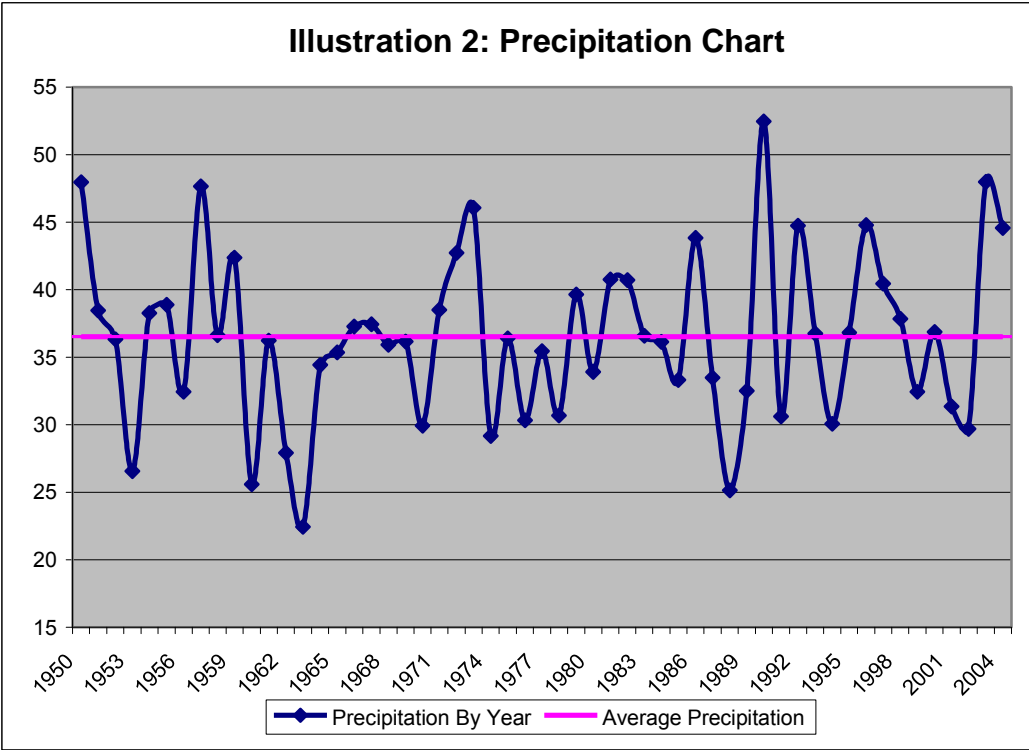
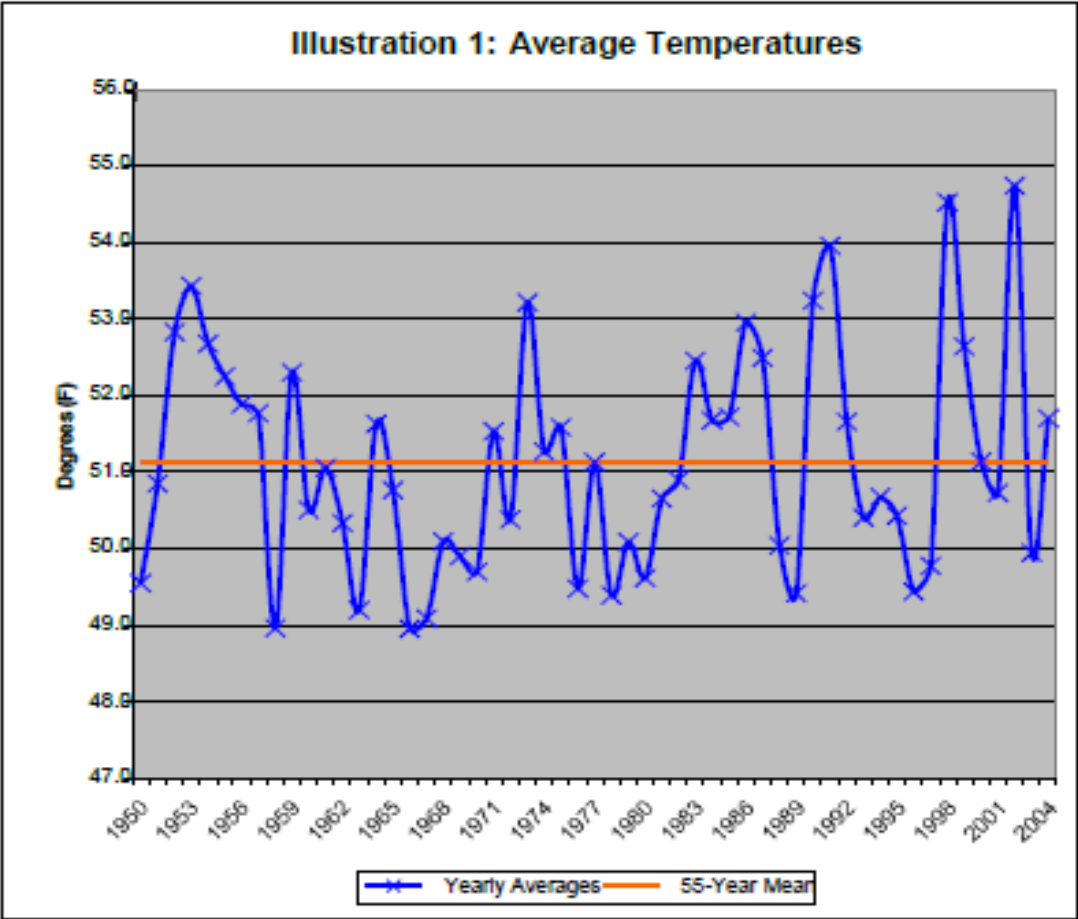
Source: Stanford University, National Performance of Dams Program

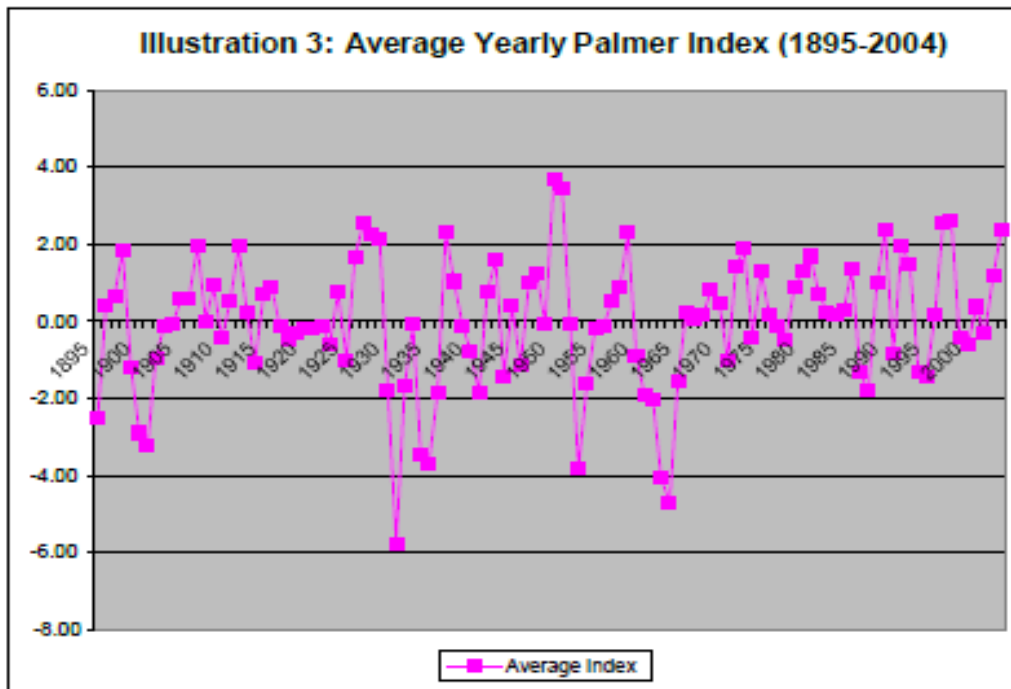
3.3 Drought/Extreme Heat

According to the Federal Emergency Management Agency (FEMA) a drought is considered “a persistent and abnormal moisture deficiency having adverse effects on vegetation, animals, or people.” Extreme heat is a condition where temperatures are 10 degrees or more above the average high temperature for a region, which lasts several weeks. Extreme heat combined with drought conditions compounds the adverse effects of the drought on crops, animals and people.

3.3.1 Profile of Hazard Events – Drought/Extreme Heat

Drought data was taken from the USGS Water Summary Report 1988-1989. Data on droughts and extreme heat occurrences is scarce; information spans the 1900 to 1989 time period. Data after 1989 was not available and droughts occurring after that time are not documented herein. The years in which Allen County has experienced drought and/or extreme heat occurred between: 1930-1936, 1939-1946, 1952-1957, 1959-1968, and 1988. Data regarding temperatures and precipitation amounts was collected from the NOAA for the years from 1950 thru 2004. Illustrations 1 and 2 depict yearly average temperatures and precipitation patterns respectively, over the 1950 thru 1989 study period. The Palmer Index is a tool that uses soil moisture and regional climates to determine drought conditions. Data including the Palmer Index was gathered from Ohio State University faculty for the all months starting in 1895 and continuing thru 2004. This data is an average for a regional area that includes Allen County. Being an average for an area it does not match exactly with the drought years given by the USGS, but the correlation between the years given from the USGS and the Palmer Index are fairly clear. The yearly average Palmer Index is depicted in Illustration 3, negative values depict drought conditions. 2004 is the last year this index is available for Allen County.





3.3.2 Community Profile/Estimation of Losses – Drought/Extreme Heat

The 1988 drought occurrence was not listed in the USGS Water Summary, however the majority of the Midwest experienced a drought in this year. It has been estimated that damages from the 1988 drought were as high as \$40 billion over the entire area that was affected.

The 1930-1936 drought effected many states in the Midwest and West and losses were estimated at \$58 million. Financial loss data could not be found for the remaining droughts. Financial losses caused by droughts are in the form of lost crop production. Droughts typically cover large areas of land and thus large quantities of crops are affected by droughts.

Extreme heat does not cause financial losses to structures or parcels, but can cause health problems for humans and animals. These health problems would be difficult to quantify however. Mitigation activities for droughts and extreme heat include public education and other informational releases as well as water preservation practices.

Extent

The *Palmer Drought Severity Index (PDSI)*-known operationally as the *Palmer Drought index (PDI)* attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns. The PDSI allows for a categorization of various levels of wetness and dryness that are prominent over an area. The PDSI is calculated based on precipitation and temperature data, as well as the local Available Water Content (AWC) of the soil.

Palmer Drought Severity Index Scale

PDSI Classifications	
4.0 or more	Extremely wet
3.0 to 3.99	Very wet
2.0 to 2.99	Moderately wet
1.0 to 1.99	Slightly wet
0.5 to 0.99	Incipient wet spell
0.49 to -0.49	Near normal
-0.5 to -0.99	Incipient dry spell
-1.0 to -1.99	Mild drought
-2.0 to -2.99	Moderate drought
-3.0 to -3.99	Severe drought
-4.0 or less	Extreme drought

Table Courtesy of National Drought Mitigation Center

History

2012-2013 North American Drought: This drought began in the spring of 2012, when the lack of snow in the United resulted in little melt water to absorb into the soil. The United States Department of Agriculture (USDA) designated significant portions of the U.S. as drought disaster areas. In Ohio, 85 of the state's 88 counties, including Allen County, received the designation. The drought has inflicted, and is expected to continue to inflict, catastrophic economic damages. In most measures, the drought has exceeded the 1988-1989 North American Drought, which is the most recent comparable event. The following table shows the drought's effect on Allen County's crop production from 2011 to 2012.

Vulnerability Assessment

This hazard does not typically have an impact on structures and infrastructure. The majority of risk will be to the population, crops, and livestock.

Infrastructure Impact: Studying droughts on a city or county level is insufficient, since they can occur on a regional and national level. In Allen County there are no at-risk critical facilities from drought. The major impact from these events will primarily be on cropland. However, some structures could be damaged if soil destabilizes during prolonged events.

Population Impact: Since drought and extreme heat events are non-site specific, the entire county is susceptible to droughts. Extreme heat events often accompany droughts.

Property Damage: Because droughts do not usually directly affect buildings and infrastructure, the majority of damage dealt will be to crops. The total estimated value of all crops in Allen County is \$126,175,000.

Loss of Life: There have been no reported deaths in Allen County caused directly by drought.





























Economic Losses: Allen County is a primarily agricultural county with over \$126 million worth of crops. When droughts occur, they cause economic losses countywide, affecting the farming community directly, and many other county businesses indirectly. It is likely that all mitigation costs would be funded locally.

COMMODITY LOSS STATISTICS
DROUGHT CONDITIONS

COUNTY:		Allen				
COMMODITY		Non-Drought Year 2011	Drought Year 2012	UNITS	CHANGE	AMOUNT
Corn - planted		59,700	71,800	acres	up	12,100
Corn, grain - harvested		58,200	70,000	acres	up	11,800
	Yield	97.49%	97.49%		unchanged	0.00%
Corn, grain - production		9,205,000	7,975,000	bushels	down	1,230,000
Corn, grain - yield		158.2	113.9	bushels/acre	down	44.3
Hay - harvested		1,900	1,600	acres	down	300
Hay - production		7,300	5,500	tons	down	1,800
Hay - yield		3.85	3.45	tons/acre	down	0.40
Soybeans - planted		83,400	83,400	acres	unchanged	0
Soybeans - harvested		83,100	83,400	acres	down	300
	Yield	99.64%	100.00%		up	0.36%
Soybeans - production		4,220,000	4,450,000	bushels	up	230,000
Soybeans - yield		50.8	53.4	bushels/acre	up	2.6
Wheat - planted		18,400	10,200	acres	down	8,200
Wheat - harvested		18,000	9,520	acres	down	8,480
	Yield	97.83%	93.33%		down	4.49%
Wheat - production		1,050,000	732,000	bushels	down	318,000
Wheat - yield		76.9	58.3	bushels/acre	down	18.6

Source: U.S. Dept. of Agriculture, National Agricultural Statistics Service

COUNTY: Allen

COMMODITY	Non-Drought Year 1986	Non-Drought Year 1987	Drought Year 1988	Drought Year 1989	Non-Drought Year 1990	UNITS	TREND
Corn - planted	55,000	50,500	51,000	57,800	56,700	acres	
Corn, grain - harvested	54,100	48,900	47,700	53,300	54,000	acres	
Yield	98.36%	96.83%	93.53%	92.21%	95.24%		
Corn, grain - production	7,562,500	6,569,700	3,991,700	7,140,700	6,954,200	bushels	
Corn, grain - yield	139.8	134.0	83.7	134.0	128.8	bushels/acre	
Hay - harvested	7,200	6,300	7,500	7,000	5,200	acres	
Hay - production	25,000	20,900	16,200	24,700	20,000	tons	
Hay - yield	3.47	3.32	2.16	3.53	3.85	tons/acre	
Oats - planted	3,100	5,100	3,300	3,700	1,500	acres	
Oats - harvested	1,900	2,500	1,900	3,000	1,300	acres	
Yield	61.29%	49.02%	57.58%	81.08%	86.67%		
Oats - production	178,100	180,000	91,000	198,200	94,000	bushels	
Oats - yield	93.7	72.0	48.4	66.1	72.3	bushels/acre	
Soybeans - planted	73,800	85,000	83,400	85,300	75,700	acres	
Soybeans - harvested	73,300	84,200	78,700	85,200	75,200	acres	
Yield	99.32%	99.06%	94.36%	99.88%	99.34%		
Soybeans - production	3,062,100	3,347,000	1,849,000	3,005,300	3,104,500	bushels	
Soybeans - yield	41.8	39.8	23.5	35.3	41.3	bushels/acre	
Wheat - planted	22,900	19,000	24,400	29,100	29,100	acres	
Wheat - harvested	21,200	17,800	21,700	28,600	28,100	acres	
Yield	92.58%	93.68%	88.93%	98.28%	96.56%		
Wheat - production	1,007,700	1,048,400	1,050,900	1,574,400	1,905,700	bushels	
Wheat - yield	47.5	58.9	48.4	55.0	66.4	bushels/acre	
Winter wheat - planted	22,900	19,000	24,400	29,100	29,100	acres	
Winter wheat - harvested	21,200	17,800	21,700	28,600	28,700	acres	
Yield	92.58%	93.68%	88.93%	98.28%	98.63%		
Winter wheat - production	1,007,700	1,048,400	1,050,900	1,574,400	1,905,700	bushels	
Winter wheat- yield	47.5	58.9	48.4	55.0	66.4	bushels/acre	

3.4 Earthquake

An earthquake is defined as a sudden and violent shaking of the ground, sometimes causing great destruction, as a result of movements within the earth's crust or volcanic action. An earthquake is a countywide hazard that affects all areas and jurisdictions of the County

Lima, Ohio

September 9, 1884 - 7:14 p.m.

Magnitude: 4.8

Calculated Depth: 0 kilometers

Intensity: VI

Source: U.S. Geological Survey

Felt Area: 373,000 square kilometers

The location was approximately 1500 feet south of E. Hanthorn and Reese Avenues. Slight damage occurred in Lima. Two distinct shocks were felt in several places. The direction of motion was reported north to south and felt in bordering states to Ohio.

$\frac{1}{2}$ mile East of Westminster, Ohio

March 3, 1937 - 9:50 a.m.

Magnitude: 3.2

Calculated Depth: 0 kilometers

Intensity: V

Source: National Center for Earthquakes

The earthquake was felt in Anna, Sidney, Jackson Center, and Botkins. Windows rattled and bricks were shaken from chimneys. Many were awakened from sleep. The earthquake was accompanied by a rumbling sound.

Perry Township

March 3, 1937 - 9:50 a.m.

Magnitude: 2.9

Calculated Depth: 0 kilometers

Intensity: III

Source: National Center for Earthquakes

The location was approximately $\frac{1}{4}$ mile southeast of Schooler and McPherson Roads. A second distinct shock occurred 5 minutes after the event mentioned above.

Perry Township

March 23, 1937 - 5:15 p.m.

Magnitude: 3.1

Calculated Depth: 0 kilometers

Intensity: III

Source: National Center for Earthquakes

Felt Area: 700 square kilometers

The location was approximately $\frac{3}{4}$ mile northeast of State Route 117 and Perry Chapel

Road. A slight tremor was felt in Anna, Sidney, Jackson Center, and Botkins.

Auglaize Township

April 27, 1937 - 5:00 p.m.

Magnitude: 3.1

Calculated Depth: 0 kilometers

Intensity: III

Source: National Center for Earthquakes

Felt Area: 700 square kilometers

The location was approximately 1/2 mile south of State Route 309 and Brentlinger Road. A slight shock was felt in Sidney and Anna.

Perry Township

May 2, 1937 - 5:05 p.m.

Magnitude: 3.1

Calculated Depth: 0 kilometers

Intensity: III

Source: National Center for Earthquakes

Felt Area: 700 square kilometers

The location was approximately 1/10 mile south of State Route 117 at Hanthorn Road. A shock was felt in Anna, Sidney, Jackson Center, and surrounding communities. The tremor lasted a few seconds and no damage was reported.

Lima, Ohio

May 12, 2006 - 1:51 a.m.

Magnitude: 2.8

Calculated Depth: 5 kilometers Intensity: III

Source: Ohio Seismic Network

The location was near the intersection of East Market Street and South Roosevelt Avenue. A small earthquake struck the east side of Lima. No damage was reported from this event, but many residents reported a booming sound followed by a brief period of shaking. Many thought the refinery exploded. Approximately 40 reports were submitted through the internet. Most were from the east side of Lima, but reports were also received

from Ada, Beaver Dam, Elida, Harrod and Ottoville. The event was recorded at Ohio Seismic Network stations throughout western and central Ohio.

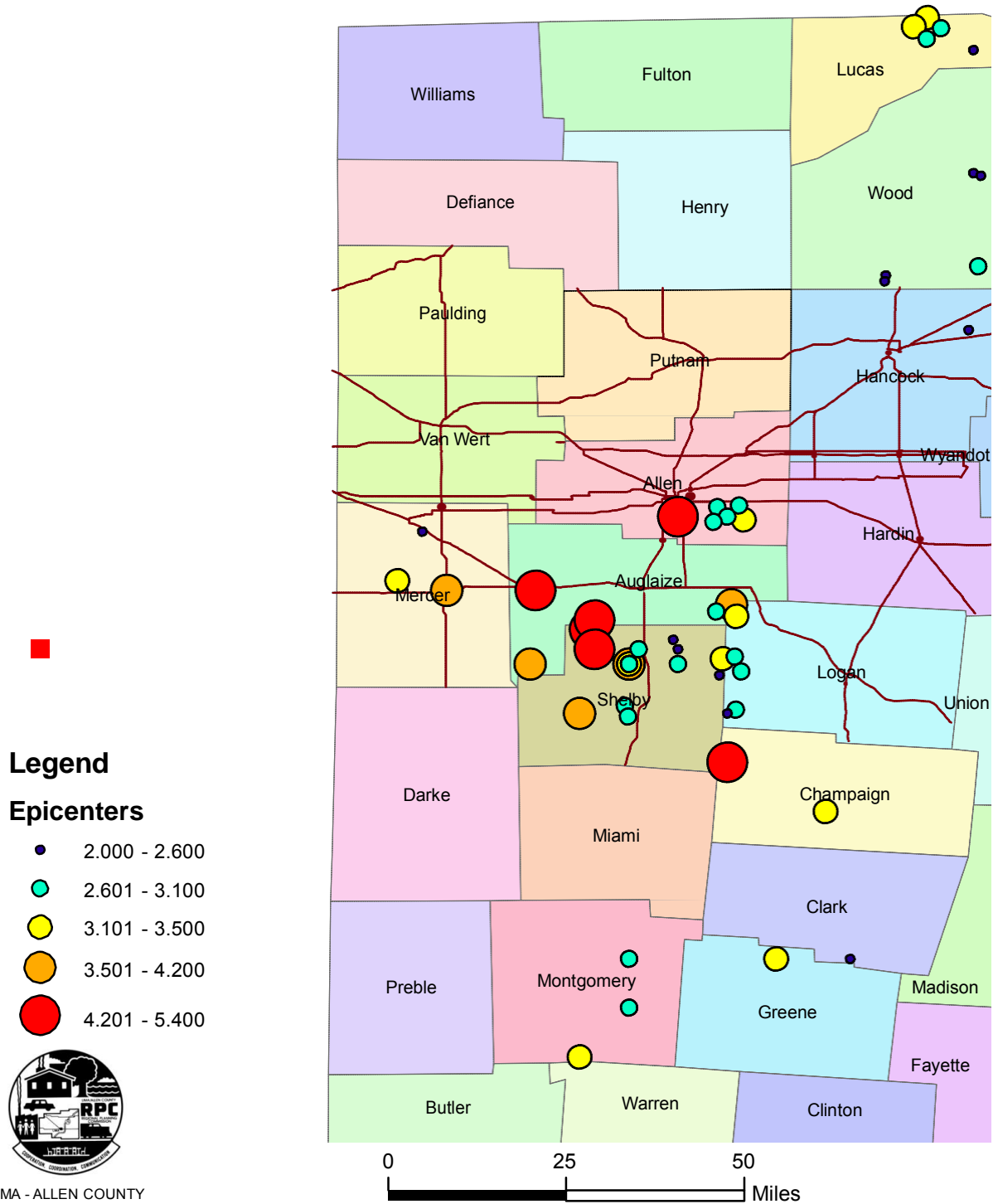
Lima, Ohio

August 15, 2006 - 6:08 a.m. Magnitude: 3.1

Calculated Depth: 5 kilometers Source: Ohio Seismic Network

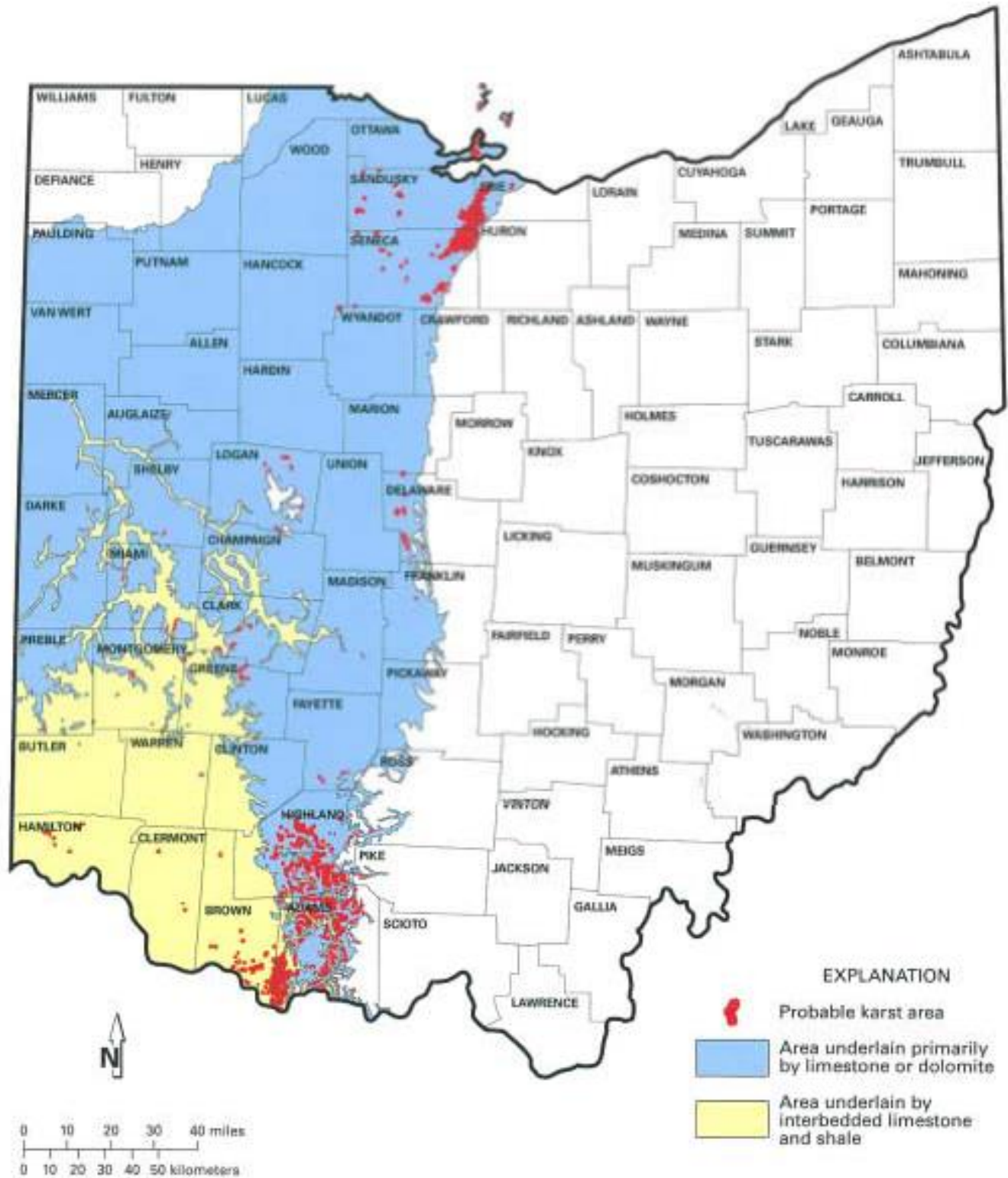
The location was approximately 500 feet of McLain and Buckeye Roads. A small earthquake was widely felt in Lima at 6:08 am. No damage was reported nor would be expected with an earthquake of this magnitude. Residents of Lima reported a loud boom followed by a very brief period of shaking. Some wondered if local industry had exploded.

MAP 19 **EARTHQUAKE EPICENTERS IN STUDY AREA**



Modified Mercalli Scale		Richter Magnitude Scale
I	Detected only by sensitive instruments	1.5
II	Felt by few persons at rest, especially on upper floors; delicately suspended objects may swing	2
III	Felt noticeably indoors, but not always recognized as earthquake; standing autos rock slightly, vibration like passing truck	2.5
IV	Felt indoors by many, outdoors by few, at night some may awaken; dishes, windows, doors disturbed; autos rock noticeably	3
V	Felt by most people; some breakage of dishes, windows, and plaster; disturbance of tall objects	3.5
VI	Felt by all, many frightened and run outdoors; falling plaster and chimneys, damage small	4
VII	Everybody runs outdoors; damage to buildings varies depending on quality of construction; noticed by drivers of autos	4.5
VIII	Panel walls thrown out of frames; fall of walls, monuments, chimneys; sand and mud ejected; drivers of autos disturbed	5
IX	Buildings shifted off foundations, cracked, thrown out of plumb; ground cracked; underground pipes broken	5.5
X	Most masonry and frame structures destroyed; ground cracked, rails bent, landslides	6
XI	Few structures remain standing; bridges destroyed, fissures in ground, pipes broken, landslides, rails bent	6.5
XII	Damage total; waves seen on ground surface, lines of sight and level distorted, objects thrown up in air	7

Figure 2
Ohio Karst
Areas



3.5 Flooding

A flood is defined as an overflowing of a large amount of water beyond its normal confines, especially over what is normally dry land. Allen County contains multiple rivers, streams and ditches that have and will continue to flood parts of Allen County. Multiple land use/economic activities would be affected by severe flooding of the waterways within the county. Map 20 shows the possible flooding for the entire County during a 100-year flood. The waterways of highest concern are the Ottawa River, Little Ottawa River, Riley Creek, Little Riley Creek and Flat Fork Creek. These waterways pose the most prominent flood threat to residential properties within Allen County. Other waterways that have a history of flooding that impact primarily agricultural areas include the Auglaize River, Jennings Creek, Honey Run, Dug Run, Pike Run, Two Mile Creek, Camp Creek, Wrestle Creek, Sugar Creek, Plum Creek, Cranberry Creek, Lost Creek, Hog Creek, Little Hog Creek, Sycamore Creek, Rattlesnake Creek, Kessler Run, McBride Ditch, Beaver Creek, Duden Ditch, Six Mile Creek and Pigeon Run.

Flooding within Allen County can result from moderate to heavy rains over an extended period, flash floods, normal rains on saturated land and from melting snow and ice.

3.5.1 Profile of Hazard Events – Flood

Table 6 shows data from past flooding events within the County. The data was obtained from the National Climate Data Center (NCDC) and the National Oceanic and Atmospheric Administration (NOAA).

TABLE 6 FLOOD OCCURRENCES			
Date of Occurrence	Location	Event Description	\$ in Losses
11/14/1993	Countywide		\$5,000
7/29/1994	Countywide	Heavy thunderstorm rains produced flooding of streets and poor drainage areas, especially on the west side of town.	\$5,000
8/8/1995	Countywide	Thunderstorm rains of 2-3 inches in 2 hours, caused flooding of a few roads and poor drainage areas.	\$4,000
7/18/1996	Countywide		\$0
2/27/1997	Countywide	Persistent heavy rainfall brought the Auglaize river over its banks	\$0
3/1/1997	Countywide		\$0
5/25/1997	Countywide	Riley Creek in Bluffton rose out of its banks causing 6 residents to be evacuated. Several roads flooded	\$10,000
8/2/2003	Countywide	Two to three inches of rain over two	\$0
9/3/2004	Spencerville	Flash flooding, in some locations over one foot.	\$0

Countywide, August 2, 2003

Water was reported over several county roads, with some areas seeing flowing water up to a foot deep. 2 to 3 inches of rain fell mainly from Lima southwest to between Spencerville and Fort Shawnee.

Spencerville, September 3, 2004

Several county and state roads reported closed due to flash flooding. A foot of water reported flowing over roads.

Lima, August 22, 2007 (DR-1720)

Several rounds of moderate to heavy rainfall occurred across parts of northwestern Ohio, beginning early on the 20th and continuing through the 22nd. Much of this rainfall fell into the Maumee River basin, with the Blanchard River near Ottawa suffering the worst effects of the rainfall, which totaled upwards of 15 inches in some areas. Flooding started out rather general across much of the county with numerous road closures and some evacuations. However, the greatest damage occurred in and around the town of Ottawa which was completely underwater as a result of a near record crest of the Blanchard River at 31.7 feet. The most recent crest which caused significant flooding of the town was June 15, 1981 when the river crested at 29.75 feet. The record crest for this site is 33.3 feet set on March 13, 1913. Numerous roads closed across Allen County caused by high, flowing water. As a result of this event, Allen County received \$183,181.94 in public assistance funds.

West Newton, May 11, 2011

A warm front was located across the region. Showers and thunderstorms developed along and north of it. Severe weather was not observed across the area, but training of storms caused localized flooding across portions of eastern Allen County. Law enforcement officials reported Lafayette Road, between Pevee Road and Bentley Road, closed due to flooding. One home on Pevee Road was reported to have flooding. Surrounding areas also reported water on roadways.

Gomer, May 14, 2011

A weak surface trough and low pressure system tracking along it allowed for thunderstorms to develop across portions of northwestern Ohio. Weak flow parallel to the trough allowed for redevelopment of thunderstorms, producing rainfall rates of one to two inches per hour. This caused areas of flooding and flash flooding. No injuries were reported. Law enforcement officials reported a underpass flooded in the city of Lima. In addition, a few of the county roads had high water issues in mainly low areas.

Bluffton Airport, May 28, 2014

A weak trough was located across northwestern Ohio during the afternoon and evening hours. A moist, but marginally unstable atmosphere allowed for thunderstorms to develop and remain relatively stationary over the same areas. Local rainfall amounts of 2 to as much as over 6 inches fell across mainly Allen County, resulting in flash flooding. The flash flooding resulted in a small portion of Interstate 75 being closed due to high water.

Sheriff department officials reported extensive flooding in several areas north of U.S. 30, especially around Cairo and Beaverdam. Water up to 1 foot deep was flowing over several roadways. Flash flooding occurred across Interstate 75, south of Mile Marker 138, resulting in closure of the Interstate in both directions. Pictures were also received of high flowing water near the intersection of Hillville Road and Stewart Road, north of Cairo. While no specific details were available, local media reported eight to 10 households suffered serious flooding problems. In addition, the Cairo Branch of the Lima Public Library suffered water damage as six inches of water entered the building. Hundreds of books were ruined as a -result. The threat for life threatening flash flooding ended during the mid-evening hours, but high water remained in several areas into the overnight hours of the 29th.

3.5.2 Community Profile – Flood

This hazard analysis will use a 100-year flood to project effected parcels and associated monetary losses. A 100-year flood is defined as a river that has a 1% chance of flooding every year. The parcel and monetary values shown below are calculated for five (5) areas, grouped as follows:

- Auglaize River Area (Includes Six Mile Creek, Pigeon Run, Camp Creek, Wrestle Creek, Two Mile Creek and the Auglaize River)
- Ottawa River Area (Includes Hog Creek, Little Hog Creek, Little Ottawa River, Honey Run, Dug Run, Beaver Creek, Pike Run, Duden Ditch, Kessler Run, McBride Ditch, Lost Creek and the Ottawa River)
- Sugar Creek Area (Includes Plum Creek, Sycamore Creek, RattlesnakeCreek, Cranberry Creek and Sugar Creek)
- Riley Creek Area (Includes Little Riley Creek and Riley Creek)
- Flat Fork Creek Area (Includes Jennings Creek and Flat Fork Creek)

Repetitive loss structures are also of concern when considering flooding of county properties. A repetitive loss structure is one that is damaged more than once in a 10-year period with damages in excess of \$1,000. Those structures that fall into this category are reported and maintained by FEMA and ODNR by area. According to data for Allen County there are three (3) repetitive loss structures within the County; losses totaled approximately \$857,987.14.

Projections developed from the identification of parcels located within the high hazard 100-year floodplains along the Auglaize and Ottawa rivers revealed that widespread flooding would result in damage to nearly 2,100 property owners. After identifying the number of parcels effected, the value of those parcels was then documented with respect to the total value of parcels within the county. Community profiles and estimations of losses are addressed for the grouped waterways determined to be of most concern. The appendix contains several maps and tables that identify the parcels and area affected by the 100-year flood by sub watersheds.

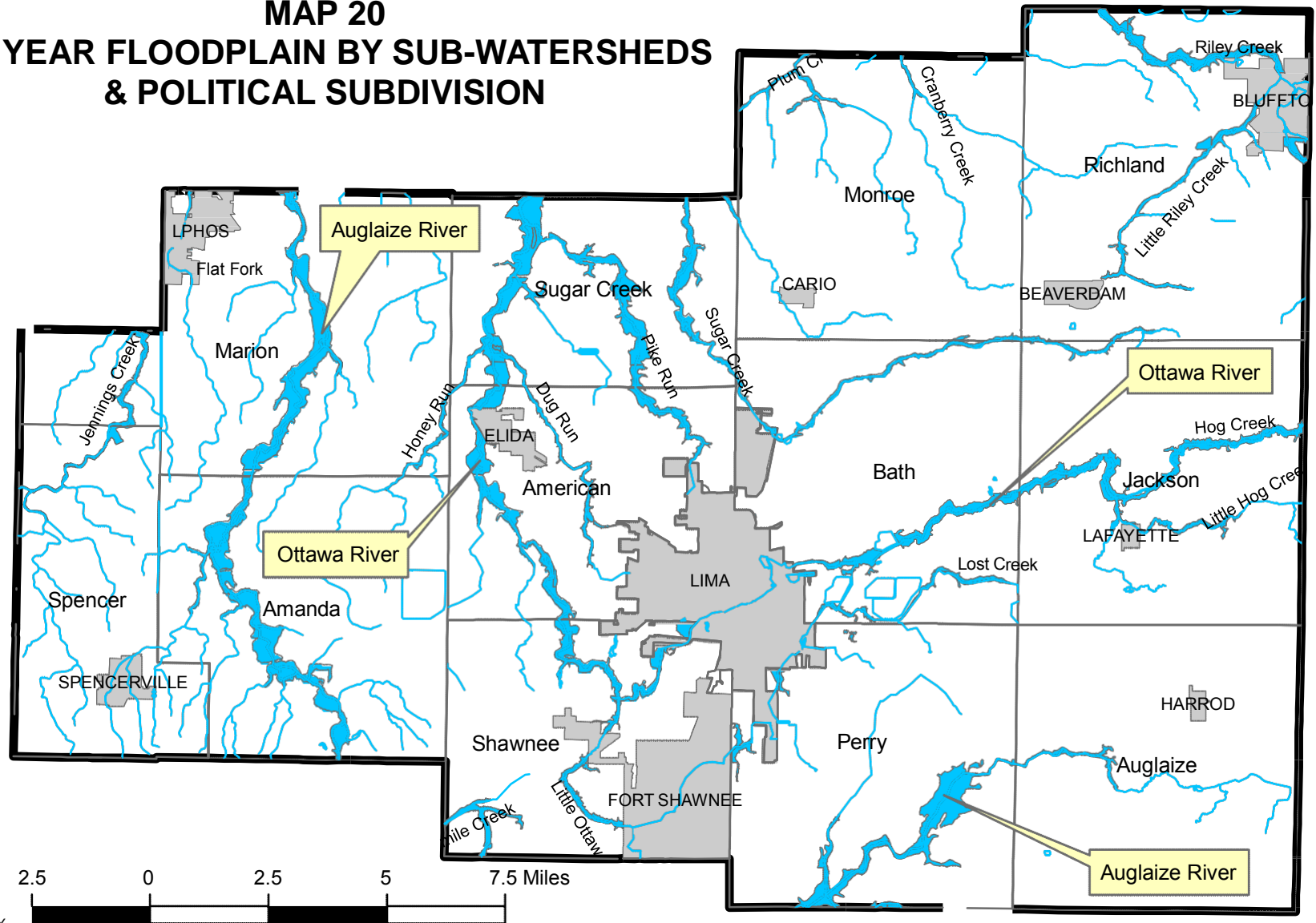
Data provided below reflects the entire floodplain area, both incorporated and unincorporated. This data is valuable in the consideration of mitigation initiatives developed by individual incorporated political subdivisions and heavily effected township areas.

TABLE 7 COMMUNITY PROFILE – AUGLAIZE RIVER WATERSHED						
2,250 Parcel Type of (Occupancy Class)	Number of Parcels			Value of Parcels		
	# in County	# in Hazard Area	% in Hazard Area	\$ in County	\$ in Hazard Area	% in Hazard Area
Residential	41,189	180	0.4%	\$3,060,081,970	\$7,582,960	0.2%
Commercial	3,792	3	0.1%	\$614,041,590	\$30,254	0.0%
Industrial	551	1	0.2%	\$256,038,290	\$6,919	0.0%
Agricultural	4,383	233	5.3%	\$221,683,640	\$4,543,673	2.0%
Recreation	53	8	15.1%	\$17,018,200	\$309,116	1.8%
Quasi-Public	1,642	16	1.0%	\$584,149,120	\$948,361	0.2%
Total,	51,610	441	0.9%	\$4,753,012,810	\$13,427,752	0.3%

LIMA - ALLEN COUNTY
R

TABLE 8 COMMUNITY PROFILE-OTTAWA RIVER WATERSHED						
Type of Parcel (Occupancy Class)	# in County	# in Hazard Area	# in Hazard Area	\$ in County	# in Hazard Area	# in Hazard Area
Residential	41,189	1,016	2.5%	\$3,060,081,970	\$35,980,406	1.2%
Commercial	3,792	120	3.2%	\$614,041,590	\$11,780,607	1.9%
Industrial	551	32	5.8%	\$256,038,290	\$992,988	0.4%
Agricultural	4,383	320	7.3%	\$221,683,640	\$6,140,596	2.8%
Recreation	53	14	26.4%	\$17,018,200	\$2,065,459	12.1%
Quasi-Public	1,642	152	9.3%	\$584,149,120	\$17,493,607	3.0%
Total	51,610	1,654	3.2%	\$4,753,012,810	\$74,453,663	1.6%

MAP 20 **100 YEAR FLOODPLAIN BY SUB-WATERSHEDS** **& POLITICAL SUBDIVISION**



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 COMMISSION

Allen County (003) Non-Mitigated Properties							
	Community Number	Building Payments	Contents Payments	Total Payments	Average Payments	Losses	Properties
Allen County	390758	358,096.64	499,881.50	857,978.14	35,749.09	24	9
Village of Bluffton	390004	343,807.30	50,504.18	394,311.48	16,429.65	24	7
City of Delphos	39005	13,557.97	0.00	3,389.49	3,389.49	4	2
Village of Elida	390656	83,614.98	24,731.26	27,086.56	27,086.56	4	2

- Element C2- The NFIP table must be updated, the following table, sourced from the NFIP Community Status Book has the most current information:

Communities Participating in the NFIP							
CID	Community Name	County	Init FHBM Identified	Init FIRM identified	Curr Eff Map Date	Reg-Emer Date	Tribal
390758B	Allen County	Allen County	02/10/78	11/15/89	05/04/15	11/15/89	No
390004B	Village of Bluffton	Allen County	01/23/74	09/20/95	05/04/15	09/20/95	No
390005B	City of Delphos	Allen County	05/17/74	08/05/91	05/04/15	08/05/91	No
390656#	Village of Elida	Allen County	03/29/74	05/02/13	05/02/13	05/02/13	No
390006#	City of Lima	Allen County	01/04/74	02/15/79	05/02/13	02/15/79	No
390957B	Village of Spencerville	Allen County		05/02/13	(NSFHA)	05/02/13	No
Communities Not Participating in the NFIP							
CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Sanction Date	Tribal
390803B	Village of Lafayette	Allen County	01/20/78	05/02/13	05/04/15	01/20/79	No

Supporting data contained in the Appendix to this report indicates that widespread flooding would negatively impact more than 2,100 property owners with the most damage being incurred by residential property owners located along the Ottawa River. The total economic impact varies by sub watershed. Any land use policy implications should target each of the watersheds respectively.

TABLE 9 ESTIMATION OF LOSSES AUGLAIZE RIVER AREA & OTTAWA RIVER				
Type of Parcel (Occupancy Class)	Number of Parcels in Hazard Area		Value of Parcels in Hazard Area	
	Auglaize River	Ottawa River	Auglaize River	Ottawa River
Residential	180	1,016	\$7,582,960	\$35,980,406
Commercial	3	120	\$30,254	\$11,780,607
Industrial	1	32	\$6,919	\$992,988
Agricultural	233	320	\$4,543,673	\$6,140,596
Recreation	8	14	\$309,116	\$2,065,459
Quasi-Public	16	152	\$948,361	\$17,493,607
Subtotal	441	1,654	\$13,427,752	\$74,453,663
Total	2,095 parcels		\$87,881,415	

3.6 Hail Storm

Hail is frozen raindrops formed in the upper atmosphere that fall to earth. Hail is a countywide hazard that affects all areas and jurisdictions of the County. The size of the hail varies depending on the number of times the hail is blown into higher elevations. Hailstorms are associated with heavy rains, gusty winds, thunderstorms and lightning. The severity of a hailstorm is contingent on the size of the hail; damage can occur to structures, vehicles, crops, etc.

3.6.1 Profile of Hazard Events – Hailstorm

Data of past hailstorms was gathered from NCDC databases from 1959 to 2004. There are 36 recorded hailstorms in this time period; however, only one (1) recorded monetary damage. Table 10 identifies the more severe storms based on the size of the hail.

**TABLE 10
HAILSTORM
OCCURRENCES**

Date of Occurrence	Location	Event Description	\$ in Losses
5/10/1959	Countywide	1.75 inch hail stones.	NA
7/12/1980	Countywide	1.75 inch hail stones.	NA
7/12/1980	Countywide	1.75 inch hail stones.	NA
7/12/1980	Countywide	2.75 inch hail stones.	NA
6/2/1980	Countywide	1.75 inch hail stones.	NA
5/27/1982	Countywide	1.75 inch hail stones.	NA
9/9/1992	Countywide	1.75 inch hail stones.	NA
9/25/1994	Countywide	Winds reported at 60 mph combined with large hail damaged crops. 1.75 inch hail stones.	\$50,000
6/27/1998	Countywide	1.75 inch hail stones.	NA
8/26/2003	Countywide	1.75 inch hail stones.	NA

3.6.2 Community Profile/Estimation of Losses – Hailstorm

Hailstorms are events that have and will continue to have the potential for causing damage to property within the County. Hailstorms occur most often between the months of May and July, most frequently when the average daily temperature is between 60 and 80 degrees fahrenheit. Hailstorms are also most frequent between the hours of 2:00 and 6:00 pm. Based on the inconsistent and unpredictable nature of hailstorms and the inability to adequately protect property from the affects of the hail, mitigation activities for hailstorms have a low priority.

Delphos, Lima and Fort Shawnee, May 7, 2004

Thunderstorms developed in a weakly capped and moderately unstable environment ahead of a cold front. Strong winds aloft allowed for several of the storms to occasionally bow out producing reports of wind damage across northwestern Ohio. Hail ranged in size from half dollar to golf ball size.

Delphos to Gomer, May 5, 2010

Convergence along a cold front, combined with moderate shear and weak instability, allowed for the development of numerous thunderstorms. The primary threat from the storms was hail up to the size of golf balls.

Lafayette, June 4, 2011

A weak cold front and a lake breeze over northeastern Illinois combined with very unstable conditions to promote rapid storm development from northern Illinois into portions of northern Indiana. Most of the damage was from a bowing segment and high precipitation super cell that moved across northeastern Illinois into western Indiana. Pockets of more intense wind damage occurred, with numerous reports of funnel clouds and a few gustnadoes on a few very pronounced outflow boundaries. Emergency management officials reported hail slightly larger than one inch at the intersection of Cool and Sandusky Roads.

Bluffton, April 30, 2012

Numerous low topped thunderstorms developed in a strongly sheared, but weakly unstable environment. One thunderstorm managed to produce penny size hail as it collapsed in Allen County.

Lima, April 10, 2013

A slow moving frontal boundary was located from central Illinois into western Ohio. An unstable air mass along and south of the front allow for clusters of thunderstorms to form, some of which briefly became severe.

3.7 Land Subsidence

Karst topography is a landform type that develops on, or in, limestone, dolomite, or gypsum by dissolution. The ground in Allen County is underlain primarily by limestone and/or dolomite and thus Allen County has the possibility of developing karst areas that are characterized by sinkholes and caves. Figure 2 depicts the karst areas of Ohio.

3.7.1 Profile of Hazard Event –Land Subsidence

Allen County has had no recorded events of land subsidence that have resulted in damage to structures, personal injuries or loss of life.

3.7.2 Estimation of Losses – Land Subsidence

Allen County has had and will continue to have the possibility of occurrences of land subsidence; however, the likelihood of such an occurrence is considered to be low.

Lima, August 23, 2013

A mysterious sinkhole has presented more than aesthetic challenges for a local bank. The sinkhole's discovery unearthed questions about the origin of a buried concrete room. Workers at State Bank and Trust Company on West Market Street discovered the sinkhole near a sidewalk on the west side of the building. As bank officials began working to address the hole, crews found a 16-foot-by-16-foot room underground. According to an archivist at the Allen County Museum, the space is part of the foundation of a former Henry G. Wemmer mansion that used to stand at the bank's current location. Little is known about when the mansion was torn down.

Cridersville, May 13, 2014

A section of West Main Street in Cridersville that was scheduled for maintenance resulted in more than just the closure of the road for a couple days. Village officials posted a notice the 200 block of the street would be closed as crews made repairs to a sinkhole that opened in the road. Traffic was maintained on the main street through the village, but the area has been barricaded and traffic directed around the concerned area.

County: **ALLEN**

Hazard: **Land Subsidence**

Here is the Vulnerability Analysis for SHARPP:

Building Type	Number of Buildings	Exposure for this Scenario
Residential	5	\$347,410.00
Non-Residential	5	\$915,644.00
Critical Facilities	2	\$1,159,614.00
Totals:	12	\$2,422,668.00

3.8 Severe Winter Storm

Severe winter weather includes heavy snow, blizzards, ice storms and extreme cold; all of which can cause damage. A winter storm is a countywide hazard that affects all areas and jurisdictions of the County. Damage is typically limited to loss of services, most commonly electrical, however damage to personal property does also occur. There are also many side-effects of severe winter storms including tree damage, vehicular accidents, personal injuries and losses of life.

3.8.1 Profile of Hazard Events – Severe Winter Storm

Allen County, like all Ohio Counties, is subject to severe winter weather in the form of extreme cold, snow and ice. There have been numerous severe winter storm events throughout the years but as they effect large areas in most cases, the monetary losses for individual counties are not identified. Table 11, using NCDC data has descriptions of the most notable storms that have affected the county. However, such data reflects events only back to 1993.

Countywide, December 22, 2004 (DR-1580)

Low pressure moved out of the western Gulf of Mexico and tracked towards eastern Ohio. Abundant moisture accompanying the system allowed for record snowfall across portions of northwestern Ohio. Accumulations ranged from 6 to as much as 14 inches across this area, with much of Allen County and the southeastern part of Putnam county seeing the highest amounts. During the peak of the storm, the snow fell at the rate of 2 to 3 inches per hour in some areas. As a result of this event, Allen County received \$1,238,943.22 in public assistance funds.

Countywide, February 1, 2008

A winter storm developed in the Southern Plains and tracked into the area with a swath of mainly snow for northern Indiana. The precipitation did start as a period of sleet and even freezing rain. Most areas north and west of a Payne to Napoleon line received 6 to 8 inches of snow along with blowing and drifting snow. South of this line, lesser amounts of snow and sleet were observed, but upwards of two tenths to locally as high as a quarter inch of ice was observed. Many schools closed for the day, giving students a long weekend. Two to four inches of snow and sleet, as well as up to two tenths of an inch of ice, caused difficult travel conditions.

Countywide, February 5-6, 2010

Light to moderate snow and strong winds resulted in low visibilities and drifting snow February 5th into early February 6th, as a rapidly intensifying area of low pressure tracked eastward through the lower Ohio Valley. Snowfall totals generally ranged between 4 and 8 inches, with drifts as high as 3 to 4 feet. Light to moderate snow developed during the early afternoon hours on February 5th, and continued into the early morning hours of February 6th. Gusty winds accompanied the snow, with gusts of 30 to 45 mph limiting visibilities. The falling snow and strong winds also led to plenty of blowing and drifting snow, with drifts of 2 to 4 feet reported. Snowfall totals across the county generally ranged between 6 and 8 inches. There were reports of slide-offs and accidents across the region.

Countywide, December 26, 2012

A deepening low pressure system tracking northeast through the Ohio Valley brought accumulating snow and blowing snow to northwest Ohio on December 26th. Moderate to heavy snow fell with total snow accumulations ranging between 6 and 10 inches across the county. A trained spotter in Lima reported 9.5 inches of total snow accumulation. The falling snow combined with wind gusts in excess of 30 mph reduced visibilities to less than a quarter of a mile at times. This also resulted in significant blowing and drifting snow. Slide-offs and accidents were reported across the region.

Countywide, March 12, 2014

A quick-hitting heavy wet snow event affected northwest Ohio during the morning and early afternoon hours as deepening low pressure tracked east through the Ohio River Valley. Total snow accumulations generally ranged between 5 and 9 inches. Rain changed over to snow during the early morning hours of March 12th, becoming moderate to heavy at times during the remainder of the morning and early afternoon. Wind gusts of 30 to 40 mph, combined with the falling snow, reduced visibilities to less than a quarter of a mile at times. Snowfall totals across the county generally ranged between 5 and 7 inches. A few accidents and slide-offs were reported across the region due to snow covered and slick roads.

**TABLE 11
WINTER STORM OCCURRENCES**

Date	Location	Type	Description of Losses	\$ in Losses
1/25-27/1978	Countywide (statewide)	Severe Blizzard	One to three feet of snow with winds gusting over 100 mph.	
1/21/1995	Countywide (21 Counties)	Heavy Snow	Heavy snow accumulated an average of four to eight inches. Power outages were reported, especially across northwest Ohio where the heavy snow brought down some trees and power lines. Northwest winds caused considerable blowing and drifting snow, some of which closed outlying secondary roads at times. Several buildings reportedly collapsed including the roof of a recreation center in Findlay.	\$500,000
12/13/1995	Countywide (31)	Freezing Rain		\$25,000
12/19/1995	Countywide (24)	Heavy Snow		\$100,000
1/2/1996	Countywide (22 Counties)	Winter Storm		\$750,000
1/26/2004	Countywide (4 Counties)	Winter Storm	Snow accumulated 4-6 inches across Allen, Putnam, Van Wert, and Paulding counties with east to northeast winds of 20-30 MPH causing extensive blowing and drifting snow. Snow drifts were as high as 4 feet across some county roads.	\$0
12/22/2004	Countywide (8 Counties)	Winter Storm	Accumulations ranged from 6 to as much as 14 inches across Northwest Ohio, with much of Allen county and the Southeastern part of Putnam county seeing the highest amounts. During the peak of the storm, the snow fell at the rate of 2-3 inches per hour in some areas.	\$0
12/26/1993	Countywide (50 Counties)	Extreme Cold	Temperature highs in the teens and low temperatures near zero. Water main breaks occurred along with an increase in fires due to residents using additional heat sources. (1 life lost)	\$500,000
2/11/1995	Statewide	Extreme Cold	Temperature lows between 10 and zero degrees, 4 people died from exposure. A number of water line breaks occurred. (4 lives lost)	\$100,000
12/9/1995	Statewide	Extreme Cold	One injury reported.	\$2,000
2/1/1996	Countywide (36)	Extreme Cold		\$1,300,000
1/5/2005	Countywide	Ice Storm	Loss of electricity to 37,000 homes/businesses, 3,400 meals delivered, 566 miles of debris on ground.	\$3,100,000+

3.8.2 Community Profile/Estimation of Losses – Severe Winter Storm

Winter storms have negatively impacted Allen County throughout history with varying degrees of severity. Projected losses cannot be estimated with any degree of certainty. It can be expected that during and following a severe winter storm there will be a wide range of both human and economic losses. Heavy winter snows caused by such storms result in increased admissions to emergency rooms for everything from frost bite and exposure to exercise induced heart attacks and automobile crashes. Weather events also result in loss of utility services and loss of business/personal incomes to structural and vehicular damages. Data on specific County losses is not readily available for both private and public sectors but the public costs associated with the ice storm of January 2005 resulted in a conservative estimate of \$3.1 million to local governments. With the absence of definitive data and the difficulties in predicting the effects of severe winter storms, projections of losses will not be provided.

3.9 Tornado

Tornadoes are storms with rotating winds of high velocities. They appear as funnel- shaped clouds extending toward the ground from the base of a thunderstorm cloud. Tornadoes are ranked by their wind velocity using a scale known as the Fujita Scale, which was developed by Theodore Fujita in 1971 (See Table 12 below).

TABLE 12 FUJITA SCALE		
F-Scale Number	Intensity Phrase	Type of Damage Done
F0	Gale Tornado (40-72 mph)	Light damage. Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages signboards.
F1	Moderate Tornado (73-112 mph)	Moderate damage. The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	Significant Tornado (113-157 mph)	Significant damage. 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. Roof 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; parcels with weak foundations 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 distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete parcels badly damaged.

Ohio as a state ranks 23 in the average number of tornados annually, with an average of 20 tornadoes per year. The state does not rank high in tornado frequency but ranks high in the percentage of killer tornadoes to all tornadoes and also the number of deaths per 10,000 square miles of area. Table 13 shows the states ranking in six categories. This data is from the Tornado Project, which gathers and compiles tornado data for all states.

Building Type	Number of Buildings	Exposure for this Scenario
Residential	1,518	\$ 264,773,305
Non-Residential	673	\$ 117,375,617
Critical Facilities	123	\$ 21,454,660

Totals: 2,313 \$ 403,603,582

EF-5 TORNADO SCENARIO FOR: **ALLEN** COUNTY

**TABLE 13
STATE
RANKINGS**

Rank	Total numbers of tornadoes	Deaths per 10,000 sq miles	Number of killer tornadoes	Total tornado path length per 10,000 sq miles	Killer tornadoes as a % of all tornadoes	Annual tornadoes per 10,000 sq. miles
1	Texas	Massachusetts	Texas	Mississippi	Tennessee	Florida
2	Oklahoma	Mississippi	Oklahoma	Alabama	Kentucky	Oklahoma
3	Florida	Indiana	Arkansas	Oklahoma	Arkansas	Indiana
4	Kansas	Alabama	Alabama	Iowa	Ohio	Iowa
5	Nebraska	Ohio	Mississippi	Illinois	Alabama	Kansas
6	Iowa	Michigan	Illinois	Louisiana	Mississippi	Delaware
7	Missouri	Arkansas	Missouri	Kansas	North Carolina	Louisiana
8	Illinois	Illinois	Indiana	Indiana	Michigan	Mississippi
9	South Dakota	Oklahoma	Louisiana	Nebraska	New York	Nebraska
10	Louisiana	Kentucky	Tennessee	Wisconsin	Massachusetts	Texas

3.9.1 Profile of Hazard Events – Tornado

The NCDC recorded 14 tornadoes in Allen County between 1950 and 2004. These tornadoes have ranged in strength from F0 to F4 on the Fujita Scale. Table 14 shows the impact of 14 tornadoes by date, location, magnitude. Figure 3 depicts those tornadoes that have occurred since 1898.

TABLE 14 TORNADO OCCURRENCES					
Date	Location or County	Magnitude	Event Description	Losses	
7/19/1950	Countywide	F3	30 injuries	\$2,500,000	
4/11/1965	Countywide	F4	11 deaths and 100 injuries	\$2,500,000	
5/26/1965	Countywide	F1		\$25,000	
8/22/1970	Countywide	F0		\$3,000	
6/2/1971	Countywide	F3		\$25,000	
6/26/1973	Countywide	F0		\$0	
7/30/1979	Countywide	F0		\$25,000	
4/8/1980	Countywide	F1		\$250,000	
4/8/1980	Countywide	F1	1 injury	\$250,000	
6/21/1981	Countywide	F1		\$250,000	
2/18/1992	Countywide	F0		\$0	
7/19/1998	Lima	F0	Tornado touchdown 1/10th of a mile north of Findlay Rd at N. Sugar St. Fencing and power poles railroad crossing arms snapped before it moved SE and lifted.	\$0	
9/20/2002	Delphos	F1	Power lines and large trees were blown down. 6 homes suffered shingle and window damage.	\$50,000	
8/26/2003	Lima	F0	Touched down near SR 65 and I-75. Barn received roof damage.	\$1,000	

Southeaster Part of Lima to Beaverdam, Ohio F-3**July 19, 1950 3:15pm****Fatalities:0 Injuries:30**

No narrative details were available. However, according to the NOAA National Climatic Data Center, this event resulted in \$2,500,000 in property damage.

1 Mile North of Elida to 1 mile Southeast of Bluffton F-3**April 11, 1965 8:35 pm****Fatalities: 11 Injuries: 100**

The path of this tornado lines up with another twin that struck Berne, IN, passed 4 miles south of Willshire, Ohio City and Venedocia. The tornado first touched down 6 miles northwest of Lima and west of Cairo. It traveled eastward for a distance of 25 miles to a point one mile north Jenera demolishing farm houses, barns, and other buildings. Two people were reported dead near Cairo, five were killed in the vicinity of Bluffton and five other fatalities along the tornado's path. This event resulted in \$2,500,000 in property damage.

1/2 mile South of Elida to US Route 30 South of**Gomer F-1 April 8, 1980 3:00 pm****Fatalities: 0 Injuries: 1**

A tornado touched down near Elida destroying some mobile homes and damaging houses. One man was injured by flying debris. Eyewitnesses saw a tornado touch down near Lincoln Highway (US Route 30). The storm downed trees and destroyed four barns and a house trailer. This event resulted in \$500,000 in property damage.

3 Miles East of Beaverdam F-1,**June 22, 2006 2:18 pm****Fatalities:0 Injuries: 0**

There was brief touchdown near the intersection of U.S. Route 30 and Pevee Rd. The roof of one home was destroyed, with another home sustaining significant roof damage. The tornado also resulted in crop damage in the area. This event resulted in \$20,000 in property damage and \$5,000 in crop damage.

Spencerville to Cairo**EF-1, April 19, 2011 10:50 pm****Fatalities: 0 Injuries:0**

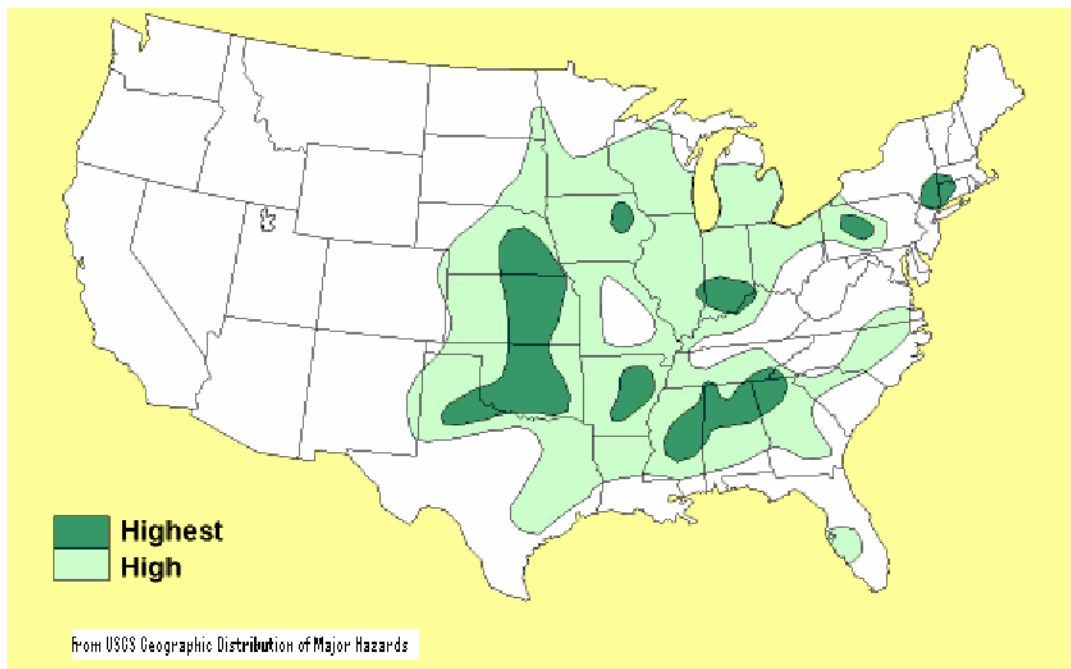
A tornado continued into Allen County from Van Wert County impacting several structures. A large pole barn had roughly one-third of the roof removed, with an older barn being destroyed and debris thrown towards a residence. A piece of board was driven into the side of the home with debris carried about a half mile to the north and east, being lifted over a tract of trees. The circulation appeared to have lifted shortly after depositing the debris. The maximum width of the tornado was around 100 yards and winds were estimated around 95100 mph. A survey of wind damage in the area of Cairo indicated a brief circulation developed and touched down in an open field just

Figure 3
Tornadoes Since
1898

3.9.2 Community Profile/Estimation of Losses – Tornado

Ohio is considered to be at a high risk of tornadoes according to the USGS and as shown in Figure 4. As can be seen from the previous figure, tornadoes can affect all areas of Allen County. The tornadoes that have affected the county in the past have caused losses, both in personal property and in lives, and it can be assumed that tornadoes will continue to affect the county. Tornadoes are unpredictable events but using historical data it is possible to predict general patterns of when tornadoes are most likely to occur. Historical data provided by NCDC and NOAA shows that tornadoes are most likely to occur between the months of April and August. Data also suggests that tornadoes occur most frequently between the hours of 2:00 and 6:00 pm and on days with an average daily temperature between 60 and 80 degrees Fahrenheit. There was one recorded tornado that did not follow this pattern however; that tornado occurred in February 1992 when the average temperature for that day was only 41 degrees Fahrenheit. Tornadoes, as previously noted, can fall into one of six ratings (F0-F5), but tornadoes rated in the same category do not necessarily have the same amounts of damage. Given these issues of unpredictability in both tornado damages and tornado occurrences, projections of losses are not provided.

Figure 4
Tornado Risk Areas in the Conterminous United States



3.10 Windstorm

A windstorm is sometimes referred to as a straight-line wind to differentiate them from tornadic winds. A straight-line wind is classified as a windstorm if one of the following occurs: (a) either sustained non-rotating surface winds (1-minute average) of 40 mph (35 knots) or greater lasting for 1 hour or longer; or, (b) sustained non-rotating winds or gusts of 58 mph (50 knots) or greater for any duration.

Allen County's relatively flat topography helps to contribute to windstorms in the County. The presence of wooded lots and fence rows helps to diminish the effects of wind on area communities, but the flat topography of the land is such that there are often strong winds across Allen County.

3.10.1 Profile of Hazard Events – Windstorm

Windstorms and resultant damages affect the County on a regular basis. Damages are typically in the form of downed power lines/loss of services and in personal property damage associated with trees falling on objects such as structures and vehicles. Table 15 shows the most damaging windstorms that have affected the county from 1955 to the present. In many instances wind speeds were not recorded by the NCDC and NOAA.

3.10.2 Community Profile/Estimation of Losses – Windstorm

Windstorms most often occur in conjunction with thunderstorms and the data in Table 15 was listed under thunderstorm occurrences. Thunderstorms occur most often between April and July and between the hours of 2:00 and 7:00 pm. Thunderstorms also are most frequent when the average daily temperature is between 60 and 80 degrees Fahrenheit, though thunderstorms do occasionally occur below 60 degrees. As noted previously, windstorms have been a frequent occurrence in the past and they will continue to be a regular source of damages for the county. Damage is most often limited to power lines, structures, and vehicles and is typically not severe. The largest damage amounts listed in the previous table are for multiple county areas and it is thus difficult to determine the amount of damage to Allen County specifically. The damages listed that affect only areas of Allen County are, for the most part, low. There have been no reported deaths and only two reported cases of injuries due to windstorms for the county. Given the unpredictable nature and difficulty in mitigating damages from windstorms, mitigation activities would be considered as having a low priority.

Countywide, July 27, 1989

Thunderstorms moved across western and central Ohio producing large hail and wind damage. Trees were blown down on the west side of Lima and one man was injured when a tree fell on his car. Later, lightning struck a garage in Lima causing approximately \$12,000 in damage. Trees were also blown down in Marion and Delaware County. A television tower and trees were blown down in Logan County.

Countywide, June 22, 2006

Widespread tree and power line damage throughout the city of Lima. Along a stretch of Shawnee Road from Fort Amanda Road to Reed Road, every power pole and traffic signal was blown over, completely blocking the road. The roof of an automotive shop at Jackson Street and Findlay Road collapsed. Numerous homes and businesses sustained roof damage. About two thirds of Allen County was without power. One person was injured by a falling tree, and one person was knocked over by the wind and sustained minor injuries. There were also up to 15 indirect injuries from automobile accidents during the storm. Roof collapsed at the Motel 6 on Harding Highway. The south end of the building sustained considerable damage. Three aircraft hangars destroyed. About 17 airplanes and the Allen County Sheriff's Office helicopter were significantly damaged or destroyed. Three tractor trailers were blown over on Interstate 75. Some roof damage was done to a shopping center. Widespread trees and power lines were down.

In Bluffton, a barn was destroyed on Sugar Creek Road. Thirty seven head of cattle were trapped in the barn, eight of which died. Numerous trees and power lines were reported down in Delphos. In Spencerville, a barn was moved about 2 feet off the foundation. Several trees and power lines were reported blown down.

Countywide, July 10, 2013

Despite broken cloud cover across much of the region, unstable conditions took shape ahead of a cold front that moved southeast into the region. Thunderstorms moved out of northern Indiana into northwestern Ohio, producing pockets of damaging winds. In Lima and Elmwood, trained spotters estimated 80 mph wind gusts with multiple power lines down in the area. The automated weather sensor at the Lima, Ohio airport recorded a 63 mph wind gust. A mesonet station at Fort Shawnee recorded a 66 mph wind gust.

Countywide, July 27, 2014

A strong upper level trough entered the region during the afternoon hours, with a 110 knot upper level jet streak. This allowed for plenty of deep layer shear, on the order of 45 to 55 knots. While instability wasn't extreme, mixed layer cape in the lowered levels peaked around 2000 j/kg allowing for organized storm development and periodic hybrid super cells. Initial reports were in the form of large hail, with wind damage reports increasing as storm collapses began to occur. Amateur radio operators reported a four inch diameter tree limb was broken off at State Route 117 and State Route 66.

3.11 Conclusions

Hazard analysis as it relates to the mitigation of natural disasters within Allen County involves several processes. The first step is to obtain data and information on relevant hazards that have and will continue to have impacts on properties and populations within the county. This data and information is then reviewed and analyzed. After completion the results of this review can be

used to develop and implement specific mitigation efforts that will be of most benefit to Allen County and its' citizens.

The review and analysis of the Hazard Analysis section was performed by the Allen- County Regional Planning Commission. This review included the initial consideration of the entirety of data and information contained in this section. Each natural disaster identified as a part of the Hazard Identification process as defined by FEMA was then rated on the basis of three criteria: the potential for the occurrence of the disaster, the severity of the impact on populations and property, and the level of need for implementing mitigation activities relating to that specific natural disaster. The natural disasters were then assessed using those criteria. Criteria parameters were set at three levels; low, moderate, and high. Results from this review are shown in Table 16.

TABLE 16 MITIGATION POTENTIAL REVIEW			
Type of Hazard	Potential for Occurrence Probability	Severity of Impact	Mitigation Potential
Class I Dam Failure	Low	High	Low**
Drought/Extreme Heat	Moderate/Moderate	Moderate/Low	Low*/Moderate**
Earthquake	Low	Low	Low*
Flood	Moderate	Moderate	High**
Hailstorm	Moderate	Low	Low
Land Subsidence	Low	Moderate	Low
Severe Winter Storm	High	High	High*
Tornado	Moderate	High	High**
Windstorm	High	Moderate	Low
Hurricane	NA	NA	NA
Tsunami	NA	NA	NA
Wildfires	Low	Low	Low
* Potential for public information only ** Potential for mitigation including public information NA – Not Applicable given site and situation Low- Not likely, or minimal impact Medium-Likely, but minimal to moderate impact High- Likely, with serve or disruptive			

SECTION 4

HAZARD MITIGATION

PLANNING

Over the course of the last dozen years there has been an increasing emphasis being placed on hazard mitigation. In 1995, FEMA developed the National Mitigation Strategy to encourage partnerships between the public and private sectors for significantly reducing the impacts of natural hazards by the year 2010. In 1996, the President's National Science and Technology Council Committee on the Environment and Natural Resources developed the Natural Disaster Reduction Plan for the Nation to complement FEMA's Mitigation Strategy. The legislation provided a fortuitous call to mitigation planning. Unfortunately, it fell largely flat as local community's failed to act. However, in this the post Katrina era, while some federal and state governments are still laboring in the evaluation of their respective 2002 emergency response strategies, local governments are being called upon to develop their own natural hazard mitigation plans. The goal of the planning process is aimed at taking action to prevent or reduce the impacts of natural disasters.

4.1 Plan Purpose

The purpose of the Natural Hazard Mitigation Plan is to provide the community with a blueprint to develop the ability to react to a natural disaster in a uniform, consistent, and responsive manner. Such a response requires careful disaster planning, preparation and response. Careful execution of planning activities can ensure that the resources needed for any type or size of disaster, no matter where or when it strikes, are met quickly and effectively. Effective disaster planning will result in more timely and effective disaster relief operations and help build realistic expectations.

4.2 Overview of Mitigation Goals, Strategies & Actions

Mitigation goals, policies, strategies and related activities to prepare for the potential impact of those natural hazards identified in Section 3 are presented in this section. Mitigation Goals are general statements that explain what the local political units would like to achieve utilizing realistic strategies. Policies are statements supporting respective governmental positions. Strategies are distinctive approached to achieve the goals.

Table 17 highlights the two broad categories of hazard mitigation strategies: hazard avoidance and hazard reduction. Hazard reduction focuses on strengthening structures and providing safeguards to reduce the amount of damage caused by natural hazards, including examples such as:

- altering the riverine environments through erosion control devices or flood control works; and,
- strengthening building and facilities by flood proofing, wind proofing, elevating, or burial.

Hazard avoidance strategies are designed to minimize the exposure to risks based on location, including:

- adopting/strengthening building codes, managing development through floodplain, zoning and subdivision regulations, land acquisition, economic incentives, location of capital facilities, information dissemination; and,
- education and training prohibiting development through direct land management or through prohibitions on altering critical habitat.

Mitigation activities are better defined by respective strategies with the use of specific objectives necessary to achieve the identified mitigation goals. Mitigation activities offer smaller, step-like tasks that need to be evaluated and accomplished in relatively short periods of time in manner that furthers the local planning efforts across various fronts to accomplish specific strategies.

TABLE 17 MITIGATION THROUGH ACTION STRATEGIES & ACTIVITIES	
Strategies	Mitigation Actions for Evaluation
Construction/Reconstruction	<ul style="list-style-type: none"> ' Setbacks, density requirements, zoning requirements, vegetation requirements, elevation requirements location, type of construction (commercial/residential/industrial), standards for construction. ' Under what circumstances (percentage, cause of damage, etc.) after a structure is damaged or destroyed, or for substantial improvements, must a non-
Facility siting planning	<ul style="list-style-type: none"> ' Planning for construction of facilities (e.g., marinas, critical facilities).
Transportation	<ul style="list-style-type: none"> ' Facility siting planning, roads, ports. ' Upcoming transportation issues, growth management and hazards considerations.
Building code	<ul style="list-style-type: none"> ' Specific building standards for construction. ' Name of code (Uniform Building Code, Standard Building Code, a Statewide Building Code). ' Anything special about it such as wind load standards, etc.
Deed disclosure statements	<ul style="list-style-type: none"> ' A legal acknowledgment that property is in a hazard area.
Habitat protection/Open space	<ul style="list-style-type: none"> ' Special provisions for protecting habitat, such as wildlife designations, wetland preservation, etc. Construction restrictions for this purpose.
Private lands/Land acquisition	<ul style="list-style-type: none"> ' Policies that directly protect privately owned natural areas. ' Formal programs, eminent domain authority, land trusts, conservation easements, etc.
Floodplain/Wetland creation/mitigation/restoration	<ul style="list-style-type: none"> ' Programs for wetland creation. Circumstances of
Vegetation requirements	<ul style="list-style-type: none"> ' Requirements for special vegetation in hazard areas.
Floodplain management	<ul style="list-style-type: none"> ' Statewide flood plain management statutes. ' Alternatives analysis for selecting sites in flood plains. ' Strategies for managing flood plains in their natural state.
Education/training/planning	<ul style="list-style-type: none"> ' Description of hazard mitigation programs. Develop/monitor/update hazard mitigation

4.3 Natural Hazard Assessments & Individual Action Plans

Section 3 identified specific natural hazards and assessed each of their respective threats to Allen County. Each of those hazards identified as important by the Plan's Advisory Committee have been incorporated herein. This section of the Plan furthers mitigation activities with specific and accepted goals, policies and strategies developed and articulated to better enable the community to prepare itself for the potential and respective impacts of natural hazards.

The development of independent goal-driven action plans was the final stage in setting the direction for the implementation of mitigation activities and the achievement of established goals. The action plans are a summary of defined goals, policy statements to clarify the goals, strategies identified to achieve the policies, and specific tasks directed to further the efforts of mitigation activities. During the public planning process the Advisory Committee, established the action plans to serve as the guide for Allen County over a five-year implementation period. The Advisory Committee developed the goals and specific strategies for addressing the following natural hazards as a whole, and will assess their effectiveness on an annual basis. The attached action plan summaries depict policies, mitigation strategies and tasks by annualized elements and responsible community stakeholders.

4.3.1 Class I Dam Failure

Given the community's dependence upon reservoirs for its water supply system a Class I dam failure could result in tremendous damage and loss of life if the community does not prepare itself.

Problem Statement(s): there is a lack of general awareness of the potential for, and consequences of, a Class 1 dam failure; and, Evacuation Plans and community impact zones have not been developed for all Class 1 dams.

Goal: minimize the possibility of a dam failure and ensure that should such an event occur the community will be able to respond accordingly.

Strategies: develop/update evacuation plans for potentially impacted areas; ensure evacuation routes are identified, mapped and publicly accessible; develop public information and education campaign regarding the evacuation routes and shelter areas; and, develop/update high hazard impacted services/sites along with emergency contact list.

Recommended Mitigation Activities: continue routine preventive maintenance and inspections as to the structural stability of all dam embankments; assess each Class I dam site and develop evacuation plans for each of the dams in Allen County; develop informational pamphlets to inform the public of the evacuation areas and also of safe places to move to in the occurrence of dam failure; assess the feasibility of implementing an automated notification system to notify residents of a Class 1 dam failure conduct hazard training exercises to prepare emergency response to such an event; and, develop emergency information announcements for local electronic and written media outlets. Table 18 references a summary overview to address this hazard.

4.3.2 Drought/Extreme Heat

Society's vulnerability to drought is determined by a wide range of factors, both physical and social including demographic trends, cultural mannerisms and geographic locations. The community's varied population and economic pursuits will be affected in different ways by such hazards.

Problem Statement(s): there is lack of education and general awareness about the effects of drought, including the secondary effects such as the potential for brush fires, widespread agricultural failure and increased pollutants getting to the underground water supply; the community lacks Mutual Aid Agreements necessary to address widespread environmental conditions for prolonged periods of time; there are inadequate response personnel trained to respond to such short and long term environmental hazards.

Goal: minimize the loss of life and economic exposure to long term droughts and/or extreme heat by developing the necessary infrastructure, both physical and human, to better understand the causes and withstand their collective consequences and ramifications.

Strategies: develop public information and education campaign regarding the causes and effects of pro-longed drought; study and develop a reservoir and water supply system that will meet the growing needs of the community; identify and locate most susceptible populations with health concerns and inventory existing health care and congregate housing facilities to ensure adequacy of community resources and response; review current memorandums of understanding (MOU) and/or letters of agreement (LOA) to determine current and needed capabilities; and, develop and implement cross-training for all health care, public works and emergency response personnel.

Recommended Mitigation Activities: develop avenues to provide regular media coverage of water table levels when drought conditions exist through the use of written and electronic news mediums; develop/implement rules/guidelines as to acceptable uses of water according to drought severity; support further development of local reservoirs and water supply infrastructure; develop additional measures to protect water depletion; develop public service announcement that incorporate local hospitals and Public Health Department to increase the public's awareness of the effects of extreme heat; cooperate with local fire officials to issue burning bans as necessary; and, increase public's awareness of the effects of drought through educational pamphlets. Table 19 references a summary overview to address this hazard.

4.3.3 Flooding

Allen County is served by the Auglaize and Ottawa rivers. Allen County has more than 13,000 acres of high hazard floodplain area straddling 28 different subwatersheds. The physical facts of topography and geographic location suggest that the community accept the rivers as natural and economic resources and take the necessary steps to ensure the health, safety and welfare of its population and the environmental quality of the rivers by developing the necessary mitigation techniques to protect both. All flood mitigation strategies should be assessed and developed based on their respective long-term sustainability. It is important that flood mitigation options reduce the risk from floods to the community; however, it is also important that this is not done at the

expense of the natural and physical resources of Allen County, nor its social, economic and/or cultural well-being.

Problem Statement(s): most local communities have not adopted minimum National Floodplain Insurance Program (NFIP) standards; there is a lack of regulatory consistency across local communities as each community has its own floodplain administrator and standards; there is a general lack of technically trained floodplain administrators; formalized mutual aid agreements are lacking or do not reflect current needs; and, the number of response personnel to widespread flooding may be inadequate.

Goal: minimize the loss of life and economic exposure to periodic flooding by developing the necessary regulatory climate, infrastructure and training to better prevent and respond to such natural events.

Strategies: promote recognition and acceptance of current NFIP standards; examine and adopt building codes standards developed to protect the community; develop and implement consistent countywide standards and management techniques using floodplain regulations, zoning restrictions, and comprehensive plans that minimize floodplain encroachment and protect the community from the hazards of flooding.

Recommended Mitigation Activities: encourage communities to increase floodplain management regulation standards to reflect best management practices; implement training to improve the administration of local floodplain management regulations; develop a hydraulic and hydrologic model of all floodplains in Allen County to assess limits (and potential negative consequences) of floodplain development; develop new digital base maps for distribution to local officials including government sector, finance and insurance representatives as well as home builders; construct local website access for community offices, developers, realtors, insurance agents and property owners; develop/adopt residential building code to support safe and uniform housing construction standards and inspection; review current memorandums of understanding (MOU) and/or letters of agreement (LOA) to determine current and needed capabilities; develop and implement cross-training for all public works and emergency services employees and volunteers; encourage those owners of multiple-loss structures to move by offering to purchase their land; determine specific causes of flooding for each repetitive loss structure (watercourse, inadequate sewer capacity, etc.); improve waterways by clearing logjams and by the identification of remediation efforts that will decrease the likelihood of flooding; increase public education as to the effects of the filling of floodplains; prevent filling of floodplains and raise roadways that have frequent occurrences of flooding to increase the safety of motorists and emergency access; promote regular maintenance and cleaning of culverts; insure placement of high water signs in a timely manner to increase the safety of motorists; and, adopt NOAA "Turn Around, Don't Drown" signs for high water areas. Table 20 references a summary overview to address this hazard.

4.3.4 Severe Winter Storm

Heavy snowfall, extreme cold and ice can immobilize an entire region. Even areas that normally experience mild winters can be hit with a major snowstorm and/or extreme cold. Winter storms can result in flooding, closed highways,

blocked roads, downed power-lines, hypothermia and sometimes loss of life. The Allen County community has been subjected to several severe winter storms over the last 30 years which have simply immobilized the community and caused millions of dollars in damage. As testament, the winter ice storm of January 2005, inflicted hardship on thousands of families over a 5-day period as ice and winds downed trees and utility lines eliminating power and heat; and, resulted in more than \$4.5 million dollars in damage. **Problem Statement(s):** Allen County communities are often plagued by snow removal problems beyond their capabilities; there is a need for public education about preparedness for upcoming winter storms; there is a need for backup/redundancy in emergency notification systems; and, Public awareness of snow emergency levels is lacking.

Goal: to develop the capacity to react to winter storms with speed and measures proven to be effective to safeguard the community's health safety and welfare.

Strategies: Increase public awareness of winter storm watches and warnings; evaluate backup power sources for critical facilities; become better prepared to reconnect power to residents; evaluate the potential need for additional equipment and personnel for the purpose of clearing snow; identify and map emergency snow routes in the incorporated areas to educate public as to proper parking areas during snow events to ease snow removal; assess the adequacy of shelters; assess equipment and salt storage facilities in outlying townships.

Recommended Mitigation Activities: evaluate and improve the emergency notification procedures processes with local media outlets; investigate the use of liquid salt to increase current response capabilities; increase salt storage facilities in outlying townships; evaluate the potential need for additional equipment and personnel; review existing and/or develop new Mutual Aid Compacts between State/County/Township governments; increase rural communities awareness of County/State capabilities; develop PSAs on preparedness through the following means: print media, radios, speaker's bureaus, local newspapers, school newsletters, etc.; develop PSAs with area stakeholders, including emergency response personnel and law enforcement personnel; develop a countywide Public Interest Organization (PIO) for the management of PSAs; seek funding for NOAA radios; install backup communications systems countywide; evaluate backup power sources for critical facilities; seek funding for low-power radio station to be used for emergency broadcasts. Table 21 references a summary overview to address this hazard.

TABLE 18					
ALLEN COUNTY SHALL PREVENT THE LOSS OF LIFE AND MINIMIZATION OF PROPERTY DAMAGE ASSOCIATED WITH A DAM FAILURE.					
POLICY	STRATEGY	ACTION ITEMS	IMPLEMENTATION February 16- March 2021	COORDINATING AGENCY(IES)	
Minimize the possibility of a dam failure and ensure that should such an event occur the community will be able to respond accordingly.	Continue routine preventive maintenance and inspections as to the structural stability of all dam embankments.	Coordinate regular dam inspections and reports with the Ohio Department of Natural Resources and area government officials. Funding FEMA PDA	March 2016-March 2021 Ongoing -25%	City of Lima Utilities-Director and Ohio Department of Natural Resources	
	Continue routine preventive maintenance and inspections as to the structural stability of all dam embankments.	Coordinate regular dam inspections and reports with the Ohio Department of Natural Resources and area government officials. Funding FEMA PDA		City of Lima Utilities-Director and Ohio Department of Natural Resources	
	Assess each Class I dam site in Allen County and develop impact areas and evacuation plans for each.	Identify impacted area and develop/update evacuation plans for potentially impacted areas. Funding FEMA PDA	March 2016-June 2018 Ongoing -25%	City of Lima- Public Works Director , Township Road Superintendent, American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion, Allen County Office of Homeland Security/Emergency Management Agency-Director, Local Emergency Planning Committee-President, Allen County Engineer's Office-Engineer, Ohio Department of Transportation,	
		Develop/update high hazard impacted services/sites along with emergency contact list. Funding FEMA PDA	June 2017-August 2021 Ongoing -25%	City of Lima- Public Works Director , Township Road Superintendent, American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion, Allen County Office of Homeland Security/Emergency Management Agency-Director, Local Emergency Planning Committee-President, Allen County Engineer's Office-Engineer, Ohio Department of Transportation	
	Develop access to improve and sustain public information regarding the evacuation routes and shelter areas in case of a dam failure.	Develop emergency information announcements for local electronic and written media outlets. Funding FEMA PDA	June 2017-August 2021 Ongoing -25%	Township Road Superintendents American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion, City of Lima Utilities Department-Director, Allen County Office of Homeland Security- Director, Allen County Engineer's Office-Engineer, Ohio Department of Transportation	
		Develop informational pamphlets to inform the public of the evacuation areas and also of safe places to move to in the occurrence of dam failure. Funding FEMA PDA	June 2017-August 2021 Ongoing -25%	Township Road Superintendent- American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion City of Lima Utilities Department-Director, Allen County Engineer's Office-Engineer, Allen County Office of Homeland Security-Director Ohio Department of Transportation	
		Develop mail inserts and “stuffers” summarizing types of available insurance and deliver through local utility billings and/or paychecks Funding FEMA PDA	June 2017-August 2021 Ongoing 25%	Township Road Superintendent- American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion, City of Lima Utilities Department-Director , City of Delphos-Mayor, City of Lima –Chief, Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida- Administrator, Village of Harrod-Mayor, Village of Lafayette-Mayor, Village of Spencerville-Mayor.	
	Develop the means to train and field professional emergency responders and volunteers to support necessary emergency rescue, response and shelter services for a widespread flooding event.	Examine the parameters, implications, resources and needs of a widespread flooding caused by a dam failure.	Conduct hazard training exercises to prepare emergency response to such an event. Funding FEMA PDA	March 2016-March 2021 Ongoing -50%	City of Lima Utilities-Director , Allen County Office of Homeland Security-Director, Local Emergency Planning Committee-President , Allen County Engineer's Office-Engineer, Ohio Department of Transportation
Identify, assess and improve existing MOUs to address training, equipment and shelteri Funding FEMA PDAnge needs.			March 2016-March 2021 Ongoing 25%	City of Lima-Mayor ,Township Trustees- American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion ,Allen County Office of Homeland Security-Director, County Prosecutor-Prosecutor, , Allen County Engineer's Office-Engineer, Ohio Department of Transportation, and Red Cross.-Director	
Identify training needs. Funding FEMA PDA			March 2016-March 2021 Ongoing -50%	City of Lima-Fire Chief Allen County Engineer's Office-Engineer, Allen County Office of Homeland Security- Director and Red Cross-Director	
Identify equipment and shelter needs Funding FEMA PDA.			March 2016-March 2021 Ongoing -35%	City of Lima-Fire Chief, Allen County Engineer's Office-Engineer, Allen County Office of Homeland Security- Director and Red Cross-Director .	

<p>TABLE 19</p> <p>ALLEN COUNTY SHALL MINIMIZE THE LOSS OF LIFE AND ECONOMIC EXPOSURE TO LONG TERM DROUGHTS AND/OR EXTREME HEAT BY DEVELOPING THE NECESSARY INFRASTRUCTURE, BOTH PHYSICAL AND HUMAN, TO BETTER UNDERSTAND THE CAUSES AND WITHSTAND THEIR COLLECTIVE CONSEQUENCES AND RAMIFICATIONS TO PREVENT LOSS OF LIFE AND ANY NEGATIVE HEALTH.</p>				
POLICY	STRATEGY	ACTION ITEMS	IMPLEMENTATION SCHEDULE BY YEAR	COORDINATING AGENCY(IES)
Support further development of local reservoirs and water supply infrastructure.	Study and develop reservoir and upland water supply systems that will meet the growing needs of the entire community	Conduct capacity studies to determine demand and ability to deliver potable water to the entire community. Funding FEMA PDA	March 2016-March 2018 Ongoing - 15%	City of Lima-Utilities Director, Village of Elida-Administrator, City of Delphos Safety Service Director, and Allen Water District.-Director
		Identify all agricultural, residential and commercial wells in order to assess drought impacts. Funding FEMA PDA	May 2017-May 2018 Ongoing -45%	Allen County Health Department-Environmental Director, Regional Planning Commission-Director.
		Conduct feasibility studies to assess most cost effective manner of developing/delivering water. Funding FEMA PDA	May 2017-May 2019 Ongoing - 0%	City of Lima-Utilities Director, Village of Elida-Administrator, City of Delphos Safety Service Director and Allen Water District.
Support the development and implementation of water conservation activities/efforts.	Increase education to protect water resources from depletion.	Develop public information and education campaign regarding the causes and effects of prolonged drought. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	Allen County Health Department-Health Education Director
		Develop/update high hazard impacted services/sites along with emergency contact list. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida-Administrator, Village of Harrod-Mayor, Village of Lafayette-Mayor, Village of Spencerville- MayorCity of Lima-Mayor, Allen County Health Department- Commissioner
		Develop/distribute brochures on developing a personal emergency plan. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida-Administrator, Village of Harrod-Mayor, Village of Lafayette-Mayor, Village of Spencerville- Mayor, Allen County Health Department
	Increase public awareness of drought and its ramifications.	Develop avenues to provide regular media coverage of water table levels when drought conditions exist through the use of written and electronic news mediums. Funding FEMA PDA	March 2016-March 2021 Ongoing - 0%	Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida-Administrator, Village of Harrod-Mayor, Village of Lafayette-Mayor, Village of Spencerville-Mayor
		Develop emergency information announcements for local electronic and written media outlets. Funding FEMA PDA	March 2016-March 2021 Ongoing - 0%	Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida-Administrator, Village of Harrod-Mayor, Village of Lafayette-Mayor, Village of Spencerville-Mayor
		Develop public service announcement that incorporate local hospitals and Public Health Department to increase the public’s awareness of the effects of extreme heat. Funding FEMA PDA	March 2016-March 2021 Ongoing - 0%	Village of Beaver dam –Administrator, Village of Bluffton- Administrator, Village of Cairo-Administrator, Village of Elida- Administrator, Village of Harrod-Mayor, Village of Lafayette-Mayor, Village of Spencerville-Mayor, City of Lima Utilities Department-Director, City of Delphos Safety Services-Director, Allen CountyHealth Department- Commissioner
Protect the community’s frail population from excessive heat	Develop the means to train and field professional and volunteers to support necessary emergency rescue, response and shelter services for victims of extended excessive heat waves.	Review current memorandums of understanding (MOU) and/or letters of agreement (LOA) to determine current needs and capabilities. Funding FEMA PDA	March 2016-March 2021 Ongoing - 35%	Allen County Office of Homeland Security/Emergency Management Agency-Director, Local Emergency Planning Committee-President, Local Hospitals, American Red Cross-Director
		Develop and implement cross-training for all health care, public works and emergency response personnel.	March 2016-March 2021 Ongoing - 35%	Allen County Office of Homeland Security/Emergency Management Agency-Director, Local Emergency Planning Committee-President, Local Hospitals, American Red Cross-Director.
		Identify and locate most susceptible populations with health concerns and inventory existing health care and congregate housing facilities to ensure adequacy of community resources and response. Funding FEMA PDA	March 2016-March 2021 Ongoing - 35%	Allen County Office of Homeland Security/Emergency Management Agency-Director, Local Emergency Planning Committee-President, Local Hospitals, American Red Cross-Director.
	Minimize non essential water usage.	Develop/implement rules/guidelines as to acceptable uses of water according to drought severity. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	City of Lima Fire- Chief Allen County Office of Homeland Security – Director
		Develop area wide watering and car washing bans. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	City of Lima Fire- Chief Allen County Office of Homeland Security/Emergency Management Agency-Director, Local Emergency Planning Committee-President, Local Hospitals, American Red Cross- Director.
	Establish emergency support services for frail and elderly.	Consider establishing cooling centers and programming to loan oscillating fans to frail/elderly residents. Funding FEMA PDA	Ongoing - 5%y 2019- July 2021	City of Lima Fire- Chief Allen County Office of Homeland Security/Emergency Management Agency-Director, Local Emergency Planning Committee-President, Local Hospitals

<p>TABLE 20</p> <p>ALLEN COUNTY SHALL MINIMIZE THE LOSS OF LIFE AND ECONOMIC EXPOSURE TO PERIODIC FLOODING BY DEVELOPING THE NECESSARY REGULATORY CLIMATE, INFRASTRUCTURE AND TRAINING TO BETTER PREVENT AND RESPOND TO SUCH NATURAL EVENTS.</p>				
POLICY	STRATEGY	ACTION ITEMS	IMPLEMENTATION SCHEDULE BY YEAR	COORDINATING AGENCY(IES)
Allen County shall develop the financial means to protect its citizenry and businesses from localized flooding problems.	Identify and pursue funding opportunities to develop and implement mitigationactivities.	Identify all low lying roads and bridges especially those prone to seasonal flooding. Funding FEMA PDA	August 2016-August 2018 Ongoing - 20%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Allen County Commissioners- President, Allen County Engineer's Office-Engineer, Allen County Sanitary Engineer's Office-Director, Regional Planning Commission-Director, Allen County Health Department- Commissioner,
		Develop incentives for area businesses and residents to undertake hazard mitigation projects. Funding FEMA PDA	March 2016-March 2021 Ongoing - 20%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Allen County Commissioners- President, Allen County Engineer's Office-Engineer, Allen County Sanitary Engineer's Office-Director, Regional Planning Commission-Director, Allen County Health Department- Commissioner,
		Allocate county resources and assistance to mitigation projects when possible. Funding FEMA PDA	March 2016-March 2021 Ongoing - 0%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Allen County Commissioners- President, Allen County Engineer's Office-Engineer, Allen County Sanitary Engineer's Office-Director, Regional Planning Commission-Director, Allen County Health Department- Commissioner,
		Partner with other local organizations and state agencies to identify grant programs and foundations that may support mitigation activities. Funding FEMA PDA	August 2016-August 2018 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Allen County Commissioners- President, Allen County Engineer's Office-Engineer, Allen County Sanitary Engineer's Office-Director, Regional Planning Commission-Director, Allen County Health Department- Commissioner,
Government will establish the necessary warning mechanisms to provide the community with as much advance notification as possible.	Ensure adequate community warning with the installation of sirens in those once rural areas now proposed for new development.	Assess the adequacy of coverage and maintenance of warning sirens throughout the County. Funding FEMA PDA	March 2016-March 2021 Ongoing - 60%	Allen County Office of Homeland Security-Director, Local Emergency Planning Committee-President, Regional Planning Commission-Director.
		Monitor new development occurring in the rural areas for coverage. Funding FEMA PDA	March 2016-March 2021 Ongoing - 60%	Allen County Office of Homeland Security-Director, Local Emergency Planning Committee-President, Regional Planning Commission- Director.
		Evaluate and improve the emergency notification procedures processes with local media outlets. Funding FEMA PDA	March 2016-March 2021 Ongoing -60%	Allen County Office of Homeland Security-Director, Local Emergency Planning Committee-President, Regional Planning Commission-Director.
		Create and maintain a list of special needs populations/individuals with respect to electrical power needs. Funding FEMA PDA	March 2016-March 2021 Ongoing - 50%	Allen County Office of Homeland Security-Director, Local Emergency Planning Committee-President, Regional Planning Commission-Director.

TABLE 20
ALLEN COUNTY SHALL MINIMIZE THE LOSS OF LIFE AND ECONOMIC EXPOSURE TO PERIODIC FLOODING BY DEVELOPING THE NECESSARY REGULATORY CLIMATE, INFRASTRUCTURE AND TRAINING TO BETTER PREVENT AND RESPOND TO SUCH NATURAL EVENTS.

(Continued)

POLICY	STRATEGY	ACTION ITEMS	IMPLEMENTATION SCHEDULE BY YEAR	COORDINATING AGENCY(IES)
Allen County shall develop and implement consistent county-wide standards and management techniques that minimize floodplain encroachment and protect the community from the hazards of flooding	Promote the recognition and acceptance of current NFIP standards by local governments. Mitigate, as necessary, repetitive flood loss properties within Allen County.	Inventory status of NFIP participating governments and increase local government membership. Funding FEMA PDA	October 2016-October 2018 Ongoing - 90,%	Regional Planning Commission -Director
		Identify local governments level of compliance with current NFIP standards and promote adoption of most current standards. Funding FEMA PDA	October 2016-October 2018 Ongoing - 90,%	Regional Planning Commission -Director
		Implement training programs for local NFIP government agencies to develop a supportive network of trained management officials. Funding FEMA PDA	March 2017-March 20219 Ongoing -90%	Regional Planning Commission -Director
		Develop public education and information programming to further awareness. Funding FEMA PDA	March 2017-March 20219 Ongoing -90%	Regional Planning Commission -Director
	Examine and adopt regulatory standards developed to protect the entire Allen County community from the hazards of flooding based on sound information and proactive planning.	Investigate local building codes to assess their adequacy in protecting the public’s interest in case of flooding. Funding FEMA PDA	July 2016-July 2020 Ongoing -90%	Regional Planning Commission -Director, Allen County Building Department- Chief Building Official
		Investigate and strengthen local zoning codes and subdivision regulations to provide increased levels of protection from encroachment into high hazard flood areas. Funding FEMA PDA	August 2017-August 2020 In Progress-90%	Regional Planning Commission -Director, Allen County Building Department- Chief Building Official
		Encourage local governments to increase minimum NFIP standards. Funding FEMA PDA	January 2018-January 2019 Ongoing -90%	Regional Planning Commission -Director, Allen County Engineer’s Office- Engineer
		Develop a hydraulic model to identify high hazard areas and provide the basis of all necessary mitigation strategies. Funding FEMA PDA	November 2016-November Ongoing -90%	Regional Planning Commission -Director, Allen County Engineer’s Office- Engineer
	Protect public/private development of lands identified as high hazard floodplains.	Assess potential for publicly funded land acquisition program to protect urban developments encroachment onto floodplains. Funding FEMA PDA	November 2016-November Ongoing -90%	Soil & Water Conservation Service-Director, Ottawa River Coalition- Coordinator, Regional Planning Commission-Director and Allen County Engineer’s Office- Engineer.
		Assess/support development of private not for profit land conservancy program to protect the integrity of existing floodplains. Funding FEMA PDA	November 2016-November Ongoing -90%	Soil & Water Conservation Service-Director, Ottawa River Coalition- Coordinator, Regional Planning Commission-Director and Allen County Engineer’s Office-Engineer.
Develop/adopt/implement federal/state mitigation strategies that will eliminate the number of commercial and residential structures and agricultural areas negatively impacted.	Mitigate, as necessary, repetitive flood-loss properties within Allen County.	Identify all repetitive flood-loss properties and lands within Allen County. And Conduct mitigation actions for repetitive flood loss properties. Funding FEMA PDA	December 2016-December 2017 Ongoing -90%	Regional Planning Commission -Director
		Identify and assess potential strategies for corrective action to determine the most appropriate and cost- effective actions for affected properties. Funding FEMA PDA	December 2016-December 2017 Ongoing 90%	Allen County Engineer’s Office-Engineer, Regional Planning Commission-Director and American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion. Township Road Superintendents.

TABLE 22 ALLEN COUNTY SHALL DEVELOP THE CAPACITY TO REACT TO WINTER STORMS WITH SPEED AND MEASURES PROVEN TO BE EFFECTIVE IN ORDER TO BETTER SAFEGUARD THE COMMUNITY'S HEALTH SAFETY AND WELFARE.				
POLICY	STRATEGY	ACTION ITEMS	IMPLEMENTATION SCHEDULE BY YEAR	COORDINATING AGENCY(IES)
The community will establish the necessary mechanisms to maintain roadway access for emergency operations and evacuation.	Identify and pursue funding opportunities to develop and implement mitigation activities.	Partner with other local organizations and state agencies to identify grant programs and foundations that may support mitigation activities and allocate local resources and assistance to mitigation projects when possible Funding FEMA PDA	March 2017-March 2021 Ongoing - 30%	Road Superintendents - American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion Allen County Office of Homeland Security-Director, Allen County Commissioners-President, Allen County Engineer's Office- Engineer, Allen County Sanitary Engineer's Office-Director, Regional Planning Commission-Director, North Central Ohio Solid Waste District-Director, Allen County Health Department-Commissioner
	Evaluate the potential need for additional equipment and personnel for the purpose of clearing snow and debris.	Review existing and/or develop new Mutual Aid Compacts between State, County and Township governments. Funding FEMA PDA	October 2016-October 2018 Ongoing - 30%	Allen County Office of Homeland Security-Director
		Assess adequacy of equipment and salt storage facilities in outlying townships and investigate the use of liquid salt to increase current response capabilities. Funding FEMA PDA	October 2016-October 2019 Ongoing 70%	Allen County Engineer's Office-Engineer and Township Road Superintendent- American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion
		Ensure adequate emergency power in all road departments. Funding FEMA PDA	March 2016-December 2016 In Progress- 50%	City of Lima Public Works- Director, City of Delphos- Safety Service Director, Allen County Office of Homeland Security-Director
		Maintain ongoing assessments of damage in terms of solid waste resulting from the storm to provide adequate data to clean-up operation. Funding FEMA PDA	March 2017-March 2021 Ongoing - 30%	American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion Township Road Superintendents,.City of Lima Public Works- Director, Allen County Office of Homeland Security-Director, Allen County Engineer's Office- Engineer,
	Identify and map emergency snow routes to educate public as to proper parking areas during snow events to ease snow removal.	Develop parking bans and vehicle towing procedures. Post signs and distribute the maps to local law enforcement agencies Funding FEMA PDA	January 2017-November 2017 Ongoing 5%	City of Lima- Police Chief, American, Amanda, Jackson, Sugar Creek, Spencer, Perry, Bath, Shawnee, Monroe, Auglaize, Richland and Marion Township Road Superintendents,.City of Lima Public Works- Director, Allen County Office of Homeland Security-Director, Allen County Engineer's Office-Engineer
Government will take an active role in ensuring that the community and its residents become "storm smart."	Increase public awareness of winter storm watches, warnings and emergencies.	Evaluate and improve the emergency notification procedures processes with local media outlets. Funding FEMA PDA	March 2016- March 2019 Ongoing -80%	Allen County Office of Homeland Security/Emergency Management Agency- Director
		Develop PSAs on preparedness through the following means: print media, radios, local newspapers, school newsletters, etc. Funding FEMA PDA	March 2016- March 2019 Ongoing -50%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Develop a countywide Public Interest Organization (PIO) for the management of storm related information.	Develop speakers bureau with area stakeholders. Funding FEMA PDA	March 2016- March 2019 Ongoing -10%	Allen County Office of Homeland Security/Emergency Management Agency- Director and Red Cross.- Director
	Identify emergency needs for both residents homes and vehicles as well as essential government offices.	Promote winter emergency kits for residents households and personal vehicles. Funding FEMA PDA	March 2016- March 2019 Ongoing -10%	Allen County Office of Homeland Security/Emergency Management Agency- Director
		Develop task force to identify agency needs in case of winter storms. Funding FEMA PDA	March 2016- March 2019 Ongoing -60%	Allen County Office of Homeland Security/Emergency Management Agency- Director
Government will protect and ensure the safety of residents and employees of critical facilities.	Develop emergency response plans for winter storms for all critical facilities	Assess emergency response plans for winter storms in all critical facilities. Funding FEMA PDA	March 2016- March 2019 Ongoing -50%	Allen County Office of Homeland Security/Emergency Management Agency- Director and Red Cross.- Director
		Install backup communications systems countywide at all critical facilities and seek funding for NOAA radios. Funding FEMA PDA	March 2016- March 2019 Ongoing -50%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Assess the adequacy of shelters in terms of location, size and equipment	Reassess MOUs to ensure access to shelters. Funding FEMA PDA	March 2016- March 2019 Ongoing -70%	Allen County Office of Homeland Security/Emergency Management Agency- Director and Red Cross.- Director

4.3.5 Tornado

Allen County has experienced more than a dozen tornadoes since 1950. And although tornadoes are not common, when a tornado threatens, individuals need to understand and respect the power of tornadoes as well as have a safe place to shelter and time to get there. Even with advances in meteorology, warning times may be short or sometimes not possible. Lives are saved when individuals receive and understand emergency warning, know what to do and know the safest place to go.

Problem Statement(s): Countywide warning capability is lacking; there is a lack of public shelters to be used during a tornado event; Communication losses are experienced following tornados; there is a lack of formalized mutual aid agreements; and, available response personnel are inadequate.

Goal(s): To promote the development of an effective community warning system; and, to further community awareness, recognition and understanding of tornadic winds; and, to promote possible development of public and private shelters.

Strategies: ensure adequate community warning with the installation of sirens in those once rural areas now proposed for new development; assess the adequacy of maintenance for warning sirens throughout the County; evaluate backup power sources for critical facilities; increase awareness of the dangers of tornadoes and the need to shelter in the event of a tornado; develop storm shelters in public facilities; and, increase the number and effectiveness of response personnel.

Recommended Mitigation Activities: Install new or upgraded tornado sirens with battery backup within growing rural areas (see Map23) seek funding for additional interoperable warning capability including NOAA weather radios, warning sirens, reverse 911, Emergency Alert System; develop facilities management plans for tornado and storm shelters; recommend tornado shelters in existing public facilities and; develop incentives for the placement of public shelters in private facilities; develop/share/promote “model” plans for tornado shelters to be used by architects/builders/engineers in residential homes; establish minimum residential building standards to withstand tornadic winds; install backup communications systems countywide; evaluate backup power sources for critical facilities; require new electrical/cable phone systems to be installed underground; review current memorandums of understanding (MOU) and/or letters of agreement (LOA) to determine current and needed capabilities; and, implement cross-training for all public works and emergency response personnel. Table 22 references a summary overview to address this hazard.

4.3.6 Earthquakes

Allen County has only experienced 3 earthquakes on record and never experienced any significant damage. And while earthquakes are not considered a major risk in Allen County, the County does lie adjacent to an active fault line. **Problem Statement(s):** Allen County lies on an earthquake fault line; and, local emergency responders have no earthquake history to fall back on.

Goal(s): Develop public awareness and response mechanisms that will limit the public’s exposure to earthquakes.

Strategies: identify and model the required epicenter location and strength of the earthquake that would most likely result in breaching the reservoirs; clarify the earthquake management roles and responsibilities of various agencies; evaluate backup power sources for critical facilities; increase awareness of the dangers of earthquakes; ensure/adopt building codes that will minimize structural collapse and loss of life; increase the number and effectiveness of response personnel; and, implement effective earthquake management and the identification of possible secondary effects and cascading impacts of multiple disruptions to local utilities and pipelines.

Recommended Mitigation Activities: develop proactive actions that identify what specific groups and organizations will do to reduce community vulnerability before an earthquake occurs; establish plans for response, recovery, monitoring and review activities; establish minimum residential building standards to withstand moderate earthquakes (5.0-5.9 Richter Scale); install backup communications systems countywide; evaluate backup power sources for critical facilities; review current memorandums of understanding (MOU) and/or letters of agreement (LOA) to determine current and needed capabilities; and, implement cross-training for all public works and emergency response personnel. Table 23 references a summary overview to address this hazard.

MAP 21 ALLEN COUNTY: WARNING SIREN LOCATIONS

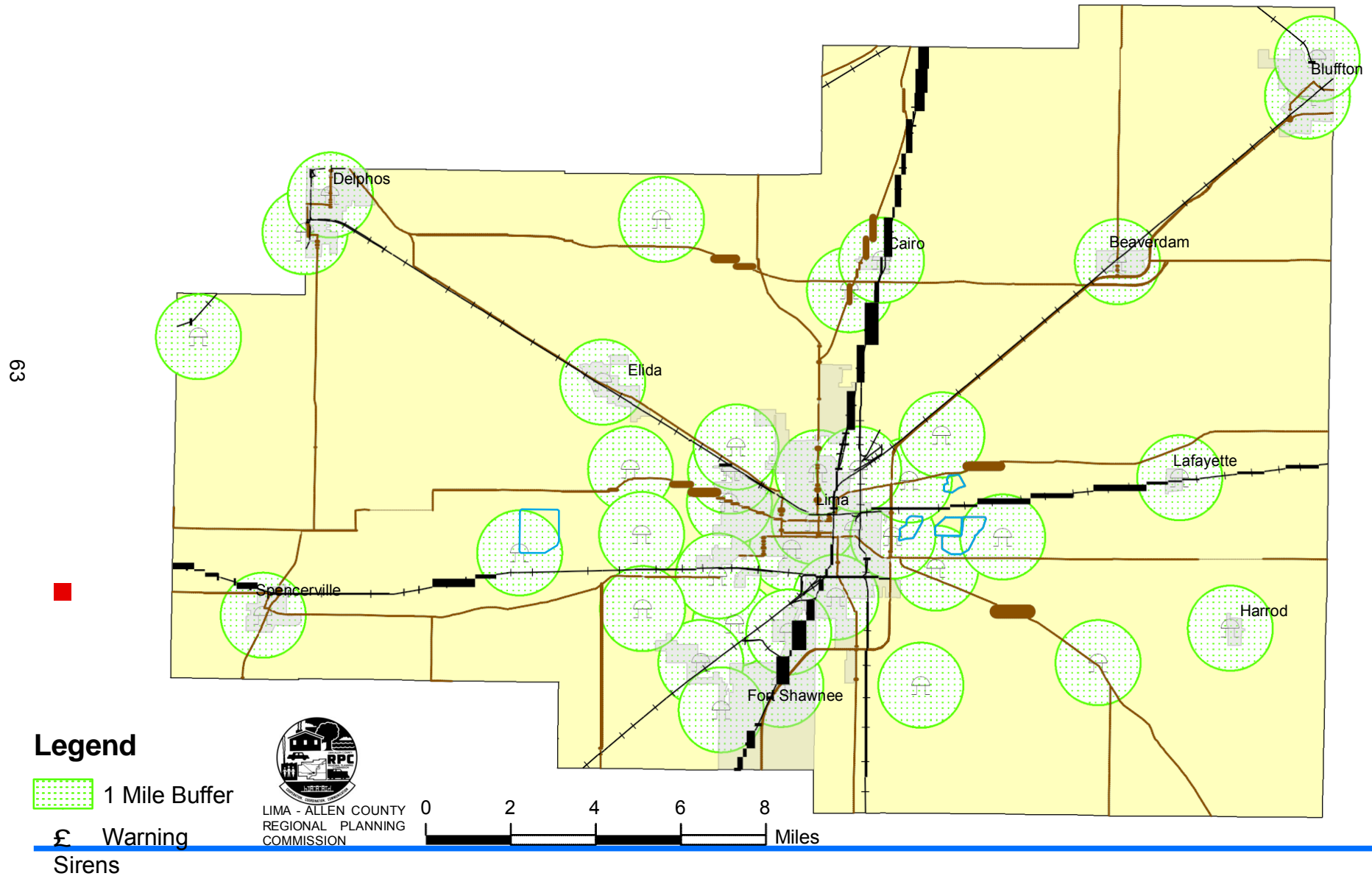


TABLE 23 ALLEN COUNTY SHALL PROMOTE THE DEVELOPMENT OF AN EFFECTIVE COMMUNITY WARNING SYSTEM; AND, TO FURTHER COMMUNITY AWARENESS, RECOGNITION AND UNDERSTANDING OF TORNADIC WINDS; AND, TO PROMOTE DEVELOPMENT OF PUBLIC AND PRIVATE SHELTERS.				
POLICY	STRATEGY	ACTION ITEMS	IMPLEMENTATION SCHEDULE BY YEAR	COORDINATING AGENCY(IES)
Government will establish the necessary warning mechanisms to provide the community with as much advance notification as possible.	Ensure adequate community warning with the installation of sirens in those once rural areas now proposed for new development.	Assess the adequacy of operating and maintenance of warning sirens throughout the County. Funding FEMA PDA	July 2016-December 2016 Ongoing - 90%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Regional Planning Commission –Director,
		Assess an automated notification system to contact residents in impacted areas Funding FEMA PDA	July 2016-December 2016 Ongoing - 75%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Regional Planning Commission –Director,.
		Monitor new development occurring in the rural areas for coverage. Funding FEMA PDA	arch 2016-March 2021 In Progress- 50%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Regional Planning Commission –Director,
		Evaluate and improve the emergency notification procedures processes with local media outlets. Funding FEMA PDA	October 2016-October 2019 Ongoing - 90%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Regional Planning Commission –Director,
		Create and maintain a list of special needs populations/individuals with respect to electrical power needs. Funding FEMA PDA	October 2016-October 2019 Ongoing - 50%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Regional Planning Commission –Director,.
Governments will take an active role in ensuring that the community and its residents become “storm smart.”	Increase public awareness of tornadoes as well as thunderstorm watches, warnings and emergencies.	Support and expand local “Storm Watch and Weather Spotter” program. Funding FEMA PDA	March 2016-March 2021 Ongoing - 90%	Allen County Office of Homeland Security/Emergency Management Agency- Director
		Develop PSAs on preparedness through the following means: print ,radios, local newspapers, school newsletters, etc. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director,
		Support distribution of information on in-home tornado shelter construction. Funding FEMA PDA	March 2016-March 2021 Ongoing - 60%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Develop a countywide Public Interest Organization (PIO) for the management of storm related information.	Develop speakers bureau with area stakeholders emphasizing community preparedness measures. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	City of Lima-Mayor, City of Delphos-Mayor, Allen County Office of Homeland Security/Emergency Management Agency- Director
	Promote construction of tornado shelters in public places.	Identify the need for tornado shelters in public places. Funding FEMA PDA	November 2016-Septmeber2017 Ongoing - 70%	Allen County Office of Homeland Security/Emergency Management Agency- Director and Red Cross-Director.
		Construct a tornado shelter at the Allen County Fair Grounds public facilities. Funding FEMA PDA	June 2019-June 2021 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Allen County Commissioners- President
		Support distribution of information for in-home tornado shelter construction. Funding FEMA PDA	March 2016-March 2021 Ongoing - 20%	Allen County Office of Homeland Security/Emergency Management Agency- Director
Local utilities and governments will develop a proactive tree management program.	Develop emergency response plans for tornadoes for all critical facilities	Identify the need/promote construction for tornado shelters in critical facilities. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Evaluate emergency communication systems backup power sources for	Document capital needs and seek funding to ensure maintenance of power and communications. Funding FEMA PDA Funding FEMA PDA	June 2016-July 2018 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Assess the adequacy of shelters in terms of location, size and equipment.	Develop/assess MOUs for shelter access. Funding FEMA PDA	June 2016-July 2018 Ongoing - 70%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Red Cross-Director
Local utilities and governments will develop a proactive tree management program.	Promote a better understanding of tree planting and easement management	Develop wind breaks in rural areas to minimize wind damage. Funding FEMA PDA	December 2019-December2021 2 Ongoing - 5%	City of Delphos – Safety Services Director ,City of Lima –Chief, Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida-Administrator, Village of Harrod-Mayor, Village of Lafayette-Mayor, Village of Spencerville-Mayor
		Encourage utility companies to bury utility lines when possible. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	City of Delphos – Safety Services Director ,City of Lima –Chief, Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida-Administrator, Village of Harrod-
		Encourage utilities to develop tree management programs to minimize the threat of falling trees and downed utility lines. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	City of Delphos – Safety Services Director ,City of Lima –Chief, Village of Beaver dam –Administrator, Village of Bluffton-Administrator, Village of Cairo-Administrator, Village of Elida-Administrator, Village of Harrod-

4.4 Summary

The Advisory Committee decided that regardless of priority considerations activities would be pursued concurrently. Over the course of the five-year implementation period, there will be other proposed mitigation activities that the Advisory Committee and local stakeholders will need to consider. Some of these may result from the acquisition of technological tools such as the recent release of the HAZUS-MH MR2 model and software which offers the opportunity to increase the community's ability to more accurately predict loss caused by natural disasters. Development of 1-foot elevation contours within Allen County by the Allen County Engineer will allow the community to more accurately identify/correct localized flooding problems. Recent acquisitions of ESRI's 3D Analyst and Spatial Analyst modules will increase the Regional Planning Commission's ability to identify and locate most probable lager heads and evacuation routes.

Proposals for additions or modifications to the individual action plans may result from conditions noted during a particular task(s) performed in conjunction with a specific mitigation activity. Modifications or additions may also be prompted by public responses as a part of their ongoing opportunities to participate in the mitigation planning and implementation process. The Advisory Committee will evaluate and determine proposed modifications to the action plans for inclusion.

<p>TABLE 24</p> <p>ALLEN COUNTY SHALL DEVELOP PUBLIC AWARENESS AND RESPONSE MECHANISMS THAT WILL LIMIT THE PUBLIC’S EXPOSURE TO EARTHQUAKES</p>				
POLICY	STRATEGY	ACTION ITEMS	IMPLEMENTATION SCHEDULE BY YEAR	COORDINATING AGENCY(IES)
The community’s ability to respond to such a natural hazard will based on “what if” scenarios.	Develop worst case scenario as part of planning exercise.	Identify and model the required epicenter location and strength of the earthquake that would most likely result in breaching the reservoirs. Funding FEMA PDA	February 2019-March 2021 Ongoing - 10%	Allen County Office of Homeland Security, Local Emergency Planning Committee- President and Regional Planning Commission- Director.
		Identify possible secondary effects and cascading impacts of multiple disruptions to local utilities and pipelines. Funding FEMA PDA	February 2019-March 2021 Ongoing - 10%	Allen County Office of Homeland Security, Local Emergency Planning Committee- President and Regional Planning Commission- Director.
	Clarify the earthquake management roles and responsibilities of various	mplement effective earthquake management. Funding FEMA PDA	March 2016-March 2021 Ongoing - 25%	Allen County Office of Homeland Security, Local Emergency Planning Committee- President .
Government will establish the necessary warning mechanisms to provide the community with as much advance notification as possible	Monitor new development occurring in the rural areas for coverage	Assess the adequacy of maintenance for warning sirens throughout the County. Funding FEMA PDA	March 2016-December 2016 Ongoing - 70%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Monitor new development occurring in the rural areas for coverage	Monitor new development occurring in the rural areas for coverage. Funding FEMA PDA	March 2016-March 2021 Ongoing 25%	Allen County Office of Homeland Security, Local Emergency Planning Committee- President
	Monitor new development occurring in the rural areas for coverage	Evaluate and improve the emergency notification procedures processes with local media outlets. Funding FEMA PDA	March 2016-March 2021 Ongoing 90%	Allen County Office of Homeland Security/Emergency Management Agency- Director
Governments will take an active role in ensuring that the community and its residents become more aware of the consequences of earthquakes.	Increase public awareness of earthquakes.	Develop more public awareness of earthquakes. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	Allen County Office of Homeland Security-Director
	Develop a countywide Public Interest Organization (PIO) for the management of earthquake related information.	Develop speakers bureau with area stakeholders emphasizing community preparedness measures. Funding FEMA PDA	arch 2016-March 2021 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Identify emergency evacuation and rescue response capabilities.	Evaluate capital needs. Funding FEMA PDA	arch 2016-March 2018 Ongoing - 5%	Allen County Office of Homeland Security and Red Cross-Director.
		Assess/increase the number and effectiveness of available response personnel. Funding FEMA PDA	March 2016-March 2021 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director
		Assess adequacy of existing MOU’s. Funding FEMA PDA	June 2016-June 2018 Ongoing - 80%	Allen County Office of Homeland Security/Emergency Management Agency- Director, Red Cross- Director
Governments will protect and ensure the safety of residents and employees of critical facilities.	Develop emergency response plans for tornadoes for all critical facilities.	Identify the need/promote construction for earthquakes shelters in critical facilities Funding FEMA PDA	June 2016-June 2018 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Evaluate emergency communication systems backup power sources for critical facilities.	Document capital needs and seek funding to ensure maintenance of power and communications. Funding FEMA PDA	June 2016-June 2018 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director
	Assess the adequacy of shelters in terms of location, size and equipment	Develop/assess MOUs for shelter access. Funding FEMA PDA	June 2016-June 2018 Ongoing - 5%	Allen County Office of Homeland Security/Emergency Management Agency- Director Cross-Director
Governments will promote residential and commercial construction practices that will minimize structural collapse and loss of life.	Assess residential and commercial building codes for their ability to withstand moderate earthquakes	Adopt/strengthen building residential and commercial building codes. Funding FEMA PDA	June 2016-June 2019 Ongoing - 5%	Allen County Office of Homeland Security- Director and Regional Planning Commission- Director.

SECTION 5 PLAN DEVELOPMENT, PROJECT SELECTION, PRIORITIZATION, PERFORMANCE & MAINTENANCE ISSUES

This Natural Hazard Mitigation Plan is intended to serve as a living document to support localized emergency response efforts within Allen County, Ohio. This Plan is to be used to support and justify local mitigation projects for various federal and state mitigation program grants including those identified within the Disaster Recovery Act of 2000, as well as those associated with the Community Rating System and the Flood Mitigation Assistance Program. This Plan is to be implemented in conjunction with the Allen County Emergency Operations Manual developed by the Allen County Office of Homeland Security and the local Emergency Management Agency to address localized needs as well as the Disaster Action Plan developed by the Allen County Chapter of The American Red Cross.

This Plan was developed with community support reflecting a broad range of interests and actors, including public, private and not for profit sectors. The Plan was drafted under, and exposed, to a public involvement process that was accessible and extended. Media coverage was open; and, political support widespread.

5.1 Plan Philosophy

This Natural Hazard Mitigation Plan emphasizes actions proposed to reduce or eliminate the long-term risk to human life and property from natural hazards. This Plan is dependent upon a philosophy of reasonableness and sustainable development. Reasonable from the perspective that the community is interested in efficiently utilizing those limited amounts of locally available funding; and, maximizing the use and leverage of increasingly more competitive federal and state funding opportunities. The Plan's reasonableness is to be substantiated upon strategic actions to be taken based on rational rates of return using defined cost benefit analyses and proper documentation. In fact, FEMA's benefits cost program will be used to ensure each action item is cost effective prior to implementation.

The Plan also emphasizes long term sustainability defined as development that meets today's needs without compromising the needs of future generations. This Plan attempts to integrate sustainable development policies and practices across various fronts including current local government regulations including but not necessarily limited to: subdivision regulations, zoning regulations, floodplain regulations and building codes. The Plan is expected to integrate sustainable mitigation efforts across all local projects predicated on strategies based on hazard avoidance and/or hazard reduction. This Plan is intended to serve as baseline test for all other locally adopted plans and regulations.

5.2 Public Involvement Process Plan Development

Consistent with the intent of the Disaster Mitigation Act of 2000, it was the policy of the Advisory Committee, to support proactive public involvement at all stages of project planning and development. The performance standards for these proactive public involvement processes included early and continuous involvement; reasonable

public availability of technical information; collaborative input on alternatives; evaluation criteria and mitigation needs; open public meetings; and, open access to the decision-making process prior to closure.

To achieve these objectives, the Advisory Committee committed to: (1) promoting an active role for the public in the identification and analysis of natural hazards; (2) promoting a shared obligation of the general public and policy makers in the identification of natural hazards and development of sustainable mitigation alternatives to address such hazards while evaluating the merits of such alternatives on the basis of collaboratively identified criteria; and, (3) strongly encouraging the public to aggressively seek and involve the affected and interested public, including emergency responders and critical care facilities.

The planning process required the notification of all local governments indigenous to Allen County as well as adjacent counties. Notifications and solicitation to participate in the process were mailed to local governments. The ensuing Plan was the result of a public planning process designed to ensure that the necessary local stakeholders, including government agencies, and the general public were involved in the identification, prioritization and development of hazard mitigation action plans. Public outreach was accomplished using advertised public meetings, governmental resolutions and media interviews/coverage. Surveys were completed by the public to identify what the citizens felt were the greatest Natural Hazard Impacts.

The current plan was available on our website for review with comments to be accepted via email or traditional mail. Also, the plan was available on CD-Rom at the Office of Homeland Security and Sherriff's office for review. No comments were received from either method. The same processes were followed for the updated plan, however no comments were received.

The planning process included: local elected officials, staff personnel from the offices of the Allen County Engineer, Allen County Health Department and the Regional Planning Commission as well as the Allen County Office of Homeland Security and the Allen County Emergency Management Agency. The Plan also represented the input of local neighborhood associations, the Allen County Local Emergency Planning Committee, the Allen County Chapter of the American Red Cross, area realtors and local farmers as well as representatives of the Lima Area Chamber of Commerce, local utility providers, and non-profit organizations including the Audubon Society and the Ottawa River Coalition.

The Advisory Committee acknowledges the efforts of the staff of the Allen County Office of Homeland Security and the Regional Planning Commission who guided the Plan's development. Plan development required the completion of a hazard analysis which identified and profiled the various hazards in the community and estimated the community's vulnerability in terms of exposure and economic loss. The community's susceptibility to various natural hazards was researched using archival records of the Allen County Historical Society and the Lima News. Data sets available from the Ohio Department of Natural Resources (ODNR), the Federal Emergency Management Agency (FEMA) and the United States Geological Survey (USGS) as well as the National Oceanic & Atmospheric Administration (NOAA) were instrumental in developing the basis for assessing the community's vulnerability to

specific natural hazards. More recent events were researched using electronic web sites and FEMA Disaster Declarations.

The hazard analysis was preceded by an analysis of the community's existing site and situation with respect to natural hazards. Given the community's character and geographic location, various natural hazards were identified. Several required by FEMA were dismissed from further consideration after initial review. Dismissed were avalanches, forest fires, hailstorms, hurricanes, land slides and land subsidence, severe thunderstorms (included herein under tornadoes), tsunamis, wildfires, and terrorist activities. Following the hazard analysis, mitigation goals were developed and an assessment of potential strategies to mitigate the community's susceptibility to specific natural hazards drafted. The mitigation analysis examined the potential use of both hazard avoidance and hazard reduction strategies based upon the respective natural hazard identified/targeted. The relative importance assigned to each of the hazard strategies was largely dependent upon regional historical events and input from those stakeholders who brought state and national experience to the planning process such as representatives from the Allen County Office of Homeland Security and the Allen County Chapter of the American Red Cross who have participated in mitigation efforts following catastrophic natural events across the United States.

Proposed projects in the Plan are prioritized by the Advisory committee for a couple reasons. First, because agencies already have ongoing hazard mitigation programs, new projects can be most efficiently be combined into ongoing programs. This will allow continuity in project delivery. Secondly, it is anticipated that new projects will be funded from a wide variety of funding sources in addition to Federal Hazard Mitigation Grants. Lastly, some departments are quasi-independent, departments with their own revenue streams, boards of directors, etc.

The following chart indicates the period's specific planning efforts were underway and/or finally accomplished.

TABLE 25 NATURAL HAZARD MITIGATION PLAN TIMELINE																						
Procedure	2015												2016									
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		
Review HMGP Grant w/Homeland Security/EMA Director																						
Internal Review of HMGP Guidelines																						
Internal Review of Existing Data sets																						
Secure Planning Commission Approval																						
Secure County Commissioners Approval																						
Identifying Natural Hazards																						
Profiling Past Hazard Events																						
Community Profile																						
Vulnerability Analysis																						
Problem Identification																						
Natural Hazard Analyses																						
Critical Facilities Analysis																						
Emergency Alert Siren Analysis																						
Estimated Losses																						
Developing Mitigation Goals																						
Developing Activities for Mitigation Goals																						
Complete Soils & LESA Analysis																						
Workshop w/OEPA related to Soils & Erosion																						
Review ODNR Environmentally Sensitive																						
Meetings to Discuss Land Banking/Trust																						
Develop Digital Aerial Ortho Photography																						
Develop GIS Based Digital Centerline Parcel Layer																						
Develop Lidar Capabilities																						
Develop Hydraulic & Hydrologic Engineering Analyses																						
Determine Prioritization of Activities																						
Action Plan Development																						
Review/Revise Subdivision Regulations																						
Review/Revise Floodplain Regulations																						
Review/Revise Storm water Management Plans																						
Review storm water & Sediment Control Regulations																						
Develop/Revise/Adapt Comprehensive Plans																						
Community Involvement																						
Committee Meetings Presentation																						
Plan Adoption																						
Plan Distribution																						
Plan Implementation																						

5.2.1 Plan Availability

Advertised public meetings were used to formally kick off the mitigation planning process and solicit public comment. Advertised meetings of the Local Emergency Planning Committee, the Developmental Controls Committee, the Transportation Advisory Committee, the Developmental Controls Committee and the Citizens Advisory Committee augmented the ongoing commentary of the Plan's Advisory

Committee. Input was solicited from representatives of local colleges and Northwestern Ohio and Bluffton University. Topical coverage across the community was widespread with both electronic and written media attending County Commissioner's meetings in which the draft Plan was discussed. The draft Plan was addressed in local newsletters published by the Regional Planning Commission targeting more than 300 local community leaders. The draft Plan was distributed to the Lima Public Library and local units of government for accessibility purposes. The draft Plan was posted to the web sites of the Allen County Office of Homeland Security, the Allen County Emergency Management Agency and the Regional Planning Commission for comment. This Plan and its contents were made available for review and comment with the staff of the Regional Planning Commission located at 130 W. North Street, Lima, Ohio, Monday through Friday during normal business hours.

5.2.2 Plan adoption

This draft Plan represents the interests and concerns of Allen County and its Immediate environs. The draft Natural Hazard Mitigation Plan was prepared with the support of all Allen County communities, including the Bluffton and Delphos communities that span adjacent counties (Hancock and Van Wert counties respectively). The draft Plan was formally submitted to and subsequently adopted formally by the Board of Commissioner's of Allen County, Ohio, on April, 2016. Resolutions attesting to the community support and acceptance of the Plan will be contained in the Final Plan subsequent to the formal FEMA review process whereby FEMA accepts the Plan as meeting the requirements of the Disaster Mitigation Act of 2000 and any final official action on the part of local political subdivisions.

5.3 Project Selection & Implementation

The Plan includes projects and/or action items identified and targeted by the various action plan strategies developed as a result of the goal setting process. The action items were developed based on the abilities/charges of specific "project sponsors" identified by community stakeholders as champions of the respective Mitigation Plan element. These champions are expected to identify the federal and/or state funding source for respective projects as well as any local funding source(s) necessary to support a mitigation strategy. Recognizing the holistic nature of the planning process, current mitigation efforts, and cost-benefit analyses will help establish the prioritization process of Plan implementation.

The Plan acknowledges the existence of diverse public funding sources including local general fund monies that can be used creatively to support strategies that resolve specific hazards. The Plan is not asking for any new money specifically, but asks that local officials reassess the current allocation of existing funds. The Plan supports the re- evaluation, redirection and re-prioritization of those funds currently available based on a project's ability to support aspects of sustainable development. A driving force of this Plan is to integrate sustainable mitigation efforts across all local planning initiatives and capital improvement projects based on strategies that are either hazard avoidance and/or hazard reduction in nature and impact.

This Plan attempts to influence, integrate and support local planning efforts by pushing hazard mitigation strategies and projects for incorporation into local land use planning efforts that target: the MPO's Transportation Plan, capital (infrastructure Ohio's Clean Ohio Program funding to acquire high hazard floodplain areas as public lands protected from future development; and, FEMA's Hazard Mitigation Grant Program which provides funding for community projects that purchase, elevate, relocate or retrofit structures in floodplains. Activists expect to build a matrix of existing available federal, state and local funding sources and identify the application of specific mitigation strategies and action elements across the matrix in order to strategically influence all future projects.) improvement plans developed by area governments and utilities, local government housing improvement (CHIS/CHIP) plans, and the JAMPD's Parks, Recreation and Open Space Plan. The Plan's intent to affect change through policy (re)formation. The Plan expects to target projects eligible for funding from various known sources, such as: the mitigate localized flooding; the Federal Highway Administration's Surface Transportation Program to elevate low lying bridges or roadways inundated by high water events;

5.4 Plan Performance

The performance and success of this Plan is thought to be predicated upon several related factors including enhanced regulatory controls, increased technological capabilities, and better integration of project planning efforts. The ability of the local community to address these three areas, will in large part, determine the success of the Plan and the pace of change. The remainder of this subsection will address each in turn.

First and foremost, this Plan is being adopted based on its ability to integrate a philosophical standard within various planning level documents and regulations currently in existence. Such regulatory controls are not uniform and they vary widely between the local political subdivisions within Allen County. Even when regulatory language exists to address zoning, floodplain, and platting requirements they vary in language, planning, inspection and enforcement provisions. And, as local land use planning and regulatory controls are limited, much of the initial progress on the Plan needs to be predicted upon increasing public awareness and acceptance of new ideas and strategies; with some of those being proposed to existing procedures and accepted practices that are typically resistant to outside stimuli. The State of Ohio is a home rule state and the township form of government has historically found it difficult to adopt imaginative and integrated land use controls. Measurements based on this aspect of performance will require time and a well conceived educational outreach effort that will support change through the political process.

The second measure of performance will examine the technological capabilities of the local community. From the initial onset of the hazard mitigation planning process it was evident that the local community did not possess the technical tools and training to complete the hazard identification and risk assessment processes to the extent that the community would like to have had been able. The community recognizes that its computer sophistication, lack of software and limited data contributed to its inability to fully document the scope or magnitude of a catastrophic natural hazard as FEMA indicated in its directives. Especially problematic was the use of the HAZUS-MH software released by ESRI to

support riverine flooding and earthquakes as the software was data intensive and demanding in terms of requiring additional supporting software and advanced GIS trained personnel. However, the local agencies have identified and taken several significant steps in developing increased sophistication with respect to data collection and hydraulic and hydrologic modeling necessary to update FEMA Flood Insurance Rate Maps (FIRMs). The community has also made significant advances in acquiring digital aerial photography of the County and establishing digital centerline files to enhance local GIS capabilities and emergency notification using an emerging wireless 911 system. However, further training and technological advancements will need to be made to continue to monitor local development and its implications for accomplishing the various strategies contained in the Natural Hazard Mitigation Plan. Technological advances will target additional hardware/software purchases, data collection and better mapping especially of the high hazard flood areas, and emergency siren coverage/service areas. Training will support continued use of hydraulic modeling and GIS applications to further risk assessments, economic losses and mitigation benefits.

The final measure of performance will be difficult to measure as it requires that the philosophical foundation of hazard mitigation be institutionally integrated across a wide range of agencies/personnel, as well as across the community. From a political or institutional sense, strategies and actions will need to be made by governments (county, township, village, city) school boards and public not for profit entities (e.g. park districts, wildlife and environmentally based organizations, boy/girl scouting organizations). From an institutional perspective, mitigation planning activities need to be integrated across a number of different political subdivisions and the individual agencies within each of those political subdivisions during the project planning process.

Attempts to integrate sustainable development policies and practices during the planning process require the community to look at all public sector projects from a new perspective. Engineers will need to examine bridge and drainage projects to assess if opportunities exist to minimize future flooding and storm water impacts in the project design. School boards may be interested in examining and accepting wetland and/or riverine locations as future building sites or outdoor laboratories to advance environmental education. Park Boards may need to examine the initial costs of developing tornado shelters and/or emergency sirens in public facilities.

Community activists will need to look at roadway improvements projects and drainage projects as opportunities to test assumptions of sustainable development early in the project development phase. Plan proponents will need to question whether avoidance or mitigation actions are necessary or required of proposed projects. This measure will examine the extent of public involvement during planning phases of most public projects including parks and recreation, construction of new educational and primary care facilities and commercial development. This measure would also include increased activism in development of alternative mitigation strategies such as the creation of a not for profit land trust for property acquisition and personal involvement with emergency preparedness training as promoted by the American Red Cross, the Local Emergency Planning Committee and the Office of Homeland Security. This

measure would cut across various fronts and be heavily dependent upon educational outreach and public awareness.

In general terms, performance measures will be monitored by the respective governing agencies as identified in the respective Action Plans. The Plan will also be detailed before the Local Emergency Planning Committee on an annual basis or as the need arises. The Allen County Office of Homeland Security will report on the Plan's performance annually in its Annual Report to the community.

5.5 Plan Maintenance Process

The development of the Plan required cooperation and coordination across all levels of local governments, as well as citizen input. Projects to be included in the Plan, were proposed by the various implementing agencies, and reviewed by various advisory groups and technical personnel prior to being incorporated herein. The responsibility to monitor and measure the community's performance toward accomplishing its Mitigation Plan through the use of specific strategies is required under the guidelines as published by FEMA. Therefore, monitoring of programmatic performance becomes the duty of the Allen County Office of Homeland Security, local units of government, and community stakeholders including the Allen County Engineer's Office and the Regional Planning Commission.

The Plan and the public planning process are living entities and will necessarily be modified periodically to better reflect area concerns and programming priorities. Project selection and inclusion within the Natural Hazard Mitigation Plan, however, will be based on the following criteria: (1) the magnitude and urgency of the problem identified; (2) the amount of funds available to the local jurisdiction during the program period; and, (3) the availability of local dollars to match any available grants.

The community's established goals were predicated on access to specific actions and quantitative measures that were readily understood. Community leaders wanted measurable criteria to ensure reliability of measure and public confidence. The mitigation strategies and action items were necessary to provide benchmarks that would allow for assessment of incremental progress. All the projects listed within the Plan have been reviewed on their inherent merits and determined to be within the fiscal constraints of local political subdivisions.

Procedure	2014				2015				2016				2017				2017			
Annual Appointment of Advisory Committee																				
Quarterly Advisory Committee Meetings																				
Review of HMGP Guidelines																				
Review of Existing Data sets																				
Revisit Natural Hazards																				
Reassess Past Hazard Events																				
Review Community Profile																				
Revisit Vulnerability Analysis																				
Revisit Problem Identification																				
Assess/Acquire Natural Hazard Analyses																				
Annual Critical Facilities Analysis																				
Conduct Monthly Emergency Alert Siren Analysis																				
Improve HAZUS-MH-MR2 Software Capabilities																				
Review Mitigation Goals																				
Review Goal Action Steps																				
Review Environmentally Sensitive Sites Data																				
Assess Digital Aerial Ortho Photography																				
Assess GIS Based Digital Centerline Parcel Layer																				
Assess Lidar Capabilities																				
Assess Hydraulic & Hydrologic Engineering Analyses																				
Review Action Plan for Progress on:																				
Review/Revise Subdivision Regulations																				
Review/Revise Floodplain Regulations																				
Review/Revise Stormwater Management Plans																				
Review Stormwater & Sediment Control Regulations																				
Develop/Revise/Adopt Comprehensive Plans																				
Assess Community Involvement																				
Conduct Committee Meetings/Presentations																				
Annual County Plan Recertification																				

The Plan will be revisited annually over the 5 year life of the Plan with the status of the various performance measures identified. Each of the Plan's goals/benchmarks will be assessed as to progress, problems encountered and corrective action taken. The maintenance process will involve each of the respective stakeholders, the public and the media. The Allen County Board of Commissioners will annually appoint an advisory committee responsible for the tracking and evaluation of Plan components and for annual reports to be generated and submitted to the Board through the Office of Homeland Security. The annual status reports, coupled with the bi-monthly insights/support of local LEPC will be used to support and maintain the relevancy of the Plan. The Plan will be assessed against HMGP Guidelines annually. A Plan recertification process will be conducted each January to ensure Plan understanding and recognition. The Plan will be revisited annually by the EMA, LEPC and the County appointed Advisory Committee. The Plan will be formally updated in 2018 to ensure Plan consistency and applicability.

**RESOLUTION
NATURAL HAZARD MITIGATION PLAN FOR ALLEN COUNTY,
OHIO**

The Board of County Commissioners of Allen County, Ohio, met in regular session on _____ the day of _____, 2016 with the following members present: Greg Sneary, Cory Noonan and Jay Begg.

Commissioners _____ moved the adoption of the following:

WHEREAS, the primary goal of government is to provide for the welfare of its citizens and the welfare of those citizens is never more threatened than during times of disaster; and,

WHEREAS, the Disaster Mitigation Act of 2000 mandates counties develop and implement a hazard mitigation plan; and,

WHEREAS, the purpose of the county Natural Hazard Mitigation Plan is to protect the critical areas and facilities of Allen County, Ohio that may be affected by natural hazards; and,

WHEREAS, the Allen County Office of Homeland Security & Emergency Management has designed a plan that provides a comprehensive framework for countywide emergency management in response to, recovery from, planning for, and mitigation, against all naturally occurring hazards; and,

WHEREAS, the Natural Hazard Mitigation Plan has been developed consistent with local needs and publicly supported by all of the local political subdivisions within Allen County including the Village of Bluffton partially located in Hancock County and the City of Delphos partially located in Van Wert and Putnam counties; and,

WHEREAS, the Natural Hazard Mitigation Plan is consistent with requirements established by the Ohio Emergency Management Agency and the Federal Emergency Management Agency;

NOW, THEREFORE, the Board of Allen County Commissioners hereby accept and adopt this Allen County Natural Hazards Mitigation Plan as an official plan of Allen County and order its inclusion into the Allen County Emergency Operations Plan as required under the Ohio Revised Code Section 5502.

Commissioner _____ seconded the resolution and upon the roll being called, the _____ vote

resulted as follows: _____ Adopted this day of April, 2016

**BOARD OF COUNTY COMMISSIONERS
ALLEN COUNTY, OHIO**

Greg Sneary

Cory Coonan

Kelli Singhaus
Clerk of the Board

Jay Begg



PUBLIC MEETING
A public meeting to consider revisions to the Allen County Natural Hazards Mitigation Plan is scheduled for Thursday, May 2, 2013, 9:30 a.m. at the American Red Cross, 610 S. Collett Street in Lima. The general public is invited and encouraged to attend and participate in the plan revision process. For more information contact the Allen County EMA, 333 N. Main St., Lima, OH 45801, 419-993-1404 or online at www.allen-ema.com.
Legal #331 - April 23, 24, 25, 26, 27, 28, 29, 30, 2013 (8)

The State of Ohio, Allen County, ss:

Joan Bellmann being sworn that (he) (she) is bookkeeper of The Lima News, publishers of THE LIMA NEWS, a newspaper printed in said county, and of general circulation throughout said County and State; and that said newspaper had a bona fide circulation of more than twenty-five thousand at the time of this advertisement, notice or proclamation was published; that the notice, of which the annexed is a true copy, was for 8 days published in said newspapers, beginning on the

23rd day of April A.D. 2013

Sworn to before me and subscribed before me this 30th day

April A.D. 2013

(Notary Public, State of Ohio)

Printer's Fee \$ 297.11



EDWARD E EICHLER
Notary Public, State of Ohio
My Commission Expires March 23, 2015



**Office of Homeland Security
& Emergency Management**

- Emergency Management Agency
- 9-1-1 Administrative Services
- Local Emergency Planning Committee
- Special Hazards Response Unit
- Citizen Corps Council
- Environmental Enforcement Unit

Russell J. Decker, CEM

Director

Stephen C. Harvey

Assistant Director

9-1-1 Coordinator

To: County, municipal, township officials, and local news media

From: Allen County Emergency Management Agency

Date: April 18, 2013

Subject: REVISIONS to the Allen County Natural Hazards Mitigation Plan

A stakeholder meeting to seek your input on needed revisions to the current Allen County Natural Hazards Mitigation Plan promulgated in 2008, has been scheduled for:

Thursday, May 2, 2013
9:30 a.m.
American Red Cross
610 South Collett Street, Lima

Local officials and members of the public are encouraged to attend and participate in this planning meeting. For more information, contact the Allen County EMA at 419-993-1404.

BROADCAST REPORT

TIME : 04/18/2013 13:37
 NAME : ALLEN COUNTY EMA
 FAX : 4192223757
 TEL :
 SER.# : 000G1N919631

PAGE(S)

01

DATE	TIME	FAX NO./NAME	DURATION	PAGE(S)	RESULT	COMMENT
04/18	13:31	LIMA NEWS	21	01	OK	ECM
04/18	13:32	WLIO TV	20	01	OK	ECM
04/18	13:32	MAVERICK MEDIA	20	01	OK	ECM
04/18	13:33	WDOH FM	33	01	OK	ECM
04/18	13:35	WIMA WIMT	20	01	OK	ECM
04/18	13:36	WTGN RADIO	20	01	OK	ECM
04/18	13:36	DELPHOS HERALD	21	01	OK	ECM

BUSY: BUSY/NO RESPONSE
 NG : POOR LINE CONDITION
 CV : COVERPAGE
 PC : PC-FAX

MEETING DATE: June 20, 2013

NAME	REPRESENTING
1 JOE MARTZ	INEOS
2 Robert L. Hutchinson	Allen Soil & Water
3 Gene Davis	EMA
4 Dan Protsman	LEPC
5 Diane Bishop	Council on Aging
6 Mark Heffner	Lima Fire Dept.
7 Kyle Erford	Lima Memorial
8 Trevor Violet	General Dynamics
9 CLINT ROLLAND	INTERDYNE CORP.
10 Carol M. Bertrand	Public
11 Chad Ulm	INEOS
12 Beth Seibert	Ottawa River Coalition
13 Bill Kelly	HEALTH DEPT
14 Ron Luttrell	Guardian Lima
15 Steve Harvey	EMA
16 Dieter Wireman	P+G / Perry FD
17 JOSEPH KITCHEN	BATH TOWNSHIP
18 Shawn Spanhower	Potash
19 Dale Patton	Public
20 Kevin Bruin	FORD
21 Jim Michael	Public
22 Thomas Mizer	RPC
23 Ted Brookman	LEPC
24 Jeff Ramey	ST RITA'S MEDICAL CENTER
25 Russ Decker	EMA
26 Steve Carr	Allied
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MEETING DATE: APRIL 18, 2013

NAME	REPRESENTING
1 Joe Martz	INEOS
2 Robert L. Hutchinson	Allen Soil LaFayette Fire Dept
3 Gene Davis	EMA
4 Dan Protsman	L EPC
5 Jim Everett	Allen Co. SO
6 Rick Skellum	Buffton
7 David Collins	Red Cross
8 Brenda Meard	Red Cross
9 Kyle Erford	L MHS
10 Joseph Kitchen	BATH TOWNSHIP
11 Bill Kelly	Allen Co Health Dept
12 Tom Berger	Allen Co. Health Dept
13 ROBERT J. JOHNSON	AMERICAN TRIM
14 Chad Ulm	INEOS
15 Zach Streeter	LINDE
16 Carol M. Bertrand	Public
17 W.D. Witsey	Husky Lina Refinery
18 Jim Michael	Refined
19 Beth Seibert	Ottawa River Coalition
20 Mark Heffner	Lina Fire Dept.
21 Jeff Ramey	ST. RITA'S MEDICAL CENTER
22 Russ Decker	EMA
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**Office of Homeland Security
& Emergency Management**

- Emergency Management Agency
- 9-1-1 Administrative Services
- Local Emergency Planning Committee
- Special Hazards Response Unit
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- Environmental Enforcement Unit

Russell J. Decker, CEM

Director

Stephen C. Harvey

Assistant Director

9-1-1 Coordinator

To: Director Troy Anderson, Auglaize County EMA
Director Lee Swisher, Hancock County EMA
Director Max Trachsel, Hardin County EMA
Director Steve Odenweller, Putnam County EMA
Director Rick McCoy, Van Wert County EMA

Date: March 31, 2013

Subject: Natural Hazard Mitigation Plan Update

This letter should serve as notification to adjacent counties that Allen County is currently assessing and updating our Natural Hazards Mitigation Plan. This plan update will assist Allen and surrounding counties to better prepare for natural hazard events and to satisfy requirements set forth by the Federal Emergency Management Agency and the Disaster Mitigation Act of 2000.

Our next meeting to discuss updates is set for Thursday, April 18, 2013 at 10:30 a.m. at the Red Cross Chapter House, 610 S. Collett Street in Lima. You are welcome to attend this public forum. Please contact this office at 419-993-1404 with any comments, questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell J. Decker", written over a horizontal line.

Russell J. Decker, MS, CEM
Director

Cc: file