

Hazard Mitigation Plan – 2017

5-Year Plan Update

Miami County, Ohio



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5-Year Plan Update

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List of Commonly Used Acronyms

CDBG	Community Development Block Grant
CFR	Code of Federal Regulations
CRS	Community Rating System
DMA2K	Disaster Mitigation Act of 2000
DSP	Dam Safety Program
EMS	Emergency Medical Services
FD	Fire Department
FEMA	Federal Emergency Management Agency
FFR	Federal Financial Report
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
GIS	Geographic Information Systems
HIRA	Hazard Identification & Risk Assessment
HMGP	Hazard Mitigation Grant Program
LHMP	Local Hazard Mitigation Plan
LU/LC	Land Use Land Cover
MCD	Miami Conservancy District
MCBC	Miami County Board of Commissioners
MCHMPC	Miami County Hazard Mitigation Planning Committee
NCDC	National Climatic Data Center
NDMC	National Drought Mitigation Center
NFDRS	National Fire Danger Rating System
NFIP	National Flood Insurance Program
NID	National Inventory of Dams
NOAA	National Oceanic Atmospheric Administration
NRCS	National Conservation Resource Service
OAC	Ohio Administrative Code
OBC	Ohio Building Code
ODH	Ohio Department of Health
ODNR	Ohio Department of Natural Resources
ODNR-FPM	Ohio Department of Natural Resources Flood Plain Management
Ohio EMA	Ohio Emergency Management Agency
OPWC	Ohio Public Works Commission
ORC	Ohio Revised Code
OSU	Ohio State University
PDM	Pre-Disaster Mitigation Program
PDM-C	Pre-Disaster Mitigation Competitive Grant Program
RISK MAP	Risk Mapping, Assessment and Planning Program
SFHA	Special Flood Hazard Area
SHARPP	State Hazard Analysis Resource & Planning Portal
SHMD	State Hazard Mitigation Office
SRL	Severe Repetitive Loss

USGS	United States Geological Survey
WPCLF	Water Pollution Control Loan Fund
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

I. Purpose

The Miami County Hazard Mitigation Committee's purpose is to address sustained actions to reduce or eliminate the long-term risk to human life and property from hazards. Natural hazard planning is a process to engage stakeholders in order to identify hazards and vulnerabilities, develop a long-term strategy to reduce risk and future losses and implement this plan taking advantage of a wide range of resources.

The Miami County Hazard Mitigation Committee supports hazard mitigation planning in order to:

- Foster partnerships in support of planning for natural hazard mitigation.
- Promote more resilient and sustainable communities.
- Reduce the costs associated with disaster response and recovery.

II. Mitigation Plan Summary

The Miami County Hazard Mitigation Committee through partnering with many agencies throughout Miami County successfully continues to complete mitigation activities that benefit the residents of Miami County. These completed hazard mitigation projects will reduce future damages, death, and injuries should a disaster strike. The Plan also addresses future mitigation work needed to be done to further reduce future loss and to provide a framework where local governments, businesses, and County residents and visitors can ensure that positive mitigation planning activities are being carried out. It is the intent that future planned work will be carried out based on accurate information and the appropriate mitigation action items will be prudent investments for the taxpayers of Miami County.

Miami County with its three largest Cities of Piqua, Tipp City, and Troy are located along the north-south I-75 corridor and has experienced an approximate 1.7% increase in population growth since the 2010 census. The current population is approximately 104,224. As Miami County expands and changes, challenging vulnerabilities must be addressed. Miami County will face numerous hazards in the future, both natural and man-made, and these hazards can result in disasters that impact citizens, businesses, and all levels of government. By identifying hazards and taking appropriate steps to mitigate future vulnerabilities, growth and change can be done in a positive manner that will lessen the impact of future hazard events. Miami County has had zoning in place since 1972 and has a Comprehensive Plan that has helped to establish excellent land use planning. Hazard mitigation can be defined as the sustained action taken to reduce or eliminate long-term risks to people and their property from hazards including natural or man-made disasters. Hazard mitigation planning is a positive process built on assessing the hazards and applying effective strategies to complete preventive measures. It involves multiple stakeholders from throughout the Community and the State along with blending public and private sector goals, objectives, and actions.

The goals of this plan are to significantly reduce life, loss and injuries and minimize damage to structures and property from disasters. It is also intended to reduce disruptions to society, better integrate hazard mitigation programs and policies, reduce the number of repetitive flood loss structures, and to promote education and outreach activities to create a culture of hazard mitigation for Miami County residents.

The Miami County Hazard Mitigation Plan currently is required to be updated every five years in order to remain eligible to receive public assistance for hazard mitigation fund grants. However, the Miami County Hazard Mitigation Committee has been meeting annually since 2006 to review and update the plan. The 2017 plan updates are intended to address new conditions and laws and includes an update and status report of mitigation action items occurring within the 2011 FEMA Approved Plan.

Section 1 “Introduction” summarizes the Plan and describes the planning process and includes the documentation for adoption of the Plan by the Miami County Board of Commissioners and all of the participating municipalities.

Section 2 “Hazard Identification, Risk Assessment & Vulnerability” identifies the most prevalent hazards that have affected Miami County and may in the future as well. This section includes hazard history, determination of risk and vulnerability of buildings and infrastructure, and a discussion on County development trends and how that may affect future analysis.

Section 3 “Miami County Mitigation Strategy” addresses vision statement, hazard mitigation goals, objectives, and action items to be effective in hazard mitigation.

Section 4 “Plan Maintenance Process” addresses how the Plan will be evaluated and updated.

Appendix: Includes supporting documentation and information that complements the Miami County Hazard Mitigation Plan.

Introduction

- 1.1 Community Profile
- 1.2 Documentation of the Planning Process
- 1.3 Planning Committee
- 1.4 Plan Adoption by the Board of County Commissioners
- 1.5 Plan Adoption by Multi-Jurisdictional

1.1 Community Profile - Introduction

Miami County is located in the west-central portion of Ohio. Champaign, Clark, Darke, Montgomery, and Shelby Counties neighbor Miami County. The county contains three major urban areas including the City of Troy (the County seat) along with the City of Piqua and the City of Tipp City. The County also includes nine villages: Bradford (part of the community), Casstown, Covington, Fletcher, Laura, Ludlow Falls, Pleasant Hill, Potsdam, and West Milton, and 12 townships. The total County population according the 2010 Census is 102,506. The estimated population as of July 1, 2015, according to the US Census Bureau was 104,224. A small portion of the City of Huber Heights and the City of Union are also within the southernmost part of Miami County. The majority of Miami County lies in the Miami Rivers Survey. The county was established on the first of March 1807 and was named for the Miami Native American Tribe.

The county is located near three (3) of Ohio's largest cities: Cincinnati, Columbus, and Dayton. West Central Ohio and Miami County's physical landscape has largely been shaped by the north-south recession of prehistoric glaciers, the 1913 flood, and the construction of the I-75 corridor through the center of the County. Glacial activity deposited an abundance of fertile agricultural soils and large quantities of groundwater, sand, and gravel resources in the County. The devastating 1913 flood event left a legacy of flood control dams which today acts to limit development and preserve many scenic and recreational resources along the County's river corridors. Since the early 1960's, the I-75 corridor has been driving residential, commercial, and industrial development along the County's central axis.

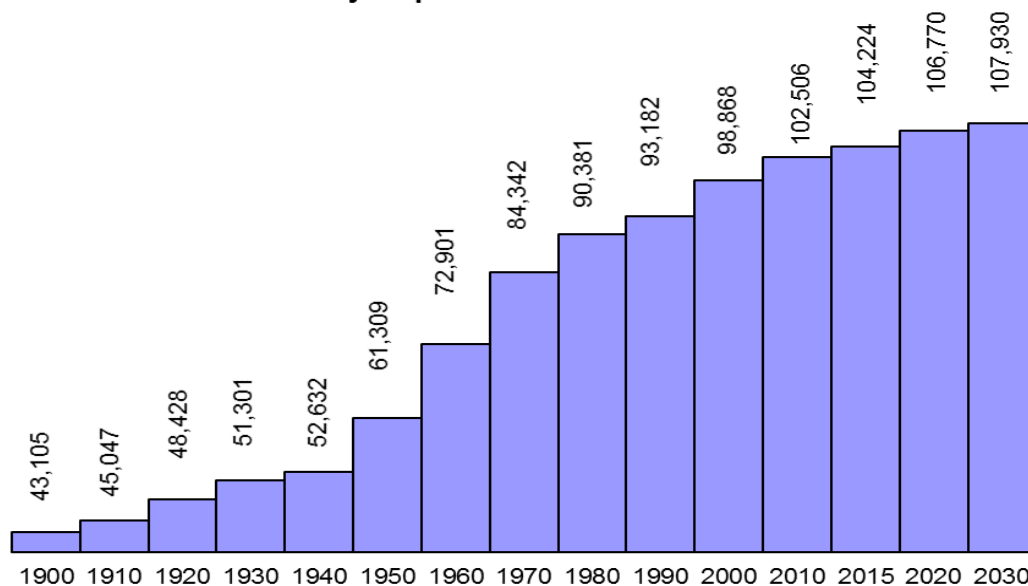
Miami County encompasses approximately 407 square miles of land area. Miami County contains approximately 20 miles of Interstate 75, which is the major north-south highway through Ohio. Other components of Miami County's transportation infrastructure include U.S. Route 36, State Routes 41, 55, 185, 571, and 718, which cross the county east west, and 48, 201, 202, 589, and 721, which run north south. Two (2) commercial airports are also vital to the county's transportation.

Though Miami County contains several miles of highway, there are villages and municipalities with limited access, which could present a problem if those areas were required to evacuate during an emergency situation.

There are two (2) rivers in Miami County: The Great Miami River and the Stillwater River. The Great Miami River flows through the central portion of the county; adjacent to Interstate 75, passing near or through the Cities of Piqua, Troy, and Tipp City. The Stillwater River flows through the western portion of the county, and passes near or through the Villages of Covington, Pleasant Hill, Ludlow Falls, and West Milton, while flowing parallel to State Route 48.

According to the estimated July 1, 2015 Census, Miami County has a population of 104,224 which is a 1.7% increase from 2010. There was a large increase in the total population of the County during the 1950-1970-time period, assisted in part by construction of I-75 through Miami County. Between 1990 and 2000, the Miami County population increased by 5,686, a growth of 6.1%. Almost all of this population growth occurred in Tipp City, Troy, Concord Township, and West Milton. These primary growth areas constitute the northern edge of the Dayton Urbanized Areas, particularly along the I-75 corridor. Census figures from July 1, 2015 indicate that there are 44,290 housing units in Miami County. Housing units include both traditional houses and apartments. The county has an average of 2.49 persons per household. Further, the county's medium household income in 2015 is listed at 51,569.

Miami County Population Growth 1900-2015



The 2020 and 2030 are projected amounts

The majority of Miami County's land cover is agricultural; land in farms is 184,233 acres. Approximately 1,068 individual farms operate in Miami County, with an average size of 173 acres. According to the Ohio County Profiles prepared by the Office of Research, total cash farm receipts for 2015 are \$110,002,000. Miami County's topography is that of flat, open areas to gently sloping areas, which offers no natural barrier to slow down strong straight-line winds or tornadoes.

Miami County has a very diverse employment background. According to the Ohio County Profiles prepared by the Office of Research, the largest areas of employment are goods producing (11,679 jobs) and service providing (23,528 jobs). Estimated total employed in Miami County in 2015 was 49,900 persons.

The major and notable employers:

<u>Major & Notable Employers</u>	
AO Smith/Regal Beloit Corp	Mfg
ConAgra Inc	Mfg
Crane Co	Mfg
F-Tech Inc/F&P America	Mfg
Goodrich Corp	Mfg
Hartzell	Mfg
Illinois Tool Works Inc/Hobart	Mfg
Meijer Inc	Trade
Piqua City Schools	Govt
Troy City Schools	Govt
Upper Valley Medical Center	Serv

In 2015 the county's unemployment rate was at 4.4%. In 2015 a total of 116 new businesses opened for a total of 1,793 active businesses in Miami County.

Miami County is the home of several tourist attractions, including the Piqua Historical Area State Memorial, Fort Rowdy Museum at Covington, Union Township Historical Museum and Quaker Research Center at West Milton, Pleasant Hill Civil War Monument, Brukner Nature Center, Hoover Grist Mill, Pickawillany Monument, Charleston Falls Preserve, Stillwater Prairie Reserve, Miami-Erie Canal Locks, and the Scenic Stillwater and Great Miami Rivers, Hobart Urban Nature Preserve, Lock 9 Park, Duke Park, Treasure Island Park, Eldean Covered Bridge, National Historic Landmark, Fletcher Covered Bridge, Lost Creek Reserve and Knoop Agricultural Heritage Center, WACO Air Museum, Tippecanoe Historical Museum in Tipp City, Overfield Tavern Museum in Troy, Miami Valley Veterans Museum in Troy, Troy-Hayner Cultural Center, AB Graham Memorial Center, Founder of 4-H Club Program.

1.1 Community Profile Update Commentary

The Community profile has been updated since the last plan draft was compiled in 2011. This allowed the Miami County Hazard Mitigation Committee (MCHMC) to catch sight of what has changed in the County over the past 5 years. The results included:

- Miami County's population was increased approximately 1.7% since 2010 Census based on estimates as of July 1, 2015 per US Census Bureau from 102,506 to 104,224.
- The county remains a strong agricultural community.
- The farms decreased in number but grew larger in acreage.
- Upper Valley Medical Facility Expansions.
- The total active business remained relatively stable – 1,793 in 2015.
- New elementary and intermediate schools were constructed in Piqua.
- Health care facilities and expansions include: Upper Valley Medical Center and Premiere Health.
- New Tipp City Orthopedic Institute.
- Miami County residents continue to enjoy a strong business climate with its proximity to I-75 and I-70 location, quality education, great entertainment venues, and numerous recreation opportunities.
- Hobart Bros. plant is closed.
- ORR FELT – A century old company in Piqua closed.
- Con Agra, on 721 west of Pleasant Hill, closed production & is now used as warehouse.
- Clopay expansion in Troy.
- Abbott Industries Expansion in Tipp City.
- Meijer Distribution expansion
- Randall House Senior Living in Tipp City expanded.
- Remedi Senior Care in Troy expanded.
- Brookdale Assisted Living in Troy expanded.
- Caldwell House Assisted Living in Troy expanded.
- Story Point Assisted Living in Troy expanded.
- Chick-fil-a, Zoup, Rapid Fire Pizza new in Troy.
- Piqua Planet Fitness.
- Four new convenience / fuel stations throughout county.
- UTC Troy.
- Troy City Schools Master Plan is in progress.
- St. Patrick's Private School expansion.
- Troy 97% Downtown first floors are currently occupied.
- Piqua – Commercial rail line upgrade from Piqua to Troy including a new railroad bridge.
- New K-8 School in Covington.
- Pleasant Hill School.
- Miami East School.
- Bethel Schools.
- Edison State Career Center expansion.
- Tipp City Fire Department addition.
- New water treatment plant – City of Piqua; construction to begin 2017.

- Covington Wastewater Treatment Plant – construction to begin 2017.
- Covington EMS/Fire has gone to 24-hour services.
- Miami Conservancy District levy accreditations.
- Halifax residential subdivision.
- National Weather Services has added monitoring points in Piqua.

1.1 Population

Miami County Ohio Profile		
Location: West Central Ohio		
Bordering Counties:		
	Champaign Montgomery	Clark Shelby
		Darke
2010 Census Population for Cities, Villages, Townships		
	2010	Estimated 2015
Miami County	102,506	104,224
Incorporated Places and Balance of County		
Village of Bradford (part)	1,011	1,094
Village of Casstown	267	271
Village of Covington	2,584	2,625
Village of Fletcher	473	480
Huber Heights (part)*	959	984
Village of Laura	474	469
Village of Ludlow Falls	208	211
City of Piqua	20,522	20,790
Village of Pleasant Hill	1,200	1,219
Village of Potsdam	288	293
City of Tipp City	9,689	9,899
City of Troy	25,058	25,659
City of Union (part)*	24	24
Village of West Milton	4,630	4,714
Balance of Miami County	35,327	35,492
Townships (not including incorporated municipalities)		
Bethel Township	4,843	4,927
Brown Township	1,122	1,140
Concord Township	5,295	5,388
Elizabeth Township	1,648	1,677
Lost Creek Township	1,409	1,434
Monroe Township	5,864	5,984
Newberry Township	2,854	2,833
Newton Township	2,199	2,229
Springcreek Township	1,948	1,979
Staunton Township	2,090	1,958
Union Township	4,479	4,342
Washington Township	1,576	1,601

*The City of Huber Heights and the City of Union only have a small portion of their cities within Miami County. These areas have not been profiled into this planning document.

1.1 Description of Planning Area

Village of Bradford	
Location	Northwest Portion of County
Township	Newberry Township
Population	1,077
Median Household Income	\$44,257 (2015)
Housing Units	750
Public Schools	Bradford Village Exempted Schools
Major Highways in Proximity to Village	Interstate 75 - 11 miles east State Route 721 through Village
Village of Casstown	
Location	East Central
Township	Lostcreek Township
Population	267
Median Household Income	\$37,958 (2015)
Housing Units	122
Public Schools	Miami East Local Schools
Major Highways in Proximity to Village	State Route 55 State Route 589
Village of Covington	
Location	Northeastern Portion of County
Township	Newberry Township
Population	2,584
Median Household Income	\$39,618 (2015)
Housing Units	1,156
Public Schools	Covington K-8
Major Highways in Proximity to Village	U.S. Route 36 State Route 41 State Route 48

Village of Fletcher	
Location	Northeastern Most Portion of County
Township	Brown Township
Population	480
Median Household Income	\$45,277 (2015)
Housing Units	197
Public Schools	Miami East North Elementary
Major Highways Proximity to Village	U.S. Route 36 State Route 589
Village of Laura	
Location	Southwestern Portion of County
Township	Union Township
Population	469
Median Household Income	\$41,486 (2015)
Housing Units	185
Public Schools	Miami East North Elementary
Major Highways in Proximity to Village	State Route 571 State Route 55 State Route 721
Village of Ludlow Falls	
Location	Southwestern Portion of County
Township	Union Township
Population	211
Median Household Income	\$42,894 (2015)
Housing Units	86
Public Schools	None
Major Highways in Proximity to Village	State Route 48 State Route 55

City of Piqua		
Location		North Central Portion
Township		Washington/Springfield Township
Population		20,790
Median Household Income		\$35,148 (2000)
Housing Units		9,311
		Edison State Community College Nicklin Learning Center Piqua High School Piqua Junior High School Springcreek Primary Elementary Upper Valley Vocational Washington Intermediate Elementary
Major Highways in Proximity to City		Interstate 75 U.S. Route 36 State Route 66 State Route 185
Village of Pleasant Hill		
Location		West Central Portion of County
Township		Newton Township
Population		1,219
Median Household Income		\$50,858 (2015)
Housing Units		498
Public Schools		Newton Elementary Newton High School
Major Highways in Proximity to Village		State Route 48 State Route 718

Village of Potsdam		
Location		Southwestern Portion of County
Township		Union Township
Population		293
Median Household Income		\$3,159 (2015)
Housing Units		104
Public Schools		None
Major Highways in Proximity to Village		State Route 55
City of Tipp City		
Location		South Central Portion of County
Township		Monroe Township
Population		9,899
Median Household Income		\$58,843 (2015)
Housing Units		4,194
Public Schools		Bethel Elementary Bethel Junior High Bethel High Broadway Elementary LT Ball Intermediate Nevin Coppock Elementary Tippecanoe Middle Tippecanoe High
Major Highways in Proximity to City		Interstate 75 State Route 571

City of Troy		
Location		Center of County - County Seat
Township		Concord Township
Population		25,659
Median Household Income		\$43,106 (2015)
Housing Units		11,166
Public Schools		Concord Elementary Cookson Elementary Heywood Elementary Hook Elementary Kyle Elementary Van Cleve 6 th Grade Troy Junior High Troy High School
Major Highways in Proximity to City		Interstate 75 State Route 55 State Route 41 State Route 202 State Route 589 State Route 718
Village of West Milton		
Location		Southwestern Portion of County
Township		Union Township
Population		4,714
Median Household Income		\$49,284 (2015)
Housing Units		2,102
Public Schools		Milton-Union Elementary Milton-Union Middle School Milton-Union High School
Major Highways in Proximity to Village		State Route 48 State Route 571

1.1 Climate, Environment & Geography

Located in the Miami Valley, Miami County experiences cold winters and fairly warm summers. The average daily high temperature in January is 35°F and the average low temperature is 21°F. The average temperature in July is 87°F and the average low temperature is 67°F. The lowest recorded temperature was -21°F in 1985. Miami County receives about 39.5" of rainfall per year.

The highest elevation point in the County is near Fletcher and is about 1,155 feet above sea level. Miami County lies in the Wisconsin Age glaciated region of Ohio. The topography is broad. It is level to gently rolling and is divided by two major rivers; the Great Miami and the Stillwater and their tributaries. Elevation ranges from about 770 to 1,155 feet above sea level.

The County is well suited for farming because of the deep fertile soils. Corn, soybeans, wheat, and hay are its principle crops. When prime farmland is lost to other uses, farming methods are compromised in that crop production is lost or the farming community is forced to use more erodible or drought prone land. Therefore, it is important to preserve the best suitable farmland as identified in the Soil Survey of Miami County. Miami County has a Comprehensive Plan which helps to protect the quality farmland.

The primary mineral resources found in Miami County are limestone, sand, and gravel. It is important to know where these resources are located for land use planning.

1.1 History

Miami County was created in 1807. It was once an Indian stronghold. The name “Miami” comes from the Miami Tribe of Indians. The word “Miami” in Indian language means “Mother”. Many of the early settlers of Troy, the county seat, were from Virginia and Kentucky. During the Civil War the City of Troy was a station for the Underground Railroad. Troy was once known for its wagon and buggy shops.

The City of Piqua was named by the clan of the Shawnee in their Creighton Myth meaning “man who arose from the ashes”.

Tipp City was originally named Tippecanoe in honor of William Henry Harrison whose campaign slogan was “Tippecanoe and Tyler Too”. John Clark developed Tippecanoe in 1840 and purposely situated the town to take advantage of the traffic on the Miami and Erie Canal. The Tipp Roller Mill is situated at Lock #15 on the canal.

The Eldean Covered Bridge is one of only two “long truss” covered bridges remaining in the County. It was built in 1860 and spans the Great Miami River at 224 feet in length. The bridge was placed on the Register of Historic Places in 1975.

The 1869 home of former slave York Ryal still stands as a monument to freedom as it tells the history of the 383 slaves freed by John Randolph of The Roanoke Plantation in Virginia; their journey north; and the injustices they endured.

The Quakers also played a large role in Miami County history from their religious freedom to being a part of the Underground Railroad.

1.1 Tourism and Points of Interest

Miami County Places of Interest
<p> A.B. Graham Memorial Center African Jackson Cemetery Andrew Sheets House- Elizabeth Township Arrowston-Piqua Benjamin Iddings Log House- Newton Township Bradford Junction Interlocking Tower- Bradford Bradford Railroad Museum Bruckner Nature Center Callahill and Priscilla Weddle House- Elizabeth Township Casstown Lutheran Stone Church- Casstown Charleston Falls Preserve Covington Historic Government Building Detrick Milling and Distilling Company- Tipp City E.A. Hobart House- Troy Elizabeth Sheets Saunders Farm- Elizabeth Township Elizabeth Township Rural Historic District First Presbyterian Church- Troy Fort Piqua Hotel Fort Rowdy Historical Museum- Covington Fulton Farms Historic Eldean Covered Bridge Historic WACO Field & Aircraft Museum Hobart Circle Historic District- Troy Hoover Grist Mill John Minor Dye Stone House- Elizabeth Township Johnston Farm & Indian Agency Judge Henry Williams House- Troy Lockington Locks Historical Area- Washington Township Mary Jane Hayner House- Troy McKinley School- West Milton Miami County Courthouse and Power Station- Troy Miami County Recreation Trails Miami Erie Canal Locks Museum of Troy History Old Tippecanoe Main Street Historic District- Tipp City Overfield Tavern- Troy Pickawillany Monument- Piqua Piqua Bike Path Piqua Historical Area State Memorial Piqua-Caldwell Historic District </p>

Miami County Places of Interest

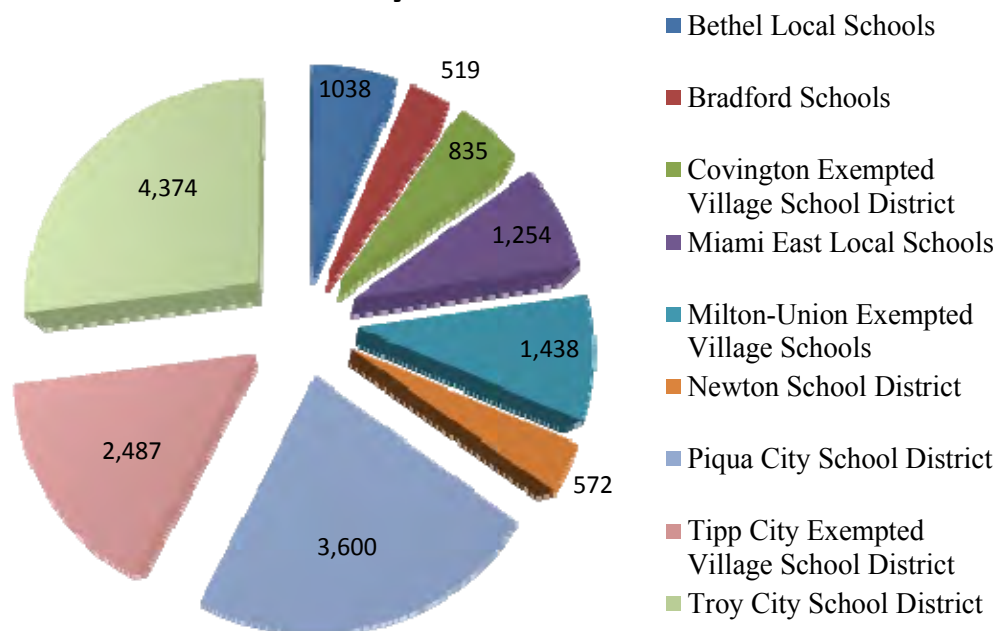
Pleasant Hill Civil War Memorial
Pleasant Hill United Church Of Christ
Robert Culbertson House- Troy
Saunders Seed Company- Elizabeth Township
Scenic Stillwater River
Staley Farm- Bethel Township
Stillwater Prairie Preserve
Tippecanoe Historical Museum
Troy Hayner Cultural Center
Troy Public Square
Twin Arch Stone Culvert- Concord Township
Union Township Historical Museum and Quaker Research Center
William Baumgardner House and Farm Buildings
William Hobart Vacation House- Troy
William K. Dunlap House- Troy
York Ryal House- Springcreek Township

1.1 Education

Public Schools

Bethel Local Schools	1038
Bradford Schools	519
Covington Exempted Village School District	835
Miami East Local Schools	1254
Milton-Union Exempted Village Schools	1438
Newton School District	572
Piqua City School District	3,600
Tipp City Exempted Village School District	2,487
Troy City School District	4,374

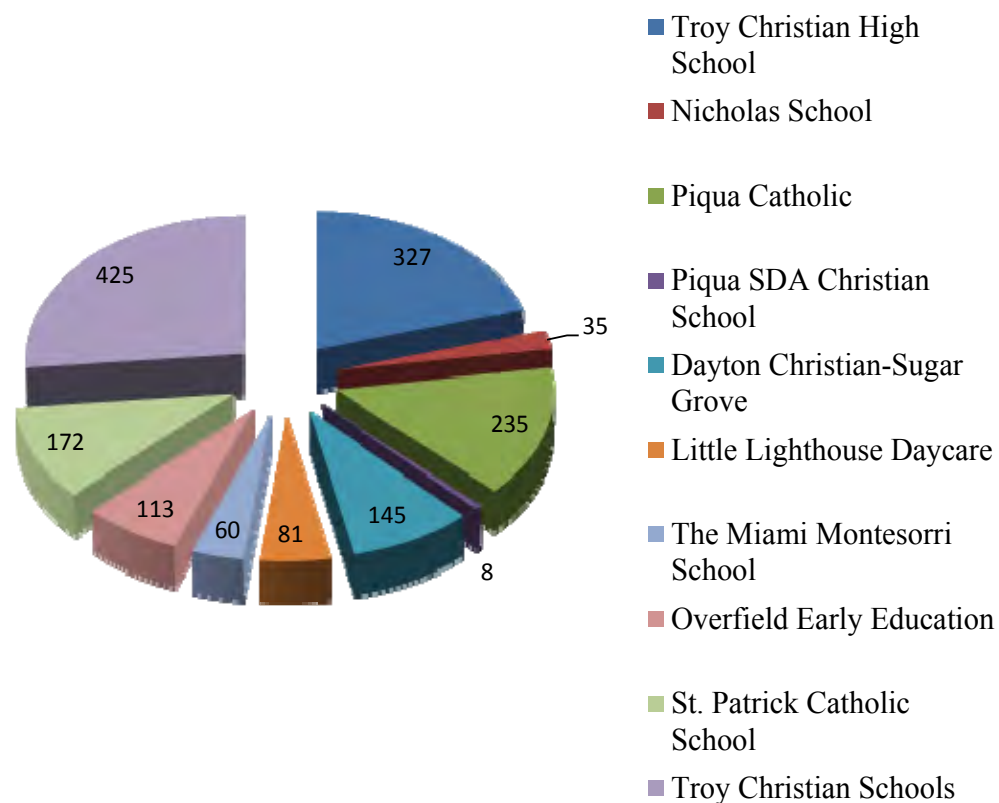
Miami County Public School Districts



Private Schools

Troy Christian High School	327
Nicholas School	35
Piqua Catholic	235
Piqua SDA Christian School	8
Dayton Christian-Sugar Grove	145
Little Lighthouse Daycare	81
The Miami Montessorri School	60
Overfield Early Education	113
St. Patrick Catholic School	172
Troy Christian Schools	425

Miami County Private Schools



1.1 Employers/Health Care/Communications/ Parks/Transportation

Major Employers

<u>Company</u>	<u>Type</u>
AO Smith	Mfg
ConAgra	Mfg
Crane	Mfg
F-Tech Inc./F&P America	Mfg
Goodrich Corp	Mfg
Illinois Tool Works Inc/Hobart	Mfg
Meijer Inc.	Trade
Piqua City Schools	Gvt
Troy City Schools	Gvt
Upper Valley Medical Center	Service

Health Care

	<u>Total</u>
Physicians (MDs & DOs)	125
Registered hospitals	1
Number of beds	193
Licensed nursing homes	6
Number of beds	729
Licensed residential care	5
Number of beds	348

Communications

	<u>Total</u>
Television stations	0
Radio stations	1
Daily newspapers	2
Circulation	9,834
Weekly Newspapers	1
Circulation	2,617

**State Parks, Forests, Nature Preserves, and
Wildlife Areas**

	<u>Total</u>
Areas/Facilities	3
Acreage	134.89

Transportation

	<u>Total</u>
Interstate highway miles	19.95
U.S. highway miles	28.33
State highway miles	152.08
County, Twp, & municipal road miles	1,011.15
Commercial airports	2

1.1 Business and Industry

Miami County has a large business and industrial base due to its close proximity to Interstates I-70 and I-75. It has a well-established background in technology and innovation including plastic technology, aerospace, and research development. Over 25,000 engineers and scientists live and work within Miami County. Miami County also has a large agriculture presence with production of soybeans, wheat, corn, hogs, beef, and dairy products. Miami County has approximately 76% of its land in farms and total agricultural cash receipts of \$110,002,000.

In 2014 the average private sector total employment for all industries in Miami County was 35,207 persons with manufacturing claiming the largest percent.

<u>Employment by Industry</u>	<u>Average Employment 2010</u>	<u>Average Employment 2014</u>
Private Sector	35,346	35,207
Goods-Producing	11,860	11,679
Natural Resources and Mining	205	169
Construction	1,725	1,561
Manufacturing	9,930	9,950
Service-Providing	23,485	23,528
Trade, Transportation and Utilities	8,644	8,886
Information	291	97
Financial Services	1,229	968
Professional and Business Services	3,733	3,976
Education and Health Services	4,550	4,131
Leisure and Hospitality	3,851	4,166
Other Services	11,833	1,296
Federal Government	209	179
State Government	157	121
Local Government	4,847	4,466

<u>Major Employers</u>	<u>Location</u>	<u>Type</u>	<u>Number of Employees</u>
Upper Valley Medical Center	Troy	Hospital/Health Care	1,700
Illinois Tool Works, Inc./Hobart	Troy	Manufacturing	1,000
Goodrich Corp.	Troy	Manufacturing	750
Meijer, Inc.	Tipp City	Warehouse Distribution	750
F-Tech, Inc./F & P America	Troy	Manufacturing	600
A.O. Smith	Tipp City	Manufacturing/Sales	450
ConAgra Foods	Troy	Food Processing	450
Troy City Schools	Troy	Gov.	not available
Piqua City Schools	Piqua	Gov.	370
Crane	Piqua	Manufacturing	320

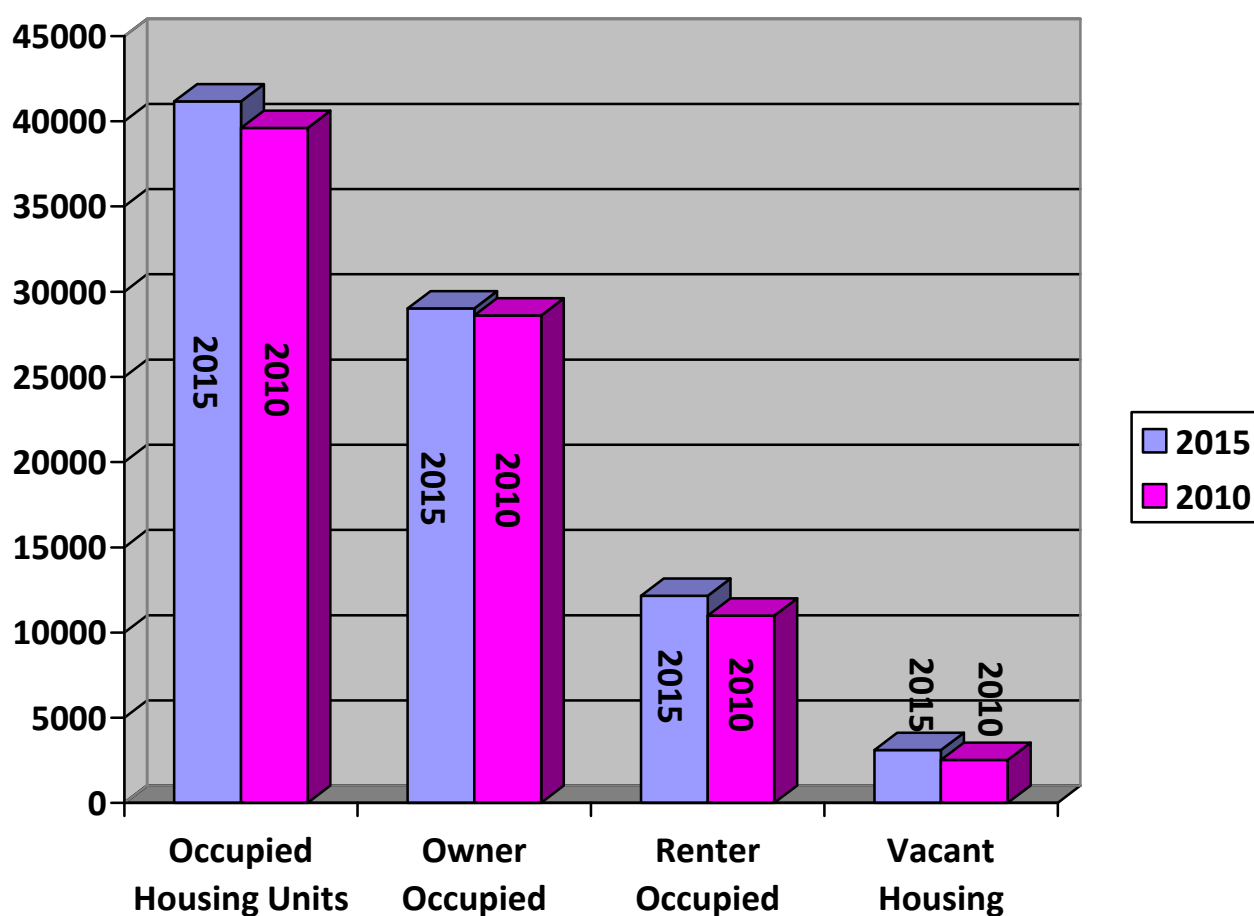
Total Active Business (2008): 1,928

Total Active Business (2015): 1,793

1.1 Residential Housing

HOUSING UNITS	2010		2015	
	NUMBER	PERCENTAGE	NUMBER	PERCENTAGE
Total Housing Units	42,126	100%	44,274	100%
Occupied Housing Units	39,597	94%	41,169	93%
Owner Occupied	28,611	72.30%	29,010	70.5%
Renter Occupied	10,986	27.70%	12,159	29.5%
Vacant Housing Units	2,529	6%	3,105	7%

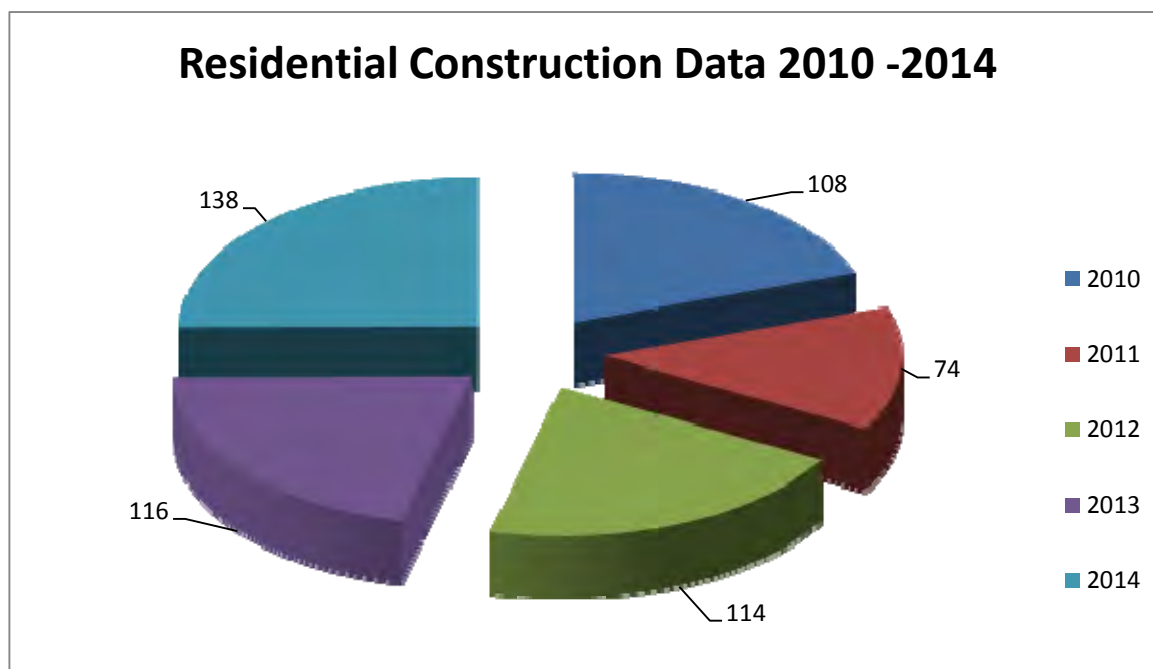
Miami County Housing Units



1.1 Residential Construction

Residential Construction Data for 2010- 2014

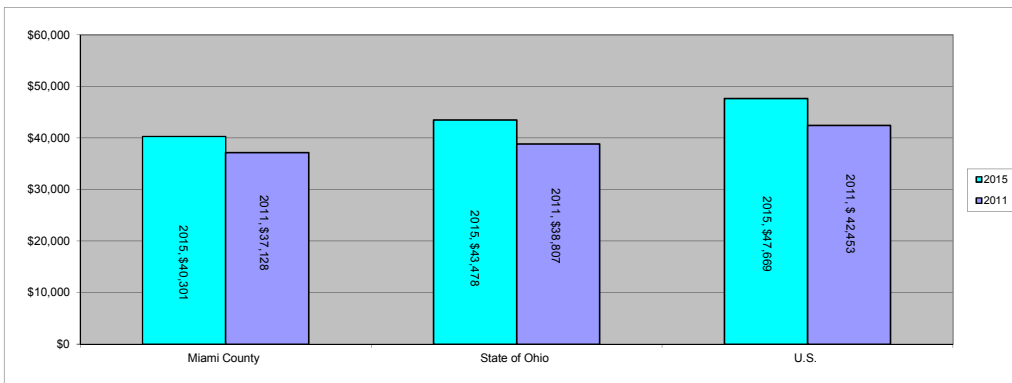
<u>Year Structure Built</u>	<u>No. Built</u>
2010	108
2011	74
2012	114
2013	116
2014	138



1.1 Workforce Labor Statistics

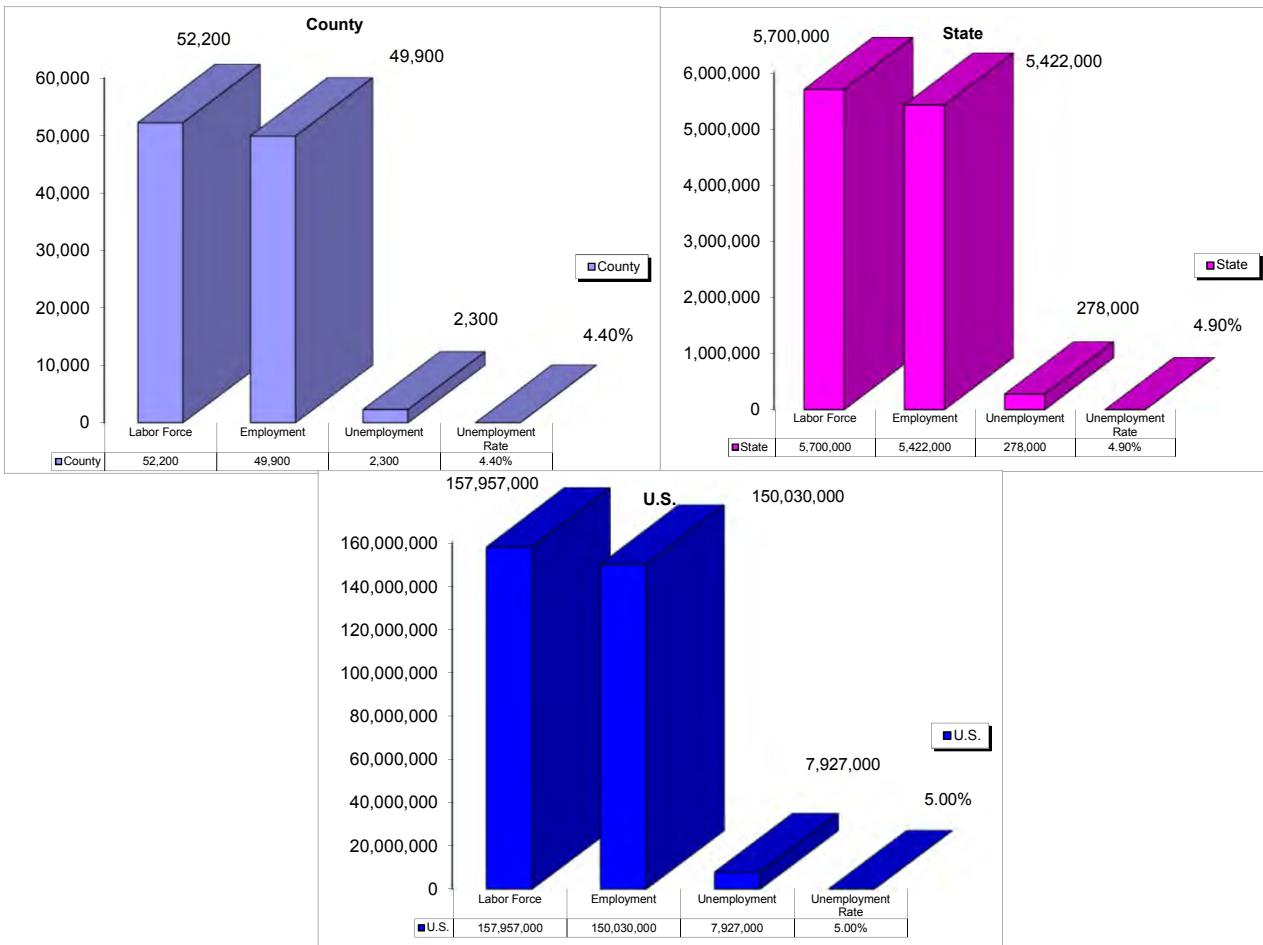
Income

Per Capita Income Comparisons	Miami County	State of Ohio	U.S.
Per Capita Income 2011	\$37,128	\$38,807	\$42,453
Per Capita Income 2015	\$40,301	\$43,478	\$47,669



Labor Force and Employment

	CY 2009		
	County	State	U.S.
Labor Force	52,200	5,700,000	157,957,000
Employment	49,900	5,422,000	150,030,000
Unemployment	2,300	278,000	7,927,000
Unemployment Rate	4.40%	4.90%	5.00%



Information Source for this Section: Ohio Department of Development

1.2 Documentation of the Planning Process

Purpose

The purpose of the Planning Process and Plan Update was to obtain comprehensive feedback from the community to create a quality planning document in a written format. It has been a collaborative effort by the Hazard Mitigation Committee made up of the local community elected officials, local departments, agencies and general public. The Committee has put forth a good faith to seek public input through various means including public notice, invitations to multiple county municipalities, agencies, posting of minutes and meetings on electronic media, EMA websites and emailing through a comprehensive email list.

Organizing the Process

The planning process to update the Miami County Hazard Mitigation Plan has been ongoing since the 2011 Plan Approval. The Miami County Hazard Mitigation Committee (MCHMC) met yearly as part of the Plan Maintenance Process under the leadership of:

Artz, Ken	Miami County EMA
Beamish, Michael	Mayor, City of Troy
Blackmore, Art	Miami Co. Emergency Planning Committee
Bowell, Jim	Miami County EMA
Busse, Michael	Covington Village Administrator
Calicoat, Jeff	Chief, Tipp City EMS
Cantrell, Marc	American Red Cross
Cox, Phil	Monroe Township Trustee
Evans, John (Jack)	Miami County Commissioner
Havenar, Amy	Piqua City Engineer
Henderson, Michael	Mote & Associates, Inc.
Herron, Ben	West Milton Public Works
Huelskamp, Paul	Miami County Engineering
Kegley, Stan	City of Troy Project Manager
Looker, Rick	Bradford Village Administrator
Mercer, Tom	Concord Township Trustees
Moyer, Scott	Miami County Auditor
Myers, Scott	Miami County Park District
Neal, Amber	Miami County Auditor
Pence, Don	Concord Township Trustees
Pohlscheider, Brent	Piqua Fire Department
Propes, Dennis	Miami County Public Health
Puskas, Barry	Miami Conservancy District
Shook, Robert	Citizen-At-Large
Suerdieck, Dan	Miami Co. Planning/Zoning Manager
Thompson, Corey	Miami County Engineer's Office
Vallieu, Melody	Troy Daily News

The MCHMC members, through the planning process of November 2016 through June 2017, reviewed the current Miami County Hazard Mitigation Plan and addressed the county's mitigation needs in order to:

- Assemble a good cross representation of public, community, and stakeholders representing all of Miami County.
- Achieved consensus on how to achieve a desired outcome of the county's hazard mitigation challenges.
- Gain widespread support for directing the countywide financial, technical, and human resources towards an agreed upon course of action.
- Describe the planning process and intended outcome so that the description of the planning process serves a permanent record on how decisions were reached.
- Develop a strategy to reduce losses which have been developed by consensus in a methodical and reasonable way.
- Search for alternate mitigation funding sources.
- Implement the Action Plan.

Plan Participation

Miami County Emergency Management Agency strived to involve all communities in the 5-Year Hazard Mitigation planning update process. Resolution No. 17-08-1054 authorizes Commissioners to sign Memorandums of Understanding for Emergency Management Agency Services within Miami County and was adopted by the County Commissioners on August 8, 2017. The identified participating townships and communities in Miami County are as follows: City of Piqua, City of Troy, Tipp City, Village of Bradford, Village of Casstown, Village of Covington, Village of Fletcher, Village of Laura, Village of Pleasant Hill, Village of Potsdam, Village of West Milton, Bethel Township, Brown Township, Concord Township, Elizabeth Township, Lostcreek Township, Monroe Township, Newberry Township, Newton Township, Springcreek Township, Staunton Township, Union Township and Washington Township. All of these public entities agreed to participate per the Memorandum of Understanding put forth by Miami County EMA and adopted by the County Commissioners. The only entity that did not agree to participate and was not included in the Memorandum of Understanding was the Village of Ludlow Falls.

Most cities and villages have representatives serve on the Hazard Mitigation Committee. In addition, the local fire department jurisdictions in conjunction with their corresponding Townships, Villages and Cities, assisted their community in updating the Risk Assessment Inventory data sheets. These communities included Casstown, Fletcher, Laura and Pleasant Hill. This collaboration with the fire departments allowed for the villages to participate in the planning update process as evidenced by the updated Risk Assessment documents. Also, some smaller communities such as Casstown, Laura and Potsdam sent correspondence or completed questionnaires regarding mitigation activities in their communities. This referenced participation documentation may be found in the Appendix under Plan Participation documentation.

Involving the Public

The MCHMC held five open public planning meetings from November 2016 through March 2017 and held two public draft plan review meetings which were held on May 2, 2017 and May 4, 2017. A special public presentation meeting was held on Hazard Mitigation and Funding Opportunities on Wednesday, June 7, 2017 at 7:30 PM to the Miami County Council. The presentation was made by Mr. Mike Henderson, Consultant and Mr. Jacob Hoover, Mitigation Supervisor of Ohio EMA. The program included an overview of the plan updates and mitigation funding opportunities and the importance of all participating entities adopting the plan. The public monthly meetings are intended to educate the community about the benefits of hazard mitigation planning and seek the input of citizens during the planning process. The following planning meetings and public meetings were held at the conference room of the Miami Communications Center which was centrally located in the county and at the County Safety Building and County Highway Garage.

List of Public Planning Meetings

For 5 year update

Meeting	Date	Purpose	Invited/Attending
1	October 27, 2016	Kickoff Meeting	Public / MCHMC
2	December 13, 2016	Planning Meeting	Public / MCHMC
3	January 10, 2017	Planning Meeting	Public / MCHMC
4	February 13, 2017	Planning Meeting	Public / MCHMC
5	March 14, 2017	Planning Meeting	Public / MCHMC
6	May 2, 2017	Draft Plan Discussion	Public / MCHMC Other County Agencies
7	May 4, 2017	Draft Plan Discussion	Public / MCHMC Other County Agencies
8	June 7, 2017	Mitigation Presentation	Public / Miami Co. Council including County Commissioners, Twp. Trustees, Cities & Villages

The Miami County Hazard Mitigation Committee has met annually, generally in February and held special meetings on call of the Chairman since FEMA granted approval of the initial 5 year plan in 2006. The following are dates for annual meetings held since 2011 Plan Updates..

Miami County Hazard Mitigation Committee Annual & Special Meetings 2012 - 2016

Meeting	Date	Purpose
1	February 12, 2012	Annual Mitigation Meeting
2	February 27, 2013	Annual Mitigation Meeting
3	April 18, 2014	Annual Mitigation Meeting
4	2015	No Meeting
5	October 27, 2016	Mitigation Kickoff Meeting for 5-year Plan Update

Copies of the notices, public meeting minutes, and agendas can be found in Appendix A.

Copies of the Draft Plan are available for review on the Miami County Emergency Management website: <http://miamicountyohio.gov/Index.aspx?NID=753>. Hard copies are available for review at the County Emergency Management Agency, 201 West Main Street, Troy, OH, 45373, or the Miami County Board of Commissioners, County Safety Building, 201 West Main St, Troy, OH, 45373, 937-440-5900. Kenneth Artz, EMA Director, email: kartz@miamicountyema.org.

Having a functioning mitigation committee of community leaders and representatives of various agencies, public entities, and citizens with many years of experience living and working in Miami County has helped to make mitigation implementation a success. The committee has helped identify and promote all of the positive mitigation activities that have been completed by various agencies over the past many years since the completion of the initial Miami County Hazard Mitigation Plan which was approved in 2006 and was updated & approved by FEMA in 2012. The total collaboration of various county officials and organizations has had a positive impact on Miami County.

Neighboring Community Involvement

The Miami County Emergency Management, in addition to the public announcement, also involved all of the neighboring counties' Emergency Management Agencies to participate in the planning process. Copies of the invitations are included in Appendix A. In addition, several community agencies and businesses were invited to participate in the public planning meetings. Some of the agencies represented included:

- Miami Conservancy District
- Miami County Health District
- Miami County Board of Commissioners
- Miami County Township Trustees
- Northern Miami Valley Ohio Red Cross
- City and Village Representation
- Miami County EMA
- Miami County Local Emergency Planning Committee – Art Blackmore
- Miami County Engineer
- Miami County Park District

The Planning and Review Process

During the plan update process and plan update process the Miami County Hazard Mitigation Committee (MCHMC) evaluated each section of the previously approved 2012 Mitigation plan and made recommendations for updating the 2012 Miami County Hazard Mitigation Plan. Some of the planning documents referenced to assist the MCHMC in the planning process included:

- New Planning Documents shared by the core committee members and as listed in the paragraph below.
- Current Miami County Mitigation Plan Document and Risk Assessment updates provided by the local fire department jurisdictions.
- FEMA's local Multi-Hazard Mitigation Planning Guidance

- The local Mitigation Plan Review Crosswalk Comments & Recommendations received January 6, 2012.
- The 2015 State of Ohio Mitigation Plan Review Guide
- Available planning documents from County and Local Municipalities

The MCHMC completed and reviewed draft sections of the Plan and developed the mitigation strategy for the 2017 Plan update process as outlined below:

1A: Review of Initial Planning Process:

Note: The Miami County Hazard Mitigation Committee have annually and continues to use the 2012 Mitigation Plan along with yearly updates as a “Living Document” with changes being made as needed on a continual basis.

- The Committee recommended minor revisions to be made to the community profile.
- The Committee Reviewed and re-evaluated hazards to determine if there were any changes to be made or additional hazards that need to be added. The committee unanimously agreed the current listed hazards would stand. (No additions or deletions).
- Reviewed the following referenced Plans to ensure coordination with other Agencies:
 - Miami County Emergency Operations Plan.
 - Miami County Comprehensive Plan, Zoning Plans, and Capital Improvement Plans.
 - Review and inclusion of current countywide Floodplain Maps.
 - Review of State Mitigation Planning Documents.
 - Coordination with other County and Community Agencies’ and Communities progress with mitigation activity including the Bike Path Task Force, Miami County Parks, Miami County Board of Health, Miami County Engineer and Miami Conservancy District to make sure future planning for Miami County is all aligned.

1B: New Planning Documents:

New Planning Documents updated or adopted since the previous FEMA Plan Approval include:

- Miami County Emergency Operations Plan Update (nearly complete).
- 2016 City of Tipp City Comprehensive Plan.
- 2011 FEMA Discovery Report.
- City of Piqua Emergency Action Plan for Swift Run Lake, Echo Lake and Franz Pond Dams and Hydraulic Canal Levee. Prepared December 2014 and updated May 2016.
- City of Piqua Subsurface Exploration & Analysis for Dams – July 2014.
- City of Piqua Source Water Assessment & Protection Plan – March 2011.
- Miami County Flood Damage Reduction Resolution – April 19, 2011.
- Miami County Solid Waste Management Plan 2016-2030. Prepared by GT Consultants, March 3, 2015.
- Northern Miami County Trail System – March 14, 2017.
- Draft Troy Downtown Riverfront Development Study – June 12, 2017.

2: Review of Risk Assessment Strategy Section:

- Determine if there is missing data or if more data is needed for future plan updates.
- Determine if change of conditions over the past five years warrants change of hazard priorities.
- Determine if other hazards should be added and profiled.
- Update last five years of weather history.
- Review repetitive losses and participating NFIP communities for the county.
- Updated general plan content where warranted.
- Update hazard maps where warranted.

3: Re-assessment of Hazard Vulnerability:

- Discuss what new events have occurred in the past five years and what new problems have come up.
- Discussion on what has changed since 2012 Plan Approval.
- Re-evaluated vulnerability of the hazards that can affect the County.
- Identify and incorporate the changes into the updated Plan.
- Analyze probability of future events.
- Re-evaluated, discussed and updated County development trends.

4: Review of 2012 Plan Goals and Objectives:

- Discussion on what has changed in the last five years that may have affected vulnerability issues.
- Addressed needed changes in goals and objectives.
- Identified and discussed new problems.
- Review progress of current action items and classify as completed, deferred, deleted, new, unchanged or ongoing.
- Verify if current strategy goals and objectives are accurate or if need revised.
- Identified new action items.
- Task out action items for high priority projects.

5: Evaluate Plan Maintenance Process:

- Continuance of the process of making the mitigation planning a countywide collaborative effort. This currently is done by Miami County Hazard Mitigation Committee on an annual basis.
- Foster Cooperative Relationships.
- Update the detail process on how the local government will incorporate the mitigation strategy into other planning mechanisms.
- Reviewed and modified process as necessary to continue public participation in the Plan, especially with newer technology methods of the Internet, Websites, Facebook, Twitter, etc.

- Focus on Plan implementation with the means and ability to adapt to changing conditions and prepare, withstand and rapidly recover from disruptions caused by a hazard.
 - Identify tools and approaches that enable decision making to reduce risk and increase resilience from a changing climate.
- 6: Draft a Revised Plan Document:
- Reviewed by stakeholders.
 - Modifications as recommended by stakeholders.
 - Modifications as recommended by the public.
- 7: Plan Adoption:
- Reviews by State Emergency Management Agency, Federal Emergency Management Agency, & FEMA.
 - Make recommended revisions as requested by State EMA and FEMA.
 - Formal adoption by the Miami County Board of Commissioners and all participating communities.

Every Miami Hazard Mitigation Committee member significantly contributed to this Plan update. Some examples of how each mitigation committee member contributed to the success of the planning process are as follows:

- Dan Suerdieck of Miami County Planning and Zoning provided updated county map bases, planning documents, and general planning information.
- Kenneth Artz, Jim Howell, and Art Blackmore of the Miami County EMA provided invaluable information on the emergency operations of the county; past event history; and a summation of current technology updates throughout the county as it relates to emergency response; and provided community meeting space.
- Former member, Robert Shook, Citizen-At-Large, deceased – former Concord Township Trustee – Miami Valley Regional Planning Commission member, has been invaluable in helping to set up a network of coordinating organizations, seeking matching funding for both past, current and future mitigation projects. Mr. Shook was an ardent leader in assisting to secure funding for purchase of green space along the Miami County rivers and streams to preserve for wildlife and for recreation purposes. With the passing of Mr. Shook in March 2017, the Miami County Mitigation Committee experienced a huge loss.
- Commissioner John F. Evans has been an active participant and promoter of the mitigation process throughout the county to advocate participation by all Miami County communities and numerous county agencies, and facilitated use of Safety Building for public meetings.
- Mr. Paul Huelskamp, Chairperson and County Engineer, provided important facts and countywide dates for much of the infrastructure systems throughout the county and assisted in helping prioritize mitigation actions within the plan.
- Mr. Scott Moyer and Ms. Amber Neal, Miami County Auditor's office have provided valuable information on the value of properties and information on commercial, residential, agricultural and industrial properties.
- Amy Havenar, Piqua City Engineer, provided updates and reports on inundation study and of the city's 3 class one dams and other valuable information for the City of Piqua.

- The entire Mitigation Committee has been supportive in many similar ways and they have volunteered their time and talents to provide leadership in the mitigation process for Miami County. Their actions have led to the completion of numerous mitigation activities as well as the promotion of the continuous countywide mitigation planning efforts.

The MCHMC reviewed many existing planning documents, studies reports, and technical information to determine if all of the previous plan referenced documents are still pertinent and have made suggested changes and have added new documents and planning mechanisms to update the plan.

Community Plans

A summary of the known community documents to be incorporated included those shown in the following table:

Municipality Name	Population	Planning Commission	Zoning	Comprehensive Plans	Flood Plain Ordinance	Building Code - Residential	Building Code - Commercial	NFIP Participation	5 Year Capital Improvement Plan	Downtown Architectural Review District
Piqua	20,790	X	X	X	X	X	X	X	X	X
Tipp City	9,899	X	X	X	X	X	X	X	X	X
Troy	25,659		X	X	X	X	X	X	X	X
Bradford (part)	1,094		X			X	X			
Casstown	271		X			X	X			
Covington	2,625	X	X		X	X	X	X		X
Fletcher	480		X		X	X	X	X		
Laura	469		X			X	X	X		
Ludlow Falls	211		X			X	X	X		
Pleasant Hill	1,219	X	X			X	X			
Potsdam***	293									
West Milton	4,714	X	X	X*	X	X	X	X		
Huber Heights (part)	984	X	X		X	X	X		X	
Unincorporated areas of Miami County including all townships	35,492	X	X	X**	X	X	X	X	X	N/A

104,200

* West Milton - Union Township Comprehensive Plan

** Bethel Township has own Comprehensive Plan

***Potsdam does not participate under the jurisdiction of the Miami County Building Department.

County or Plans referenced and to be a part of the Plan include:

- 2011 Miami County FIRM Maps. (New 2017 Updates currently in process)
- Miami County Comprehensive Plan

B. REVIEW OF REFERENCED PLANS

2016-2017 Review of Current Plan Study's

What has been updated:

1a: Review of existing referenced Plans to ensure coordination with other Agencies:

- Current Miami County Action Item list from 2016.
- Miami County Emergency Operations Plan. (New updated plan in process)
- Miami County Comprehensive Plan, Zoning Plans, and Capital Improvement Plans.
- New 2016 City of Tipp City Comprehensive Plan.
- Inclusion on updated countywide Floodplain Maps. (New updates are in process)
- State Mitigation Planning Documents.
- Coordination with other County Agencies' progress with mitigation activity including the Bike Path Task Force, Miami County Parks, Miami County Board of Health, and Miami County Engineer to make sure future planning for Miami County is all aligned.
- Coordination of City/Village Plan Documents. Including new 2016 update of the City of Tipp City Comprehensive Plan.
- Coordinate with City of Piqua new:
 - 2011 FEMA Discovery Report for Upper Great Miami County Watershed – June 2011.
 - Miami County Flood Damage Reduction Resolution – April 19, 2011.
 - City of Piqua Emergency Action Plan for Swift Run Lake, Echo Lake & Franz Pod Dams & Hydraulic Canal Levee. Prepared December 2014, Revised May 2016.
 - City of Piqua Subsurface Exploration & Analysis for Dams – July 2014.
 - City of Piqua Source Water Assessment & Protection Plan – March 2011.
 - Miami County Solid Waste Plan.
 - Northern Miami County Trail System Plan – March 2017.

1.3 Planning Committee

The Miami County Hazard Mitigation Planning Committee held seven public meetings from November 2016 through May 2017 to guide and participate in the 2011 planning update process of the Miami County Hazard Mitigation Plan. The Committee consists of representatives from the following public and private sectors of Miami County.

- Miami County Auditor's Office
- Miami County Emergency Management Agency
- Miami County Public Health Agency
- Miami County Engineering Department
- Miami County Planning and Zoning
- Miami County Board of Commissioners
- Miami Conservancy District
- Miami County Economic/Community Development
- Miami County Park District
- Miami County Sheriff's Office
- Northern Miami Valley Red Cross
- Miami County Newspaper/Media Representative
- Citizens-at-Large
- City of Troy Mayor and Project Director
- Miami County Township Trustees
- Piqua Fire Department
- West Milton Public Works
- Covington Village Administrator
- City of Piqua Wastewater Plant
- City of Tipp City EMS

The Cities of Piqua, Tipp City and Troy; Board of Miami County Commissioners; and numerous villages had representatives or public officials present and participating on the Miami County Hazard Mitigation Planning Committee. In addition, participation from all smaller villages and communities were documented by:

- Responses received from email requests sent to each community mayor, clerk, or village administrator.
- Providing community action item update responses returned to the Miami County EMA.
- Receipt of updated community information provided by local fire department personnel, volunteers, or village officials.
- Participation by volunteers from the communities attending hazard mitigation meetings and special public meetings.
- Participation from Miami County Planning and Zoning.

Attached is the 2017 Miami County Hazard Mitigation team roster. Copies of the community documentation can be found in the Appendix.

MIAMI COUNTY HAZARD MITIGATION TEAM ROSTER					
As of April 24, 2017					
Name	Agency	Phone	Ext.	Fax	E-mail
Artz, Ken	Miami County EMA	332-8560		440-9004	kartz@miamicountyema.org
Beamish, Michael	Mayor, City of Troy	339-1221		339-8601	mayor.beamish@troyohio.gov
Bednar, Nate	Miami Co. Public Health	473-3470			administrator@covington-oh.gov
Blackmore, Art	Miami Co. EMA				ablackmore@miamicountyema.org
Bowell, Jim	Miami County EMA	332-8562			jbowell@miamicountyema.org
Busse, Michael	Covington Village Administrator	473-3420	29	473-3853	administrator@covington-oh.gov
Calicoat, Jeff	Chief, Tipp City EMS	313-5788			jcalicoat@me.com
Earl, Randy	American Red Cross	332-1065		332-1441	Randy.Earl@Redcross.org
Cox, Phil	Monroe Township Trustee	667-4716		667-3136	monroetwp@woh.rr.com
Evans, John (Jack)	Miami County Commissioner	440-5910		440-5911	jevans@co.miami.oh.us
Graeser, Bob	City of Piqua	778-2004			bgraeser@piquaoh.org
Havenar, Amy	Piqua City Engineer	778-2044		778-5165	ahavenar@piquaoh.org
Henderson, Michael	Mote & Associates, Inc.	548-7511		548-7484	mhenderson@moteassociates.com
Herron, Ben	West Milton Public Works	698-1500	116	698-3900	herron@ci.west-milton.oh.us
Huelskamp, Paul	Miami County Engineering	440-5656		440-5659	phuelskamp@co.miami.oh.us
Kegley, Stan	City of Troy Project Manager	335-1725		339-8601	stan.kegley@troyohio.gov
Looker, Rick	Bradford Village Administrator	448-2718		448-0221	rlooker@bradfordoh.com
Mercer, Tom	Concord Township Trustees	308-2591		332-1828	tmerc2625@gmail.com
Moyer, Scott	Miami County Auditor	440-5931			Smoyer@MiamiCountyOhio.gov
Myers, Scott	Miami County Park District	335-6273		335-6221	smyers@miamicountyparks.com
Neal, Amber	Miami County Auditor	440-3563			aneal@miamicountyohio.gov
Pence, Don	Concord Township Trustees				dpence@woh.rr.com
Pohlscheider, Brent	Piqua Fire Department	778-2013			bpohlschneider@piquaoh.org
Propes, Dennis	Miami County Public Health	573-3505		573-3501	dpropes@miamicountyhealth.net
Puskas, Barry	Miami Conservancy District	223-1278	3243	223-4730	bpuskas@miamiconservancy.org
Open Seat	Citizen-At-Large				
Suerdieck, Dan	Miami Co. Planning/Zoning Manager	440-8111		440-8124	dsuerdieck@co.miami.oh.us
Thompson, Corey	Miami County Engineer's Office	440-5656			cjthompson@miamicounty.org
Vallieu, Melody	Troy Daily News	440-5265			mvallieu@civitasmedia.com

1.4 Plan Adoption by the Board of County Commissioners

- City of Piqua
- City of Tipp City
- City of Troy
- Village of Bradford
- Village of Casstown
- Village of Covington
- Village of Fletcher
- Village of Laura
- Village of Ludlow Falls - **Did Not Participate**
- Village of Pleasant Hill
- Village of Potsdam
- Village of West Milton
- Miami County Board of Commissioners Unincorporated areas of Miami County

**A RESOLUTION ADOPTING THE MIAMI COUNTY MULTI-JURISDICTIONAL
HAZARD MITIGATION 5 -YEAR PLAN UPDATE**

- City of Piqua
- City of Tipp City
- City of Troy
- Village of Bradford
- Village of Casstown
- Village of Covington
- Village of Fletcher
- Village of Laura
- Village of Ludlow Falls - **Did Not Participate**
- Village of Pleasant Hill
- Village of Potsdam
- Village of West Milton
- Miami County Board of Commissioners Unincorporated areas of Miami County

RESOLUTION NO. 18-05-668

ADOPT MIAMI COUNTY EMA MITIGATION PLAN – 5 YEAR UPDATE
EMERGENCY MANAGEMENT AGENCY

Mr. Evans moved and Mr. Simmons seconded the motion to adopt the Miami County EMA Mitigation Plan – 5 Year Update, dated February 2018, prepared by Mote & Associates, Inc., Greenville, Ohio, as requested by the Emergency Management Agency Director, Kenneth Artz. The plan has been reviewed by the Ohio EMA (see attached letter), as well as by FEMA.

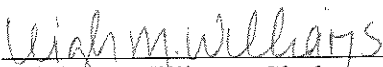
The Board voted as follows upon roll call:

Mr. O'Brien, Yea; Mr. Simmons, Yea; Mr. Evans, Yea;

DATED: May 29, 2018

CERTIFICATION

I, Leigh M. Williams, Clerk to the Board of Miami County Commissioners, do hereby certify that this is a true and correct transcript of action taken by the board under the date of May 29, 2018.


Leigh M. Williams, Clerk

Cc: Journal
 Files
 EMA – Kenny Artz

RESOLUTION NO. R-63-18

A RESOLUTION TO CONTINUE PARTICIPATION IN
A MULTI-JURISDICTIONAL HAZARD MITIGATION
PLAN IN CONJUNCTION WITH THE MIAMI
COUNTY EMERGENCY MANAGEMENT AGENCY

WHEREAS, there currently exists between the City of Piqua, Ohio and the Board of Commissioners of Miami County, Ohio, an agreement that the County through its Emergency Management Agency shall provide emergency management for the City in conjunction with the countywide coordinated program, and

WHEREAS, through this countywide coordinated program, Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per the Disaster Mitigation Act of 2000; and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the County, including the City of Piqua, have been developed, and

WHEREAS, mitigation measures for the City and surrounding areas have been analyzed and prioritized, and

WHEREAS, Miami County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED by the Commission of the City of Piqua, State of Ohio;

That this Commission hereby adopts and plans to implement the actions prescribed in the Miami County Multi-Jurisdictional Hazard Mitigation Plan with approved date of March 13, 2018 which is on file in the Office of the Director, Miami County Emergency Management Agency. This Resolution shall take effect immediately.

Kathryn B. Hinds
KATHRYN B. HINDS, MAYOR

PASSED:

April 17, 2018

ATTEST:

Kimberly J. Hebb

KIMBERLY J. HEBB
ACTING CLERK OF COMMISSION

The Motion to adopt the foregoing Resolution was offered by Comm Martin
seconded by Comm Vogt and on roll call the following vote ensued:

Mayor Kathryn B. Hinds AYE
Commissioner William Vogt AYE
Commissioner Kris Lee AYE

I, the undersigned Clerk of the City Commission of the
State of Ohio, do hereby certify that the above
Resolution No. R-63-18 is a true, accurate and
correct copy of the Resolution as passed by the Commission of the City of Piqua, Ohio, on
the 17th day of April, 2018.

Kimberly J. Hebb
ACTING CLERK OF COMMISSION

BY: Ms. Arblaster

**A RESOLUTION TO CONTINUE PARTICIPATION IN A MULTI-JURISDICTIONAL HAZARD
MITIGATION PLAN IN CONJUNCTION WITH THE MIAMI COUNTY EMERGENCY
MANAGEMENT AGENCY**

WHEREAS, there currently exists between the City of Tipp City, Ohio and the Board of Commissioners of Miami County, Ohio, an agreement that the County through its Emergency Management Agency shall provide emergency management for the City in conjunction with a countywide coordinated program; and

WHEREAS, through this countywide coordinated program, Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act; and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the County, including the City of Tipp City, have been developed; and

WHEREAS, mitigation measures for the City and surrounding areas have been analyzed and prioritized; and

WHEREAS, Miami County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan; and

NOW, THEREFORE, THE MUNICIPALITY OF TIPP CITY HEREBY RESOLVES:

SECTION 1. That the City Council hereby adopts and plans to implement the actions prescribed in the Miami County Multi-Jurisdictional Hazard Mitigation Plan which is on file in the Office of the Director, Miami County Emergency Management Agency.

SECTION 2. That this Resolution shall be in full force and effect from and after the earliest period allowed by law.

PASSED: May 21, 2018

[Signature]
President of Council

ATTEST: [Signature]
Clerk of Council

APPROVED: [Signature]
Director of Law

RESOLUTION No. R-12-2018

**RESOLUTION TO CONTINUE PARTICIPATION IN A
MULTI-JURISDICTIONAL HAZARD MITIGATION
PLAN IN CONJUNCTION WITH THE MIAMI COUNTY
EMERGENCY MANAGEMENT AGENCY**

WHEREAS, there currently exists between the City of Troy, Ohio and the Board of Commissioners of Miami County, Ohio an agreement that the County, through its Emergency Management Agency, shall provide emergency management for the City in conjunction with a county-wide coordinated program, and

WHEREAS, through this county-wide coordinated program, the Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and

WHEREAS, goals, objectives, and strategies to mitigate against the hazards that have been identified in the County, including the City of Troy, have been developed, and

WHEREAS, mitigation measures for the City of Troy and surrounding areas have been analyzed and prioritized, and

WHEREAS, Miami County Stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Troy, Ohio, as follows:

SECTION I: That the Council of the City of Troy, Ohio hereby adopts and plans to implement the actions prescribed in the Miami County Multi-Jurisdictional Hazard Mitigation Plan which is on file in the Office of the Director, Miami County Emergency Management Agency.

SECTION II: That this Resolution shall take effect at the earliest date allowed by law.

Adopted: APRIL 16, 2018

Martha A. Baker
President of Council

Approved: APRIL 16, 2018

Attest: Sue G. Knight
Clerk of Council

Michael L. Beamish
Mayor

CERTIFICATE

I, Sue G. Knight, Clerk of Council of the City of Troy, Ohio, do hereby certify that the foregoing is a true and correct copy of Resolution No. R-12-2018 passed by the Council of said City on the 16th day of April, 2018.

WITNESS my hand at Troy, Ohio, this 30th day of April, 2018.


Sue G. Knight, Clerk

RESOLUTION NO. R13-18

A RESOLUTION TO CONTINUE PARTICIPATION IN A MULTI-JURISDICTIONAL
HAZARD MITIGATION PLAN IN CONJUNCTION WITH THE MIAMI
COUNTY EMERGENCY MANAGEMENT AGENCY

WHEREAS, there currently exists between the Village of Covington, Ohio and the Board of Commissioners of Miami County, Ohio, an agreement that the County through its Emergency Management Agency shall provide emergency management for the City in conjunction with a countywide coordinated program, and

WHEREAS, through this countywide coordinated program, Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the County, including the Village of Covington, have been developed, and

WHEREAS, mitigation measures for the City and surrounding areas have been analyzed and prioritized, and

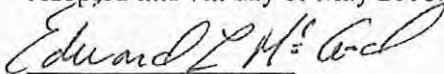
WHEREAS, Miami County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE VILLAGE OF COVINGTON, STATE OF OHIO:

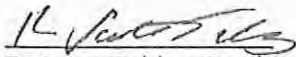
That this Council hereby adopts and plans to implement the actions prescribed in the Miami County Multi-Jurisdictional Hazard Mitigation Plan which is on file in the Office of the Director, Miami County Emergency Management Agency.

This Resolution shall take effect immediately.

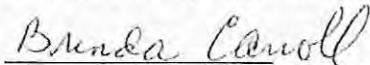
Adopted this 7th day of May 2018.



Edward L McCord, Mayor



R. Scott Tobias, President of Council



Brenda Carroll, Fiscal Officer/Clerk

RESOLUTION #

4-18

A Resolution to continue participation in a Multi-Jurisdictional Hazard Mitigation Plan in conjunction with the MIAMI County Emergency Management Agency.

WHEREAS, the currently exists between the City of LAURA, Ohio and the Board of Commissioners of MIAMI County, Ohio, an agreement that the County through its Emergency Management Agency shall provide emergency management for the City in conjunction with a countywide coordinated program, and

WHEREAS, through this countywide coordinated program, MIAMI County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which MIAMI County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the County, including the City of LAURA, have been developed, and

WHEREAS, mitigation measures for the City and surrounding areas have been analyzed and prioritized, and


WHEREAS, MIAMI County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF
LAURA, STATE OF OHIO:

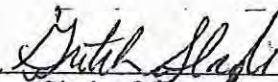
That this Council hereby adopts and plans to implement the actions prescribed in the MIAMI County Multi-Jurisdictional Hazard Mitigation Plan which is on file in the Office of the Director, MIAMI County Emergency Management Agency. This Resolution shall take effect immediately.

PASSED (Date) 4-9-18

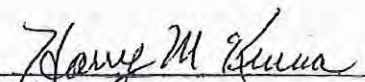
SIGNED


President of Council

ATTEST


Clerk of Council

APPROVED


Mayor

APPROVED AS TO FORM:

(Name)

Law Director

City of LAURA, Ohio

VILLAGE OF PLEASANT HILL, OHIO

RESOLUTION 2018-02

A RESOLUTION TO CONTINUE PARTICIPATION IN A MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN IN CONJUNCTION WITH THE MIAMI COUNTY EMERGENCY MANAGEMENT AGENCY

WHEREAS, there currently exists between the Village of Pleasant Hill, Ohio and the Board of Commissioners of Miami County, Ohio, an agreement that the County through its Emergency Management Agency Shall provide emergency management for the Village in conjunction with a countywide coordinated program, and

WHEREAS, through this countywide coordinated program, Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the County, including the Village of Pleasant Hill, have been developed, and

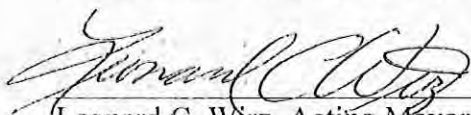
WHEREAS, mitigation measures for the Village and surrounding areas have been analyzed and prioritized, and

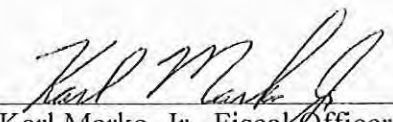
WHEREAS, Miami County stakeholders have received the Multi-Jurisdictional Hazard Mitigation Plan.

NOW THEREFORE, be it resolved by the Council of the Village of Pleasant Hill, Miami County, Ohio, as follows:

SECTION ONE: That the Council of the Village of Pleasant Hill hereby adopts and plans to implement the actions prescribed in Miami County Multi-Jurisdictional Hazard Mitigation Plan which is on file in the Office of Director, Miami County Emergency Management Agency. This Resolution shall take effect immediately.

PASSED this 14th day of May 2018.


Leonard C. Wirz, Acting Mayor
President Pro Tempore


Karl Marko, Jr., Fiscal Officer

VILLAGE OF POTSDAM, OHIO

RESOLUTION NO. 2018-03

**TO CONTINUE PARTICIPATION IN A MULTI-JURISDICTIONAL
HAZARD MITIGATION PLAN IN CONJUNCTION WITH THE MIAMI
COUNTY EMERGENCY MANAGEMENT AGENCY**

The Village Council of Potsdam, Ohio met in regular session on April 2, 2018 at the Village Office.

WHEREAS, there currently exists between the Village of Potsdam, Ohio and the Board of Commissioners of Miami County, Ohio, an agreement that the County through its Emergency Management Agency shall provide emergency management for the Village in conjunction with a countywide coordinated program, and

WHEREAS, through this countywide coordinated program, the Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and

WHEREAS, goals, objectives, and strategies to mitigate against the hazards that have been identified in the County, including the Village of Potsdam, have been developed, and

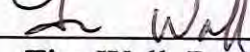
WHEREAS, mitigation measures for the Village and surrounding areas have been analyzed and prioritized, and

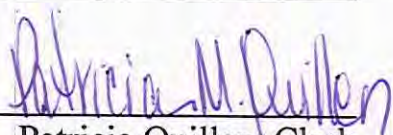
WHEREAS, Miami County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan.

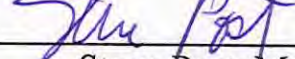
**NOW THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE
VILLAGE OF POTSDAM, STATE OF OHIO:**

That this Council hereby adopts and plans to implement the actions prescribed in the Miami County Multi-Jurisdictional Hazard Mitigation Plan which is on file in the office of the Director, Miami County Emergency Management Agency. This Resolution shall take effect immediately.

PASSED April 2, 2018

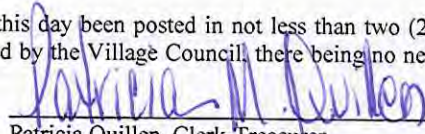
SIGNED 
Tim Wall, President of Council

ATTEST 
Patricia Quillen, Clerk

APPROVED 
Steve Post, Mayor

Clerk's Certificate

I certify that two (2) true copies of the foregoing Resolution have this day been posted in not less than two (2) of the most public places in the Municipal Corporation of Potsdam, Ohio, as designated by the Village Council, there being no newspaper published in said Village.


Patricia Quillen, Clerk-Treasurer

Date: April 2, 2018

RECORD OF ORDINANCES

BIAR GRAPHICS 800-328-5214 FORM NO. 30018

RESOLUTION CM-18-20

Ordinance No. _____

Passed

May 8, 2018

A RESOLUTION TO CONTINUE PARTICIPATION IN A MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN IN CONJUNCTION WITH THE MIAMI COUNTY EMERGENCY MANAGEMENT AGENCY

WHEREAS, there currently exists between the Municipality of West Milton, Ohio and the Board of Commissioners of Miami County, Ohio, an agreement that the County through its Emergency Management Agency shall provide emergency management for the City in conjunction with a countywide coordinated program, and

WHEREAS, through this countywide coordinated program, Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per the Disaster Mitigation Act of 2000, and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the County, including the Municipality of West Milton, have been developed, and

WHEREAS, mitigation measures for the Municipality and surrounding areas have been analyzed and prioritized, and

WHEREAS, Miami County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED by the Council of the Municipality of West Milton, Ohio that:

SECTION I:

The Council hereby adopts and plans to implement the actions prescribed in the Miami County Multi-Jurisdictional Hazard Mitigation Plan with approved date of March 13, 2018, which is on file in the Office of the Director, Miami County Emergency Management Agency.

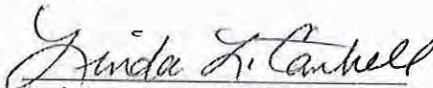
SECTION II:

This Resolution shall take effect and be in full force from and after its passage.

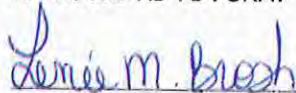
Passed this 8th day of May, 2018


Anthony Miller, Mayor

ATTEST:


Linda L. Cantrell, CAP/OM
Clerk of Council

APPROVED AS TO FORM:


Lenée M. Brosh
Law Director

RECORD OF PROCEEDINGS

Minutes of Brown Township

Held April 23, 2018

The Board of Trustees of Brown Township, Miami County, Ohio, met in regular session with the following members present: Mr. Beal, Mr. Coffing and Mr. Cron.

The minutes of the previous meeting were read and approved with no objections or corrections.

The following bills were presented for payment:

7250	John Beal	\$ 895.73
7251	Art Bowser	\$ 1,102.00
7252	Larry Coffing	\$ 892.23
7253	Doug Cron	\$ 893.44
7254	Angela Leiss	\$ 323.72
7255	Doug Cron	\$ 587.00
7256	Art Bowser	\$ 584.64
7257	Larry Coffing	\$ 703.84
7258	Imagine Networks	\$ 89.95
7259	DP&L	\$ 222.18
7260	Treasurer of State	\$ 612.00
7261	Piqua Concrete	\$ 565.00
7262	Art Bowser	\$ 86.62
7263	OTARMA	\$ 4,360.00
7264	Barbara Coffing	\$ 446.35
7265	Ron Yantis	\$ 491.26

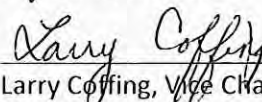
Mr. Coffing moved that the bills be allowed and the fiscal officer ordered to pay the same. Seconded by Mr. Cron and passed by trustee vote of three yeas and no nays.

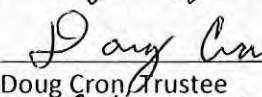
The Miami County Prosecutor's office approved a form letter intended to be sent to Township citizens regarding an upcoming levy vote. See attached email and letter. Mr. Cron moved that the letter be approved and mailed on or before May 1, 2018. Seconded by Mr. Coffing and passed by trustee vote of three yeas and no nays.

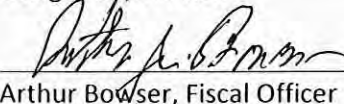
Mr. Cron moved that the Miami County Hazard Mitigation Plan as currently proposed be adopted. Seconded by Mr. Coffing and passed by trustee vote of three yeas and no nays.

No further business. Meeting adjourned.


John Beal, Chairman


Larry Coffing, Vice Chairman


Doug Cron, Trustee


Arthur Bowser, Fiscal Officer



CONCORD TOWNSHIP RESOLUTION 2018-03

A RESOLUTION TO ADOPT THE MIAMI COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, Miami County has experienced severe damage from several natural hazards on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety;

WHEREAS, the Miami County Emergency Management Agency has established the Miami County Hazard Mitigation Planning Committee and they have, through an organized planning process, identified local problems and mitigation activities to help reduce hazards, damages, and loss of life during a natural hazard event;

WHEREAS, the Plan recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Miami County;

WHEREAS, public hearings were held to review the Plan as required by law; and will hereby be implemented, monitored, evaluated, and updated annually by the Miami County Hazard Mitigation Committee. The Miami County Board of Commissioners will be the public authority to promote and oversee the continued maintenance of this Plan.

THEREFORE, BE IT RESOLVED THAT:

1. The Miami County Hazard Mitigation Plan is hereby adopted as an official plan of Miami County.
2. The Miami County Emergency Management Agency has entered into an agreement, in the manner provided by law, under the Ohio Revised Code, as amended, and has the power to coordinate and unify the comprehensive emergency management activities of the participants thereof, including the various municipal corporations and townships of Miami County, Ohio.
3. The respective County, Township, District, City, and Village officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them. These officials will report annually on their activities, accomplishments, and progress to the Miami County Hazard Mitigation Committee under the direction of the Miami County Board of Commissioners. This report shall be submitted to the Miami County Board of Commissioners by February 28th of each year.

**THE BOARD OF TRUSTEES
OF
THE LOSTCREEK TOWNSHIP
MIAMI COUNTY, OHIO**

**A RESOLUTION APPROVING THE 2015 5-YEAR HAZARD MITIGATION PLAN
UPDATE**

RESOLUTION NO. 2018-19

WHEREAS, the current plan exists between Lostcreek Township, Miami County, Ohio and the Board of Commissioners of Miami County, Ohio an agreement that the County through its Emergency Management Agency shall provide emergency management for the Township in conjunction with the countywide program, and

WHEREAS, through this countywide coordinated program, Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the county, including Lostcreek Township, have been developed, and

WHEREAS, mitigation measures for the Township and surrounding areas have been analyzed and prioritized, and

WHEREAS, Miami County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan update.

NOW THEREFORE, BE IT RESOLVED by the Lostcreek Township Board of Trustees, Miami County, Ohio;

The Board of Trustees hereby adopts and approves the 2015 5-YEAR HAZARD MITIGATION PLAN UPDATE, which is on file in the Office of the Miami County Emergency Management Agency. This Resolution shall take effect immediately.

Adopted on the 19th day of April 2018.


ATTEST: WALTER PEMBERTON

Fiscal Officer
Lostcreek Township
Miami County, Ohio

THE STATE OF OHIO)

) ss:

MIAMI COUNTY)

I, **Walter Pemberton**, Fiscal Officer of **Lostcreek**, Township, Miami County, Ohio, do hereby certify that the above **Resolution 2018-19** is a true and accurate copy passed by the Lostcreek Township board of Trustees on the **19th** of **April** 2018.

A handwritten signature in black ink, appearing to read "Walter Pemberton", is written over a horizontal line.

Fiscal Officer
Lostcreek Township
Miami County, Ohio

BOARD OF NEWBERRY TOWNSHIP TRUSTEES
MIAMI COUNTY, OHIO

Resolution No 2018-03

**A RESOLUTION ADOPTING THE MIAMI COUNTY MULTI-JURISDICTIONAL
HAZARD MITIGATION 5 -YEAR PLAN UPDATE**

WHEREAS, Miami County has experienced severe damage from several natural hazards on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety; and

WHEREAS, the Miami County Emergency Management Agency has established the Miami County Hazard Mitigation Planning Committee and they have, through an organized planning process, identified local problems and mitigation activities to help reduce hazards, damages, and loss of life during a natural hazard event; and

WHEREAS, the 5-Year Plan Update recommends many hazard mitigation actions that will protect the people and property affected by the natural hazards that face Miami County; and

WHEREAS, public hearings were held to review the Plan as required by law; and will hereby be implemented, monitored, evaluated, and updated annually by the Miami County Hazard Mitigation Committee. The Miami County Board of Commissioners will be the public authority to promote and oversee the continued maintenance of this Plan.

NOW, THEREFORE, BE IT RESOLVED by the Trustees of Newberry Township, Miami County, Ohio, the majority of all members elected thereto concurring, that:

Section 1: The Miami County Hazard Mitigation 5-Year Plan Update is hereby adopted as an official Plan of Miami County, Ohio;

Section 2: The Miami County Emergency Management Agency has entered into an agreement, in the manner provided by law, under the Ohio Revised Code, as amended, and has the power to coordinate and unify the comprehensive emergency management activities of the participants, thereof, including the various municipal corporations and townships of Miami County, Ohio; and

Section 3: This resolution shall take effect and be in force from and after the earliest period allowed by law.

Passed: _____

Attest: _____

May 15, 2018
Newton Township Trustees, Miami County

RESOLUTION 2018-05
5-Year Hazard Mitigation Plan

Newton Township hereby resolves to adopt and participate in the 2015 5-Year Hazard Mitigation Plan approved through the Federal Emergency Management Agency (FEMA).

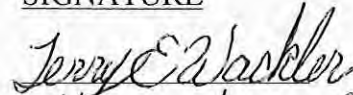
ROLL CALL:

VOTE:

SIGNATURE

Terry E. Wackler, Trustee

yes



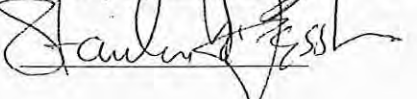
Gene Laughman, Trustee

YES



Stanley Fessler, Trustee

YES



Adopted on the 15th day of May, 2018.

ATTEST:



John L. Wackler
Fiscal Officer, Newton Township
Miami County, Ohio

Resolution 2018-3

A RESOLUTION TO CONTINUE PARTICIPATION IN A MULTI-JURISDISTIONAL HAZARD MITIGATION PLAN IN
CONJUNCTION WITH THE MIAMI COUNTY EMERGENCY MANANGEMENT AGENCY

WHEREAS, there currently exists between Staunton township, Ohio and the Board of Commissions of Miami County, Ohio and agreement that the County through its Emergency Management Agency shall provide emergency management for the City in conjunction with a countywide coordinated program, and

WHEREAS, through this countywide coordinated program, Miami County Emergency Management Agency has developed a Multi-Jurisdictional Hazard Mitigation Plan that includes all hazards to which Miami County and its municipalities are susceptible as per Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, and

WHEREAS, goals, objectives and strategies to mitigate against the hazards that have been identified in the County, including Staunton Township, have been developed, and

WHEREAS, mitigation measures for the City and surrounding areas have been analyzed and prioritized, and

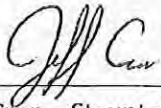
WHEREAS, Miami County stakeholders have reviewed the Multi-Jurisdictional Hazard Mitigation Plan.

NOW THEREFORE BE IT RESOLVED BY THE BOARD OF TRUSTEES OF STAUNTON TOWNSHIP, STATE OF OHIO:

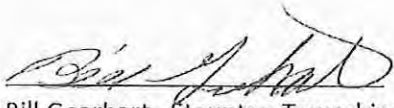
That this Board hereby adopts and plans to implement the actions prescribed in the Miami County Multi-Jurisdictional Hazard Mitigation Plan which is on file in the Office of the Director, Miami County Emergency Management Agency.

This Resolution shall take effect immediately.

Adopted this 7th day of May, 2018



Jeff Cron – Staunton Township Trustee



Bill Gearhart– Staunton Township Trustee



Levi Long– Staunton Township Trustee



Sarah Fine – Staunton Township Fiscal Officer

Philip S. Mote
President

James D. Richard
Vice-President

Dennis L. Albaugh
Trustee

Marjorie D. Coate
Fiscal Officer

RESOLUTION NO. 18-04

**A RESOLUTION ADOPTING THE MIAMI COUNTY
MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN**

WHEREAS, Miami County has experienced severe damage from several natural hazards on many occasions in the past century, resulting in property loss, loss of life, economic hardship, and threats to public health and safety; and

WHEREAS, the Miami County Emergency Management Agency has established the Miami County Hazard Mitigation Planning Committee and they have, through an organized planning process, identified local problems and mitigation activities to help reduce hazards, damages, and loss of life during a natural hazard event; and

WHEREAS, public hearings were held to review the Plan as required by law; and will hereby be implemented, monitored, evaluated and updated annually by the Miami county Hazards Mitigation Committee. The Board of Miami County Commissioners will be the public authority to promote and oversee the continued maintenance of this Plan.

NOW, THEREFORE, BE IT RESOLVED by Union Township, Miami County, Ohio, the majority of all members elected thereto concurring, that:

SEC 1: The Miami County Hazard Mitigation Plan is hereby adopted as an official plan of Miami County; and

SEC 2: The Miami County Emergency Management Agency has entered into an agreement, in the manner provided by law, under the Ohio Revised Code, as amended, and has the power to coordinate and unify the comprehensive emergency management activities of the participants, thereof, including the various municipal corporations and townships of Miami County, Ohio; and

SEC 3: The respective County, Township, District, City and Village officials identified in the strategy of the Plan are hereby directed to implement the recommended actions assigned to them. These officials will report annually on their activities, accomplishments, and progress to the Miami County hazard Mitigation Committee under the direction of the Board of Miami County Commissioners. This report shall be submitted to the Board of Miami County Commissioners by February 28th of each year.

SEC 4: This resolution shall take effect and be in force from and after the earliest period allowed by law.

Resolution 18-04

ROLL CALL VOTE:

<u>NAME</u>	<u>VOTE</u>	<u>INITIALS</u>
PHILIP S. MOTE, PRESIDENT	Yes <u>8</u> No <u> </u> ;	<u>PSM</u>
JAMES D. RICHARD, VICE-PRESIDENT	Yes <u>8</u> No <u> </u> ;	<u>JDR</u>
DENNIS L. ALBAUGH, TRUSTEE	Yes <u>8</u> No <u> </u> ;	<u> </u>

Philip S. Mote
PHILIP S. MOTE, President

James D. Richard
JAMES D. RICHARD, Vice-President

Dennis L. Albaugh
DENNIS L. ALBAUGH, Trustee

Adopted on this 14 day of May, 2018

ATTEST: Marjorie D. Coate
MARJORIE D. COATE
Fiscal Officer, Union Township
Miami County, Ohio

Trustee Mote motioned to accept with a second
by Trustee Albaugh.

1.5 Plan Adoption

Adoption by Multi-Jurisdictional

It is anticipated the following public entities will adopt the final FEMA approved 5-Year Plan Update for the Miami County Multi-Jurisdiction Hazard Mitigation Plan.

Multi-Jurisdictional Plan Participation Miami County, Ohio

Participating Jurisdiction	2006 Plan		2011 Plan		2018 Plan		Date of Adoption
	Yes	No	Yes	No	Yes	No	
Incorporated Areas							
Village of Bradford	X		X		X		
Village of Casstown	X			X	X		
Village of Covington	X		X		X		
Village of Fletcher	X		X		X		
Village of Laura	X		X		X		
Village of Ludlow Falls	X		X	X		X	
City of Piqua	X		X		X		
Village of Pleasant Hill	X		X		X		
Village of Potsdam	X		X		X		
City of Tipp City	X		X		X		
City of Troy	X		X		X		
Village of West Milton	X		X		X		
Miami County Board of Commissioners							
Unincorporated areas of Miami County	X		X		X		

Hazard Identification, Risk Assessment & Vulnerability Analysis

- 2.1 Overview & Hazard Identification Summary
- 2.2 Identifying Hazards
- 2.3 Tornado/Windstorm
- 2.4 Severe Winter Storm/Blizzards/Ice/Sleet
- 2.5 Flooding
- 2.6 Earthquake
- 2.7 Severe Thunderstorm and Lightning/Hail
- 2.8 Temperature Extreme & Heat Wave
- 2.9 Epidemic/Disease Impact
- 2.10 Drought
- 2.11 Infestation/Invasive Species
- 2.12 Wildfire
- 2.13 Terrorism
- 2.14 Utility/Communication Failures
- 2.15 Hazardous Materials Incident
- 2.16 Transportation Accident
- 2.17 Dam Failure
- 2.18 Addressing Repetitive Loss Structures
- 2.19 Updating Asset Inventory
- 2.20 Multi-Jurisdictional Risk Assessment
- 2.21 Analyzing Development Trends

2.1 Overview & Hazard Identification Summary

Miami County, Ohio, is prone to many natural and manmade hazards. Miami County has experienced hundreds of hazard events resulting in millions of dollars in losses and casualties, and ten State disaster declarations between 1977 and 2016. In 2003, as part of an overall effort to reduce future exposure to damages and meet the planning requirements of the DMA 2000, Miami County of Ohio began the development of the initial Hazard Identification and Risk Assessment (HIRA). The HIRA has been subsequently reviewed and updated in the 2017 Plan.

This section will cover separate requirements of Section 201.(c)(2) including overview, identifying hazards, profiling hazards, addressing repetitive loss structures, identifying structures, estimating potential losses and analyzing development trends. These requirements are integrated into each hazard for which it is detailed.

Identifying Hazards

Section 201.6(c)(2)(i) requires the risk assessment include a description of the type of all natural hazards that can affect Miami County. This section of the plan presents a list of potential hazards that may likely impact Miami County. Due to the county's mix of urban and rural areas, it is vulnerable to a number of hazards that threaten its' communities, businesses, public entities, and environment. To determine the hazards that pose the greatest threat to the county, the Miami County Mitigation Committee re-evaluated the list of potential hazards by conducting a review of several key resources which include:

- Review of historical data on events that have occurred in the last 50 years.
- Review of 2011 Miami County plan data.
- Review of the State Hazard Mitigation Plan.
- Review of Miami County Flood Insurance Study (Preliminary August 5, 2016).
- Collaboration with community experts and agencies on different hazards including representatives from County Board of Commissioners, County Trustee Representatives, County EMA, County Engineers, Miami Conservancy District, County Health District, City/Village/Township Representatives, County Planning & Zoning, County Park District, Community EMS Agencies, Public at Large, Northern Miami Valley Red Cross Chapter, Miami Conservancy District, and other State and Local Agencies.
- Review of past events and declared disasters through NOAA/NCDC
- United States Geological Survey (USGS) and Ohio Seismic Network
- Newspaper articles and internet research.
- County Auditor data.

Profiling Hazards

Section 201.6(c)(2)(i) requires that the risk assessment shall include a description of the location and extent of all natural hazards that can affect Miami County including information on previous occurrences of hazard events, as well as the probability of future hazard events, using maps where appropriate. The risk assessment relies upon

information about past hazard events from published sources such as National Oceanic and Atmosphere Administration (NOAA), United States Geological Survey (USGS), United States Army Corp of Engineers (USACE), Ohio Emergency Management Agency (EMA), Ohio Department of Natural Resources (ODNR), and Miami County Records, among other agencies.

The risk assessment section for each hazard in this plan includes a description of the location or geographic area that would be affected and areas where it could occur; the extent of magnitude or severity of potential hazard events; the range of magnitude or severity expected of the hazard; past occurrences; and a discussion of probability of future hazard events.

Assessing Vulnerability of Miami County

Section 201.6(c)(2)(ii) requires a description of each jurisdiction's vulnerability to the hazards described and the description shall include an overall summary of each hazard and its impact on the community.

Addressing Repetitive Loss Structures

Section 201.6(c)(2)(ii) requires that the risk assessment also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods. Miami County has identified eleven repetitive loss structures located within the City of Troy and unincorporated areas of Miami County.

Identifying Structures

Section 201.6(c)(2)(ii) of the risk assessment should include a description of vulnerability in terms of and analysis of the county's vulnerability to the hazards described in this paragraph (c)(2) based on estimates provided in local risk assessments. The county shall describe vulnerability in terms of the communities most threatened by the identified hazards, and most vulnerable to damage and loss associated with hazard events. The methodology for this section varies by hazard due to available data and will be more thoroughly discussed within the results of the section for each hazard. The Fire Department Jurisdiction Teams determined which structures were considered critical facilities during a disaster. Critical facilities are defined as a facility whose use is necessary during recovery efforts following a disaster.

Estimating Potential Losses

Section 201.6(c)(2)(ii) of the risk assessment should include a description of vulnerability and analysis of potential losses to identified structures based on estimates. The methodology for this section varies by hazard due to available data and will be more thoroughly discussed within the section for each hazard.

Analyzing Development Trends

Section 201.6(c)(2)(ii) of the risk assessment should describe vulnerability in terms of providing a general description of land uses and development trends within each community participating in the plan. The largest area of County development growth is generally along the North/South I-75 corridor but is discussed in more detail within the analyzing development trends section.

Multi-Jurisdictional Risk Assessment

Section 201.6(c)(2)(ii) indicates that the risk assessment must assess each jurisdictions' risk where they vary from the risks facing the entire planning area. This requirement is addressed in detail within the section.

Update Summary

The 2011 HIRA update identified a comprehensive list of hazards, both manmade and natural.

Developing this data was a collaborative process involving several county and state agencies. For the 2017 update, the existing analyzed hazards were reviewed for accuracy and availability of improved data. Based on the review it was determined that the following updates be made:

- Provided Data updates for the following hazards:
 - Tornado / Windstorm
 - Severe Winter Storm / Blizzards / Ice / Sleet
 - Flooding
 - Earthquake
 - Severe Thunderstorm / Lightning / Hail
- The Miami County Hazard Mitigation Committee re-evaluated the current plan hazards and determined the current of hazards were all valid and will remain in the 2017 updated plan.

2.2 Identifying Hazards

The Miami County Hazard Mitigation Committee reevaluated the identified hazards in its previous FEMA approved plan to address any newly identified hazards that have been determined to pose a threat. These hazards were identified through an extensive research process that utilized input from the following sources:

- Miami County EMA
- Miami County Health District
- Miami Conservancy District
- City of Troy Project Director
- West Milton Public Works
- Citizens at Large
- Miami County Planning and Zoning
- Miami County Engineering
- Miami County Park District
- Township Trustees
- American Red Cross
- Miami County Economic/Community Development
- Miami County Commissioners
- Concord and Monroe Township Trustees
- Reviews of printed media ranging in date from 2011-2016.
- Discussions conducted with local officials/experts.
- Reviews conducted of the updated Flood Insurance Rate Maps (FIRMs) for Miami County Unincorporated areas and the Villages of Bradford, Casstown, Covington, Fletcher, Laura, Ludlow Falls, Pleasant Hill, Potsdam, West Milton, and the Cities of Piqua, Tipp City, and Troy.
- Searches of multiple Internet sites concerning hazard mitigation and planning (The following sites are general listings that were revisited at the onset of the project. Sites that were searched regarding specific hazards are listed with those hazards below):
 - American Red Cross – Local Chapter
www.redcross.org/where
 - Disaster Center
www.disastercenter.com
 - Federal Emergency Management Agency
www.fema.gov
 - HAZUS Instruction and Technical Information
www.fema.gov/hazus
 - Socio-Economic Data Resources
www.csc.noaa.gov/products/nchaz/htm/dinfo_4.htm
 - USDA Natural Resources Conservation Service
 - National Oceanic Atmospheric Administration

The Miami County Hazard Mitigation Committee re-evaluated the following Natural and Technological hazards to determine if they could potentially affect the county:

- Severe Thunderstorm
- Hail Storm
- Blizzard
- Flooding
- Tornadoes
- High Wind Events
- Severe Winter/Ice Storms
- Droughts
- Earthquakes
- Extreme Temperatures
- Disease (Human/Animal)
- Animal/Insect Infestation
- Wildfire
- Levee/Dam Failure
- Avalanche
- Coastal Storm
- Mine Subsistence
- Volcano
- Coastal Erosion
- Hurricane
- Tsunami
- Landslides
- Power Outages/Blackouts
- Water/Sewage System Failures
- Structure Fires
- Structural Collapse
- Transportation Accidents – Road, Rail and Air
- Cyber Terrorism
- Communication/Network Interruptions
- Acts of Terrorism
- Natural Gas Leaks/Spills
- Heating Emergencies
- HAZMAT Incidents (spills)
- Air/Water Contamination
- Bomb Threats/Bombing
- Active Shooter, Workplace
- Civil Disturbances
- Arson

The Committee eliminated numerous hazards from the list based on the unlikely hood of occurrence and the potential for a negligible impact on the County should they occur. Other hazards were combined as many of them are factors in larger hazards.

After evaluation and study the Miami County Hazard Mitigation Committee eliminated the following Natural Hazards, which were determined not to be relevant, very low or insignificant risks to the County:

- Avalanche – The general elevation is not high enough and the climate not suitable for snow to cap mountains year round. Therefore, avalanches are not a significant hazard. Sliding rock and/or earth is considered a landslide for the purpose of this report.
- Coastal Erosion – Miami County is a landlocked county and does not have any coastal boundaries
- Coastal Storm – Miami County is positioned inland from large bodies of water (see also Hurricane)
- Hurricane – While Miami County sometimes receives precipitation and high winds as hurricanes hit the southern coastal states, the county does not experience intense hurricane conditions. The precipitation and wind that is received can be classified as a severe thunderstorm or high wind event.

- Mine Subsidence – According to the Ohio Department of Natural Resources data, there are no abandoned mines in Miami County.
- Tsunami – Miami County is located inland from large bodies of water and not affected by tsunamis.
- Volcano – Research shows no volcanic activity in Miami County
- Landslides – Due to flat terrain of the County the occurrence of a landslide has been determined to very low.

The final list of potential hazards that may affect Miami County are as follows:

1. Tornado / Windstorm
2. Severe Winter Storm / Blizzards / Ice / Sleet
3. Flooding
4. Earthquake
5. Severe Thunderstorm & Lightning / Hail
6. Temperature Extreme & Heat Wave
7. Epidemic / Disease Impact
8. Drought
9. Infestation / Invasive Species
10. Wildfire

Additional Hazards are as follows:

1. Terrorism
2. Utility / Communication Failures
3. Hazardous Materials Incident
4. Transportation Accident
5. Dam / Levee Failure

Upon identifying the hazards that can affect Miami County, a second element is the assessment of the vulnerability that can be associated with that hazard. The risks associated with each hazard were further assessed using the following factors which were assigned numerical risk values:

For the purposes of ranking hazards affecting the county, in order of importance for mitigating their effects, a hazard assessment was completed on a scale of 0 - 4, with four being the highest priority for considering mitigation goals. This index takes into account:

- Magnitude of hazard classification
- Frequency of occurrence
- Average warning response duration
- Impact on life safety and well being
- Community preparedness for event
- Consequences of impact

Numerical values were applied to provide a basis to compare hazards and to assign risk value.

Magnitude of Hazard Classification		
Magnitude	Description	Mishap Definition
4	Catastrophic	Death or major structural loss
3	Critical	Severe injury, severe illness, or marginal structural damage
2	Marginal	Minor injury, minor illness, or structural damage
1	Negligible	Less than minor injury, illness, or structural damage

Frequency of Occurrence	
High	Near 100 Percent probability in the next year
Likely	Between 10 percent and 100 percent probability in the next year, or at least one chance in 10 years
Low	Between 1 and 10 percent probability in the next year, or at least one chance in the next 100 years
Unlikely	Less than 1 percent probability in the next year, less than one chance in the next 100 years
Highly Unlikely	Little or no probability in next 100 years

Source: FEMA, 1997

Average Warning Response Duration: Examines the probable amount of warning time associated with an impending incident and whether or not viable warning systems are in place	
4	Excessive
3	Long
2	Medium
1	Short

Impact On Life Safety and Well Being: Examines overall impact the hazard will have on life safety
<p>Catastrophic: If such an event would occur the number of injuries would be numerous and the severity of the injuries would be mostly life threatening injuries.</p> <p>Critical: If such an event would occur the number of injuries would be numerous and the severity of the injuries would be a mix of life threatening and non-life threatening injuries.</p> <p>Limited: If such an event would occur the number of injuries would be limited and the severity of the injuries sustained would not be life threatening injuries.</p> <p>Negligible: Injuries and/or illness treatable with first aid kit.</p>

Community Preparedness: Examines overall preparedness that County Emergency response agencies have when responding to a specific hazard

Not Prepared: There is no emergency plan, or written policies or procedures in place. The emergency response personnel have inadequate equipment or no equipment at all. Response personnel have not received any training or participated in any emergency exercises. There is no emergency notification system to warn the public. No mutual aid agreement signed with local emergency response agencies.

Poorly Prepared: No Emergency Plan, some written policies and procedures are in place but have not been reviewed and revised recently. The emergency response personnel are not adequately equipped and properly trained in the necessary steps to be taken to deal with a specific emergency. Single or a few antiquated emergency notification systems are employed to alert the public of incoming hazards. Mutual aid agreement is signed, but is out of date.

Adequately Prepared: Emergency Plan, written policies and procedures are in place, but have not been reviewed annually. Emergency response personnel have equipment but it may be inadequate. The response personnel have received some training but do not regularly participate in disaster response drills. There are a few emergency notification systems employed, to notify the public of oncoming hazards. Mutual aid agreements are signed.

Well Prepared: Emergency Plan, written policies, procedures are in place and are revised annually. Emergency response personnel have the proper equipment that they need to respond to a specific hazard. The response personnel have been properly trained and participate in disaster drills regularly. There is several emergency notification systems employed to alert the public of oncoming hazards. Mutual aid contracts have been signed and are current.

Consequences of Impact

Catastrophic	Multiple deaths, complete shutdown of facilities for 30 days or more, more than 50 percent of property is severely damaged.
Critical	Multiple severe injuries, complete shutdown of critical facilities for at least two weeks, more than 25 percent of property severely damaged.
Limited	Some injuries, complete shutdown of critical facilities for more than one week, more than 10 percent of property severely damaged.
Negligible	Minor injuries, minimal quality-of-life impact, shutdown of critical facilities and services for 24 hours or less, less than 10 percent of property is severely damaged

Source: FEMA, 1997

The final natural hazard list included 10 hazards which are listed in order of priority:

1. Tornado/Windstorm (15.18)

Miami County has endured seventeen tornados from the period of 1950 through June 2010. The most damaging tornado was an F-1 on the Fujita scale occurring in June of 1989 causing \$2,500,000 in damage over portions of Miami County. Since 2012 Plan Update there have been 2 EF-0 magnitude tornados to strike Miami County causing \$145,000 in damages.

Miami County has experienced frequent high wind events throughout the county. The magnitude of these events has ranged from 50-66 knots. The most significant wind storm occurred as a result of Tropical Storm Ike which was experienced countywide on September 14, 2008 resulting in approximately \$12,000,000 in property damage throughout county.

Sources: NOAA/NCDC Event Records. Local newspaper coverage. National Weather Service.

Why Identified: Numerous past occurrences in the county. Past federal disaster declarations.

2. Severe Winter Storm/Blizzards/Ice/Sleet (14.64)

Miami County is susceptible to severe winter weather conditions as it experienced the Blizzard of 1978, blizzard conditions of December 19, 1995, and three Level Three (3) snow emergencies in January 1999. Winter Storm events with heavy snow, ice and winter weather conditions occur frequently throughout the Miami County area. The open rural areas of the county are subject to blowing and drifting snow with poor visibility. Per event, snowfalls in the 6-12" range are common during the winter months, and the frequency is generally a yearly occurrence. Two deaths and six injuries were attributed to severe winter weather on January 21, 1995. There were two deaths on January 21, 1995, that caused \$500,000 in damages to the County. There was also one death due to a winter storm on January 6, 1996. An accident due to icy road conditions seriously injured three on December 26, 2010 along St. Rt. 718 near Pleasant Hill. There have been no winter weather reported deaths to the National Climatic Data Center since 1996.

Since 2012 Plan Update there has been 30 additional winter weather events to affect Miami County with no damages listed. The winter weather event list has been updated.

Sources: NOAA/NCDC Event Records. Local newspaper coverage. National Weather Service. Review of past disaster declarations.

Why Identified: Frequent occurrences in the county.

3. Flooding (14.29)

Miami County's drainage areas include the Great and Miami River basins, which include the Great Miami, Stillwater, and Mad Rivers. Miami County experienced flooding as evidenced by the August 25, 1995 flooding when 10.7" of rain fell over a

24-hour period whereby the County had more roads closed than the County had “high water” signs. This event resulted in the Presidential Declaration. Then on June 29, 1998, the flooding incident resulted in closing down Interstate 75 near Tipp City and caused widespread flooding to the area. The Miami County Hazard Risk Assessment includes one residential repetitive loss structure located near Troy. It has recorded two losses.

Since 2012 Plan update there have been 19 flash flood/flood events to affect Miami County with 1.378 million dollars in damages reported. The most significant flash flooding occurred on May 21, 2014 in the Tipp City area causing \$1.3 million dollars in damages.

Sources: Review of updated FIRM maps. Local newspaper coverage. NOAA/NCDC Event Records. Miami County EMA records. Review of past disaster declarations.

Why Identified: Past occurrences in Miami County. Past federal disaster declarations.

4. Earthquake (14.29)

Miami County’s immediate neighboring county to the north, Shelby County, has been the site of at least 40 earthquakes, including a 5.0 magnitude earthquake in 1988. Other earthquake events in 1875, 1930, 1931, and two quakes in 1937 caused minor to moderate damage in Shelby County. Many of these quakes were felt in Miami County. Most recent Shelby County earthquake centered in western Shelby County and felt in Miami County was September 30, 2008.

Since 2012 Plan Review update there have been approximately 35 minor earthquakes around Ohio but none have been centered near Miami County or caused any damages within Miami County.

Sources: Division of Geological Survey – Ohio Seismic Network. Internet search. Local newspaper coverage.

Why Identified: Several previous documented tremors occurred in the County.

5. Severe Thunderstorm & Lightning/Hail (14.12)

Occur frequently throughout the county causing widespread damage as recorded in the NOAA event records. A severe thunderstorm with lightning occurred on June 2, 2007 causing three injuries at the Troy Strawberry Festival. The hailstorm of May 18, 2000 struck the Miami County communities of Bradford, Pleasant Hill, Piqua and Troy with significant damage reported. One person was killed by lightning in Piqua on April 9, 2001.

Since 2012 Plan Review update there has been 20 severe thunderstorm/wind events to affect Miami County resulting in \$138,000 in reported damages.

Sources: NOAA/NCDC Event Records. Local newspaper coverage. National Weather Service.

Why Identified: Several past occurrences in the county. Past federal disaster declarations.

6. Temperature Extreme & Heat Wave (12.65)

The last known extreme heat occurrence to affect Miami County was the hot and humid period in July 1999. 13 heat related deaths were recorded across Ohio. Extreme heat and cold temperatures are a terser hazard that can be a hazard in Miami County. The highest recorded temperature in Ohio through 2010 was 113 degrees Fahrenheit which was reported in the southeastern portion of the state. There were no excessive heat events reported since the 2012 Plan updates.

Sources: NOAA/NCDC event records, previous past disaster declarations, local newspaper coverage, internet research.

Why Identified: Previous occurrences in county.

7. Epidemic/Disease Impact (12.35)

Miami County is susceptible to potential epidemics and health challenges as witnessed by the recent Zika Virus and bed bug concerns.

Sources: Local newspaper coverage, Ohio Department of health records. Miami County Public Health website.

Why Identified: Previous occurrence in the County.

8. Drought (11.06)

Miami County experienced a severe drought in July and August 1999. Whereby most of the county was 6 – 8” below normal precipitation levels. Miami County also experienced moderate drought conditions in August and September 2007 and September 2010.

There were no severe drought conditions reported since the 2012 Plan approval.

Sources: NOAA/NCDC Event Records. Local newspaper coverage. National Weather Service. Palmer Drought Severity Index. Ohio Department of Natural Resources, Division of Water.

Why Identified: Previous occurrences in the county.

9. Infestation/Invasive Species (10.59)

This is of concern as evidenced with the 2003 gypsy moth infestation. In addition, the Emerald Ash Borer insect from Asia was discovered in Ohio in 2003. In 2010, Ohio began experiencing a resurgence of bed bugs which were eradicated from the U.S. around the end of World War II but in the last decade have made a steady comeback. The scratch inducing pests can live without feeding for up to 18 months. An infestation of the Asian Longhorned Beetles (ALB) has been discovered in Southwest Ohio near Cincinnati in the spring of 2011. The U.S. Department of Agriculture says Ohio is the 5th state to detect ALB. These beetles attack a wide variety of broadleaf trees particularly Maples. Invasive plants include Bush

Honeysuckle which is prevalent across woodlands of Miami County. Invasive species and Emerald / Ash Borer continue to be an ongoing issue since 2012 Plan approval. Removal of the dead trees and invasive species is costly and dead trees creates a safety challenge for homeowners and motorists.

Sources: Local newspaper coverage, internet research, Ohio Department of Agriculture, Department of Natural Resources, Ohio Division of Forestry.

Why Identified: Previous documented occurrence within County.

10. Wildfire (10.18)

Miami County is susceptible to wildfire in fields and woodlands during extensive dry conditions, mainly in the late summer and early fall seasons. On September 24, 2010 wind conditions and extreme dry conditions accompanied by dry crops field many field fires in Miami and surrounding counties. In nearby Darke County a house and barn were lost due to wildfire.

There were no reported wildfires since the 2012 Plan update.

Sources: Local newspaper coverage. Fire and Emergency Service records. Ohio Department of Natural Resources. Ohio Division of Forestry. Internet search. Palmer Drought Severity Index.

Why Identified: Several previously documented occurrences in the County.

The final other hazard list included five hazards which are listed in order of priority:

1. Terrorism (15.53)

Miami County has identified individual potential terrorist target sites, is located close to Wright-Patterson Air Force Base, and is positioned close to two large cities which make the county a possible terrorist threat.

Sources: County Emergency Management.

Why Identified: Close proximity Wright Patterson Air Force Base.

2. Utility/Communication Failures (14.82)

With technology dependence, many residents, industries and businesses rely on uninterrupted utilities and communications.

Sources: Local newspapers and media coverage, Miami County EMA records, internet research.

Why Identified: Parts of Miami County experienced up to five days without power after Tropical Storm Ike winds did wide spread damage to the utility communications systems on Sept. 14, 2008. With increased reliance on technology, other periodic utility and communication

outages within the county have caused increased economic and social concerns for Miami County residents.

3. Hazardous Materials Incident (14.82)

Miami County has many sites with stored hazardous materials. Transportation and shipment of these chemicals over Interstate 75 railways and the Miami County highways are of concern.

Sources: Emergency Management information, County transportation Study.

Why Identified: Concerns outlined in County Transportation Study.

4. Transportation Accident (13.98)

20 miles of Interstate highway, 30 miles of U.S. highways, 154 miles of State highways, rail systems, and two commercial airports in or near the county increase the potential for a transportation accident to occur.

Sources: Local newspaper coverage, State and County Transportation records.

Why Identified: Frequent occurrence of accidents on Interstate 75.

5. Dam Failure (13.29)

Miami County has three Class I dams located in the City of Piqua and a total of thirteen dams which pose a real threat to loss of life, serious health hazard and structural damage should a failure occur.

Sources: County records, Ohio Department of Natural Resources, Local newspaper coverage.

Why Identified: Thirteen dams exist within Miami County and pose a threat to several communities should a failure occur. The City of Piqua has three Class I dams that are not flood capacity compliant or dam integrity compliant.

2.3 Tornado/Windstorm

Overview

A windstorm is a storm with high winds or violent gusts, sometimes called wind shears or microbursts, but with little or no rain.

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

Several methods of research identified severe wind and tornadoes as natural hazards in Miami County. General severe wind and tornado information was obtained from the following sources:

- State and Local Mitigation Planning How-To-Guide Understanding Your Risks (FEMA)
- FEMA Taking Shelter from the Storm – Section 1.
- National Oceanic & Atmospheric Administration (NOAA)
- Miami County Emergency Operations Plan
- Local media and newspaper articles

Risk Assessment

Ohio falls into the “high” category for tornado risk and the highest category for wind zones in the United States, which is illustrated in Figure 1.1. Most sources have only been recording

tornado activity since 1955. Miami County has reported nineteen tornadoes, with at least two of those being category F2. The entire county is in a Zone IV wind zone, according to the Design Wind Speed for Community Shelters Map. This wind zone places Miami County in a category that could experience devastating

tornadoes with 207-260 mph wind speeds, which indicates that significant damage will be sustained to structures with solid foundations. With no mountainous terrain to break

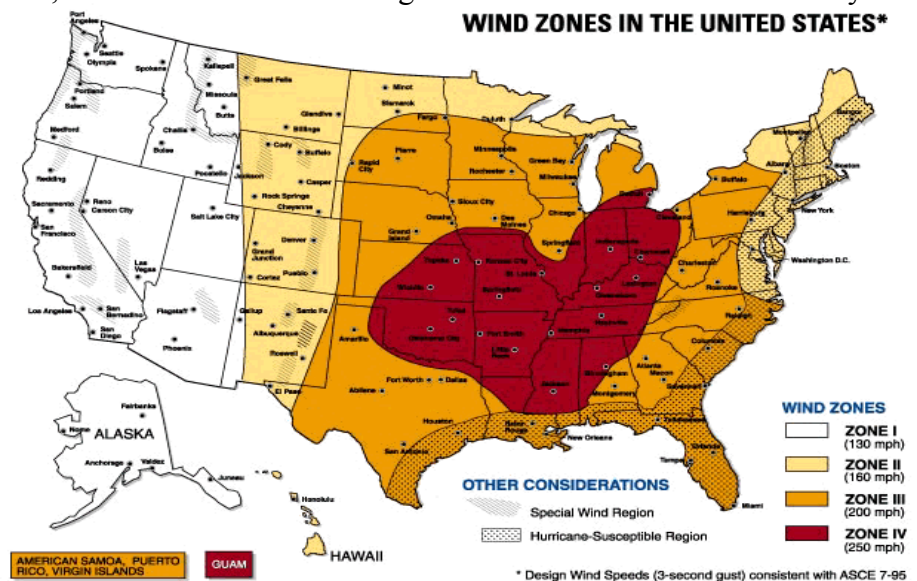


Figure 1.2 Wind zones in the United States

Figure 1.1

up tornadoes that actually form and touch down in Miami County, tornadoes and other wind hazards are present in the flat open areas that exist throughout the county.

In 1971, Dr. T. Theodore Fujita of the University of Chicago devised a six-category scale to classify U.S. tornadoes into six damage categories, called F0-F5. F0 describes the weakest tornadoes and F5 describes only the most destructive tornadoes. The Fujita tornado scale (or the “F-scale”) has subsequently become the definitive scale for estimating wind speeds within tornadoes based upon the damage caused by the tornado. It is used extensively by the National Weather Service (NWS) in investigating tornadoes, by scientists studying the behavior and climatology of tornadoes, and by engineers correlating damage to different types of structures with different estimated tornado wind speeds.

The devastating tornadoes in Jarrell, Texas on May 27, 1997 and Moore/Oklahoma City on May 3, 1999 demonstrated to many engineers, emergency managers and meteorologists that the wind estimates in the original F-scale may be too high. Their findings are described in the FEMA document #342: “Building Performance Assessment Team Report, Midwest Tornadoes of May 3, 1999, Observation, Recommendations and Technical Guidance”.

The enhanced Fujita tornado scale or EF-scale was unveiled by the NWS to the public and the full meteorological community early in 2006. On February 1, 2007, the Enhanced Fujita scale replaced the original Fujita scale in all tornado damage surveys in the United States. It is important to note that, despite the improvements, the EF-scale still remains a set of *wind estimates* based on eight levels of damage to twenty-eight different types of structures and vegetation.

Below is a table comparing the estimated winds in the original F-scale and the operational EF-scale that is currently in use by the NWS.

The Enhanced Fujita Tornado Scale

Fujita Scale			Operational EF-Scale	
F Number	Fastest ¼-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85
1	73-112	79-117	1	86-110
2	113-157	118-161	2	111-135
3	158-207	162-209	3	136-165
4	208-260	210-261	4	166-200

Damages one might expect from the varying intensities are as follows:

- F-0 Light damage to trees and buildings
- F-1 Moderate damage to trees and buildings, roofs peeled off, mobile homes disturbed
- F-2 Considerable damage to trees and buildings, roofs torn off frame houses, mobile homes destroyed, large trees down
- F-3 Severe damage to trees and buildings, roofs and walls torn off well-constructed buildings, trees uprooted, trains overturned
- F-4 Devastating damage, well-constructed houses leveled, large missiles generated
- F-5 Incredible damage, strong houses lifted off foundations and carried considerable distances to disintegration, trees debarked, automobiles fly through the air and become missiles

While tornadoes are relatively short lived in duration, they are intensely focused, making them one of the most destructive of the natural hazards. Ohio is positioned geographically on the eastern-most edge of what has come to be known as “tornado alley” and is no stranger to tornado sightings. According to UStornados.com, Ohio averaged 19.2 tornadoes per year from 1991-2015.

Past Occurrences

Miami County has experienced 19 tornado events between the years of 1955 & 2016 causing 2 injuries and 4.058 million dollars in reported damages.

According to a May 23, 1982 article from the Miami Valley Sunday News, a tornado touched down in southern Elizabeth Township and northern Bethel Township causing one injury and extensive damage to several homes, businesses, and other structures. Law enforcement officials’ rescue efforts were hampered due to the large number of sight-seeing motorists causing traffic jams on debris laden, partially blocked roads.

A NOAA Event Record indicated that on March 9, 2002, a widespread area of high winds blew down trees, power poles, and various other smaller structures and signs. At one time, approximately 100,000 people were without power. One man was killed when his semi tractor-trailer overturned, and several others were injured in automobile accidents. Two people were briefly trapped in a mobile home when a tree fell on it.

A NOAA event record indicated that on September 14, 2008, Miami County and a large portion of Ohio experienced a prolonged severe windstorm event as a result of Tropical Storm Ike. The windstorm caused \$2,500,000 in damages countywide and left many residents without power for 4-5 days. There were many downed limbs, trees, power lines, and damaged roofs reports. Two motorcyclists were killed in a nearby county from a falling tree.

Several tornado events have occurred in Miami County the past 5 years since the last Mitigation plan update including:

- On October 31, 2013, an F-0 tornado touched down in a corn field on the west side of Lena-Palestine Road where it lifted a roof from a barn and produced heavy damage to a

nearby second barn. Approximately \$70,000 in property damages occurred.

- On March 14, 2016, an F-0 tornado struck near Potsdam at Stauffer and Cop pock Road where it peeled a metal roof off a house causing \$75,000 in damages.

The following charts indicate past history of high winds and tornado events in Miami County:

Miami County Tornado Events 1955-2016							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Countywide	3/1/1955	Tornado	F1	0	1	\$250,000	\$0
Countywide	5/22/1959	Tornado	F2	0	0	\$2,500	\$0
Countywide	6/8/1961	Tornado	F2	0	0	\$250,000	\$0
Countywide	7/28/1961	Tornado	F1	0	0	\$25,000	\$0
Countywide	7/2/1978	Tornado	F0	0	0	\$25,000	\$0
Countywide	5/22/1982	Tornado	F1	0	0	\$25,000	\$0
Countywide	5/22/1982	Tornado	F1	0	1	\$25,000	\$0
Countywide	6/20/1992	Tornado	F1	0	0	\$25,000	\$0
Countywide	6/03/1989	Tornado	F1	0	0	\$25,000	\$0
Countywide	6/3/1989	Tornado	F1	0	0	\$250,000	\$0
Countywide	6/18/1989	Tornado	F0	0	0	\$2.5 Million	\$0
Countywide	6/18/1992	Tornado	F1	0	0	\$250,000	\$0
Tipp City	4/9/1999	Tornado	F1	0	0	\$250,000	\$0
Potsdam	7/9/1999	Tornado	F0	0	0	\$10,000	\$0
Piqua	4/4/2003	Tornado	F0	0	0	\$0	\$3,000
West Milton	7/3/2004	Tornado	F0	0	0	\$25,000	\$0
Piqua	5/14/2011	Tornado	EF0	0	0	\$0	\$0
Lena	10/31/2013	Tornado	EF0	0	0	\$70,000	\$0
Potsdam	3/14/2016	Tornado	EF0	0	0	\$75,000	\$0
TOTALS:				0	2	\$4.058 Million	\$3,000

Source: National Climatic Data Center (NCDC)

Miami County High Wind Events 1994-2016							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Countywide	11/1/1994	High Winds	0 kts.	0	1	\$500,000	\$0
Countywide	11/27/1994	High Winds	0 kts.	0	1	\$50,000	\$0
Countywide	4/11/1995	High Winds	0 kts.	0	0	\$150,000	\$0
Countywide	4/6/1997	High Wind	60 kts.	0	0	\$19,000	\$0
Countywide	1/10/2000	High Wind	40 kts.	1	6	\$25,000	\$0
Countywide	12/11/2000	High Wind	58 kts.	1	0	\$100,000	\$0
Countywide	3/9/2002	High Wind	73 kts.	1	12	\$971,000	\$0
Countywide	12/1/2006	High Wind	50 kts.	0	0	\$10,000	\$0
Countywide	9/14/2008	High Wind	52 kts.	0	0	\$12,000,000	\$0
Countywide	4/03/2016	High Wind	55 kts.	0	0	\$10,000	\$0
TOTALS:				3	20	\$13,835,000	\$0
Source: National Climatic Data Center (NCDC)							

According to NOAA/NCDC Records, the reported high wind property damage that has occurred from 1994 – 2016 is \$13,835,000 in property damages.

Probability of Future Tornado Events

Between 1950 and 2016, Miami County has experienced 19 tornadoes. This is an average of one every 3.47 years. The percentages, based on magnitude to date, have been:

F-0	8	42%
F-1	9	47%
F-2	2	11%
F-3	0	0%
F-4	0	0%
F-5	0	0%

The percentages of tornadoes by season to strike Miami County since 1955 have been:

Spring:	March 21 – June 20	13	69%
Summer:	June 21 – September 20	4	21%
Fall:	September 21 – December 20	1	5%
Winter:	December 21 – March 20	1	5%

The paths of the tornadoes have occurred throughout the County including northern, central, and southern portions, so no part of the County is exempt from a tornado strike. Most vulnerable to damage are mobile homes, camping trailers, temporary shelters, and poorly constructed buildings. From past data, it is most likely that a future tornado event may occur in the spring or summer months.

Probability of Future High Wind Events

Based on NCDC past wind events, there have been 10 high wind events from November 1, 1994 through 2016, causing \$13,835,000 in damages with three deaths and 20 injuries. That is an average of one wind event every 2.2 years. These damages are more than three times the amount of property damage suffered from the 19 total County occurring tornadoes experienced between 1950 and 2016. The amount of injuries and deaths are also greater. Based on historical data the probability of a high wind event in the next 2 years is Very Likely.

The worst single windstorm event to strike Miami County in terms of property damage was in September 2008 when the remnants of Tropical Storm Ike caused \$12,000,000 in damages with no deaths or injuries reported. In today's value, that is approximately \$13,800,000 in property damage. A high wind event can be a localized event affecting specific areas of the County; or, as in the case with the remnants of Tropical Storm Ike in 2008, it can be a countywide event which can affect the entire County. The anticipated economic losses anticipated for future county high wind events can range from light damage to moderate damages with injuries and loss of life possible.

Vulnerability Analysis and Loss Estimation

Strong windstorms, especially tornadoes, can cause significant damage to structural assets. Miami County's topography is that of flat and open to gently sloping, which offers no natural barriers to breakup severe wind or tornados that form. The following information was developed based on historic hazard events as well as statewide wind zone designations.

Because tornadoes are a random event, no one area in Miami County is more susceptible to damage than another. The typical tornado events in Miami County are considered moderate with 19 occurring since 1955. Because the occurrence is moderate, the damage of businesses and residences is considered to be of moderate damage. The property damage from the past 19 tornado events with magnitude ranging from F-0 – F-2 has been \$4,058,000 with no deaths and two injuries. The worst event was an F-1 tornado in 1989 causing \$2,500,000. Based on today's dollar value the cost if a similar event was to occur in Miami County would be \$5,000,000 in property damages. Based on the infrequencies of tornadoes in Miami County, the County is at moderate risk relating to property damage and low risk for loss of life. It is anticipated that a tornado would be a localized event affecting a limited area of the County.

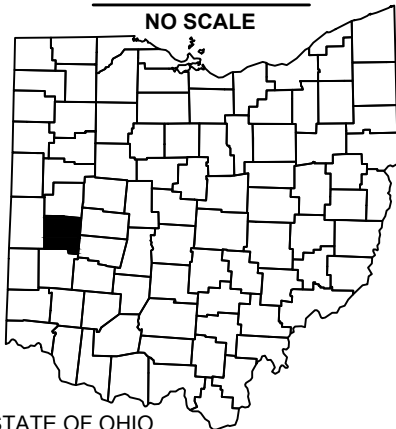
In reviewing the vulnerability to the County for straight-line windstorm damage to the County, no one area is more susceptible to property damage from high winds. However, some physical factors may affect the amount of damage such as large trees may become uprooted and limbs and trees may fall across houses. Features such as open fields may affect the wind intensity on a structure in which case mobile homes become especially vulnerable to windstorms.

Mapping

See the Miami County Severe Wind and Tornado Map for a graphical representation of hazard risk areas with regard to tornadoes and windstorms.

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

- F0 TORNADO - START LOCATION
- F1 TORNADO - START LOCATION
- F2 TORNADO - START LOCATION
- F1 TORNADO PATH
- MAJOR ROADWAY
- MINOR ROADWAY
- + + + + + ACTIVE RAILROAD
- CITY / VILLAGE
- COUNTY

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ENGINEERING, LAND SURVEYING

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Phone: (937)-548-7511
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Email: info@moteassociates.com
Website: www.moteassociates.com

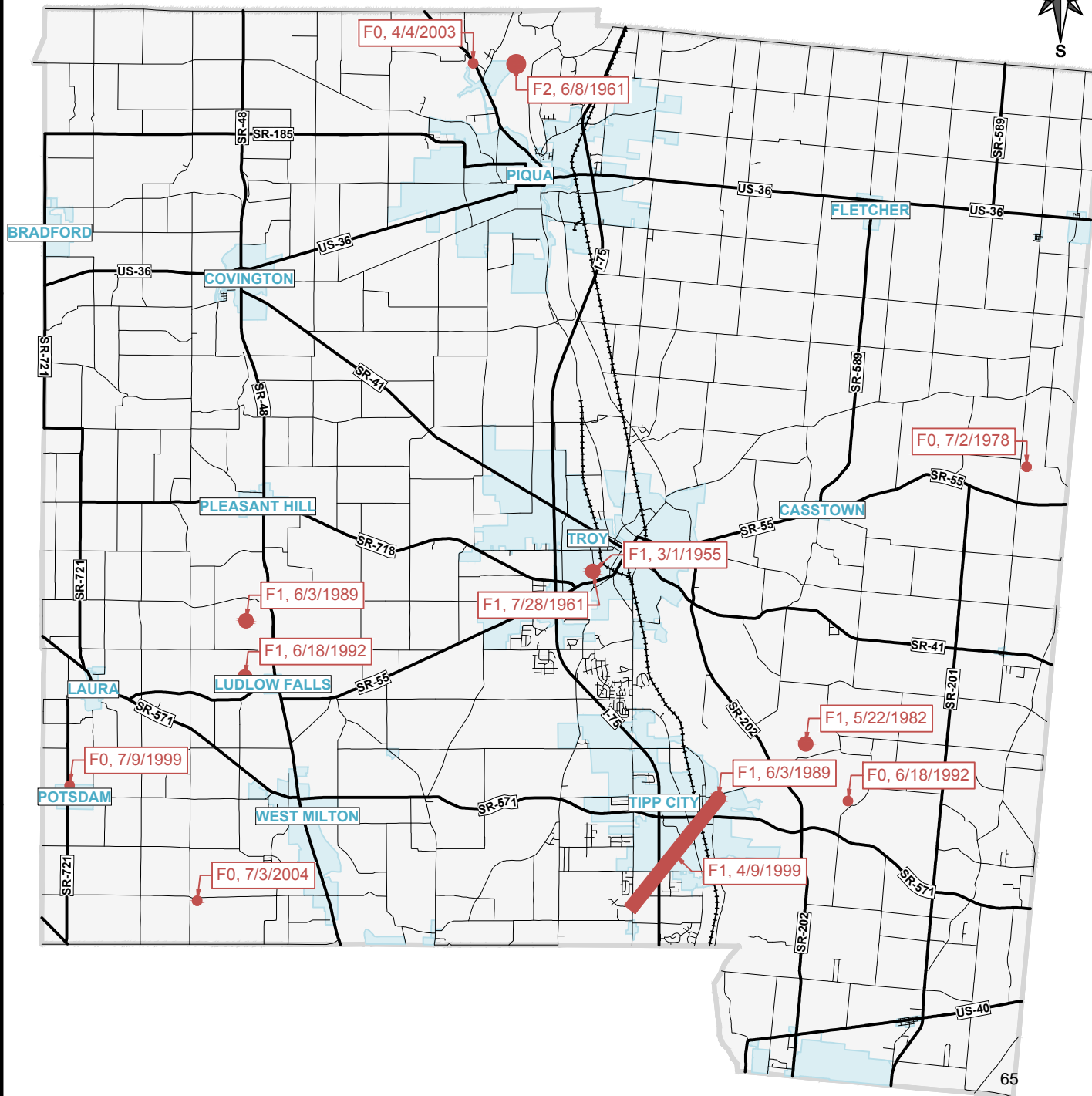
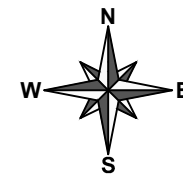
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SCALE: 1" = 16,000'



16,000 FEET 0 16,000

MIAMI COUNTY TORNADO/WINDSTORM



2.4 Severe Winter Storm/Blizzards/Ice/Sleet

Overview

One or more of the following characterizes a winter storm: Heavy snow, ice storms, strong winds, extreme cold, and, in certain areas, coastal flooding and beach erosion.

Several methods of research identified winter storms as a hazard in Miami County, including reviews of newspaper coverage, reviews of past disaster declarations, and interviews with local officials and reviewing the NOAA/NCDC Miami County weather events.

A severe winter storm could affect the entire county at the same time, virtually bringing all county operations to a stand still. Miami County is highly vulnerable to the wide-ranging effects of snowstorms, blizzards, ice storms, sleet, and severe cold snaps. This type of hazard creates a difficult emergency response effort due to adverse road conditions which impede or prohibit vehicle movement.

Miami County is susceptible to severe weather due to various reasons. Miami County is primarily a rural county with 423 county highway miles and 425 state highway miles. Interstate 75 runs north south through the entire county. Roadways can be very treacherous during snow and ice events. In rural Miami County, with its many miles of roadway with flat, open terrain wind driven snow storms can produce extreme white out conditions. Such conditions occurred in Miami County on February 24, 1990 when 9 people lost their lives in a multi-vehicle crash blamed on “whiteout” conditions of high winds and blowing snow on North bound I-75 just south of the state Route 571 interchange.

Severe ice storms can also bring down power, tree limbs and power lines which can cause power outages. These power outages can adversely affect those Miami County residents that may rely on power operated medical equipment in their homes.

Miami County, Ohio with its strong agricultural roots can be affected by extreme subzero winter weather, heavy frost and freezing of crops. The extreme subzero weather in 2014 all but wiped out many vineyards. On April 9, 2017 freezing temperatures affected planted crops throughout west-central Ohio including Miami County. Many fields had to be replanted causing financial loss to Miami County farmers.

Risk Assessment

Research indicates that all of Miami County is equally susceptible to winter storms. Driving is treacherous during winter storms as roadways freeze and become covered with snow and slush. During severe winter storms, heavy snow may cause property damage and power outages. Also, the aforementioned adverse driving conditions may lead to additional property damage. According to a FEMA Winter Storm Fact Sheet, the leading cause of death during winter storms is from automobile and other transportation accidents. Roads are sometimes blocked, stranding some rural residents from the incorporated areas where medical and other emergency services are centered. Heavy snowfall and blizzards can trap motorists in their cars. Attempting to walk for help in a

blizzard can be a deadly decision. Disorientation and confusion come very quickly in blowing snow.

The severity of the storm can vary from one end of the County to the other, but generally it will affect the entire County. Winter storms can adversely affect streets, highways, disrupt power lines, and can be the cause of property damage accidents and injuries or loss of life. Frostbite is also possible for individuals that are exposed to cold temperatures. The severity of storms as termed by FEMA is as follows:

Freezing Rain

Rain that freezes when it hits the ground creating a coating of ice on roads, walkways, trees, and power lines.

Sleet

Rain that turns to ice pellets before reaching the ground. Sleet also causes moisture on roads to freeze and become slippery.

Winter Storm Watch

A winter storm is possible in your area. Tune in to NOAA Weather Radio, commercial radio, or television for more information.

Winter Storm Warning*

A winter storm is occurring or will soon occur in your area.

* A warning issued by the National Weather Service when a winter storm is producing or is forecasted to produce heavy snow or accumulation of ice. For the Miami County general area a snow fall of 4-6 inches accumulation in a 6-12 hour period is considered to be a heavy snowfall.

Blizzard

A blizzard means the following conditions are expected to prevail for a period of 3 hours or longer:

- Sustained winds or frequent gusts to 35 miles per hour or greater.
- Considerable falling and/or blowing snow (i.e. reducing visibility frequently to less than ¼ mile.)

Blizzard Warning

Issued for winter storms with sustained or frequent winds of 35 miles per hour or higher with considerable falling and/or blowing snow that frequently reduces visibility to 1/4 of a mile or less. These conditions are to prevail for a minimum of 3 hours.

Frost/Freeze Warning

Below freezing temperatures are expected and may cause significant damage to plants, crops or fruit trees. In areas unaccustomed to freezing temperatures, people who have homes without heat need to take added precautions.

Health hazards generated from severe winter storms include frostbite and hypothermia. Frostbite is a severe reaction to cold exposure that can permanently damage its victims. A

loss of feeling and a white or pale appearance in fingers, toes, or the nose and ear lobes are symptoms of frostbite.

Hypothermia is a condition brought on when the body temperature drops to less than 55 degrees Fahrenheit. Symptoms of hypothermia include uncontrollable shivering, slow speech, memory lapses, frequent stumbling, drowsiness, and exhaustion.

Location

It is difficult to predict the exact location of a winter storm. It can affect the entire County with the same magnitude and intensity or it may vary from one end of the County to the other. Because snow and ice storms generally occur countywide the entire County is considered susceptible. During heavy snow and ice events, I-75 and the state highways may be more susceptible to property damages, injury, and death due to a higher volume of traffic using these roadways.

Past Occurrences

Research indicates that winter storms are the third leading weather threat in Ohio. The storms of 1950 and 1978 were of a duration that required extensive mass sheltering or statewide response and recovery efforts. A total of 269 winter storms from 1923-1994 have been classified as severe.

Four presidential declarations have been issued for Miami County as a result of severe winter weather. They include:

- February 2, 1977 Snowstorm
- January 25-27, 1978 Blizzard
- March 24, 2003 Ice and Snow Storm
- January 11, 2005 Snow Removal and Snow Storm

A January 3, 1996 article from the Troy Daily News stated that the weather was severe enough to be considered a blizzard in some areas. According to the National Weather Service (NWS), blizzard conditions include snow, winds of 15 mph or greater, visibility of less than one quarter mile, and temperatures below 20 degrees. The deluge of snow and the resulting hazardous driving conditions caused schools and some businesses to close. The county was expected to be under a level three (3) snow emergency, which means only emergency vehicles are allowed on the roads. Vehicles on the road during a snow emergency can be cited. The harsh weather has also drained the salt supply, and hampered plowing efforts.

According to a NOAA/NCDC Event Record dated December 19, 1995, the first major snowstorm of the season developed over central and west central Ohio as a deep low-pressure system tracked from the Lower Mississippi Valley to the Mid-Atlantic States. Rain changed to snow, with a period of sleet and freezing rain. Across west central areas, the precipitation fell mainly as snow, and blizzard conditions were experienced. Total snow accumulations in west central Ohio ranged between 8 and 14 inches. For parts of west central Ohio, this was the worst storm since the blizzard of 1978.

According to a NOAA/NCDC Event Record dated February 2, 2007, heavy snow blanketed Miami County causing \$80,000 in damages and leaving many motorists stranded. Miami County also experienced an ice storm on December 19, 2008 and heavy snow on February 5, 2010.

The following tables summarize the winter storms experienced in Miami County, including ice, freezing rain, winter storms, and snow events.

Miami County Winter Weather Events 1994-2016							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Southwest/ Northeast	3/9/1994	Heavy Snow	N/A	0	0	\$500,000	\$0
Countywide	1/6/1995	Ice Storm	N/A	0	26	\$400,000	\$0
Countywide	1/21/1995	Snow	N/A	2	6	\$500,000	\$0
West Central/ Central	12/19/1995	Heavy Snow	N/A	0	0	\$100,000	\$0
Countywide	1/2/1996	Winter Storm	N/A	0	0	\$25,000	\$0
Countywide	1/6/1996	Winter Storm	N/A	1	0	\$500,000	\$0
Countywide	1/11/1996	Heavy Snow	N/A	0	0	\$1,000	\$0
Countywide	3/6/1996	Ice Storm	N/A	0	0	\$0	\$0
Countywide	3/19/1996	Winter Storm	N/A	0	0	\$0	\$0
Countywide	1/24/1997	Ice Storm	N/A	0	0	\$0	\$0
Countywide	1/01/1999	Winter Storm	N/A	0	0	\$0	\$0
Countywide	1/07/1999	Winter Storm	N/A	0	0	\$0	\$0
Countywide	1/13/1999	Winter Storm	N/A	0	0	\$0	\$0
Countywide	3/09/1999	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	1/19/2000	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	3/11/2000	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	12/13/2000	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	3/26/2002	Winter Storm	N/A	0	0	\$0	\$0
Countywide	12/25/2002	Winter Storm	N/A	0	0	\$0	\$0
Countywide	2/15/2003	Winter Storm	N/A	0	0	\$0	\$0
Countywide	1/25/2004	Winter Storm	N/A	0	0	\$0	\$0

Countywide	3/16/2004	Winter Storm	N/A	0	0	\$0	\$0
Countywide	12/22/2004	Winter Storm	N/A	0	0	\$25,000	\$0
Countywide	1/21/2005	Winter Storm	N/A	0	0	\$0	\$0
Countywide	12/08/2005	Winter Storm	N/A	0	0	\$0	\$0
Countywide	12/15/2005	Winter Storm	N/A	0	0	\$0	\$0
Countywide	2/06/2007	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	2/13/2007	Heavy Snow	N/A	0	0	\$80,000	\$0
Countywide	12/04/2007	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	12/07/2007	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/01/2008	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/12/2008	Winter Storm	N/A	0	0	\$0	\$0
Countywide	2/20/2008	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	2/21/2008	Winter Storm	N/A	0	0	\$0	\$0
Countywide	3/07/2008	Winter Storm	N/A	0	0	\$0	\$0
Countywide	12/19/2008	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/14/2009	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	1/27/2009	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	1/07/2010	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/05/2010	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	2/09/2010	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/15/2010	Heavy Snow	N/A	0	0	\$0	\$0
Countywide	3/25/2010	Winter Weather	N/A	0	0	\$0	\$0
Countywide	12/12/2010	Winter Weather	N/A	0	0	\$0	\$0
Countywide	12/16/2010	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/11/2011	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/20/2011	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/01/2011	Ice Storm	N/A	0	0	\$0	\$0
Countywide	2/24/2011	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/19/2012	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/20/2012	Winter Weather	N/A	0	0	\$0	\$0

Countywide	12/26/2012	Blizzard	N/A	0	0	\$0	\$0
Countywide	12/28/2012	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/25/2013	Winter Weather	N/A	0	0	\$0	\$0
Countywide	3/05/2013	Winter Storm	N/A	0	0	\$0	\$0
Countywide	3/24/2013	Winter Weather	N/A	0	0	\$0	\$0
Countywide	11/11/2013	Winter Weather	N/A	0	0	\$0	\$0
Countywide	12/06/2013	Winter Weather	N/A	0	0	\$0	\$0
Countywide	12/10/2013	Winter Weather	N/A	0	0	\$0	\$0
Countywide	12/14/2013	Winter Weather	N/A	0	0	\$0	\$0
Countywide	12/16/2013	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/02/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/17/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/18/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/20/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/04/2014	Winter Storm	N/A	0	0	\$0	\$0
Countywide	2/14/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	3/02/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	3/12/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	11/22/2014	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/05/2015	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/25/2015	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/04/2015	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/14/2015	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/21/2015	Winter Weather	N/A	0	0	\$0	\$0
Countywide	3/01/2015	Winter Storm	N/A	0	0	\$0	\$0
Countywide	1/12/2016	Winter Weather	N/A	0	0	\$0	\$0
Countywide	1/20/2016	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/08/2016	Winter Weather	N/A	0	0	\$0	\$0
Countywide	2/14/2016	Winter Weather	N/A	0	0	\$0	\$0
Countywide	12/13/2016	Winter Weather	N/A	0	0	\$0	\$0

TOTALS:	3	32	\$2.131 M	\$0
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Source: National Climatic Data Center (NCDC)

Probability of Future Events

The average mean snowfall for Miami County in accordance with the National Climate Data Center figures is 24”-36” for Miami County.

According to NOAA/NCDC, there were 81 recorded winter storm events and ice storm events in Miami County from March 1, 1994 through 2016, over a span of approximately twenty-three years. This would be an average occurrence of about 3.5 significant winter storm events per year. 2010 and 2014 had the most events, with 7 and 9 respectively. Miami County can expect future winter hazard events to occur. The entire County’s population is susceptible and during snow declared emergencies motorists should refrain from driving on the County’s roadways.

Vulnerability Analysis & Loss Estimation

Damage as a result of winter storms is associated with building damage or structural collapse due to the weight of heavy snow and ice. Other factors include water infiltration into buildings due to ice dams; freeze/thaw damage to infrastructures and buildings; water systems damage due to power outages; debris removal, damage to overhead power and utility lines and property damage due to downed trees; and losses due to hazardous driving conditions.

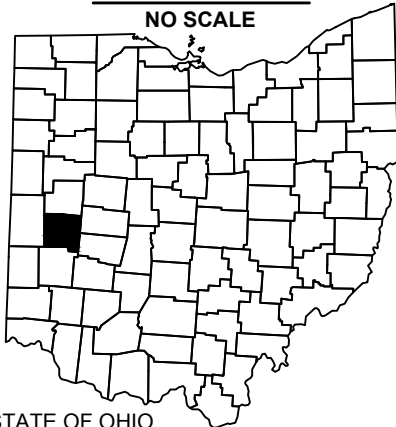
According to NOAA/NCDC Reports from March 9, 1994 through December 2016, there were 81 severe winter weather events that affected Miami County and caused \$2,131,000 in property damage. Three deaths and 32 injuries were reported with these hazard events. No crop damage was reported. Dividing these damages over an approximate 23-year period equates to an approximate loss of \$92,652 per year. With a County population of 104,224, this is about \$1.00 in damages per person per year. A death would occur about every 7.66 years and injuries occur on average of two per year. It is difficult to estimate a pattern of emergency due to snow and ice storms; however, the intensity of heavy snow and ice storms that strikes the area results in a high susceptibility to property damage and will cause occasional injury and death.

Mapping

See the Miami County Severe Winter Storm, Blizzard, Ice, and Sleet Map for a graphical representation of the moderate hazard risk that will affect all of Miami County.

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



MODERATE HAZARD



MAJOR ROADWAY



MINOR ROADWAY



ACTIVE RAILROAD



CITY / VILLAGE



COUNTY



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Website: www.moteassociates.com

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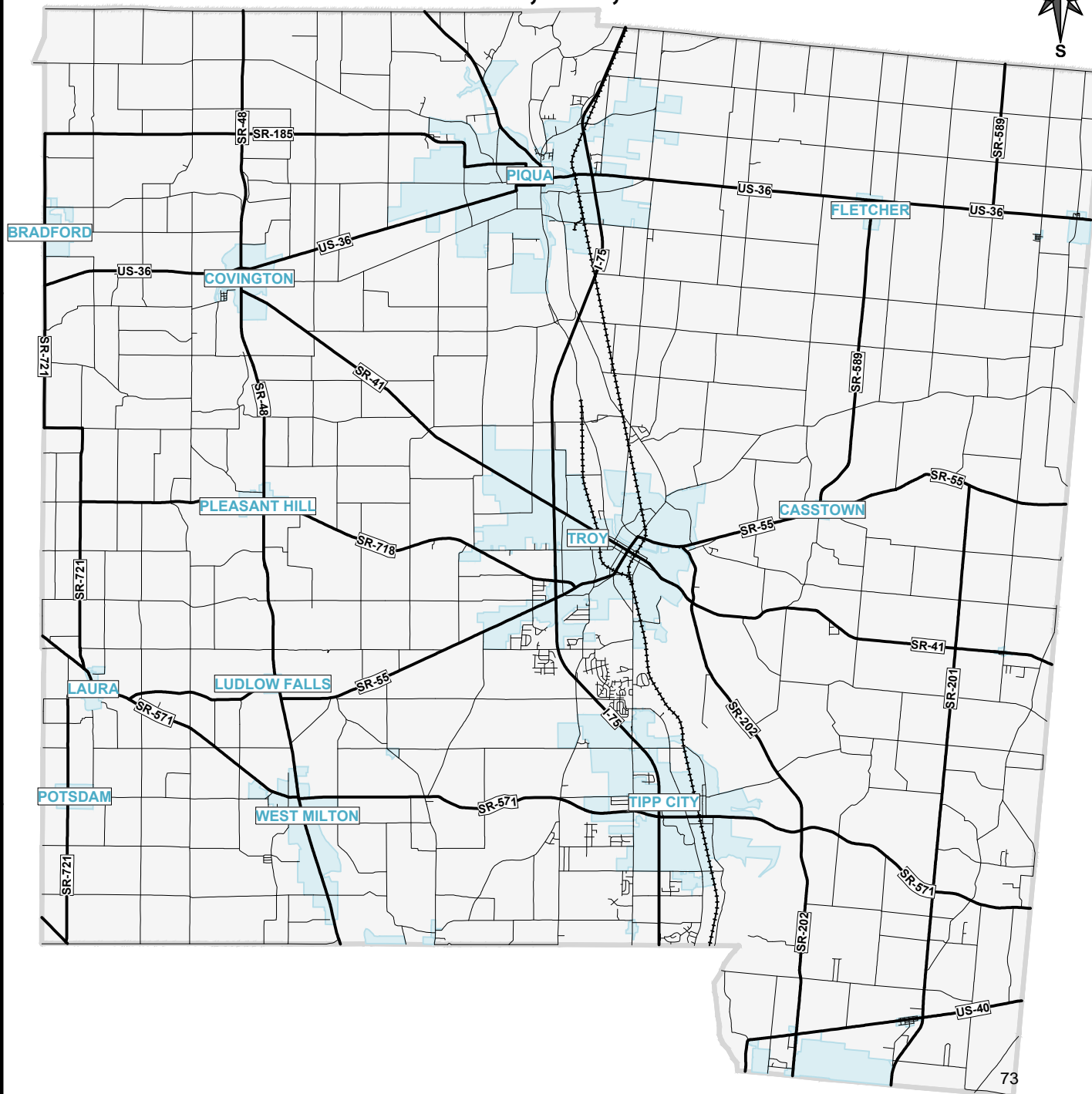
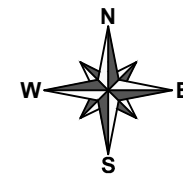
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MIAMI COUNTY WINTER STORM, BLIZZARD, ICE, & SLEET



2.5 Flooding

Overview

Floods occur when streams or waterways overflow their banks and spill onto adjoining floodplain land areas. Loss of life and property can result when structures are placed in floodplain areas. Prolonged periods of rainfall, frozen ground, inadequate snow melt, and soil conditions affect West Central Ohio every year. Floods are one of the most prevalent hazards in the United States. Nationwide, hundreds of floods occur each year, making it one of the most common hazards in all 50 states and U.S. territories. Every several years serious flooding occurs along one or more of Ohio's rivers and streams. The history of flooding within Miami County indicates that flooding can occur at any time of the year. Most injuries or deaths occur when people are swept away by flood currents. Most damage results from inundation of sediment-filled water and the flooding locations.

Risk Assessment

Several factors determine the severity of floods including intensity and duration of rainfall. A large amount of rainfall over a short time span can create flashflood conditions especially where soil is saturated or frozen on large areas of impermeable surfaces.

Several methods of research identified flooding as a hazard in Miami County, including review of recently updated FIRM maps, reviews of newspaper coverage, reviews of past disaster declarations, discussions with local officials, and public input. The following agencies and their data sources were also used to gain information on flooding:

- Association of Dam Safety Officials
- Federal Emergency Management Agency
- Flood Risk and Map Information
- Floodplain Management Association
- General Flood Information
- Latest Hydrological Information (Flooding, Droughts, Snow Conditions, and Water Supply)
- Regional River Forecast Centers
- State Floodplain Managers
- United States Army Corps of Engineers (USACOE)
- USGS Streamflow Data Historical
- Miami Conservancy District
- Miami County Engineering Department

Flooding continues to be a concern in Miami County as a result of the Great Miami and Stillwater Rivers which flow through Miami County. The Great Miami River flows through the three cities of Piqua, Troy and Tipp City and the Stillwater River flows through or near the villages of Covington, Pleasant Hill, Laura and West Milton. Miami County has received one Presidential Declaration in August of 1995 for damage as a result of flooding over the past 20 years.

Miami County is susceptible from minor to moderate riverine flooding of low lying properties along the paths of the Great Miami River, the Stillwater River, and their

collective tributaries. The Villages of Bradford, Casstown and Fletcher have tributaries that flow through or near these communities. Many of the Miami Valley Communities have structures that are located within the floodplains of these rivers and tributaries as indicated on the FIRM floodplain maps.

Riverine flooding is usually caused by a significant amount of rainfall over a period of days and can be worsened by snowmelt conditions. Riverine flooding is very likely to continue striking these same areas. Areas near the paths of the Great Miami and Stillwater Rivers are particularly low-lying areas. Local officials have enacted regulations to prevent future building and limited appropriate development in these areas. When a severe storm produces a large amount of rainfall in a short time flash flooding may occur. The intensity is generally great but the duration of time is relatively short. Because the majority of Miami County is of relatively flat or gently rolling topography, Miami County is not as vulnerable to flash flooding as is the case in southern and eastern Ohio.

Small stream and urban flooding are usually a widespread event, as storm sewer systems, small streams, ditches, retention and detention ponds over flow their banks. City sewers may back up and inundate sump pumps and overload drains. Basements and low-lying yard areas are subject to this type of flooding. Drainage problems may also occur on the back side of levees when rainfall capacities exceed the capacity of pumps or other features designed to drain the areas that are protected by the levees.

In the rural portions of Miami County flooding can occur due to broken field tile. Rural flooding can also occur when rainfall exceeds the design capacities of the drainage system. Open fields, past channelization, and removal of woodlands along streams have allowed faster and increased stream runoff. Drainage structures can also become covered and clogged by field debris including corn shocks and soybean residue after harvest as a result of the no-till policies. Roads and bridge structures can also impede the natural flow of water.

Small stream flooding outside of designated 100-year Flood Plains can also be reoccurring problems for the county. Such is the case in Concord Township where county ditches and tiles are older, broken down and are undersized to carry current runoff. Several reoccurring areas of residential flooding occurs along the following Concord Township ditches:

- Kerns Alexander ditch along Feurer Road west of Barnhart Road. There is a need to eliminate periodic flooding of the land around homes in that area.
- Schauer and Ziegenfelder ditches along State Route 718 west & east of Washington Road and McKaig Road. There is a need to eliminate continued standing surface water issues around homes and on agriculture land.
- Clayton Ditch in and around Beechwood Drive in the Lake Shore subdivision. Need to eliminate reoccurring flooding of homes and land in this area.

Miami County has utilized the river systems in the county from early days for such uses as transportation, commerce, recreation and water supply and energy purposes. Because of this long term use many structures were constructed within the natural flood plains. After several centuries of these changes to the original riparian ecosystem has been changes and has resulted in increased runoff and flooding of these areas.

Before the 1960's it was generally the philosophy to get the water off the land as quickly as possible and the government invested much effort constructing dams, levees, reservoirs and flood control projects but with little success of controlling the flooding. From the 1960s forward it was realized that it is a natural process of water to utilize the rivers and overflow their banks into the floodplains. Erosion control, floodplain management, quality water management, agricultural responsibility, wetlands, wildlife habitat and recreational use programs became the focus of how to manage the flooding issues of the rivers and streams.

The Miami County river system offers many benefits that have contributed to the development of the county including: recreational water ways with canoeing and kayaking and extensive recreational trail systems and park systems. Wetland and conservation areas have been developed along these river corridors which has included numerous recent mitigation activities and projects. Removal of several commercial businesses and residences within the floodplain north of Troy along the Miami River 25A corridor has allowed for construction of Barbee Park in Concord Township and the Great Miami River Recreational Trail (GMRRT) from Troy north to Piqua. The removal of numerous flood prone residences and on-site septic systems has greatly improved this scenic corridor, will reduce flood damages, and will allow the recreational use of the trail system. The last segment of the bike trail project, the Robert J. Shook Bridge Project connecting the North/South trail throughout the county began September 10, 2013 and was dedicated and opened to the public in October 2014. Mr. Shook, deceased, was a dedicated public servant who was a Concord Township Trustee and Chairman of the Miami County Bike Trail Task Force and longtime member of the Miami County Mitigation Committee.

Many residents of Miami County recognize the important benefits and natural factors of preserving floodplains to be used for natural flood and erosion control, water quality management, wildlife habitat, ground water resources, and agricultural production. The County has in place flood plain management ordinances in most of its communities with the intent to reduce future flood damage.

Miami County currently has 2016 preliminary draft for updated FEMA Flood Maps for the county and most all flood prone communities are eligible to be in the National Flood Insurance Program (NFIP). The Miami County Communities currently participation in the NFIP include: The Miami County cities of Piqua, Tipp City and Troy and the villages of Covington, Fletcher, Laura and West Milton a and the unincorporated areas of Miami County are listed as participating in the Natural Flood Insurance Program (NFIP). Those communities that participate in the NFIP are eligible to receive financial assistance but is the intent of the program to reduce future flood damage within a community through flood plan management ordinances, and provide an insurance alternative to federal disaster relief.

Repetitive Loss

The Miami County cities of Piqua, Tipp City and Troy and the villages of Covington, Fletcher, Laura, Pleasant Hill and West Milton and the unincorporated areas of Miami County are listed as participating in the Natural Flood Insurance Program (NFIP). The Villages of Bradford, Casstown and Potsdam are not participating in the NFIP as they have no known structures in the flood way or floodplain. The Village of Ludlow Falls is in the floodplain and has been encouraged to work towards participation. Under the NFIP Repetitive Loss Structures are those for which two or more losses of at least \$1,000 each have been paid under the NFIP within any ten-year program since 1978. In Miami County, there are eleven properties that are known to be repetitive loss structures. Seven are located in the unincorporated areas and have had a total of eighteen losses since 1982. Total building payments have been \$348,663.88. Total content payments have been \$70,362.01 for a total payment amount of \$419,025.89. Four are located with the incorporated area of the City of Troy and have had a total of nine losses. Total building payments have been \$150,426.64. Total content losses have been \$25,500.05 for a total payment of \$175,926.69. The total of all repetitive loss structures in Miami County is \$594,952.58.

REPETITIVE LOSS AND SEVERE REPETITIVE LOSS STRUCTURES						
COMMUNITY	NUMBER	TYPE	NUMBER OF LOSSES	BUILDING PAYMENTS	CONTENTS PAYMENTS	TOTAL PAYMENTS
1. Miami Co. Unincorporated	0	Residential	0	\$ -	\$ -	\$ -
	1	Non-Residential	2	\$ 12,695.28	\$ 25,000.00	\$ 37,695.28
2. Miami Co. Unincorporated	1	Residential	2	\$ 79,994.43	\$ 12,308.71	\$ 92,303.14
	0	Non-Residential	0	\$ -	\$ -	\$ -
3. Miami Co. Unincorporated	0	Residential	0	\$ -	\$ -	\$ -
	1	Non-Residential	5	\$ 119,192.19	\$ 21,053.30	\$ 140,245.49
4. Miami Co. Unincorporated	1	Residential	2	\$ 39,938.98	\$ -	\$ 39,938.98
	0	Non-Residential	0	\$ -	\$ -	\$ -
5. Miami Co. Unincorporated	1	Residential	2	\$ 32,454.76	\$ 12,000.00	\$ 44,454.76
	0	Non-Residential	0	\$ -	\$ -	\$ -
6. Miami Co. Unincorporated	1	Residential	3	\$ 29,428.36	\$ -	\$ 29,428.36
	0	Non-Residential	0	\$ -	\$ -	\$ -
7. Miami Co. Unincorporated	1	Residential	2	\$ 34,959.88	\$ -	\$ 34,959.88
	0	Non-Residential	0	\$ -	\$ -	\$ -
				\$ 348,663.88	\$ 70,362.01	
8. City of Troy	1	Residential	2	\$ 19,400.28	\$ -	\$ 19,400.28
	0	Non-Residential	0			
9. City of Troy	1	Residential	2	\$ 1,084.93	\$ 1,662.36	\$ 2,747.29
	0	Non-Residential	0			
10. City of Troy	1	Residential	3	\$ 9,193.28	\$ -	\$ 9,193.28
	0	Non-Residential	0			
11. City of Troy	1	Residential	2	\$ 120,748.15	\$ 23,827.69	\$ 144,575.84
	0	Non-Residential	0			
County & Jurisdictional Totals:	9	Residential	20	\$ 367,203.05	\$ 70,852.06	\$ 438,055.11
	2	Non-Residential	7	\$ 131,887.47	\$ 25,000.00	\$ 156,887.47
Line 3 is a Severe Repetitive Loss in Miami County Ohio.						

Location

Sources of information used to determine flood locations in Miami County are FEMA, Floodplain maps and studies, NOAA data information provided by the Ohio Department of Natural Resources, Division of Soil & Water Resources, State Hazards data, County Planning & Zoning Department, County Floodplain Management and local newspaper articles and past historical data. The primary source is the Flood Hazard Boundary Map (FHBM) and the Flood Insurance Rate Map (FIRM). The maps generally identify 1%-annual chance flood elevations and boundaries for a stream or river reaches into community. The FIRM will include flood elevation information for various flood frequencies and may also delineate floodway boundaries.

Flooding occurs throughout Miami County. See Flood Maps at the end of this section which indicate the designated flood plains within each Miami County Community and the unincorporated areas of Miami County

Past Occurrences

In March of 1913, the Miami Valley witnessed a natural disaster unparalleled in the region's history. Three storms converged on the state, dumping 9 to 11 inches of rain March 23-25 on ground already saturated from the melting of ice and snow of a hard winter. A 90-percent runoff rate caused the Great Miami River and its tributary streams to overflow. Every city along the river was inundated with floodwaters. More than 360 people lost their lives; property damage exceeded \$100 million (nearly \$2 billion in today's value). In the wake of this tragedy, Miami Valley citizens rallied to initiate plans to prevent future flooding. Some 23,000 citizens contributed more than \$2 million to begin a comprehensive flood protection program on a valley-wide basis. The result was an unflinching flood protection system of five dry dams – Germantown, Englewood, Lockington, Taylorsville, and Huffman – and levees that has protected the Miami Valley, including Miami County, from severe riverine flooding by the Great Miami River since 1922. The Miami Conservancy District (MCD) owns levees in several Miami County communities. The cities of Piqua, Troy, and Tipp City all have provisionally accredited levy agreements approved by FEMA in 2009. The success of the Miami Conservancy District has served as a model to reduce flood risk and damages throughout Miami County and the Miami Valley area.

According to a NCDC Storm Event Record, dated June 29, 1998, several hours of heavy rainfall caused several roads to be closed, including Interstate 75 near Tipp City.

An August 8, 1995, article taken from the Troy Daily News indicated that Miami County emergency personnel and street maintenance department kept busy trying to combat the aftermath of flooding brought on by torrential record rains of 10.7 inches in a 24-hour period. The County Engineer reported that more roads were closed for which the county had "high water" signs available. Flooding of roadways that traverse the county appears to be a reoccurring problem. On several occasions, roadways have been reported flooded in NCDC Event Records. A federal disaster declaration was issued due to this flood event.

According to media reports and NOAA Storm Events Data based on May 21, 2014, thunderstorms producing large hail, damaging winds, heavy rain and flash flooding hit hard the Troy, Tipp City and Covington areas of the County. Water rescues were being performed across the county for people in trapped cars stranded by flash flooding. Considerable damage was reported to flooding of homes in these municipalities as well. Some of the flooding lingered into the morning of May 22, 2014. Flood damages were in the range of 1.3 million dollars.

The table below indicates the flooding event history in Miami County since 1993. It includes those NCDC recorded flooding events in which property damages were reported.

Miami County Flood Events 1993-2016*							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Countywide	11/14/1993	Flash Flood	N/A	0	0	\$50,000	\$0
Countywide	5/24/1995	Flash Flood	N/A	0	0	\$3,000	\$0
Countywide	6/24/1995	Flash Flood	N/A	0	0	\$3,000	\$0
Countywide	6/29/1995	Flash Flood	N/A	0	0	\$20,000	\$0
Countywide	4/29/1996	Flash Flood	N/A	0	0	\$4,000	\$0
Countywide	6/11/1998	Flood	N/A	0	0	\$5,000	\$0
Countywide	4/7/2000	Flood	N/A	0	0	\$5,000	\$0
Countywide	7/7/2003	Flood	N/A	0	0	\$600,000	\$0
Countywide	9/1/2003	Flood	N/A	0	0	\$37,000	\$0
Countywide	1/5/2005	Flood	N/A	0	0	\$585,000	\$0
Countywide	1/11/2005	Flood	N/A	0	0	\$295,000	\$0
Covington	12/1/2006	Flood	N/A	0	0	\$3,000	\$0
Troy	3/2/2007	Flood	N/A	0	0	\$3,000	\$0
Ginghamsburg	6/4/2008	Flash Flood	N/A	0	0	\$2,000	\$0
Piqua Airport	7/12/2008	Flash Flood	N/A	0	0	\$3,000	\$0
Piqua Airport	7/13/2008	Flood	N/A	0	0	\$1,000	\$0
Troy	7/11/2009	Flash Flood	N/A	0	0	\$2,000	\$0

Piqua	6/14/2010	Flash Flood	N/A	0	0	\$3,000	\$0
Piqua	6/15/2010	Flood	N/A	0	0	\$1,000	\$0
Piqua	2/28/2011	Flood	N/A	0	0	\$5,000	\$0
Troy	2/28/2011	Flood	N/A	0	0	\$5,000	\$0
Casstown	1/26/2012	Flood	N/A	0	0	\$1,000	\$0
Evanston	6/17/2012	Flood	N/A	0	0	\$1,000	\$0
Rex	7/08/2013	Flash Flood	N/A	0	0	\$1,000	\$0
Fletcher	7/08/2013	Flash Flood	N/A	0	0	\$1,000	\$0
Tipp City	7/08/2013	Flash Flood	N/A	0	0	\$1,000	\$0
Piqua Airport	12/22/2013	Flash Flood	N/A	0	0	\$1,000	\$0
Troy	12/22/2013	Flood	N/A	0	0	\$20,000	\$0
Covington	12/22/2013	Flood	N/A	0	0	\$50,000	\$0
West Charleston	5/21/2014	Flash Flood	N/A	0	0	\$1,000	\$0
Brandt	5/21/2014	Flash Flood	N/A	0	0	\$1,000	\$0
Tipp City	5/21/2014	Flash Flood	N/A	0	0	\$1,300,000	\$0
Piqua	5/21/2014	Flash Flood	N/A	0	0	\$1,000	\$0
New Carlisle Airport	5/21/2014	Flash Flood	N/A	0	0	\$1,000	\$0
TOTALS:				0	0	\$3,020,000	\$0

Source: National Climatic Data Center (NCDC)

* Through December 2016

Probability of Future Events

It is important to establish the probability of occurrence of flooding so the County and its communities can make informed decisions about the sustainability of future development within land areas and to determine the feasibility of proposed mitigation projects.

Typically, FEMA Flood Insurance surveys, FIRM maps, and information are useful tools. Most of the Miami County communities that have 100-year flood zones within their communities participate in the NFIP Program whereby the floodplain maps identify the areas that have a 1% annual chance of being equaled or exceeded in any given year. Smaller floods occur more frequently than larger floods. Therefore, a 10-year flood or 25-year flood has a much greater chance of occurring than a 100-year flood. The following is a table of flood probability.

Flood Occurrence	Chance of Occurrence in Any Given Year
10 years	10%
25 years	4%
50 years	2%
100 years	1%
500 years	.2%

There are several other possible data sources for determining the area affected by a particular probability flood event. The Ohio Department of Natural Resources, Division of Soil and Water Resources, is the state repository for flood hazard information and has copies of flood hazard information generated by various federal, state, local, and private entities. The State of Ohio Floodplain Management Program maintains current copies of all FEMA; FIS's and flood maps in the State.

According to NOAA/NCDC reports from 1993 – 2016, there have been 34 flood events that affected Miami County and caused \$3,620,000 with no injuries or deaths reported. That is an average of about 1 ½ flooding events per year. Therefore, the probability of flood events in the future in Miami County is approximately 1-2 events per year.

Vulnerability Analysis & Loss Estimation

The flood vulnerability assessment for the County focused on each community's assets that are located in the 100-year floodplain. While greater and smaller floods are possible, this Plan's estimate of property damages from flooding are limited to the 100-year floodplain events.

All of the structures in the floodplain were identified using the most recent County's GIS data and Flood Insurance Rate Maps (FIRM). At this time no base flood elevations (BFE) or depth of flooding elevations were calculated. Within this plan individual parcels have not been coordinated with parcel ID and tax information.

The total residential and commercial structures in the floodplain by municipality and surrounding area are as follows:

Miami County Flood Zone Structure Count

Tipp City Flood Map

Residential	28
Multi-Family Residential	7
Agricultural	5
TOTAL	40

Ludlow Falls Flood Map

Residential	0
Multi-Family Residential	0
Commercial	0
Unincorporated Residential	0
TOTAL	0

Covington Flood Map

Residential	22
Agricultural	1
Commercial	3

Laura Flood Map

Residential	0
Multi-Family Residential	0
Commercial	0

TOTAL	26

Unincorporated Residential	0
TOTAL	0

Potsdam Flood Map

Residential	0
Multi-Family Residential	0
Commercial	0
Unincorporated Residential	0
TOTAL	0

West Milton Flood Map

Residential	16
Multi-Family Residential	2
Commercial	1
Agricultural	2
TOTAL	21

Pleasant Hill Flood Map

Residential	0
Multi-Family Residential	0
Commercial	0
Unincorporated Residential	0
TOTAL	0

Fletcher Flood Map

Residential	25
Multi-Family Residential	0
Commercial	2
TOTAL	27

Bradford Flood Map

Residential	0
Multi	0
Commercial	0
Unincorporated Residential	0
TOTAL	0

Casstown Flood Map

Residential	1
Multi-Family Residential	0
Commercial	0
TOTAL	1

Piqua Flood Map

Residential	48
Multi-Family Residential	0
Commercial	5
Industrial	6
TOTAL	59

Troy Flood Map

Residential	423
Multi-Family Residential	15
Commercial	42
Industrial	13
Agricultural	5
TOTAL	498

Totals

Agricultural	13
Residential	563
Commercial	53
Industrial	19
Multi-Family	24
Utility	13
TOTAL	685

Based on flood information from the NCDC, flooding events in Miami County has caused \$3,020,000 in property damage from 1993 through 2016. This is an average of \$131,304 per year in property damages. This also includes the years 1994 and 1997 in which no property losses were recorded.

Loss of contents has been included based on the values shown in the table below. A value for loss of use or “down time” of the buildings has not been included in this estimate. The amount of residential population displaced from a flood disaster would be approximately 1,462 residents (residential/multi-family units x 2.49 persons per unit). At risk structures in areas prone to urban and small stream or flash flooding (and that are not within the 100-year Flood Plain) have not been mapped or included in the vulnerability analysis.

Contents Value as a Percentage of Structure Value

Occupancy Class	Value (%)
Residential	50%
Commercial	100%
Industrial/Utility	150%
Medical Facilities	150%
Emergency Services	150%
General Government	100%
Schools/Libraries	100%
Colleges/Universities	150%
Religion/Non-profit	100%
Shelters	100%
Agricultural	100%

The above values are as recommended by FEMA guidance documents.

The flood vulnerability count showed that a total of 685 structures are located in the 100-year floodplain. Approximately 563 of these structures are residences; 53 of these are commercial; 19 are industrial; 13 are agricultural; 24 are multi-family; and 13 of these are utility. There is a total of 36,723 residential housing units in Miami County. Therefore, about 2% of the total housing stock is located within the 100-year floodplain. The current medium house value in Miami County is \$134,200 with land value and \$92,383 not including land value. The latter value was used to evaluate the following losses for the residential damages per 100-year flood event. Municipality damage ranges considered were slight, moderate, and extensive. In addition, content losses as a percentage of the property damage value were included. The entire County collectively has approximately \$144,953,392 in total building exposure to flooding for 1% -annual-chance event. A total of 685 structures can be expected to be damaged. Approximately six critical facilities could be impacted. The overall estimated losses including residential, commercial, industrial, agricultural, utility structure losses and content losses is estimated to be \$144,953,392. See table below:

Estimate of Potential Losses Due to Riverine Flooding in Miami County

Number of Structures	Type of Structure	Total Market Value in County	Average Value each Structure	Number Estimated Floodplain Structures	Damage @ 100%	Loss of Contents	Total damages
36,723	Residential/ Multi-family	\$3,392,595,240	\$92,383	587	\$54,228,821	\$27,114,410	\$81,343,231
2,483	Commercial	\$532,231,700	\$214,350	53	\$11,360,550	\$11,360,550	\$22,721,100
444	Industrial	\$308,322,600	\$694,420	19	\$13,193,980	\$19,790,970	\$32,984,950
1,520	Agricultural	\$165,063,000	\$108,594	13	\$1,411,722	\$1,411,722	\$2,823,444
106	Public Utility	\$217,479,500	\$260,547	13	\$3,387,111	\$4,748,738	\$5,080,667
							\$144,953,392

*Does not include land value.

Presidential Disaster Declaration

One Presidential Disaster Declaration DR-1065 was issued for the severe storms and flooding that struck eleven Ohio Counties including Miami County on August 25, 1995.

Mapping

See the following Miami County Floodplain Maps which indicate the graphical representation for floodplain hazards. The Flood Maps are found on the following pages.

VICINITY MAP

NO SCALE



MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
CORPORATION LIMITS



Mote & Associates, Inc.

ENGINEERING, LAND SURVEYING

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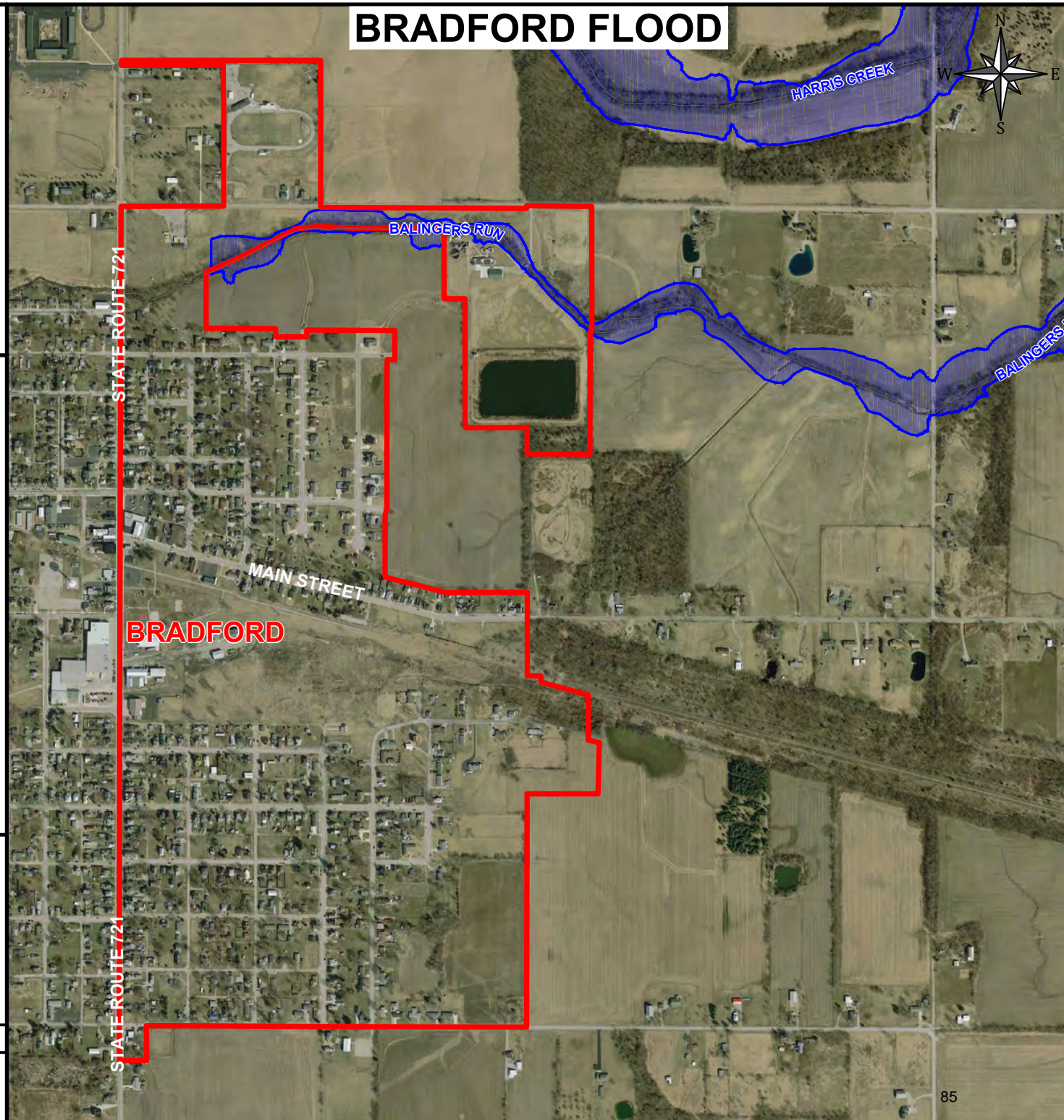
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SCALE: 1" = 900'



900 FEET 0 900

BRADFORD FLOOD



VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
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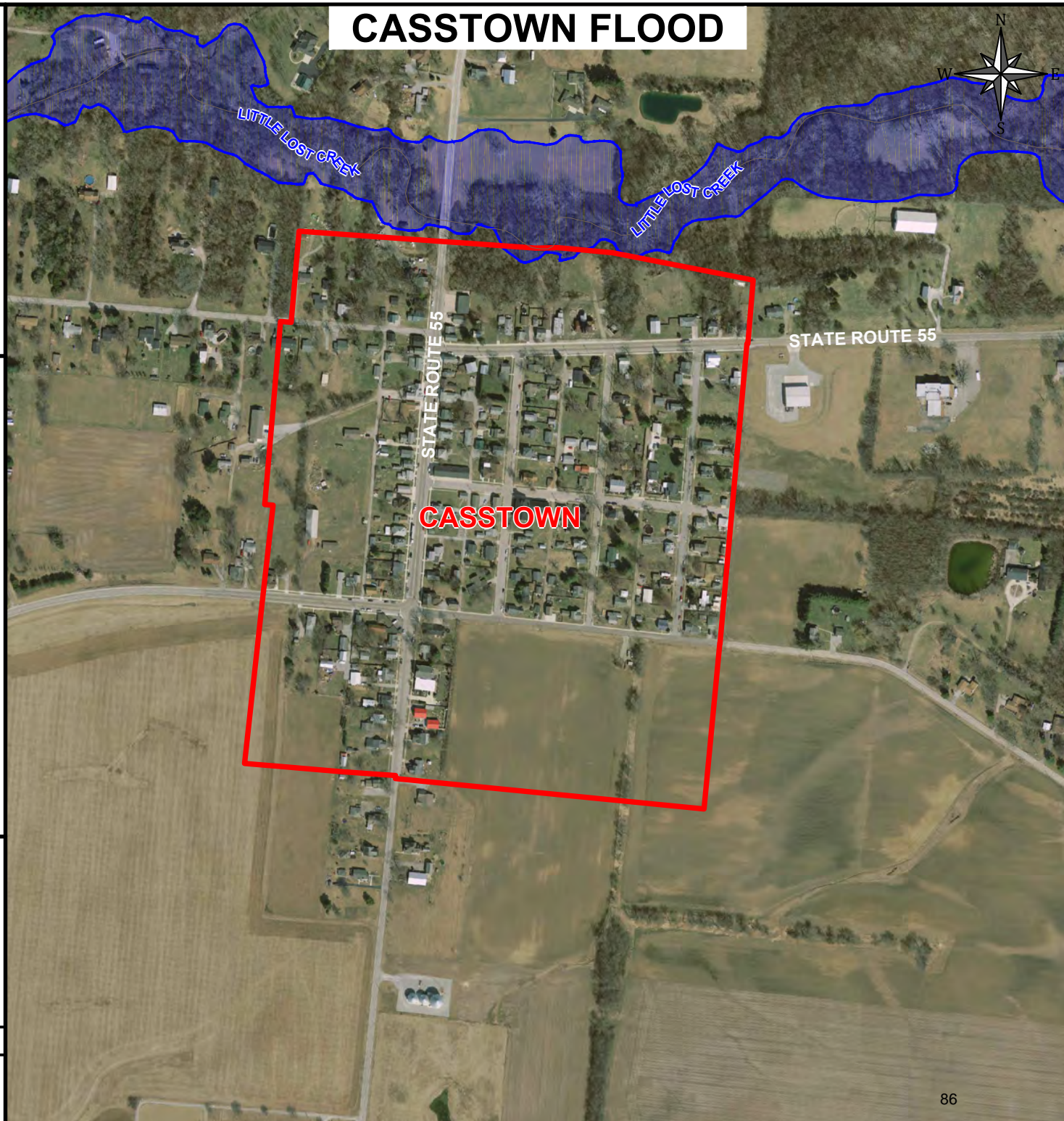
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SCALE: 1" = 500'



500 FEET 0 500

CASSTOWN FLOOD



VICINITY MAP

NO SCALE



MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
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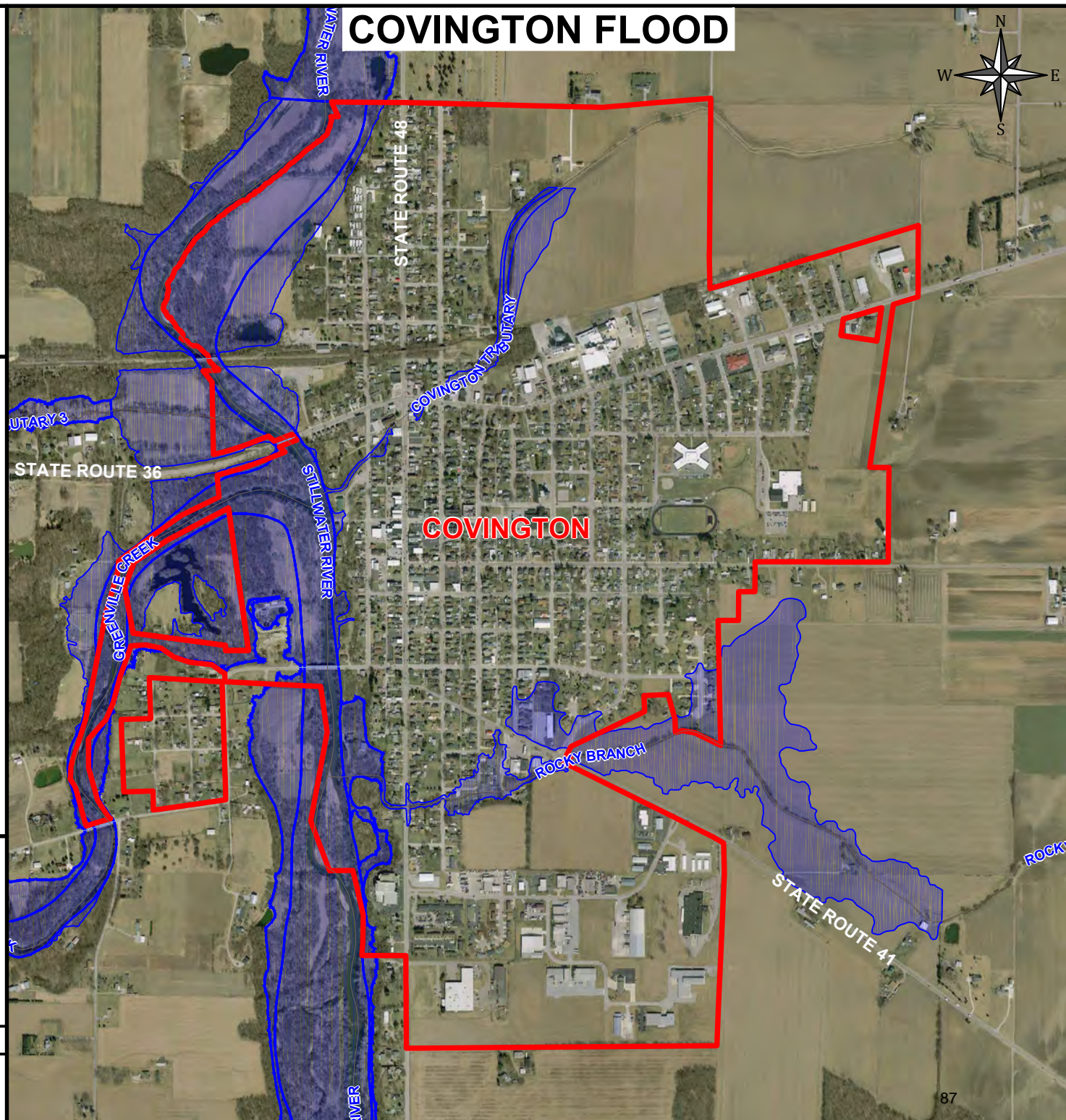
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SCALE: 1" = 1200'



1200 FEET 0 1200

COVINGTON FLOOD



VICINITY MAP

NO SCALE



MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
CORPORATION LIMITS



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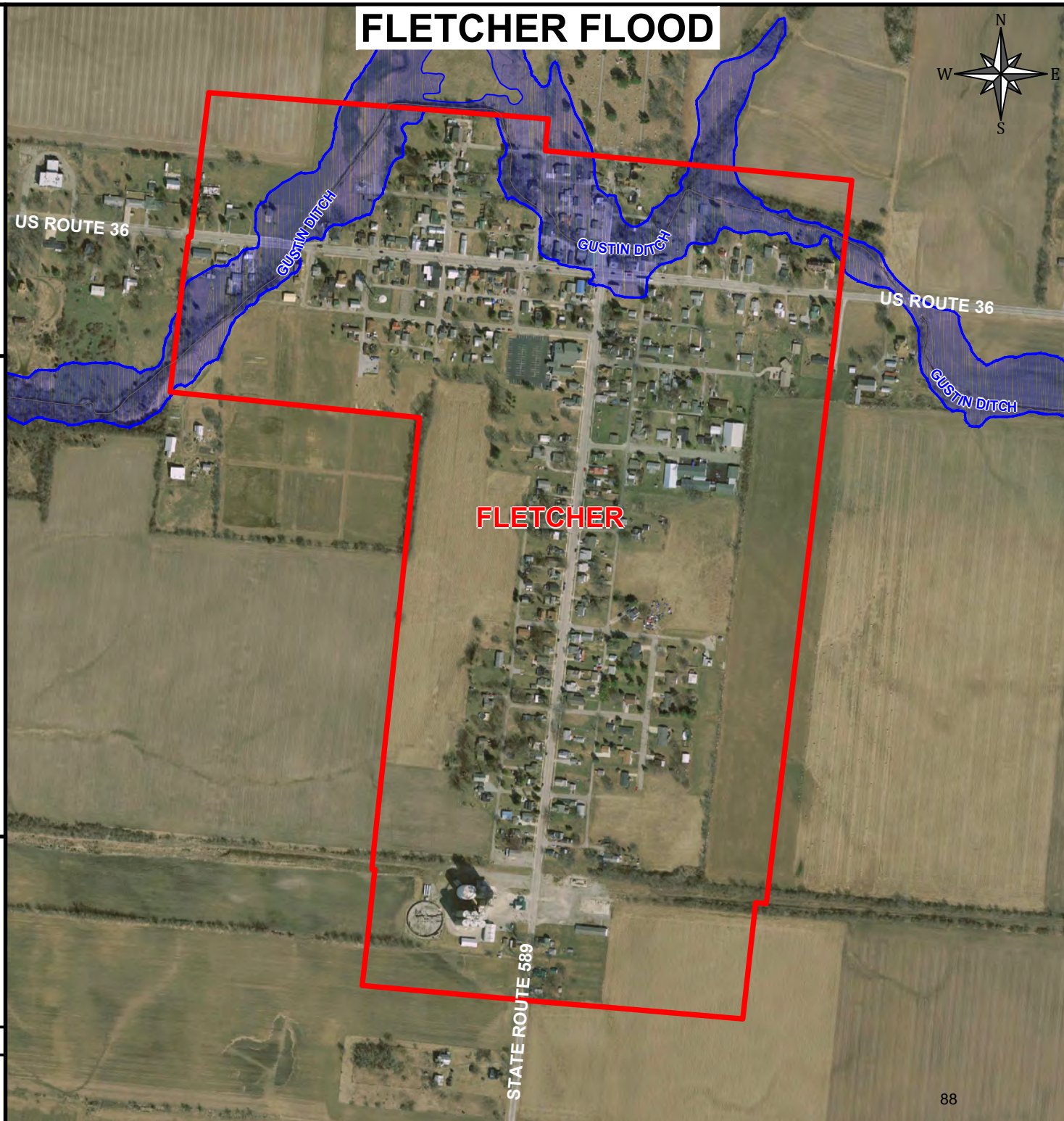
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SCALE: 1" = 600'



600 FEET 0 600

FLETCHER FLOOD



VICINITY MAP

NO SCALE



MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
CORPORATION LIMITS



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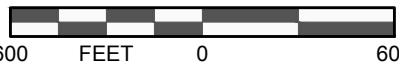
Email: info@moteassociates.com

Website: www.moteassociates.com

DRAWN BY: CMB

DATE: 4/18/17

SCALE: 1" = 600'



LAURA FLOOD

LAURA

STATE ROUTE 721

STATE ROUTE 571

HOG RUN

LUDLOW CREEK

HOG RUN

VICINITY MAP

NO SCALE



MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
CORPORATION LIMITS



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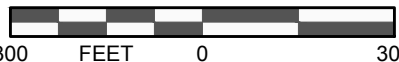
Email: info@moteassociates.com

Website: www.moteassociates.com

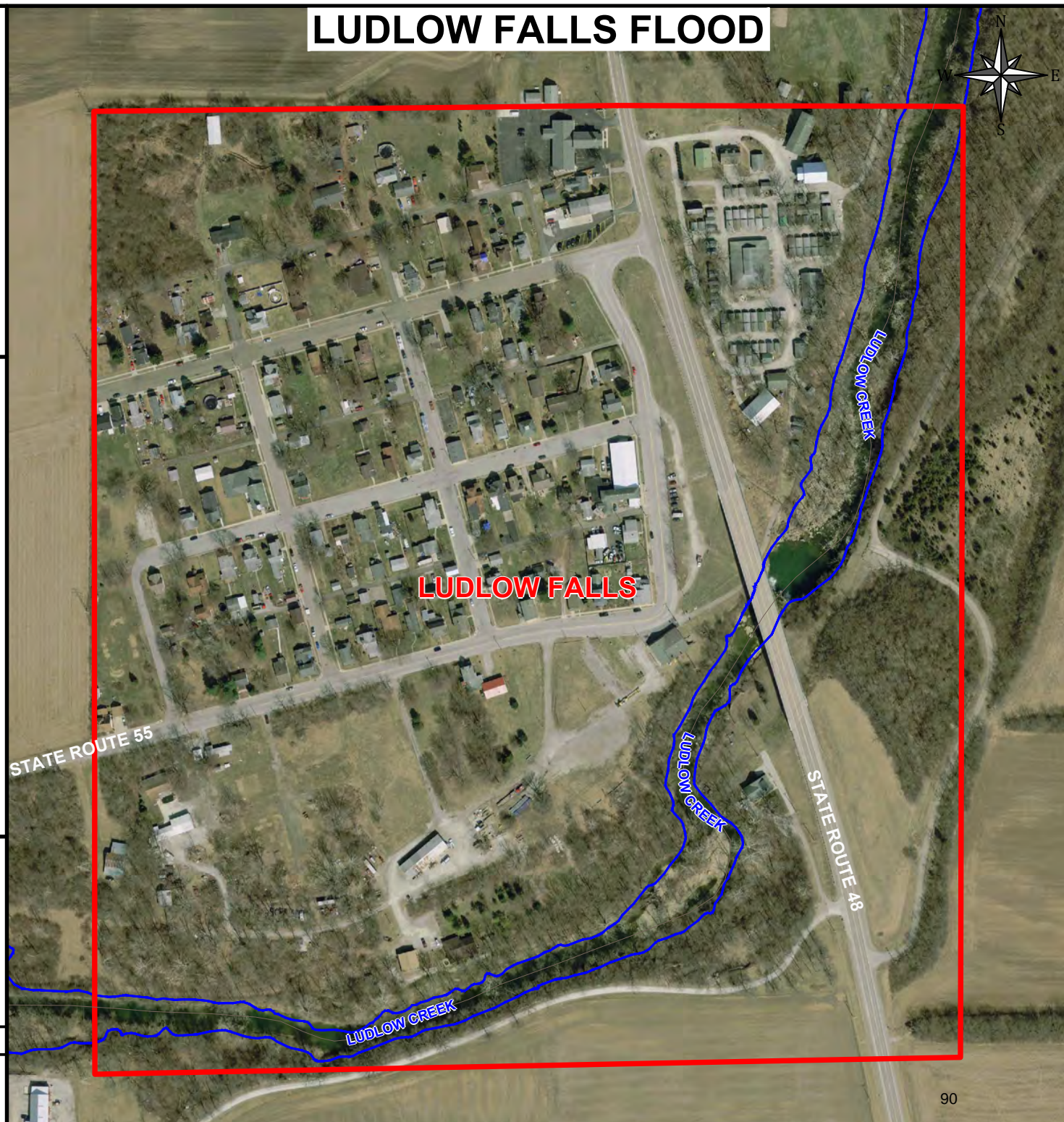
DRAWN BY: CMB

DATE: 4/18/17

SCALE: 1" = 300'



LUDLOW FALLS FLOOD



VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



FLOODWAY



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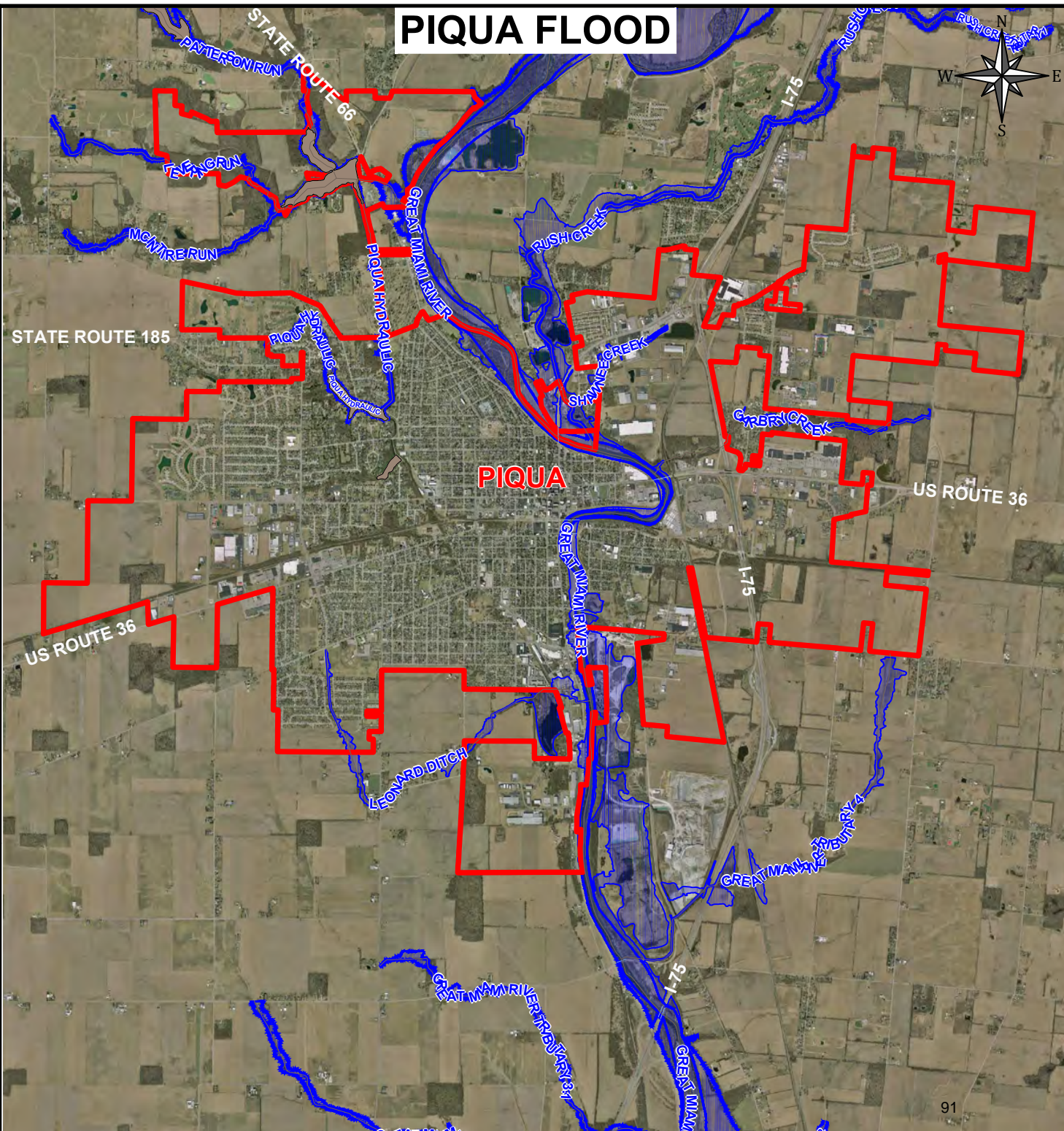
DATE: 4/18/17

SCALE: 1" = 4500'



4500 FEET 0 4500

PIQUA FLOOD



VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



FLOODWAY



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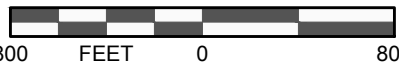
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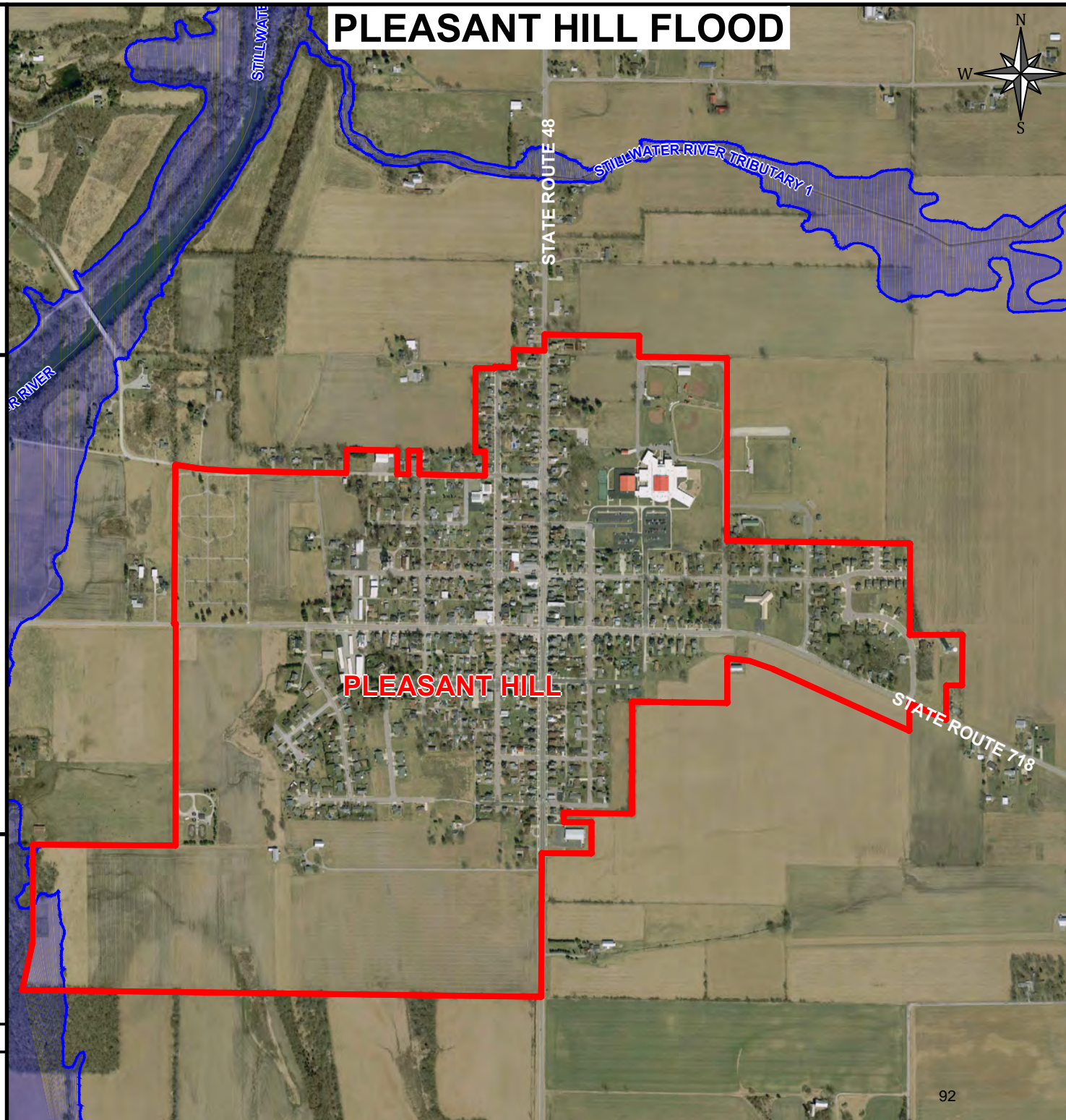
DRAWN BY: CMB

DATE: 4/18/17

SCALE: 1" = 800'



PLEASANT HILL FLOOD



VICINITY MAP

NO SCALE



MAP LEGEND



FLOODWAY



FLOODPLAIN



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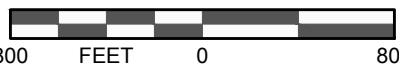
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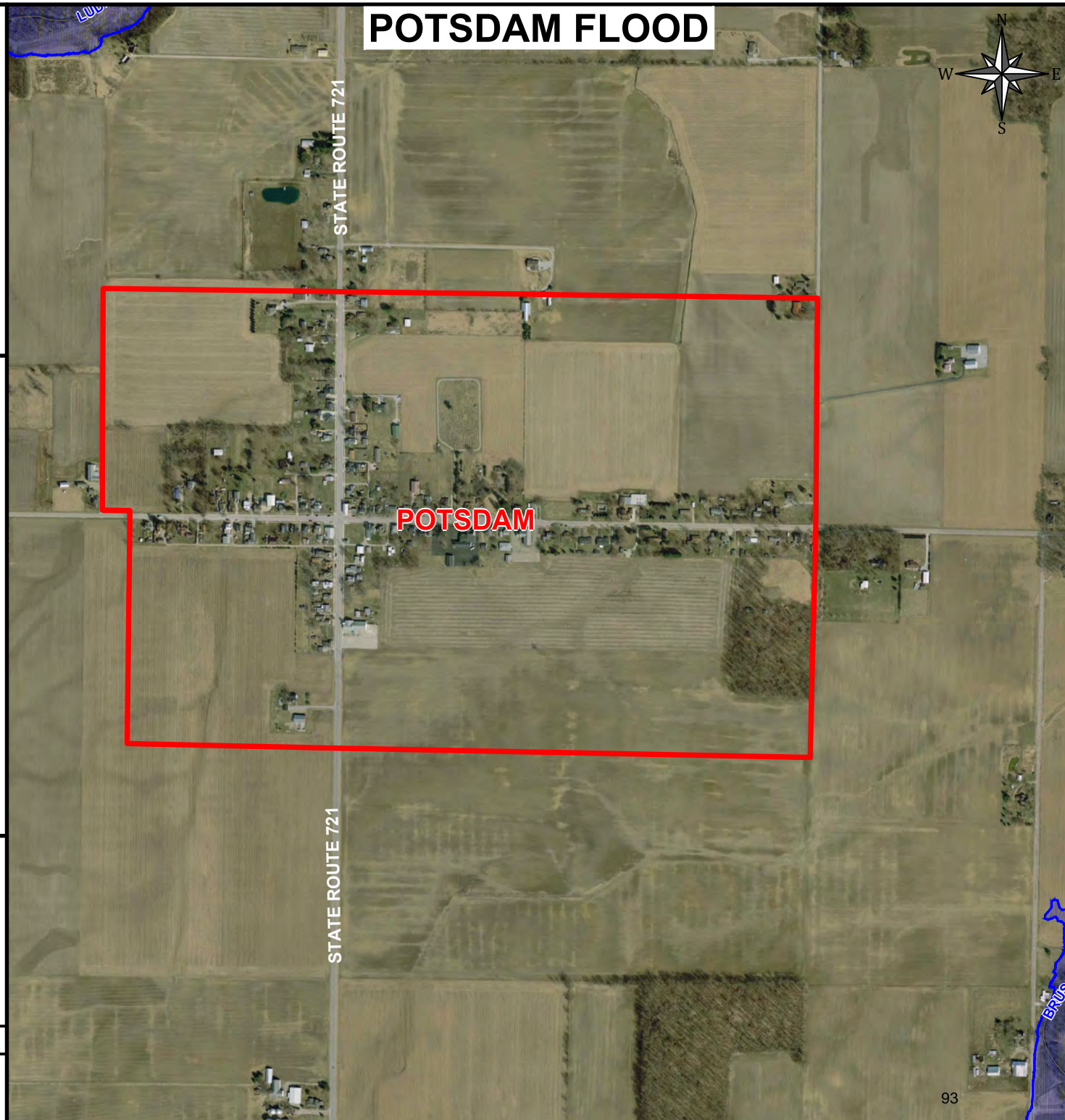
DRAWN BY: CMB

DATE: 4/18/17

SCALE: 1" = 800'



POTSDAM FLOOD



VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
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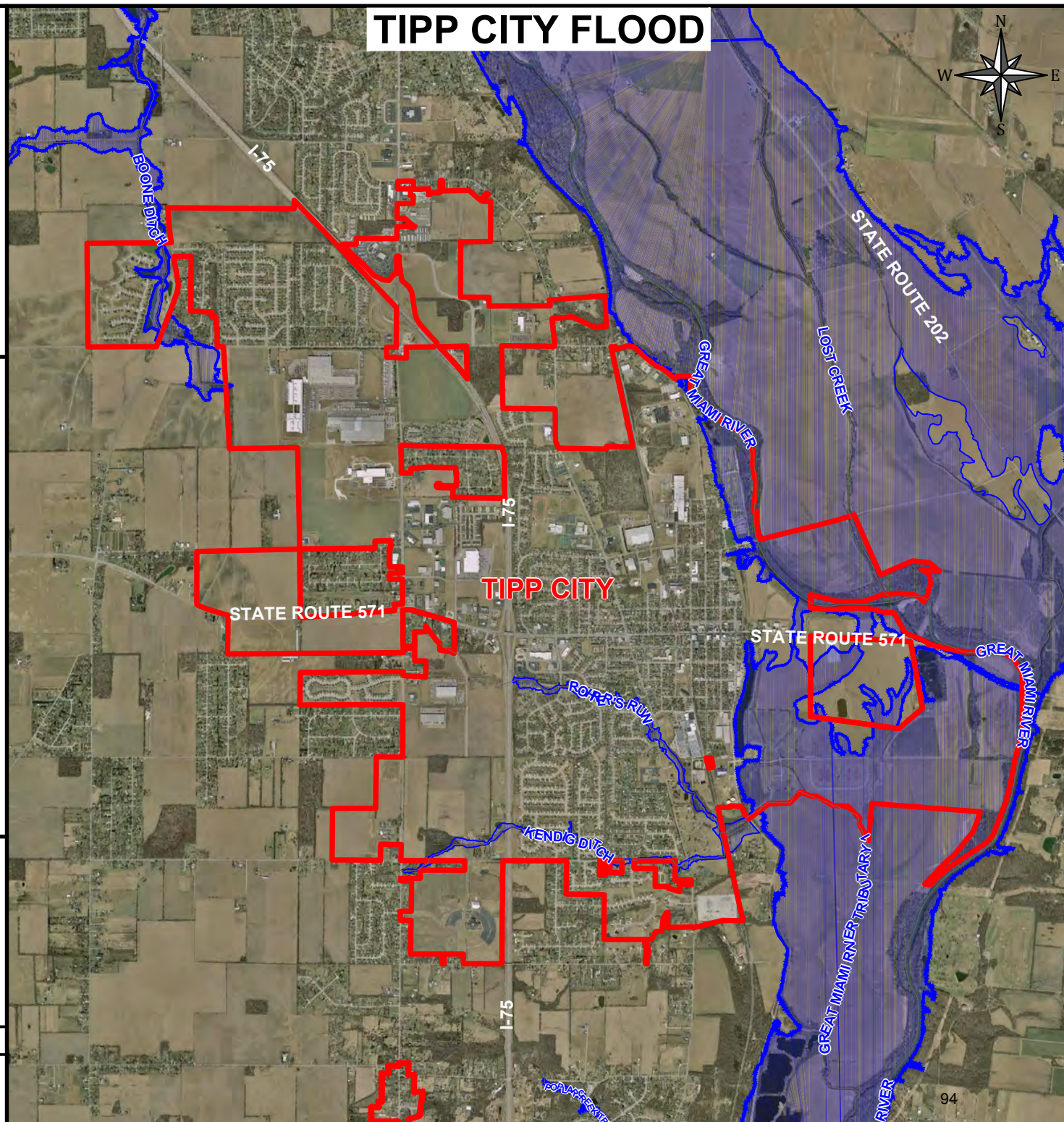
DATE: 4/18/17

SCALE: 1" = 3600'



3600 FEET 0 3600

TIPP CITY FLOOD



STATE OF OHIO

CITY / VILLAGE
CORPORATION LIMITS



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Website: www.moteassociates.com

DRAWN BY: CMB

DATE: 4/18/17

SCALE: 1" = 3,600'



3,600 FEET 0 3,600

VICINITY MAP

NO SCALE



MAP LEGEND



FLOODWAY



FLOODPLAIN



CITY / VILLAGE
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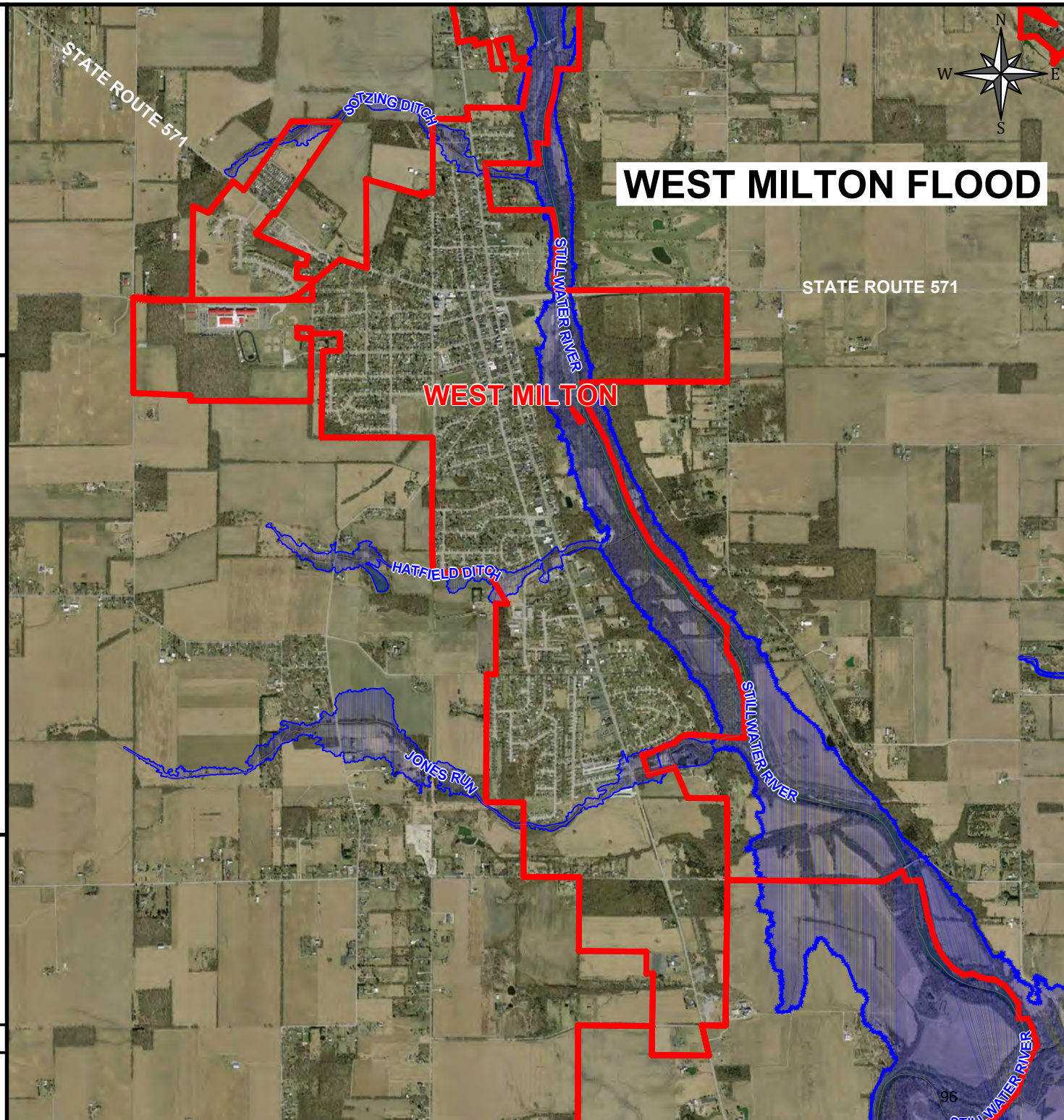
DRAWN BY: CMB

DATE: 4/18/17

SCALE: 1" = 2500'



2500 FEET 0 2500



2.6 Earthquake

Overview

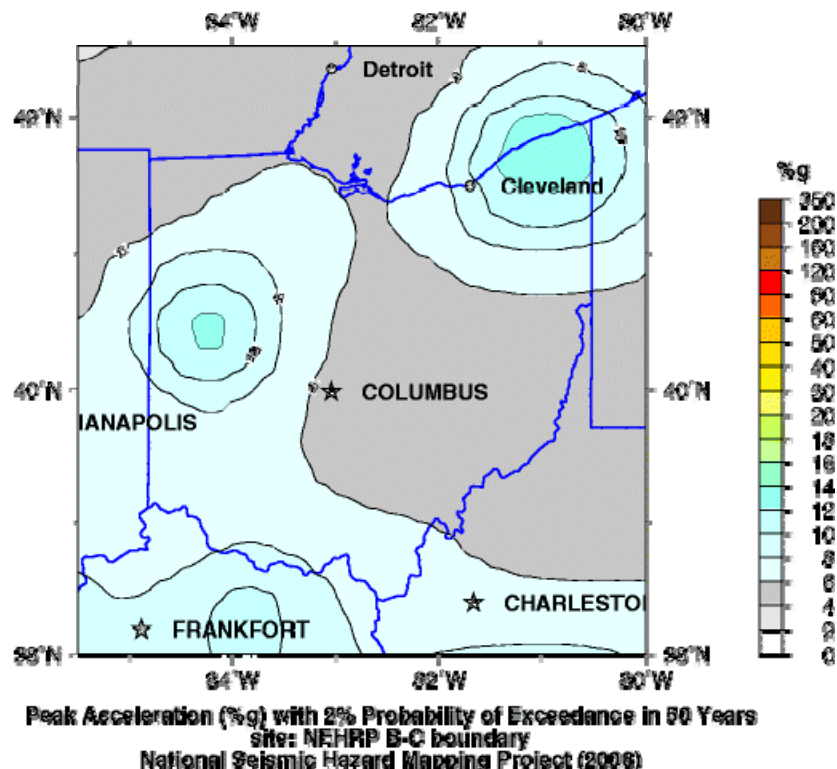
An earthquake is a sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of the Earth's tectonic plates. The severity of these effects is dependent on the amount of energy released from the fault or epicenter. The effects of an earthquake can be felt far beyond the site of its occurrence. They usually occur without warning and after just a few seconds can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. Earthquakes are considered a low probability high risk event.

Earthquakes are one of nature's most damaging hazards, and are more widespread than is often realized. The area of greatest seismic activity in the United States is along the Pacific Coast in the states of California and Alaska; however, as many as 40 states can be characterized as having moderate earthquake risk.

Risk Assessment

Although most people do not think of Ohio as an earthquake-prone state, at least 200 earthquakes with epicenters in Ohio have been felt since 1776. Most of these events caused no damage or injury. Fifteen earthquakes have resulted in property damage. Several methods of research identified earthquakes as a low to moderate hazard for the County, including the USGS Hazards Earthquake Program.

According to the USGS, Miami County is listed in the 8-16% g hazard range in regards to earthquakes (see map below).



Earthquake activity in Miami County would probably stem from the nearby seismic zone in neighboring Shelby County or from an event in the New Madrid Missouri Seismic Zone. Ohio is on the periphery of the New Madrid Seismic Zone. An area in Missouri and adjacent states was the site of the largest earthquake sequence to occur in historical times in the continental United States.

The table to the right is the Modified Mercalli Scale, which is the general relationship between epicentral Modified Mercalli intensities and magnitude. Intensities can be highly variable depending on local geologic conditions. The Mercalli Scale is a semi-quantitative linear scale, whereas the Richter Scale is a quantitative logarithmic scale. The Richter Magnitude Scale was developed in 1935 by Charles F. Richter of the California Institute of Technology as a mathematical device to compare the size of earthquakes. It is illustrated in the table to the right. The magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded between the various seismographs. Adjustments are located for the variation in the distance between the various seismographs and the epicenter of the earthquake. On the Richter scale, magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude.

Modified Mercalli Scale		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, vibrations like passing truck	2.5
IV	Felt indoors by many, outdoors by few, at night some awoken; dishes, windows, doors disturbed; standing 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; walls, monuments, chimneys fall; 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 into air	7
		7.5
		8

Severity	Scale	
	Magnitude	Mercalli
Mild	0-2.9	I-III
Moderate	2.9-4.1	IV-V
Intermediate	4.1-5.4	VI-VII
Severe	5.4-7.3	VIII-X
Catastrophic	7.3 +	XI-XIII

The Ohio Department of Natural Resources Division of Geological Survey has set up — 27 monitoring stations throughout the State of Ohio to continuously monitor and record earthquake activity. These monitoring stations are concentrated in the most seismically active areas and are all part of the Ohio Seismic Network. Although the network does not provide any warning of impending earthquakes it will provide valuable data to help improve future structure design and reduce risk.

Past Occurrences and Locations

At least 15-minor to moderate sized earthquakes have caused minor to moderate damage in Ohio. (See Earthquake Epicenters in Ohio and Adjacent Areas Map provided by State of Ohio, Department of Natural Resources, Division of Geological Survey at the end of this Section. To date there have been no deaths and only a few minor injuries reported due to earthquakes in Ohio. Miami County has not been the epicenter of any earthquakes since recording began in 1776. However, neighboring Shelby County, to the north of Miami County, and some of the other counties surrounding Shelby County such as Auglaize County have been some of the most active earthquake areas in Ohio. Numerous earthquakes in this area have occurred since 1875. Earthquakes in 1930, 1931 and 1937 caused minor to moderate damage. The March 2 and March 9, 1937 (4.5 Richter magnitude) caused significant damage in the nearby community of Anna in Shelby County. Northeast Ohio has experienced over 100 earthquakes since 1836. However, an earthquake on January 31, 1986 in Southern Lake County strongly shook Ohio and 10 other states with a magnitude of 5.0 and caused cracked plaster, broken windows with minor to moderate damage. The 3 most active regions in the state are Shelby County, Northeast Ohio and Southeast Ohio. Other recent earthquake epicenters have been in northern Mercer County in 2004, 2005, and two in Allen County in 2006. Miami County has experienced, since 1950, only a few periodic earthquake tremors that are of a magnitude to be felt.

Probability of Future Events

Although a great deal is known about *where* earthquakes are likely to occur, there is currently no reliable way to predict the days or months *when* an event will occur in any specific location. Because at least 170 earthquake events have affected Ohio since 1776, it is anticipated one can expect future earthquake events to occur. The probability of a future event and the anticipated locations has been developed per the USGS Peak Acceleration Map shown in the Risk Assessment portion of this Section. The measurement used in this estimation is based on the chance of ground shaking over time. In this analysis the west central portions of Ohio have an increased chance of experiencing an earthquake than the eastern and southern portions of Ohio. According to the map Miami County has a 6-8% g peak acceleration rate with 2% probability of exceeding in 50 years.

Vulnerability Analysis & Loss Estimation

As per the hazard profile information available, Miami County has a low to moderate risk of incurring damages from an earthquake. Miami County has not been the epicenter of any past earthquakes. Due to the infrequency of earthquakes occurring in Miami County and from nearby historical earthquake events it is possible an earthquake with a low to moderate magnitude on the Richter scale could be expected to cause minor to moderate damage to Miami County's infrastructure. Since most buildings constructed

within Miami County are three stories or less, the damage experienced in such an event would most likely be damage to non-reinforced masonry, cracked plaster, broken window glass and falling objects that are not anchored. Most of the houses in Miami County are wood or wood frame and brick veneer. A few of the older houses are of solid brick masonry which would be more susceptible to damage.

Several of the older downtown districts such as found in Piqua, Troy and Tipp City and West Milton have non-reinforced brick structures that are 2 or 3 stories in height. These non-reinforced masonry structures would be more vulnerable to damage.

Other vulnerable infrastructure would include underground gas, water piping, and sewerage systems. Water wells may also be vulnerable.

Most of the modern industrial buildings in the county are of pre-engineered steel design with braced steel frames and would be less vulnerable to damage. Many of school districts in Miami County have newly constructed schools which should meet current earthquake design standards.

A moderate earthquake in the county could disrupt critical services to structures should a water main or gas main rupture. Disruption of such county services could have a moderate economic impact on the county should businesses be temporarily closed.

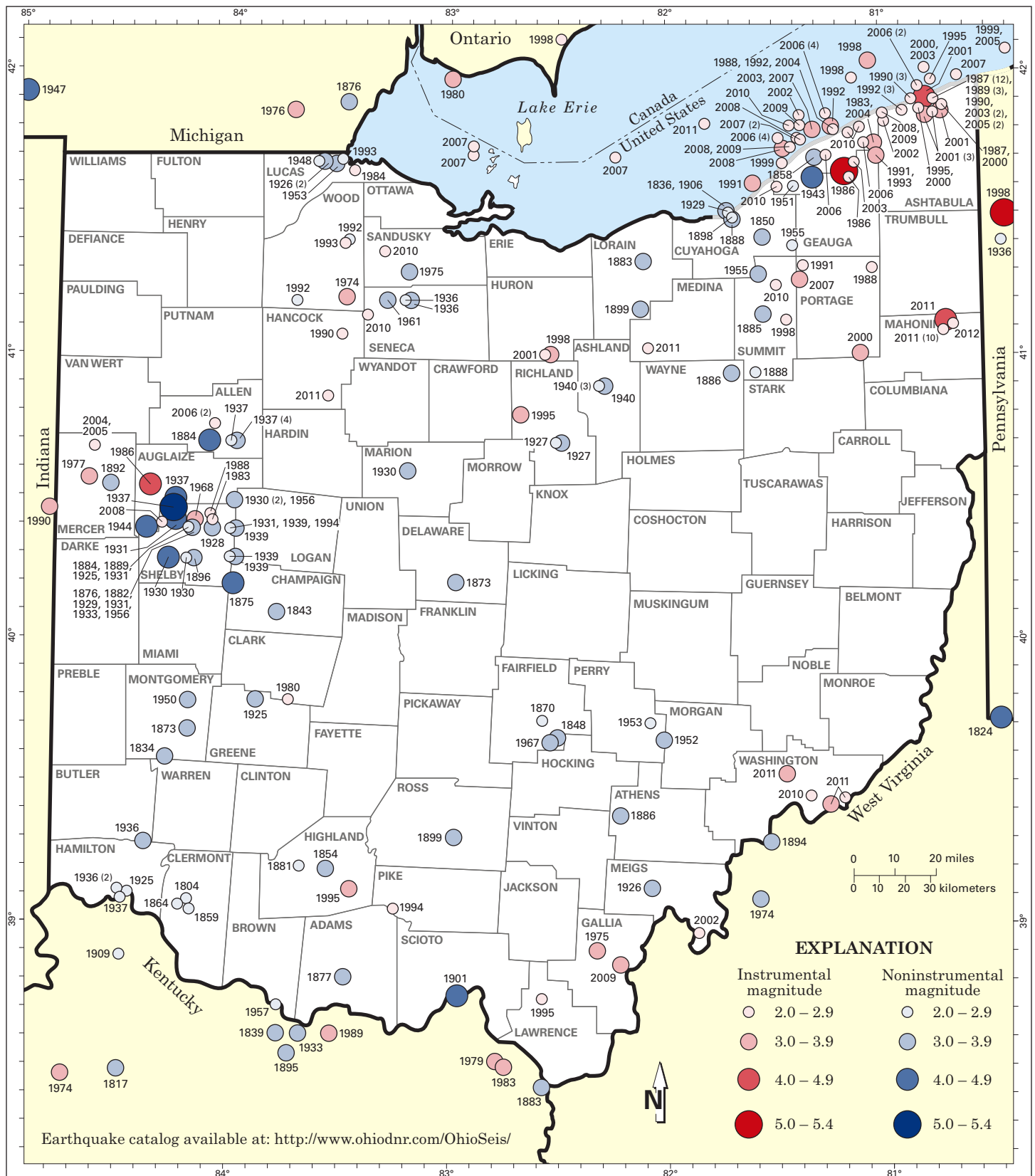
Loss estimations for Miami County's earthquake hazard are based on current property value assessments from the Miami County Auditors Office and from the historic data on west central Ohio earthquakes. It is anticipated that slight and moderate damage would occur to a limited number of buildings located within the county. Very minimal damage and losses are anticipated to affect critical facilities, utilities, or transportation systems.

Estimate of Potential Losses to Earthquake Miami County Ohio*											
Total Number of Structures in County	Type of Structures	Total Value	Average Value**	# Affected Properties	Slight Damage - 1.5% of Properties @ 5% Damage	# Affected Properties	Moderate Damage - .05% of Properties @ 25% Damage	Content Loss	Extensive Damage - 0% @ 75% Damage	Content Loss	Total Content and Property Loss
35,393	Residential	\$3,414,386,710	\$96,470	531	\$2,561,279	177	\$4,268,798	\$2,134,399	0	0	\$8,964,476
2,484	Commercial	\$573,586,800	\$230,912	37	\$427,187	12	\$692,736	\$692,736	0	0	\$1,812,659
480	Industrial	\$266,389,800	\$554,979	7	\$194,242	2	\$346,862	\$520,293	0	0	\$1,061,397
1,609	Agricultural	\$181,063,700	\$112,531	24	\$135,037	8	\$225,062	\$225,062	0	0	\$585,161
632	Utility	\$153,908,270	\$243,525	9	\$109,586	3	\$182,644	\$273,966	0	0	\$700,135
**"Understanding Your Risks" FEMA State & Local Mitigation Planning Guide 386-2 per Loss Estimation Table										Total	\$13,123,828

**Does not Include Land Value

Based on the above estimations a moderate earthquake would cause approximately \$13,123,828 in damages to County infrastructure including content losses. No amount has been included for loss of structure use.

EARTHQUAKE EPICENTERS IN OHIO AND ADJACENT AREAS



Recommended citation: Ohio Division of Geological Survey, 2012, Earthquake epicenters in Ohio and adjacent areas—color version: Ohio Department of Natural Resources, Division of Geological Survey Map EG-2, generalized page-size version, 1 p., scale 1:2,000,000.



VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



MODERATE HAZARD



MAJOR ROADWAY



MINOR ROADWAY



ACTIVE RAILROAD



CITY / VILLAGE



COUNTY

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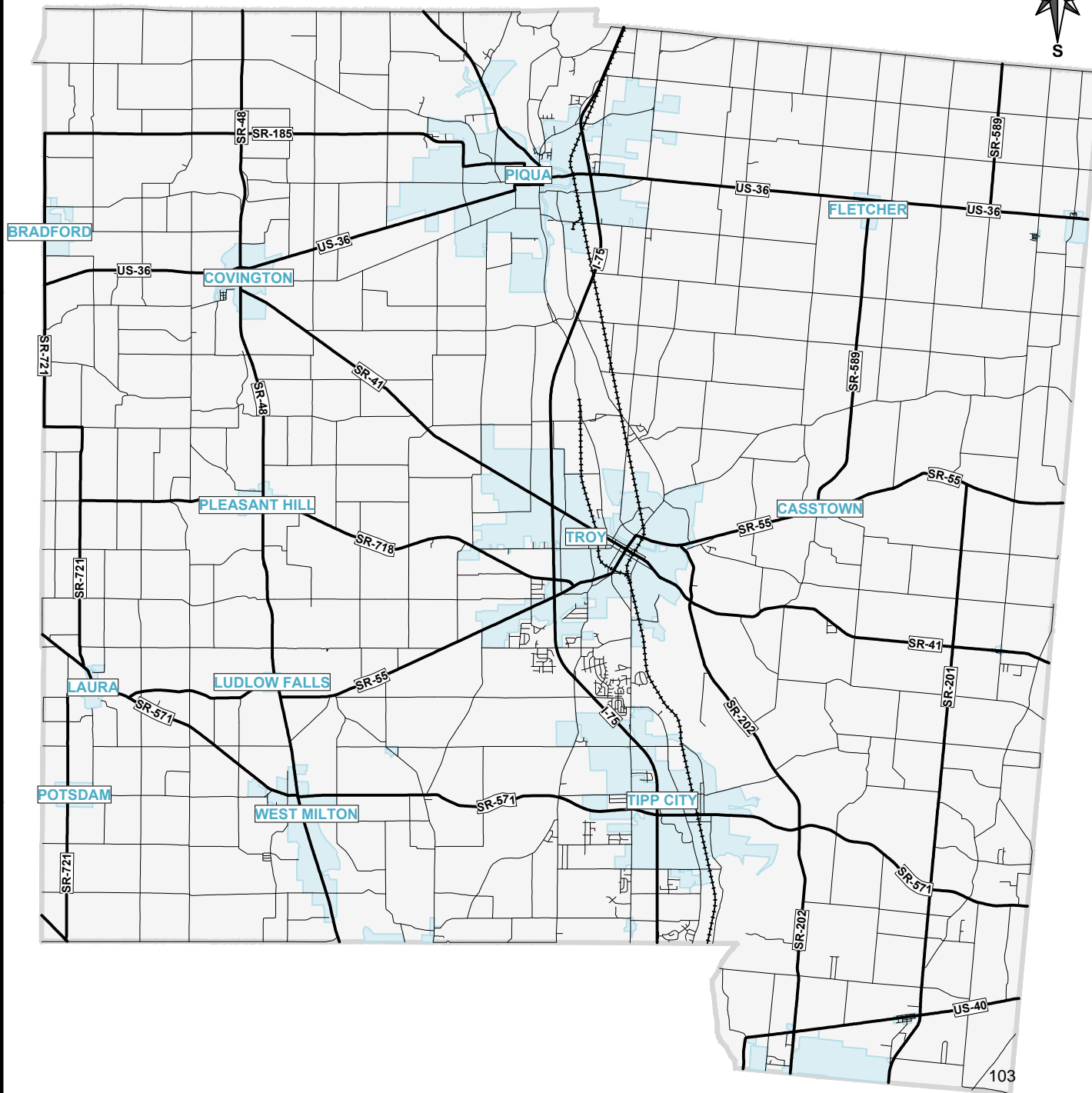
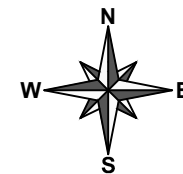
DATE: 8/9/11

SCALE: 1" = 16,000'



16,000 FEET 0 16,000

MIAMI COUNTY EARTHQUAKE



2.7 Severe Thunderstorm and Lightning/Hail

A severe thunderstorm is the result of a violent form of convection wherein cold, upper air falls and warm, moist air rises. As the warm air rises, cumulonimbus clouds can develop and turn into severe thunderstorms with strong winds, lightning, heavy rain, and hail.

Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a bolt. This flash of light usually occurs within the clouds or between the clouds and the ground.

Several methods of research identified severe thunderstorms and lightning as natural hazards in Miami County, including discussions with local representatives and officials. General severe thunderstorm information was gathered at www.ready.gov/thunderstorms-lightning and www.weathersafety.ohio.gov – The Ohio Committee for Severe Weather Awareness.

The National Weather Service defines a thunderstorm as “severe” when wind speeds reach 58 mph or stronger, and/or hail is produced that is $\frac{3}{4}$ inch in diameter or larger, and/or a tornado is produced. High wind events are one of the most common types of hazards in Miami County. Figure 1.1 shows the number of high wind days that occur each year. To be classified as a “high wind event,” winds must be in excess of 52 mph. As can be seen, Ohio is one of the most prominent areas for high wind events, especially Miami County. Winds at these speeds are capable of doing great damage.

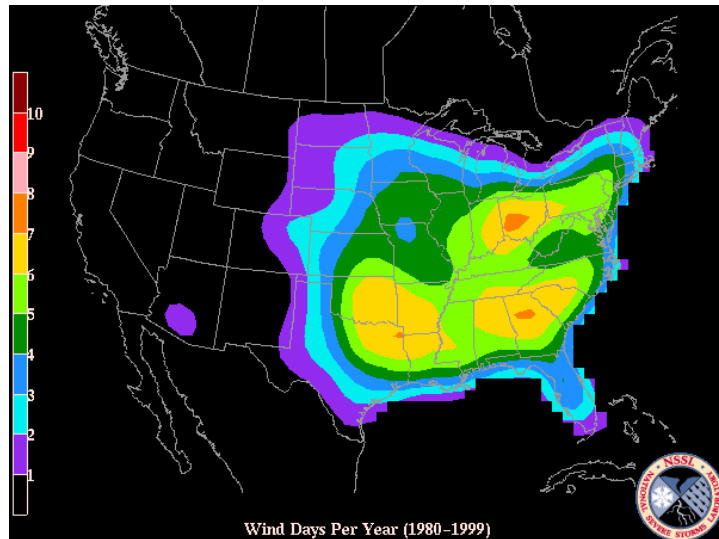


Figure 1.1

Thunderstorms are a seasonal hazard and can be expected to occur every year. According to the National Weather Service, the most active thunderstorm season in Ohio is late spring and early summer. The key ingredient that defines a thunderstorm is lightning. Because lightning creates thunder, a storm with lightning is termed a thunderstorm. A bolt of lightning reaches a temperature approaching 50,000 degrees Fahrenheit in a split second. The rapid heating and cooling of air near the lightning causes thunder. From 2006-2016 Ohio experienced 7 deaths as a result of lightning. The United States has a ten-year average (from 2006-2016) of 31 deaths annually due to lightning strikes. From 1940 – 2015 the average yearly deaths from lightning strikes is higher at 48 total deaths.

Ohio reported no deaths by lightning in 2015. In 2016, the US experienced 38 deaths by lightning strikes with 1 death occurring in Ohio. Total lightning deaths from 1940 – 2016 is 147. Lightning Safety Week is promoted by the National Weather Service the last full week in July to help educate the public and lower deaths and injuries due to lightning. Since the 2012 Plan Update approval, 40 thunderstorm events have been reported to the NOAA Storm events database in Miami County. Some of the most damaging events include:

- \$250,000 in damages reported during a severe thunderstorm in the Cowlesville, Tipp City area on September 4, 2011. Damaging wind and large hail with trees uprooted. Nineteen loaded trailers were overturned, 2 air conditioning units were blown off the roof at a distribution center. Eight wooden high voltage utility poles were snapped and a semi-trailer overturned on a highway.
- \$100,000 in damages reported during a severe thunderstorm on June 29, 2012. It was considered a “derecho” affecting many counties. Widespread power outages were reported. Several recreational vehicles were overturned at a dealership in Piqua along N. County Road 25A and significant damage occurred to the dealership roof on one of the showrooms.
- \$30,000 in damages reported during a severe thunderstorm on December 23, 2015 near Pleasant Hill. Multiple buildings were damaged at 1845 Rangeline Road.

Past Occurrences

An article taken from the Miami Valley Sunday News stated that on June 4, 1989, a thunderstorm passed over Miami County during the Troy Strawberry Festival. The thunderstorm brought high winds and heavy rain causing significant damage and one injury at the festival site, when a tent blew over onto a bystander.

According to a NOAA Storm Event Record, two clusters of thunderstorms caused significant damage on the 9th of August, 2000. Many trees and power lines were blown down across the county. In Piqua alone, at least 130 trees were knocked down, 12 homes damaged severely, and three vehicles were nearly destroyed. During the morning hours, a large bow echo cloud raced across the area causing widespread wind damage. During the afternoon and evening hours, a large cluster of storms formed causing widespread wind damage and hail along with some flooding.

According to NOAA Storm Event Records, there have been at least five reported occurrences of persons being struck by lightning in Miami County with one resulting in a fatality. The first lightning strike occurred on June 3, 1996, when a Troy woman was struck while doing dishes near the kitchen sink during a thunderstorm. The second occurred on April 2, 2001 when a Piqua man was killed when attempting to take cover near a tree at a city park.

According to NOAA Storm Event Records and local news articles a severe thunderstorm with lightning strikes occurred at the Troy Strawberry Festival injuring a man and his two

sons on June 2, 2007. The following tables summarize the Severe Thunderstorm, Lightning, and Hail experienced in Miami County.

The following NOAA/NCDC Tables indicate thunderstorm, hail, and lightning events and locations that have occurred since 1994 throughout Miami County. Those listed are the ones that had injuries, deaths, property, or crop damages reported.

Miami County Thunderstorm Events 1994-2016*							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Troy	4/27/1994	Tstm Wind	0 kts.	0	0	\$5,000	\$0
Troy Piqua	5/24/1994	Tstm Wind	0 kts.	0	0	\$50,000	\$0
Troy	7/2/1994	Tstm Wind	0 kts.	0	0	\$50,000	\$0
Piqua	6/21/1995	Tstm Wind	0 kts.	0	0	\$50,000	\$0
Fletcher	6/26/1995	Tstm Wind	0 kts.	0	0	\$4,000	\$0
Countywide	7/15/1995	Wind/Hail	1 kts.	0	0	\$6,000	\$0
Troy	7/26/1995	Tstm Wind	0 kts.	0	0	\$3,000	\$0
Tipp City	5/10/1996	Tstm Wind	50 kts.	0	0	\$4,000	\$0
Kessler	5/23/1996	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Troy	6/14/1996	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Troy	7/7/1996	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Bradford	10/30/1996	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Pleasant Hill	11/7/1996	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Fletcher	1/5/1997	Tstm Wind	50 kts.	0	0	\$15,000	\$0
Troy	7/27/1997	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Troy	5/29/1998	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Countywide	6/19/1998	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Laura	6/29/1998	Tstm Wind	50 kts.	0	0	\$3,000	\$0
West Milton	6/29/1998	Tstm Wind	50 kts.	0	0	\$3,000	\$0

Countywide	7/19/1998	Tstm Wind	60 kts.	0	0	\$20,000	\$0
Countywide	7/19/1998	Tstm Wind	60 kts.	0	0	\$10,000	\$0
Countywide	11/10/1998	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Countywide	2/11/1999	Tstm Wind	50 kts.	0	0	\$5,000	\$0
West Milton	7/9/1999	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Piqua	7/26/1999	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Countywide	4/20/2000	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Tipp City	6/14/2000	Tstm Wind	52 kts.	0	0	\$5,000	\$0
Troy	7/28/2000	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Piqua	8/9/2000	Tstm Wind	50 kts.	0	0	\$50,000	\$0
Countywide	9/20/2000	Tstm Wind	50 kts.	0	0	\$5,000	\$0
West Milton	11/9/2000	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Troy	5/17/2001	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Piqua	6/11/2001	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Tipp City	6/12/2001	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Countywide	10/24/2001	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Troy	7/29/2002	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Covington	8/11/2002	Tstm Wind	50 kts.	0	0	\$3,000	\$0
West Milton	11/10/2002	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Tipp City	11/10/2002	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Troy	4/4/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Piqua	5/1/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Countywide	7/4/2003	Tstm Wind	50 kts.	0	0	\$7,000	\$0
Troy	7/5/2003	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Conover	7/6/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
West Milton	7/7/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Piqua	7/8/2003	Tstm Wind	55 kts.	0	0	\$5,000	\$0

Troy	7/21/2003	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Troy	7/27/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Covington	7/27/2003	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Tipp City	8/2/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Troy	8/27/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Brandt	9/1/2003	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Piqua	9/1/2003	Tstm Wind	50 kts.	0	0	\$8,000	\$0
Countywide	9/26/2003	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Countywide	5/23/2004	Tstm Wind	50 kts.	0	0	\$6,000	\$0
Troy	5/30/2004	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Piqua	5/11/2005	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Tipp City	6/30/2005	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Brandt	8/11/2005	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Fletcher	8/20/2005	Tstm Wind	50 kts.	0	0	\$6,000	\$0
Tipp City	9/19/2005	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Covington	11/6/2005	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Pleasant Hill	11/6/2005	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Piqua	4/2/2006	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Piqua	5/25/2006	Tstm Wind	50 kts.	0	0	\$4,000	\$0
Countywide	6/28/2006	Tstm Wind	50 kts.	0	0	\$8,000	\$0
Troy	7/18/2006	Tstm Wind	50 kts.	0	0	\$15,000	\$0
Troy	8/3/2006	Tstm Wind	57 kts.	0	0	\$3,000	\$0
Troy	12/1/2006	Tstm Wind	50 kts.	0	0	\$4,000	\$0
Casstown	4/11/2007	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Tipp City	5/15/2007	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Covington	6/2/2007	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Pleasant Hill	8/16/2007	Tstm Wind	50 kts.	0	0	\$2,000	\$0

Fletcher	8/25/2007	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Troy	1/8/2008	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Troy	5/31/2008	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Troy	6/15/2008	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Ludlow Falls	6/28/2008	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Pleasant Hill	5/7/2010	Tstm Wind	65 kts.	0	0	\$5,000	\$0
Piqua	6/2/2010	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Brandt	4/27/2011	Tstm Wind	50 kts.	0	0	\$2,000	\$0
West Milton	5/23/2011	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Pleasant Hill	5/23/2011	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Tipp City	5/23/2011	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Piqua	5/23/2011	Tstm Wind	61 kts.	0	0	\$0	\$0
West Milton	5/25/2011	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Tipp City	5/25/2011	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Covington	5/25/2011	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Covington	7/11/2011	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Pleasant Hill	8/07/2011	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Tipp City	9/04/2011	Tstm Wind	60 kts.	0	0	\$250,000	\$0
Piqua	6/29/2012	Tstm Wind	70 kts.	0	0	\$100,000	\$0
Piqua	6/29/2012	Tstm Wind	70 kts.	0	1	\$10,000	\$0
Piqua	7/01/2012	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Pleasant Hill	7/01/2012	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Troy	7/01/2012	Tstm Wind	50 kts.	0	0	\$3,000	\$0
West Milton	7/01/2012	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Troy	7/01/2012	Tstm Wind	52 kts.	0	0	\$0	\$0
Tipp City	7/01/2012	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Alcony	7/01/2012	Tstm Wind	50 kts.	0	0	\$1,000	\$0

Bradford	7/25/2012	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Bloomer	6/12/2013	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Cowlesville	6/23/2013	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Piqua	7/10/2013	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Piqua	7/20/2013	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Troy	7/20/2013	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Piqua	10/31/2013	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Evanston	10/31/2013	Tstm Wind	50 kts.	0	0	\$3,000	\$0
Casstown	10/31/2013	Tstm Wind	61 kts.	0	0	\$50,000	\$0
Tipp City	2/20/2014	Tstm Wind	50 kts.	0	0	\$5,000	\$0
Covington	5/11/2014	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Circle Hill	6/18/2014	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Piqua Airport	6/19/2014	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Ludlow Falls	7/01/2014	Tstm Wind	50 kts.	0	0	\$1,000	\$0
Piqua	7/18/2015	Tstm Wind	50 kts.	0	0	\$10,000	\$0
Casstown	7/18/2015	Tstm Wind	50 kts.	0	0	\$2,000	\$0
Laura	12/23/2015	Tstm Wind	52 kts.	0	0	\$10,000	\$0
Pleasant Hill	12/23/2015	Tstm Wind	52 kts.	0	0	\$30,000	\$0
Troy	3/27/2016	Tstm Wind	50 kts.	0	0	\$0	\$0
Tipp City	5/29/2016	Tstm Wind	45 kts.	0	0	\$5,000	\$0
West Milton	8/27/2016	Tstm Wind	50 kts.	0	0	\$1,000	\$0
TOTALS:				0	1	\$1,212,000	\$0

Source: National Climatic Data Center (NCDC)

* Through December 2016

Miami County Lightning Events 1995-2016							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Troy	8/7/1995	Lightning	N/A	0	0	\$5,000	\$0
Troy	6/3/1996	Lightning	N/A	0	1	\$0	\$0
Covington	6/14/1996	Lightning	N/A	0	0	\$20,000	\$0
Piqua	4/9/2001	Lightning	N/A	1	0	\$0	\$0
Troy	6/2/2007	Lightning	N/A	0	3	\$0	\$0
TOTALS:				1	4	\$25,000	\$0

Source: National Climatic Data Center (NCDC)

Miami County Hail Events 1994-2016							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Tipp City	6/6/1994	Hail	1.00 in.	0	0	\$0	\$50,000
Piqua	4/10/1995	Hail	0.75 in.	0	0	\$0	\$0
Piqua	6/26/1995	Hail	0.75 in.	0	0	\$4,000	\$0
Countywide	7/15/1995	Wind /Hail	.75 in. 60 kts.	0	0	\$6,000	\$0
Pleasant Hill	4/7/2006	Hail	1.50 in.	0	0	\$6,000	\$0
Troy	8/3/2006	Hail	0.75 in.	0	0	\$2,000	\$0
Piqua	8/16/2007	Hail	1.00 in.	0	0	\$5,000	\$0
Troy	6/4/2008	Hail	1.00 in.	0	0	\$8,000	\$0
TOTALS:				0	0	\$31,000	\$50,000

Source: National Climatic Data Center (NCDC)

Probability of a Future Event

Severe thunderstorm, lightning, and hail events will continue to affect Miami County in the future. These hazard events can occur in all areas of the County. No one in the County is more susceptible to severe storms. The NOAA/NCDC reported 100 thunderstorm events, 38 hail events, and five lightning storms occurring in Miami County since 1994. On average, that is about 4.5 severe thunderstorm events per year, 1.7 hail storm events per year and 1 severe lightning strike about every 4.4 years.

Vulnerability Analysis & Loss Estimation

Many of the structural damages associated with severe thunderstorms include downed power lines, fallen trees and other debris that causes structural damage. Further, damage to contents is also potentially high, as in power surges due to lightning can cause damages to appliances and can cause structural fires. Other damage associated with severe thunderstorms includes hail storms which can cause moderate damage to roofs, windows, sky lights, and HVAC equipment.

A severe thunderstorm is issued by the National Weather Service (NWS) whenever conditions are favorable for the development of severe storms. At that time, citizens should be prepared and on the lookout for possible approaching storms and have a safe place in mind to take cover. Having a television or battery-operated radio on hand allows the public to listen and wait in safety until an “all clear” is given by authorities.

Other hazards such as tornadoes, high wind events, hail, and flooding can accompany severe thunderstorms. Citizens should be prepared for any of the above hazards when a severe thunderstorm warning is issued for their area. Mobile homes and older manufactured housing are generally more vulnerable to property damage; and therefore, moving to a safe room or other shelter is a good alternative prior to a severe thunderstorm event. Five lightning events have been recorded in Miami County since 1995. Fortunately, no lightning deaths or injuries have occurred in Miami County in the last 5 years, since the 2012 Plan Approval process. Lightning strikes have caused one death and four injuries so it is important to avoid outdoor exposure during a lightning event as it can cause varying degrees of disability with the most being with the central nervous system.

The three most recent single reported thunderstorms in regards to damage losses include: • 9/4/11 Tipp City \$250,000; • 6/29/2012 Piqua \$100,000; • 10/31/2013 Casstown \$50,000. All 142 severe storm events including lightning and hail have caused a total of \$1,212,000 in cumulative damages to Miami County or an average of about \$8,107 per thunderstorm, lightning, and hail event. Generally, there is more significant property damages in the more populated areas of the County during a storm event.

Mapping

See the Miami County Severe Thunderstorm and Lightning Map for a graphical representation of hazard areas with regard to severe thunderstorms and lightning.

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



MODERATE HAZARD



MAJOR ROADWAY



MINOR ROADWAY



ACTIVE RAILROAD



CITY / VILLAGE



COUNTY

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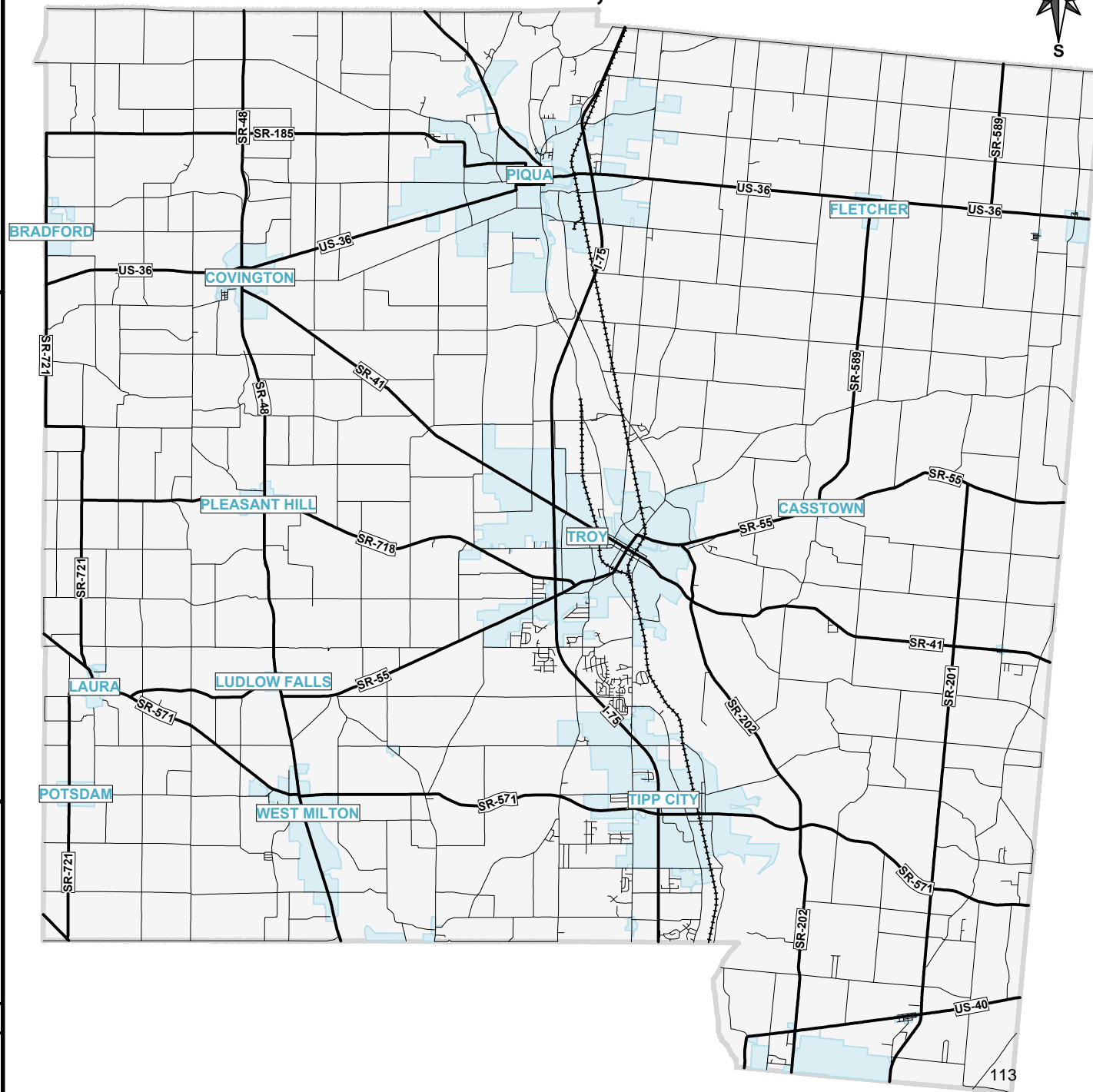
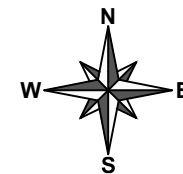
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SCALE: 1" = 16,000'



16,000 FEET 0 16,000

MIAMI COUNTY THUNDERSTORM, LIGHTNING, & HAIL



2.8 Extreme Heat and Cold

Overview

Extreme weather generally includes unexpected, unpredictable and unusual severe cold or heat based on historical data. Typically, it is within the most universal 10% of extreme temperature. In recent cases, some extreme temperatures have been attributed to global warming.

Heat Wave: Are periods of hot weather that, unlike other weather events, it is not as visible as other extreme events such as flooding, tornados and hurricanes and earthquakes. Extreme hot and cold weather can damage crops, dehydrate populations for both plants and animals, cause heat cramps, heat expansion and heat stroke. Dry soil can also be more susceptible to erosion, difficult for crop growth, livestock and detrimental to habitats. It can create pollution in the air and to the ozone. Power outages can also occur due to excessive demand on electrical systems due to increase air conditioning use.

Extreme heat is defined as three (3) or more consecutive days with daytime temperatures of 90 degrees F or higher and nighttime temperatures no lower than 85 degrees F, accompanied by high humidity and causing a significant amount of medically treated heat-related illnesses or deaths.

Several methods of research identified extreme heat as a minor hazard in Miami County, including searches of Internet sites such as:

- Extreme Heat Fact Sheet
www.fema.gov
- General Heat Wave Information
www.nfpa.org
- Ohio Winter Health & Safety Tips
www.weathersafety.ohio.gov
- National Weather Service
www.nws.noaa.gov
- The National Oceanic & Atmospheric Administration
www.noaa.gov

Cold Wave: A cold wave is a weather event relation to cooling of the air and as used by the National Weather Service. It is usually a rapid fall in temperatures within a 24-hour period requiring a substantial increase in protection to agriculture, industry, commerce and social activities. Death can occur to humans, wild life, livestock and when accompanied by ice and heavy snow, food and water can become difficult to reach or

find. Humans can be inflicted with frostbite, hypothermia and when exposed for extended periods of time, it may result in the loss of limbs, damage to internal organs and death. Extreme cold weather can also cause damage such as frozen pipes, frost heave can occur damaging buildings or fire hydrants may be froze and unavailable for fighting structural fires. Cold weather can also cause damage or kill plants due to heavy frost or freeze. Miami County has 70.60% of its land area in cultivated crops so freeze or heavy frost can be very damaging to spring plantings.

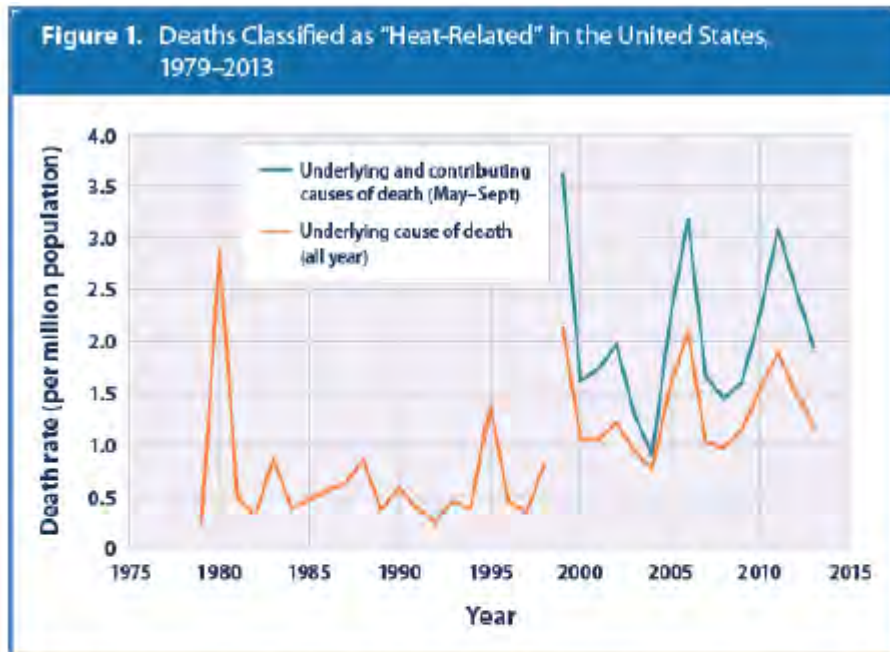
Risk Assessment

Extreme Heat:

Extreme heat is a hazard usually found in more desert regions than Miami County, Ohio. However, extreme heat can and has been a hazard in Ohio, causing heat strokes to occur to residents and proving detrimental to crops. The highest reported temperature in Ohio through the year 2016 was 113 degrees Fahrenheit, and was reported in Gallipolis on July 21, 1934. The recorded high temperature in Dayton, Ohio for that event was 104 degrees. Estimates of deaths occurring in Ohio during the week of July 20 – 26, 1934 were about 160.

A study released by Centers for Disease Control & Prevention (CDC) from 1999 – 2009 indicated 7,233 heat related deaths occurred in the United States. An analysis of 2012 data indicated heat deaths are on the rise. A 2-week excessive heat period in 2012 resulted in 32 deaths in 4 states. More than 40% of all heat related deaths occurred in Arizona, California and Texas. Most occur more frequently to males and among adults 65 and older.

Health hazards related to extreme heat include sunburns, heat cramps, heat exhaustion, and heat stroke. Between 1979 and 2013 the death rate as a result of exposure to heat (underlying cause of death) hovered around 0.5 deaths per million population overall, a total of 9,000 more than Americans suffered heat related deaths from 1979 – 2013. In August 2007, seven out of eight of the first eight days of August exceeded 90 degrees according to the archived climate data at the Wilmington, Ohio Branch of the National Weather Service. Young children, the elderly, and those who are sick or overweight are more likely to become victims. According to the 2015 Ohio County Profiles, approximately 28% of the total population in Miami County is between the ages of 45 and 64. Because men sweat more than women, men are more susceptible to heat related illnesses because they become more quickly dehydrated.



*This figure shows the annual rates for deaths classified as "heat-related" by medical professionals in the 50 states and the District of Columbia. The orange line shows deaths for which heat was listed as the main (underlying) cause. * The blue line shows deaths for which heat was listed as either the underlying or contributing cause of death during the months from May to September, based on a broader set of data that became available in 1999.*

** Between 1998 and 1999, the World Health Organization revised the international codes used to classify causes of death. As a result, data from earlier than 1999 cannot easily be compared with data from 1999 and later.*

Data source: CDC, 2015^{10,11}

Extreme Cold:

Extreme cold is a hazard that when exposed for prolonged time the body begins to lose heat faster than it can be produced. The result of this loss of heat is hypothermia, or abnormally low body temperature. Low body temperature affects the brain making the victim unable to carry out normal movement or clear thinking. Children and elderly are generally at greater risk during periods of extreme cold. Miami County residents are encouraged to check on friends, family and elderly neighbors.

In a summary of 2015 Weather events, fatalities, injuries and damage costs reported by the National Weather Service (NWS) and the National Climatic Data Center, extreme heat and cold for the 50 United States, Puerto Rico, Guam and The Virgin Islands were as follows:

<u>Extreme Temperatures</u>	<u>Fatalities</u>	<u>Injuries</u>	<u>Property Damage</u> (In millions of dollars)	<u>Crop Damage</u> (In millions of dollars)	<u>Total Dollars</u> (In millions of dollars)
Cold	53	3	2.84	0	2.84
Heat	45	640	0	0	0

Location

No one geographical area of Miami County is more susceptible to temperature extreme cold waves and heat waves. However, the affects can vary greatly depending on climate control availability.

Past Occurrences

The summer of 1934 ranks as the hottest in Ohio since temperature records began in 1883. The average summer temperature of 75.7 degrees for June, July, and August broke the old record set in 1901 and was 5% above normal. In 2003, which was a hotter than normal year, the average summer temperature was 73.18 degrees. The record low for the area occurred in 1977 at -21°F on January 17th, -25°F on January 18th and 19th in 1994. In 2014 a reading of -10°F was recorded on January 6th.

According to an article taken from the Troy Daily News dated July 5, 1999, temperatures soared into the upper 90's during the county's Independence Day celebration. No heat related illnesses were reported.

According to a NOAA/NCDC Event Record, the last part of July 1999 was very hot and humid across the state with temperatures reaching into the 90s most days and above 100 for a few days. The dew points and overnight lows were in the 70s through much of the period. The excessive heat contributed to 10 deaths in the Cincinnati metro area. The following tables summarize Temperature Extremes and Heat Waves experienced in Miami County.

Miami County Extreme Heat and Cold Events 1995-2016							
Location or County	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Countywide	2/11/1995	Extreme Cold	N/A	0	0	\$100,000	\$0
Countywide	12/9/1995	Extreme Cold	N/A	0	0	\$2,000	\$0
Countywide	2/1/1996	Extreme Cold	N/A	0	0	\$20,000	\$0
Countywide	7/20/1999	Excessive Heat	N/A	0	0	\$0	\$0
Countywide	4/6/2007	Frost/Freeze	N/A	0	0	\$0	\$540,000

Countywide	6/28/2012	Excessive Heat	N/A	0	0	\$0	\$0
Countywide	7/01/2012	Excessive Heat	N/A	0	0	\$0	\$0
TOTALS:				0	0	\$122,000	\$540,000

Source: National Climatic Data Center (NCDC)

- February 1, 1996 Through February 5, 1996 – Extreme Cold Event – Southern Ohio Extreme Cold Spell Including Miami County.

Arctic high pressure brought the coldest air of the season to the Ohio Valley. Cincinnati broke its record low on the 4th with a temperature of 11 below zero. Cincinnati also experienced its record low maximum temperatures of 7 and 6 degrees on the 3rd and 4th respectively. The extreme cold was entrenched for 5 days, freezing and bursting numerous water pipes. There were at least 2 house fires indirectly related to the cold weather, as space heaters, which were thawing frozen water lines, caught on fire. On the 5th, six thousand customers were without power near Portsmouth as over usage caused outages. AAA motor club had an extremely high number of calls during this cold wave when cars would not start.

- July 20, 1999 Through July 31, 1999 – Extreme Heat Event

The last part of July was very hot and humid across the state with temperatures reaching into the 90s most days and above 100 for a few days. The dew points and overnight lows were in the 70s through much of the period. The excessive heat contributed to 10 deaths in the Cincinnati metro area and 3 in the Dayton metro area.

- April 6, 2007 Through April 8, 2007 – Extreme Heat Event

Unseasonably warm temperatures for an extended period of time in March allowed much of the Ohio Valley to begin its agricultural growing season early. In early April, a cold snap with low temperatures dropping into the low 20s threatened agriculture interests across the region. The initial estimate of 16.74 million in crop damage was split evenly between 31 Ohio counties. (\$540,000 for Miami County damages)

- June 28, 2012 Through June 30, 2012 – Extreme Heat Event

A very warm airmass moved into the region during late June. This airmass brought a prolonged period of above normal temperatures, record heat, and dangerous heat indices to much of southwestern Ohio, southeastern Indiana, and northern Kentucky. Many locations across southwestern Ohio experienced heat indices over 100 degrees Fahrenheit on June 28 and 29. On June 30, heat indices generally rose to 90 to 95 degrees, which was compounded by widespread power outages in the area from the June 29 derecho.

- July 1, 2012 Through July 7, 2012

An ongoing heat wave continued from late June into early July. Areas still affected by power outages caused by the June 29 derecho were especially impacted. Ongoing daily heat continued into early July across southwestern Ohio. Although heat

indices were not as high as late June, heat indices in the area generally ranged from 90 to 100 degrees Fahrenheit each day through July 7.

Probability of Future Events

From 1995 through 2016 NOAA/NCDC has recorded seven temperature extreme weather events. There were three extreme cold weather events, three extreme heat events, and one frost/freeze event recorded. The probability of such an event occurring is about one temperature extreme event every three years.

Vulnerability Analysis & Loss Estimation

Based on historical available data, the costliest extreme weather event to occur in Miami County was the Frost / Freeze Event April 6, 2007. Approximately \$540,000 in damages occurred as a result of that hazard event. Many crops in the area had to be replanted.

Extreme heat wave can also cause damages and buckling to pavement, affect proper operation of vehicles and is particularly hard on the elderly and to workers that labor in an outside atmosphere.

While in Miami County there has been no reports per the NOAA Storm Database, deaths and injuries have occurred across the State of Ohio during these extreme temperature events. There has been a total of 57 deaths and one injury associated with similar events across the United States. Potential losses would only include structure use and function loss, which is estimated to be \$543,600.

The total property/crop damage losses reported per the NOAA Data base in Miami County for temperature extremes was \$662,000, or an average of \$94, 571 per event.

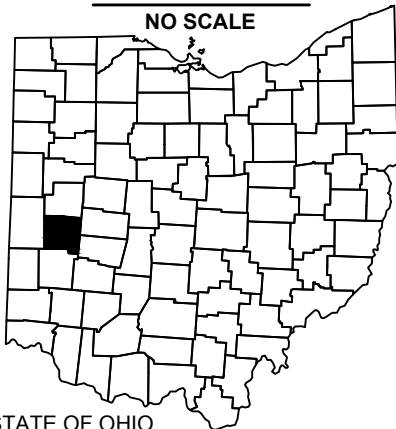
Based on the 7 Extreme Heat & Cold Events for Miami County occurring between 1994 & 2016, one can expect to experience these temperature extremes once every three years.

Mapping

See the Miami County Temperature Extreme and Heat Wave Map for a graphical representation of hazard areas with regard to temperature extremes. Typically, the high-density areas of the cities will be at moderate risk due to the larger elderly population and due to the heat island effect. The rural areas are generally at a slight risk due to the lower population numbers.

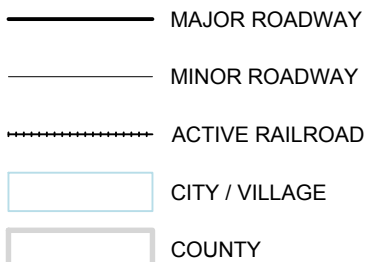
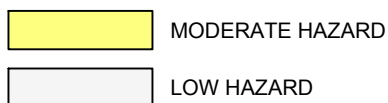
VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



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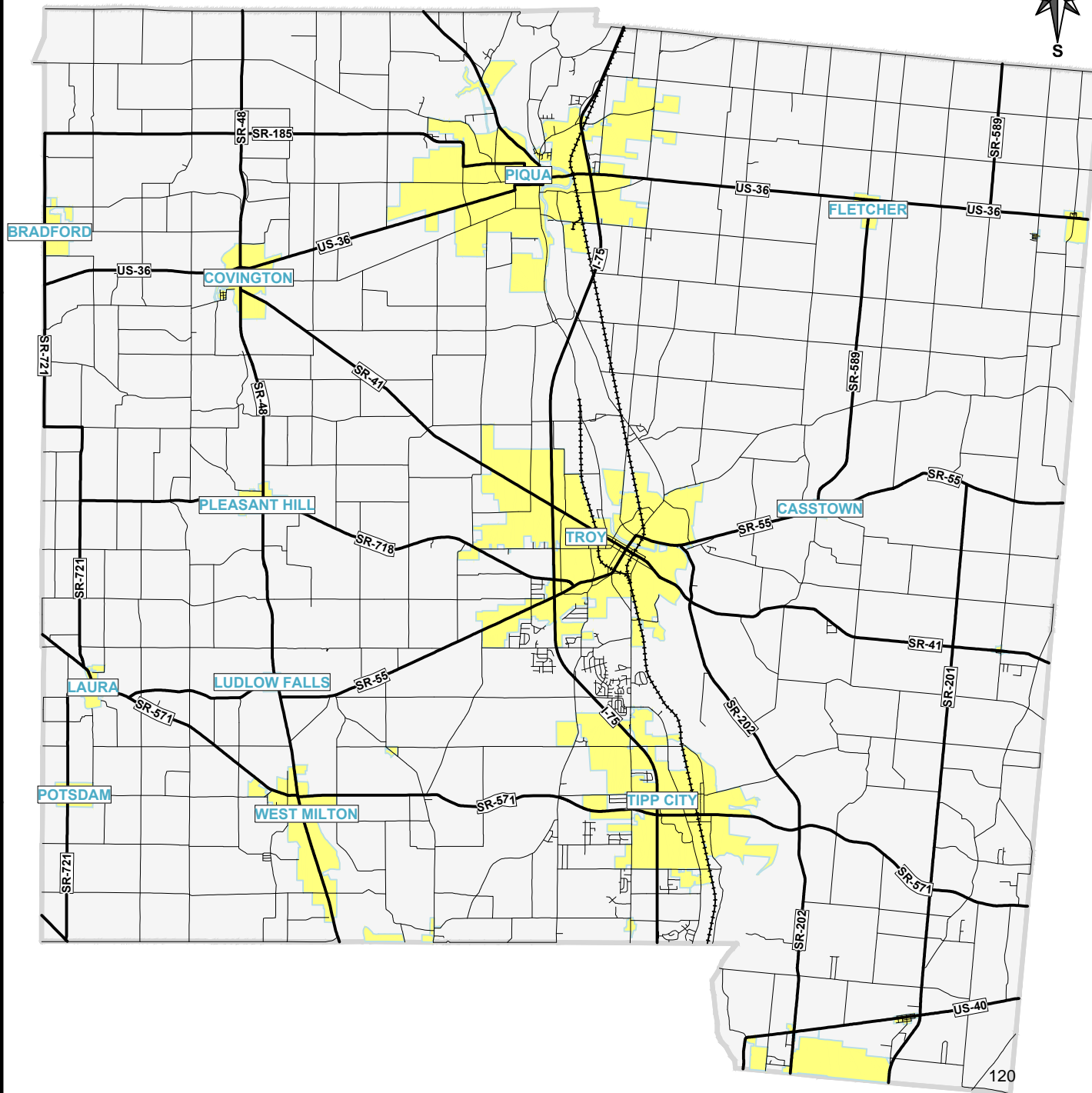
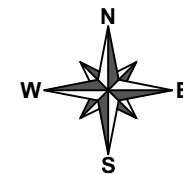
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MIAMI COUNTY TEMPERATURE EXTREME & HEAT WAVE



2.9 Epidemic/Disease Impact

Overview

An epidemic is a disease, usually contagious, that recurs in a community and attacks a large number of people at the same time. The potential impacts of an epidemic are illness or fatalities, disruption or closing of schools, or the forced closure of businesses and industrial operations.

Epidemic versus Pandemic

An **epidemic** is a classification of a disease that appears as new cases in a given human population, during a given period, at a rate that substantially exceeds what is “expected”, based on recent experience (the number of new cases in the population during a specified period of time is called the “incident rate”).

A **pandemic** is an epidemic that spreads across a large region (for example a continent) or even worldwide.

Simple put, when an epidemic gets out of hand, it is called a pandemic. This has two fine distinctions:

Geographical spread – An epidemic that is not localized to a city or a small region but spans a larger geographical area can be called a pandemic.

Incident rate – An epidemic may be localized to a small region but the number of people affected may be very, very large compared to what is “expected”. In this case, it can be called a pandemic even if its geographical spread is not very large. For example, let us say that a disease has an “expected” rate of infection of 15%. When 40% of the population of a state is infected, we have an epidemic on our hands. When 75% of the population is infected, it has reached pandemic proportions.

Several methods of research identified epidemics as a hazard in Miami County including information from the Miami County Public Health Team and Ohio Department of Health. Epidemic is a natural hazard risk in Miami County. The probability of an epidemic striking Miami County is relatively low. However, the risk associated with this hazard is very high.

Risk Assessment

Location

An epidemic has the potential to affect the entire county, but is more probable to occur in densely populated areas, such as the Cities of Piqua, Tipp City, and Troy, especially at facilities containing large numbers of occupants. Many commercial and industrial sites throughout the county contain many facilities at which a large work force is employed. A potential epidemic is of particular concern at these facilities. For example, Upper Valley Medical Center is a large facility at which approximately 1,600 people work. Because these individuals may be exposed to viruses at any time, an epidemic may begin at this

facility. To compound the problem, this facility is located between Troy and Piqua, the two largest concentrations of population in Miami County.

Epidemics can develop with little or no warning and quickly erode the capacity of local medical care providers. A fast developing epidemic can last several days and extend into several weeks. In some extreme cases, they can last for several months.

An epidemic can occur at any time of the year, but the warm summer months, when bacteria and microorganism growth are at their highest, present the greatest risk. The West Nile Virus (WNV) caused growing concern in Ohio in 2003 when 10,000 reported cases of the WNV encephal were reported from 46 states resulting in 264 fatalities. A more recent epidemic was the 2009 H1N1 pandemic which expired on June 23, 2010. Current concerns are the Zika Virus with its consequences for pregnant women. Currently there are 5,197 cases reported within the United States. This disease is spread primarily through the bite of an infected mosquito.

Past Occurrences

The history of epidemics in Miami County is as follows:

- 1830's – Chlorea outbreak due to contaminated food and water.
- 1914 – Quarantine imposed due to outbreak of Scarlet Fever.
- 1918 – Influenza outbreak closed schools and restricted public gatherings.
- 1949 – Poliomyelitis outbreak.
- 2003 – West Nile Virus outbreak.
- 2009 – H1N1 Influenza clinics were held.
- 2012 – 2016 – Bed bug concerns in Ohio and United States.
- 2015 – 2016 – Zika Virus concerns in Ohio and United States.

Probability of Future Events

Locally recorded epidemics have affected Miami County as early as the 1830's. There is clear precedence set that Miami County will continue to experience epidemic hazard events in the future. While they may not occur frequently, based on past history an epidemic has occurred once in about every 20-25 years.

Vulnerability Analysis & Loss Estimation

Losses to structural assets are relatively low when considering epidemic. This hazard primarily affects the human population. However, a large-scale epidemic could affect enough of the population to request a quarantine or cancel of an event, school, or business which could in turn cause a significant economic loss.

There would not be a property damage loss as a result of an epidemic event in Miami County; however, there could be a loss of revenue from a closed facility or event.

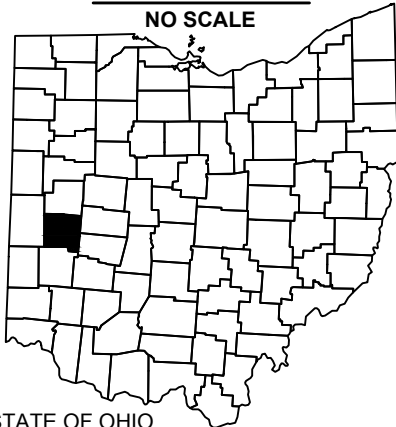
Mapping

See the Miami County Epidemic Map for a graphical representation of the areas with regards to epidemic. The areas with greater population such as with in the cities would carry a greater risk of an epidemic hazard event than in the rural areas. Therefore, the

Hazard Epidemic Map indicates a low risk for rural areas and a moderate risk for the city and village areas.

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



EPIDEMIC HAZARD



MAJOR ROADWAY



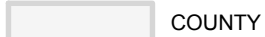
MINOR ROADWAY



ACTIVE RAILROAD



CITY / VILLAGE



COUNTY



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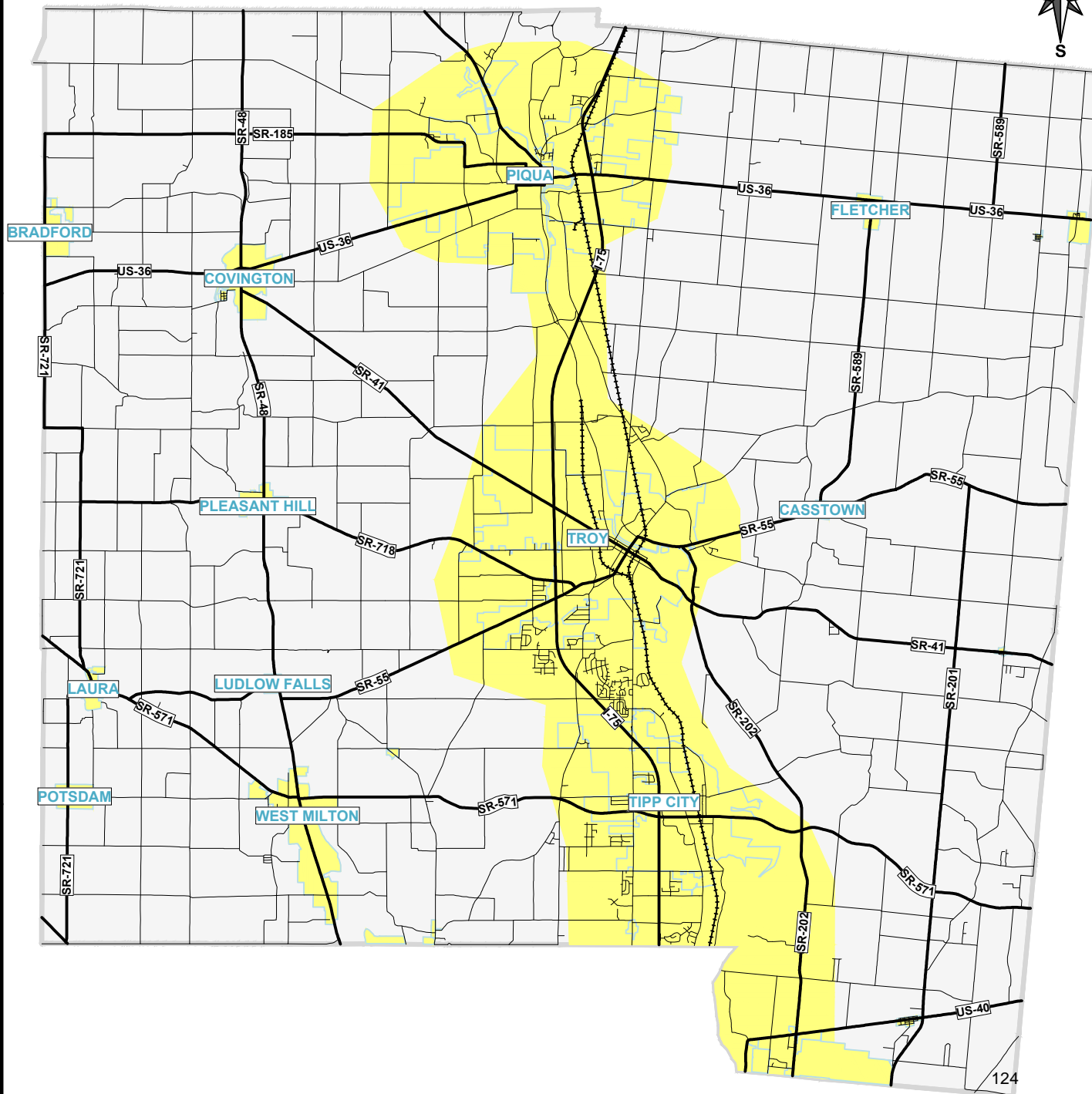
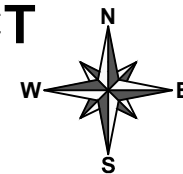
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MIAMI COUNTY EPIDEMIC/DISEASE IMPACT



2.10 Drought

A drought is a period of abnormally dry weather, which persists long enough to produce a serious hydrologic imbalance.

Several methods of research identified drought as a hazard in Miami County, including discussions with local representatives. Drought information was obtained from the following Internet sites.

- United States Department of Agriculture
www.usda.gov
- United States Geological Survey
www.usgs.gov
- National Oceanic Atmospheric Administration (NOAA)
www.noaa.gov
- Ohio Department of Natural Resources

Drought is a relative term and is used in relation to who or what is being affected by the lack of moisture. Droughts can be categorized into four types – each one affecting the other.

Agricultural Drought – Moisture deficiency seriously injurious to crops, livestock, or other agricultural commodities. Parched crops may wither and die. Pastures may become insufficient to support livestock. Effects of agricultural droughts are difficult to measure because there are many other variables that may impact production during the same growing season.

Hydrological Drought – Reduction in stream flow, lake and reservoir levels, depletion of soil moisture, and a lowering of the ground water table. Consequently, there is a decrease in groundwater discharge to streams and lakes. A prolonged hydrological drought will affect the water supply.

Mathematical Drought – Computation in which rainfall deficiencies are expressed.

Extended, widespread droughts are fairly infrequent; however, brief local droughts are common and can be severe. The drought of 1930-36 was the most severe that has been recorded in Ohio. Precipitation totals for 1930 and 1934 were the smallest since the earliest statewide records began in 1883.

Miami County is susceptible to drought conditions during the summer and autumn months due to significant lack of rainfall and/or other precipitation. These drought conditions often affect local farmers (both commercial farmers and personal farmers) and the local water supply (wells often run dry, rivers run low forcing public water supplies to decrease).

Socioeconomic Drought – Socioeconomic drought occurs when the demand for an economic good exceeds supply as a result of a weather-related shortfall in water supply. The supply of many economic goods, such as water, forage, food grains, fish, and hydroelectric power, depends on weather. Due to variability of climate, water supply is sufficient in some years but not satisfactory to meet human and environmental needs in other years. The demand for

economic goods is increasing as a result of increasing population. Supply may also increase because of improved production efficiency and technology.

Miami County's large agricultural sector is extremely susceptible to drought, and could potentially suffer significant economic losses. According to the Palmer Drought Severity Index for a period between 1985 and 1995, Ohio counties spend 0-5% of the summer and autumn months under drought conditions. According to a NOAA Event Record drought conditions continued from July 1, 1999 through August of 1999 with most areas receiving well below normal rainfall for these months. In some areas, around 50% of crops were considered total losses. Most counties in southwest Ohio were declared federal disaster areas by the US Department of Agriculture. According to a July 15, 1999 article taken from the Troy Daily News, some farmers started feeding hay to livestock that could cause a shortage in the fall due to severe dry weather. Some livestock deaths were blamed on temperatures in the upper 90s combined with a lack of moisture. Moderate drought conditions have been experienced countywide in the fall of 2007 and 2010.

In June and July of 2012 an ongoing heat wave affected Miami County. Heat indices in the area generally ranged in the 90 – 100 degrees Fahrenheit each day from June 28 through July 7.

Measuring Drought

The Standardized Precipitation Index (SPI) is a way of measuring drought that is different from the Palmer drought index (PDI). Like the PDI, this index is negative for drought, and positive for wet conditions. But the SPI is a probability index that considers only precipitation, while Palmer's indices are water balance indices that consider water supply (precipitation), demand (evapotranspiration) and loss (runoff).

The Palmer Drought Severity index (PDSI) is a soil moisture algorithm. The PDSI was developed by W.C. Palmer in 1965. It is a highly recognized method to measure drought. Many U.S. government agencies and states rely on the PDSI to trigger drought relief programs and responses. (See following chart)

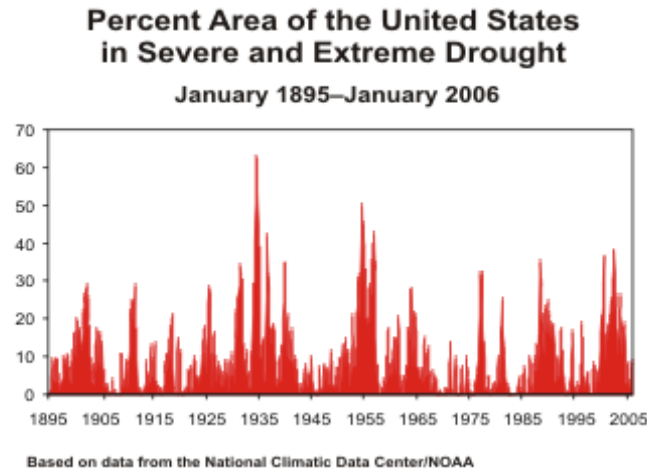
Palmer Drought Severity Index Classifications	
4.0 or greater	Extremely Wet
3.0 to 3.99	Very Wet
2.0 to 2.99	Moderately Wet
1.0 to 1.99	Slightly Wet
0.5 to 0.99	Incipient Wet Spell
0.49 to -0.49	Near Normal
-0.5 to -0.99	Incipient Dry Spell
-1.0 to -1.99	Mild Drought
-2.0 to -2.99	Moderate Drought

-3.0 to -3.99	Severe Drought
-4.0 or less	Extreme Drought

The Palmer Index is typically calculated on a monthly basis, and a long-term archive of the monthly PDSI values for every climate division in the United States exists with the National Climatic Data Center from 1895 through the present. Weekly Palmer Index values are calculated for climate divisions. The State of Ohio currently has 10 climate divisions.

Risk Assessment

Using Palmer Drought Severity Index data, the National Drought Mitigation Center indicated the most extreme drought in the recent past in the United States occurred in July 1988 when 36% of the country experienced severe drought conditions. The worst ever drought recorded was during July 1935 with 65% of the United States experiencing extreme drought conditions.



Past Occurrences

According to the National Climatic Data Center, the number of years Ohio experienced severe or extreme drought between 1896 and 1995 were as follows:

Number of Years with Severe or Extreme Drought between 1896 to 1995									
% area of basin/region	>0%	>10%	>25%	>33%	>50%	>66%	>75%	>90%	>100%
Ohio	67	51	34	28	16	12	9	4	3

Miami County, Ohio Drought Event History/Loss Estimates (1995 – May 2011)**Summer 1999 Drought**

- As much as 50% of crops considered a total loss in some areas

Summer 2002

- Severe crop loss
- County received Federal Agricultural funds for losses

September 23, 2010 Drought Conditions & High Winds

- Set fields on fire
- One house and barn destroyed in nearby adjacent eastern Miami County

January 2012 – December 2016

- The NOAA Storm Events Data Base shows zero events for excessive heat or drought conditions for this time period.

Probability of Future Events

Based on historical drought in West Central Ohio, the probability of a future drought occurrence is likely with an event probable in the next three to four years and a major drought every 20 to 25 years.

It is possible that changes in the climate can directly impact water resources, and flooding could become more severe. More frequent extreme events such as droughts and floods may be noticeable with climate change.

Vulnerability Analysis & Loss Estimates

Miami County is a rural agricultural County with large gross receipts for grain and livestock. A drought can have a considerable impact on the agricultural economic stability of the County. The 1999 summer drought indicates the County is very much affected in several ways. In addition to economic loss of reduced crop yields, droughts lead to problems with irrigation and increase the potential for field and grass fires. The significantly less rainfall also can leave reservoirs, water tables and farm ponds significantly lower. Some farmers use their ponds for livestock.

Damages are not immediately noticed, such as the damages to trees, shrubbery and wildlife. Diminished water may affect the rural water wells which are heavily relied upon to provide water for domestic and livestock uses. Some damage may also occur to building foundations as a result of the loss of moisture in areas where highly expansive clay soils may be found in Miami County.

Drought impacts large areas and crosses jurisdictional boundaries. All existing and future buildings, facilities and populations are exposed to this hazard and could potentially be impacted. However, drought impacts are mostly experienced in water shortages and crop/livestock losses on agricultural lands and typically have no impact on buildings.

Estimated Potential Losses

In 2012, the market value of agricultural products sold from Miami County farms in 2012 was:

Crop Sales:	\$110,002,000*
Livestock Sales:	<u>\$ 8,909,000*</u>
Total Value of Products Sold:	\$110,002,000*

*Source: Census of Agriculture USDA www.agcensus.usda.gov (Latest available census year)

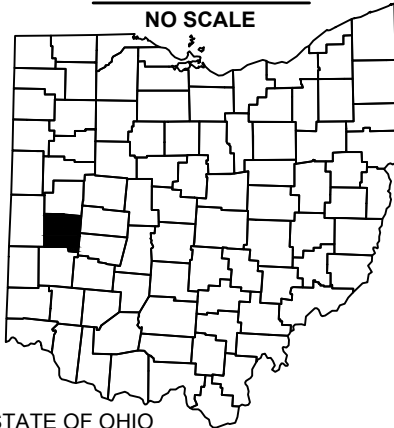
Drought can have a devastating effect on the Miami County economy. During the 1999 drought, crop yields were cut 50% in comparison to the yields of 2000 and 2001. Based on this recent historic data, a loss of one half the crop yields due to drought in Miami County could result in 50% less farm revenue or county crop sales value loss of \$55,001,000.

Mapping

See the Miami County Drought Map for a graphical representation of the hazard areas with regard to drought conditions. No one area of the County is more susceptible to drought than another. Therefore, the county is shown as a moderate risk to drought conditions.

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



MODERATE HAZARD



MAJOR ROADWAY



MINOR ROADWAY



ACTIVE RAILROAD



CITY / VILLAGE



COUNTY



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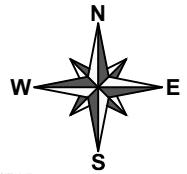
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SCALE: 1" = 16,000'



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MIAMI COUNTY DROUGHT



2.11 Infestation/Invasive Species

Overview

According to a review of information provided by ODNR Wildlife Division, Miami County is subject to both insect and plant invasive species. Although there are over 3,000 species of plants known to occur in Ohio, about 75% are native or have occurred in Ohio before the time of Europeans (1750). Invasive Species are defined by the National Invasive Species Council as species that are “both non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.” About 5,000 species of plants, animals and microbes in the United States are recognized as invasive.

Some of those that have invaded Ohio displace native plants and disrupt woodlands, prairies, wetlands, and natural areas.

Those plants that typically have been the most invasive for Miami County residents include:

- Bush Honeysuckle
- Garlic Mustard
- Multiflora Rose

These nuisance plants spread quickly and force out native spring wildflowers. Other non-native plants impact the County’s wetlands. The wildlife depends on native plants for food and cover, so invasive species are problematic. About one-fourth of the plant species known to occur in Ohio originate from other parts of the continent or world, meaning they are not native to the state. Of the 700 non-native plants, fewer than 100 are known to be problems in natural areas. Invasive plants crowd or displace native plant species, impact wildlife which rely on native plants for food, shelter and breeding habitat.

According to the ODNR Division of Forestry, one of the most prevalent invasive insect species is the Emerald Ash Borer. It is an Asian wood-boring beetle and affects all species of native ash trees found in Ohio. In 2003, it was first found in northwest Ohio feeding on ash trees. The Emerald Ash larvae were active just below the bark and feeding on the living part of the tree, preventing the tree’s ability to move water and nutrients through its system.

Other invasive species to affect Miami County include:

- The Asian Longhorned Beetle
- Emerald Ash Borer
- Gypsy Moth Caterpillars
- Spider Mites

Most recently found in southwest Ohio is the Asian Longhorned Beetle (AJB) which attacks broadleaf trees, particularly maples.

An infestation is to spread or swarm in or over in a troublesome manner. Also, to live in or on as a parasite.

According to reviews of online information provided by the Ohio Division of Forestry, Miami County is subject to an infestation primarily of gypsy moths. The impact of gypsy moths includes economic losses through timber mortality, loss of recreational opportunities in severely defoliated areas, and nuisances from gypsy moth caterpillars. Other infestations that could possibly occur in Miami County include Asian long horned beetles (pictured in Figure 1.1), mosquitoes known to be infected with West Nile Virus, and spider mites, as was the case in 1999.

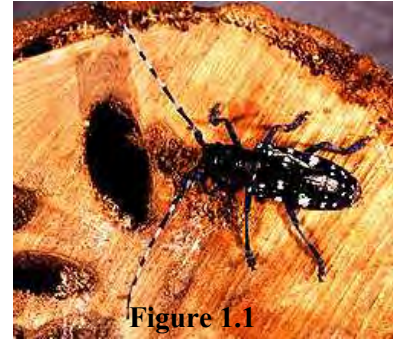


Figure 1.1

the

An entomologist at the Agricultural Research and Development Center in Wooster stated that two spotted spider mites were detected in Miami County, and were devastating soybean crops.

The probability of an infestation hazard event actually occurring in Miami County is relatively low, with only moderate risk associated with it. Infestation is most likely to occur in the 18,728 acres of forested or the 184,233 acres of farmland and will likely cause no damage to structural assets. Infestation is considered as a hazard in Miami County due to the high percentage of agricultural and forestland in the county.

The Asian Long-Horned Beetle (ALB) has been discovered in Southwest Ohio east of Cincinnati by the U.S. Department of Agriculture. Ohio is the 5th state to detect ALB. These beetles attack a wide variety of broadleaf trees particularly Maples.

Invasive species are defined as:

1. Non-native (or alien) to the ecosystem under consideration, and
2. Whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Invasive species can be plants, animals, and other organisms (e.g., microbes). Human actions are the primary means of invasive species introductions.

There are about 60 species of invasive plants identified in Ohio. Invasive species can cause economic and environmental damages in communities. Invasive Bush Honeysuckle is one of the most prevalent invasive species in Miami County. Invasive species plants are usually characterized by fast growing, rapid vegetation spread, and efficient seed dispersal and germination. Since these plants are not native to Ohio, they lack the natural predators and disease which would naturally control them in their native habitats.

Past Occurrences

Invasive species have been around since the settlers of the 1750's. Movement of people and transportation has made the spread of invasive species more prevalent. The Emerald

Ash Borer was introduced in the U.S. in the 1990's from wood packing material from China, first being discovered in Lower Michigan, spreading throughout Ohio, Maryland, Pennsylvania, northern Indiana, and Chicago.

Probability of Future Events

Invasive species will continue to affect Ohio. With the increase in worldwide trade and the fast modes of transportation, the invasive species will continue to occur.

Just as the Asian Longhorned Beetle has recently been discovered in southwest Ohio, new species of unwanted pests will come. The importance of controlling the natural environment native to our county will require local, State, nationwide, and international cooperation to avoid unwanted infestations of invasive species.

With much attention turning to invasive plants and insects, Ohio is also battling invasive aquatic species such as zebra mussels, bighead and silver carp and curly leaf pond weed which are changing dynamics of underwater habitats. No water way from Lake Erie to the Ohio River is immune to the negative impacts of aquatic invasive species.

Vulnerability Analysis & Loss Estimation

The Emerald Ash Borer has already cost large amounts of dollars in attempts to identify and isolate infected trees. It is estimated in Ohio alone there are five billion ash trees that could become infected with the Emerald Ash Borer. Removal and proper handling of the trees will be costly in itself. Pesticides which have to be applied yearly are labor intensive and costly. It is estimated the treatments alone will be substantial for County residents. Labor costs and pesticide costs to remove honeysuckle will also be ongoing as it an ongoing labor-intensive procedure to remove such a species.

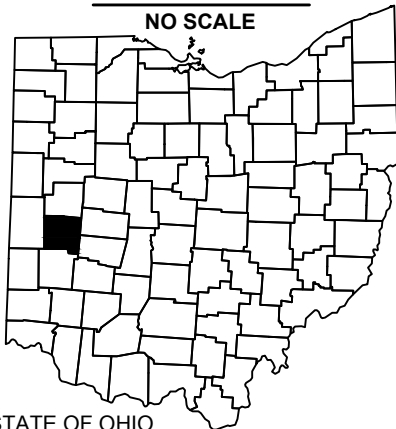
Some areas of Ohio are participating in a Woodland Invasive Species Program to promote healthier forests. Miami County is not currently participating in this program.

Mapping

See the Miami County Infestation Map for a graphical representation of hazard risk areas with regard to infestations/invasive species. Typically, the rural areas of the county are more at risk for the plant invasive species and the remainder of the county is at an equal risk for tree borers. Therefore, the map indicates Miami County rural areas are at a moderate risk and the municipal areas are at a low risk for infestations/invasive species.

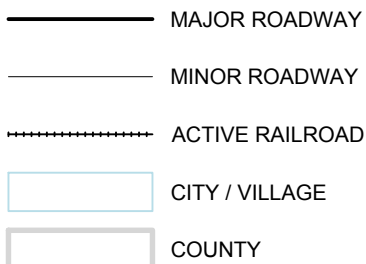
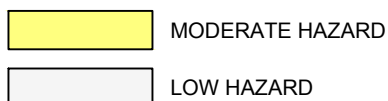
VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



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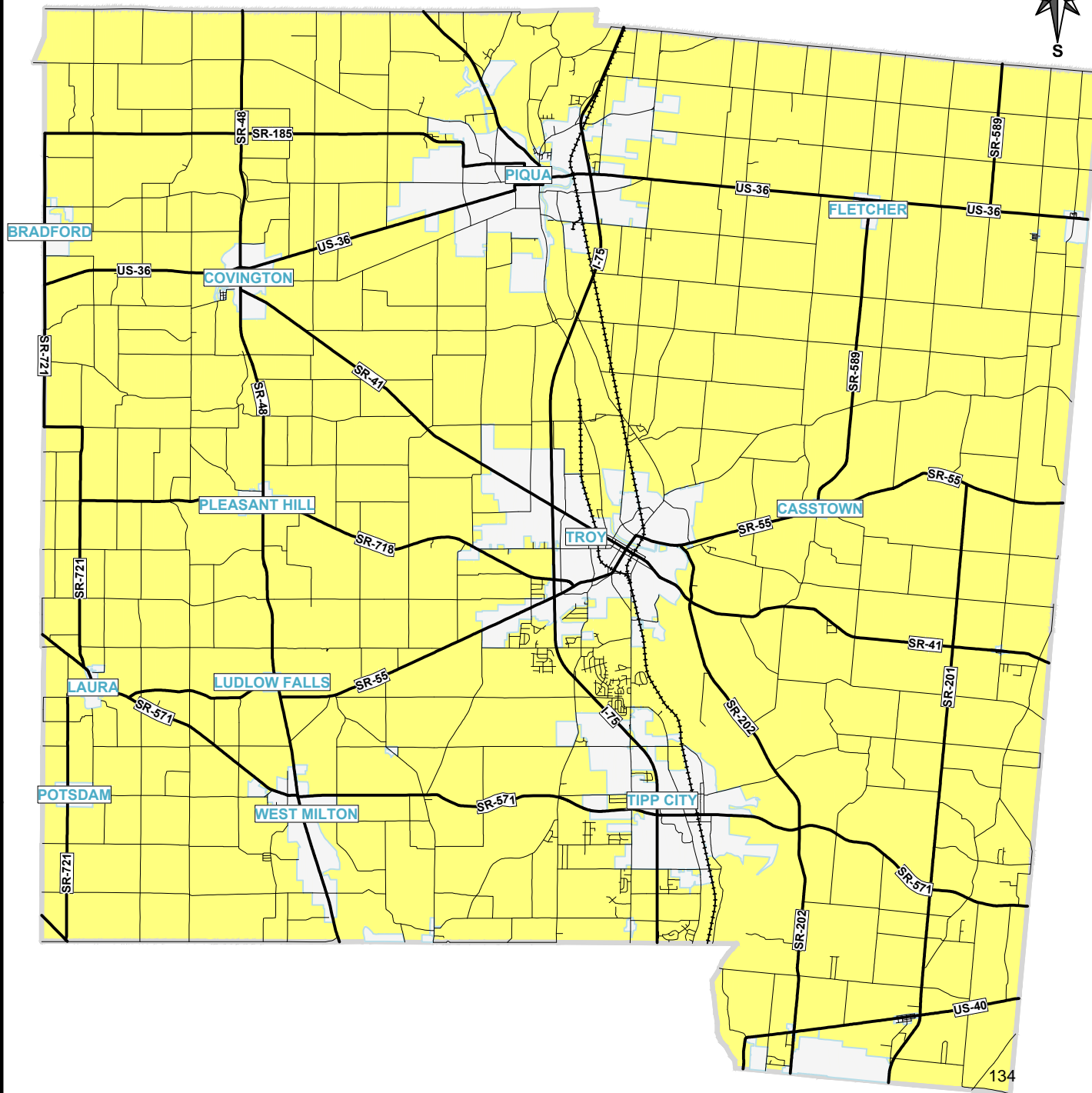
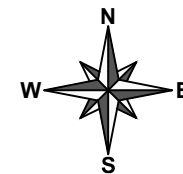
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MIAMI COUNTY INFESTATION & INVASIVE SPECIES



2.12 Wildfire

Overview

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed, spread quickly, and are usually signaled by dense smoke that fills the area for miles around. Naturally occurring and non-native species of grasses, brush, and trees fuel wildfires.

Although typically Ohio wildfires are more prevalent within the Ohio forests and grasslands in southern and eastern Ohio, under certain dry and windy conditions, they can occur on a smaller scale in Miami County. The conditions that set the stage for wildfires are dry, warm, windy conditions with low humidity. Typically fall and early spring are considered the prime seasons. When you combine these weather conditions with the fall season of dry crops, and vegetation such as dry leaves and a wooded terrain, there is an unpredictable danger for wildfire.

Several methods of research identified wildfires (on a very small scale) as a hazard in Miami County, including discussions with local representatives. The following Internet sites were searched with regard to wildfires.

- Firewise
www.firewise.org
- General Wildfires Information
www.nfpa.org
- Local Wildfire Observations and Trend Forecasts for Fire Weather Forecast Zones
www.fs.fed.us/land/wfas/fd_class.png
- NOAA Fire Event Satellite Photos
www.osei.noaa.gov
- Resolution Fire Danger Rating Fuel Model Map
www.fs.fed.us
- US Forest Service (USDA)
www.fs.fed.us
- USGS Topographic Maps
topomaps.usgs.gov
- Wildland Fire Assessment System
www.wfas.net
- Wildland Fire Updates
www.wfas.net

Risk Assessment

Wildfire Urban Interface (WUI) conditions refer to the zone between unoccupied land and human development. Occasionally, homes and structures are built within or near these woodlands and grasslands.

There are no known building codes in Ohio that specifically address consideration for construction methods regarding wildfire. In Ohio, the ODNR Division of Forestry has in place “Firewise Ohio”, a statewide WUI safety initiative, in response to the growing WUI situation in Ohio. Local fire departments & Firewise Ohio collaborate to effectively implement wildfire prevention and safety programs at the community level. To date, the program has been a successful partnership.

According to the Ohio Division of Forestry, there are several factors that can contribute to the start of wildfires in Miami County, including arson, equipment fires, campfires, and lightning. Approximately 10,000 forest fires are started each year by lightning. Miami County contains limited forestland, with several recreational campsites and other attractions in designated areas such as the Brukner Nature Center, Charleston Falls Preserve, and the Stillwater Prairie Preserve. Campfires, coupled with large numbers of visitors and a large proportion of trees, make wildfires a potential hazard for Miami County.

Members of the volunteer fire departments confirm that small brush fires are a common occurrence during the dry summer and autumn months, in what is typically known as the “burning season.” These small brush fires are usually handled by local fire departments and often do not cause damage to structures. However, the threat is present that these bush fires could burn out of control and consume many structures, as well as a portion of the nearly 21,000 acres of forestland that exists in Miami County. Dry croplands also are subject to fuel wildfires.

As shown below, Ohio is marked as having a “low” fire class rating. However, this can change with climatic conditions. A large period of drought and high heat may dry up many areas of the County and add them to the amount of fuel for a potentially destructive wildfire.

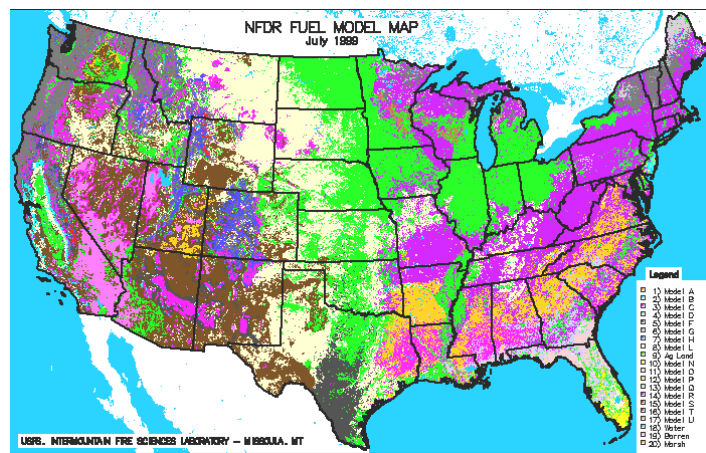


Figure 1.1

Miami County, as mentioned above, falls into the classes of Ag Land and Hardwood in regards to fuel types. Both of these classes are considered to be low hazards in terms of wildfires. With climatic changes over prolonged periods, the fuel that is not normally considered to be dangerous could become dry and increase the potential for a large-scale wildfire event. The dollar amount of damage will fluctuate according to where the fire occurs. If, for some reason, the area affected by a wildfire interfaced a municipality, the amount of damage could be greatly increased. However, most historical events have not consumed much land or property.

Past Occurrences

According to local media reports, on September 24, 2010, windy conditions coupled with an extremely dry weather pattern caused numerous field and brush fires throughout the Miami Valley. In nearby Darke County several Miami County Fire Departments were called out for mutual aid responding to a four-mile wide field fire that consumed a house and barn on Fourman Road just west of the Miami County line. Fifty mile per hour winds were reported. Additional field fires were reported in Clark, Champaign and Montgomery Counties.

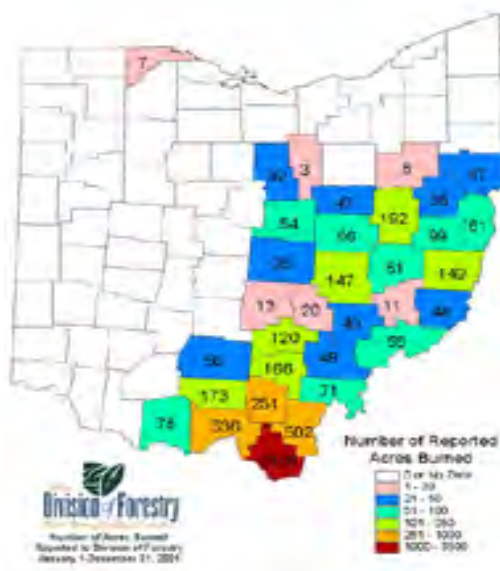


Figure 1.2

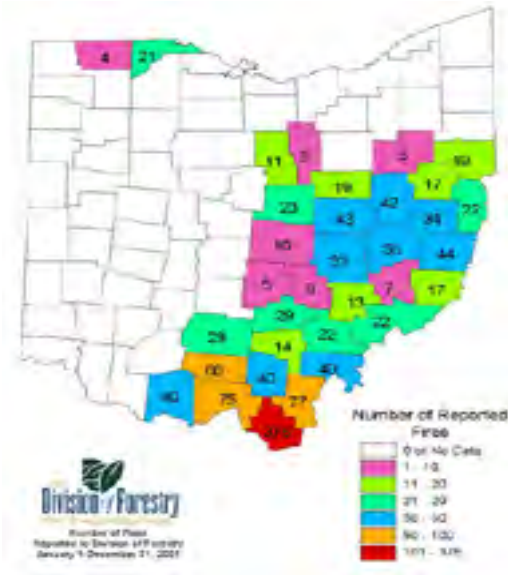


Figure 1.3

On October 19, 2015, a television news media reported multiple barn fires on State Route 571 near Laura. Fanned by the wind, it also caused a house fire and field fire. Damages were estimated to be \$500,000.

Location

Wildfires or “field fires” that occur in Miami County are most likely to occur in wooded areas, farm fields or grassland/pastureland of the county. These land area classifications

make up 86% of the land area in Miami County due to being a rural county. With this being the case, the Miami County Wildfire Map shows the rural unincorporated areas of the County being at greater risk for wildfires than the incorporated areas.

Probability of Future Events

The number of occurrences, size of wildfires, and severity of burn fluctuate annually in response to a variety of factors including:

- Weather – daily, monthly, seasonal, and long-term trends in:
 - Precipitation
 - Relative humidity
 - Temperature
 - Wind
- Fuels – condition of 1, 10, 100, 1000 hour fuels in terms of:
 - Moisture content
 - Arrangement
 - Accumulation level
 - Availability
- Ignitions – presence or absence of wildfire starts:
 - Human caused
 - ❖ Debris burning – compliance of ORC 1503.18, and safe debris burning techniques
 - ❖ Incendiary – arsonists at large
 - ❖ Wildfire prevention and awareness efforts
- Suppression Response – Capability and timeliness of initial attack
 - Quickness of response to the incident
 - Local / Volunteer fire department capability
 - Availability of state and local resources
 - ❖ Number of concurrent wildfires

Vulnerability Analysis & Loss Estimation

7.19% of Miami County is covered with wooded areas and 70.6% is covered with cultivated crops. Many of the structural assets in the County are within close proximity of those wooded areas and cropland. If a wildfire were to occur during dry and windy conditions, a moderate portion of structural assets could possibly be destroyed.

Potential structural losses of farm buildings due to wildfires is estimated to be \$108,594 which is the average assessed value of a farm structure in Miami County. This does not include any potential crop losses.

Mapping

See the Miami County Wildfire Map for a graphical representation of the hazard areas with respect to wildfires. The areas with no shading represent “low hazard areas,” the yellow areas represent “moderate hazard areas,” and the red areas represent “high hazard areas.”

2.13 Terrorism

Overview

Terrorism is a form of violence aimed at a public audience. The Federal Bureau of Investigation defines terrorism as “the unlawful use of force or violence against persons or property to intimidate or coerce a government, civilian population, or any segment thereof in furtherance of political or social objections.”

Risk Assessment

Terrorist incidents continue to be mindful following the events of September 11, 2001. We, as a society, have realized how vulnerable we are to such actions. Miami County is not immune from any type of terrorist activity. Terrorist attacks can be focused on government or the civilian population. Organized criminal groups do operate within Ohio according to the Buckeye Sheriff's Association and the President's Commission on Crime. Without a doubt, such criminal organizations intimidate and threaten the freedom of many Ohio residents, including those in Miami County. Anti-abortion and militia groups are known to operate in and near Miami County.

Biological terrorist incidents have a somewhat low probability of occurring in Miami County. These incidents include the release of diseases such as smallpox into the general population for destructive purposes. Biological events have an extremely high risk associated with them, as the affects of such an event can exceed the capabilities of the limited healthcare facilities located in Miami County, and the loss of human life can be disastrous. Miami County is not equipped on the local level to cope with a large-scale terrorist incident. Therefore, as a mitigative action, mutual aid agreements should be made with agencies/departments at the state and federal level if that have not already been made.

Chemical terrorist incidents are comparable to biological incidents in that they have a relatively low probability of occurring, yet are associated with extremely high risks. Chemical incidents include the use of weapons that subject the general population to toxic chemicals similar to those that could potentially be released during an accidental HAZMAT incident. Chemical incidents are capable of subsequent losses to large percentages of the population. Miami County does contain public water systems, which makes the threat of a biological and chemical attack more plausible. According to the Miami County Sheriffs Department, local officials responded to a “white powder” incident in late 2001.

Events involving weapons of mass destruction also have a relatively low probability of occurring in Miami County. However, in the event that a nuclear or other weapon of mass destruction was to discharge in or near the county, the inherent loss of life would be catastrophic. A WMD threat is ever present and the reduction of such threat is dependent upon the actions of other country's that are unpredictable. As long as there are weapons and the capability of delivery of those weapons, the threat will remain.

Location

Terrorist actions often occur in areas of densely concentrated population to increase the loss of human life. As such, all population centers in the county are at an elevated risk, especially the Cities of Tipp City, Troy, and Piqua as the largest and most diverse municipalities in the county. Dams, water, and sewer treatment facilities are likewise highly susceptible to terrorist activities. Facilities in neighboring counties such as the Wright-Patterson Air Force Base may also be susceptible to WMD-type attacks and may affect Miami County indirectly. According to the 2014 Ohio Department of Public Safety website, 101 violent crimes and 2,807 property crimes were reported in Miami County during the year.

Past Occurrences

Several Ohio events in which authorities checked out possible terrorist events include:

- 2007 shopping mall terrorist plot in Columbus.
- August 17, 2011 – South Broomfield, Ohio, suspicious traffic stop.
- August 18, 2011 – Call to Green County to check out suspicious trailer.
- September 2, 2011 – Call to Sharonville, Ohio, to check out suspicious trailer.
- November 18, 2016 – Car ramming attack at Ohio State University with 13 people hospitalized with injuries.

Vulnerability Analysis & Loss Estimation

Terrorism, while extremely low in probability, could cause a significant amount of damage. Weapons of mass destruction will cause significant damage to structures, while chemical and biological events can have significant effects on the general population.

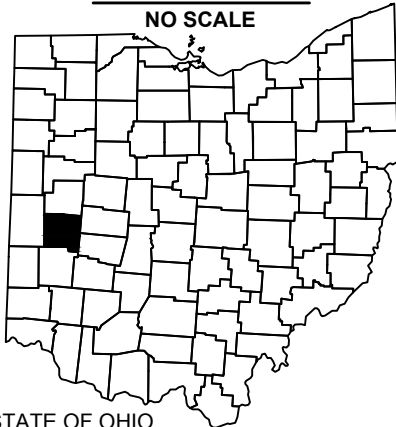
A total loss estimate to structures as a result of terrorist events has not been determined at this time.

Mapping

See the Miami County Terrorism Map for a graphical representation of hazard risk areas with relation to terrorist incidents. The city municipal areas of Miami County have been shown as a moderate risk. The rural areas of Miami County have been shown as a low risk.

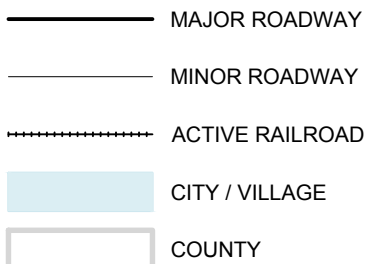
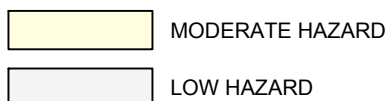
VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



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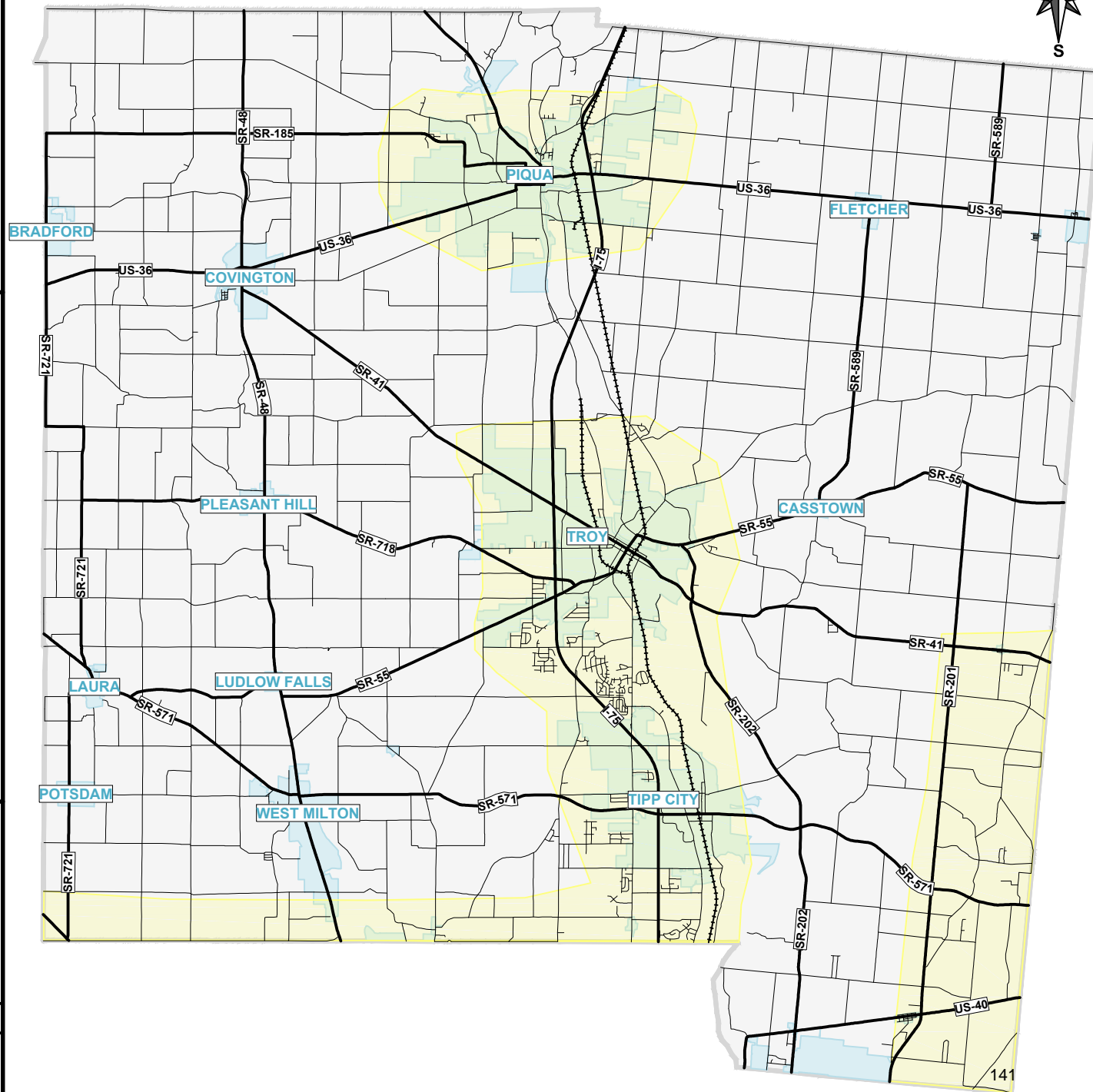
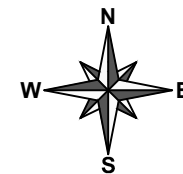
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MIAMI COUNTY TERRORISM HAZARD



2.14 Utility/Communication Failures

Overview

With technology dependence, many residents, industries, and businesses rely on uninterrupted utilities and communications.

A utility or communication system failure can result from numerous causes including severe weather such as flooding, wind, lightning, ice, and heavy snow. Outages can also be caused by large demands on systems during extreme hot and cold weather events. Falling limbs or trees, poorly maintained poles and infrastructure, and even small animals climbing the lines can cause a shorting out of power supply. Outages also can occur due to technological failures, loss of power poles, accidents, and excavation errors as well as others.

Risk Assessment

The public has become more and more dependent on technology, communications, and power and are more demanding of uninterrupted communication and services. The loss of utilities or communications can be widespread or affect only limited areas. Long periods of outages have an economic and social impact to residents, businesses, and industry. Loss of utility services can include water, sanitary sewer, gas, electric, cable television, telephone, communication devices, and alarm systems.

Many of the utility providers have become more centralized and are more dependent on technology. The centralization of services tends to create longer response time for repair crews. Extended loss of utilities and communications can cause considerable losses to Miami County residents as well as county businesses and industries. A loss of heat source or air conditioning can be an issue with the elderly or those with special needs. This is of particular concern during prolonged outages. With the technological advances of equipment, residents with special needs can be more independent and reside in their homes. Therefore, loss of power can adversely affect residents that utilize power for the use of their medical equipment. Loss of power can cause critical situations with water and sanitary services for villages that do not have emergency back-up power for pumping stations and well operations.

Smaller scale and shorter periods of utility and communication failure generally occur several times annually. The severe windstorm that occurred with Tropical Storm Ike on September 14, 2008, allowed many Miami County residents to experience power outages for up to five days. The problems experienced with this prolonged outage have increased awareness and needs to plan for such events. With the recent prolonged high wind event, the probability of such events has been changed from low to moderate. Efficient and effective communication systems and operable utilities are vital resources for First Responders and for critical facilities. The increasing need and use of back-up power generators can help mitigate these impacts. The most recent localized power outage that caused a disruption was on Tuesday, November 1, 2016, Election Day, when power loss was blamed on a squirrel in a transformer which resulted in a power loss to the County Board of Elections and Courthouse and Safety Building. Paper ballots had to be used

while the power was off since there was not generator backup. Further research and documentation is needed regarding the countywide effects of this secondary hazard.

Until further research information is available, it is assumed all areas of Miami County would be equally vulnerable to this hazard.

Location

Utility/Communication outages can occur anywhere within the County. Although no one area of the County appears to be more susceptible than another there are numerous factors that can influence loss of power. Power and communication lines that are near trees can be downed by falling limbs; older poles and power lines are more susceptible for failure; and the type of power failure such as technological or weather-related failure all have an impact on the location and length of the outage.

Vulnerability Analysis & Loss Estimation

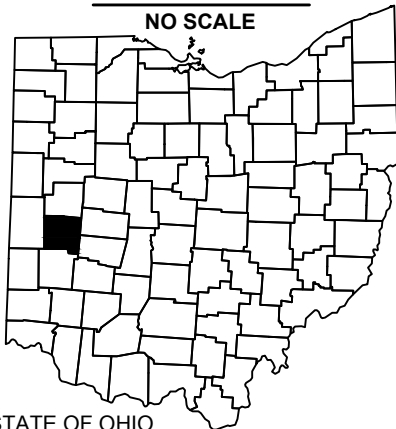
Many of the damages associated with utility and communication failures are associated with long term outages. Extended periods of loss of power or communications can adversely affect businesses and industries as well as the residents of the county. Productivity losses or changes to delivery schedules can amount to large financial losses. Health and safety needs are also compromised particularly for those that do not have emergency backup power or alternate methods of communication. Further study is needed to more accurately evaluate the anticipated financial estimated losses from Utility/Communication Failure events. Loss for such an event and potential structural loss are anticipated to be low; content loss moderate, but structure function use loss high.

Mapping

See the Utility/Communication Failures Map for a graphical representation of the hazard risk for Miami County.

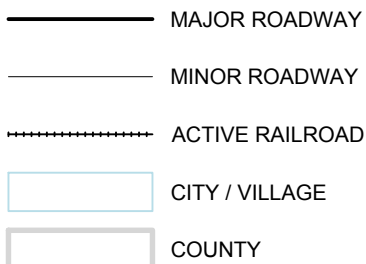
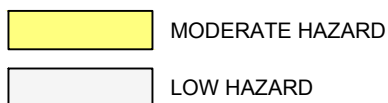
VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



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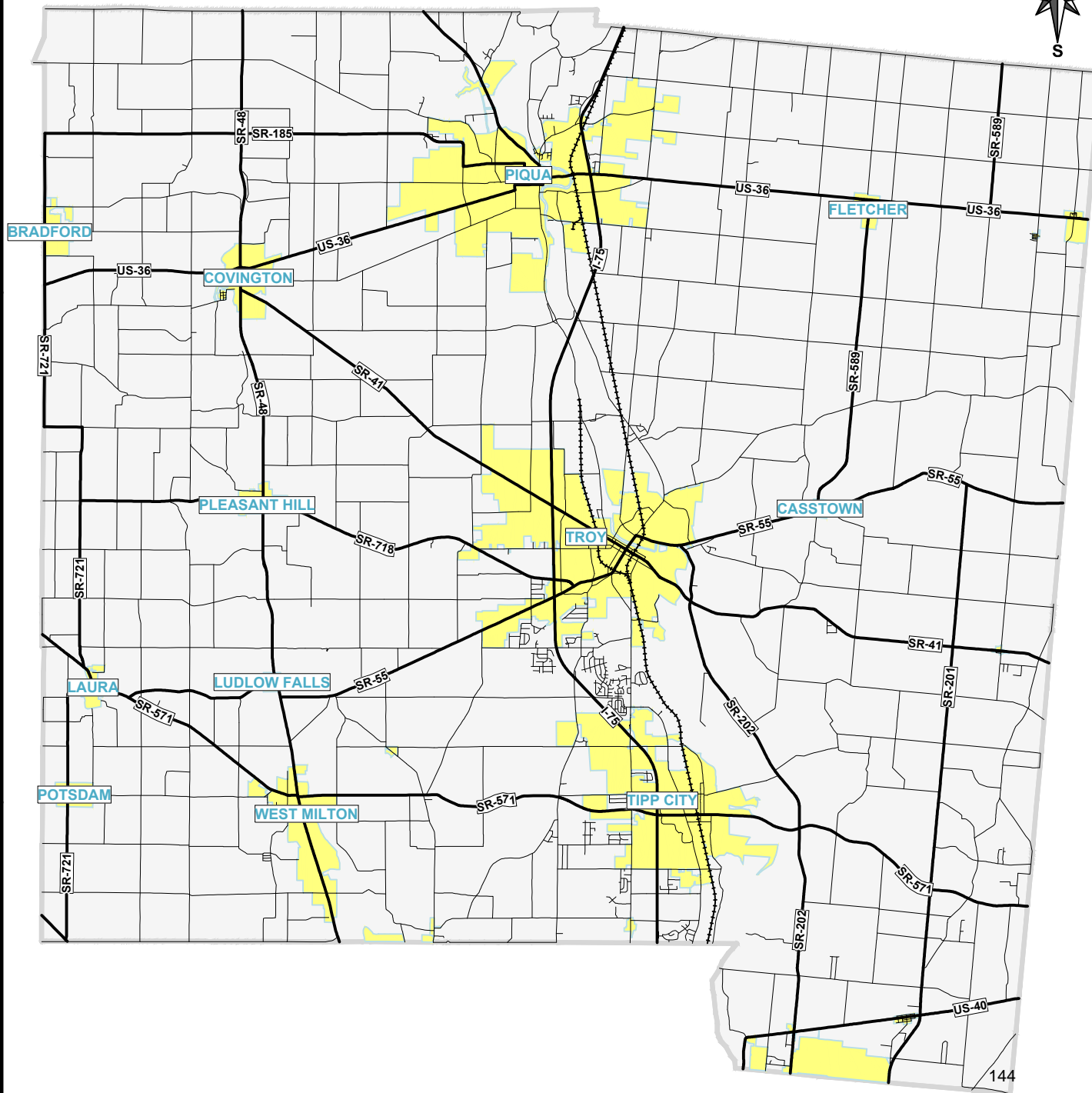
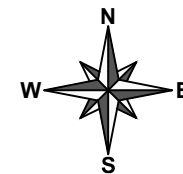
DRAWN BY: SMK DATE: 8/9/11

SCALE: 1" = 16,000'



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MIAMI COUNTY UTILITY / COMMUNICATIONS FAILURES



2.15 Hazardous Materials Incident

Overview

Hazardous Materials (HAZMAT) – These are defined as explosive, flammable, combustible, corrosive, oxidizing, toxic, infectious, or radioactive materials that, when involved in an accident, and released in sufficient quantities, will place a segment of the general public in immediate danger from exposure, contact, inhalation, or ingestion.

Hazardous Materials Incident – These are incidents involving either the release or potential release of a hazardous material as the result of accidental spills, leaks, or released airborne hazardous materials at transportation or fixed facilities.

Hazardous substances fall under two definitions:

Health Hazard – Means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur if exposed. Hazardous materials can enter the body in one of four ways. The four routes of entry include inhalation, ingestion, injection, and skin absorption.

Physical Hazard – Means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed liquid, a compressed gas, explosive, flammable, an organic oxide, an oxidizer, pyrophoric (ignites spontaneously), unstable (reactive), or water reactive.

Risk Assessment

Hazardous materials incidents are a significant man-made hazard in Miami County. Hazardous materials in various forms have the potential to result in death, serious injury, long lasting health effects, and damage to buildings, homes, and other property. However, the hauling, storage, and use of hazardous materials play a vital role in the economy of the nation. These materials are stored and handled at fixed facilities and are transported over highways, railways, and water transportation systems.

According to the Local Emergency Planning Committee (LEPC), there are numerous hazardous materials sites within the County. There are also large quantities of hazardous materials transported annually by trucks on the country's highways each day. Almost half of all freight trains carry hazardous materials. Ohio is a crossroads state into which, through which, or out of which travels virtually every one of the 50,000 chemicals known to be manufactured in the United States. There are many hazardous materials shipments per day on the highways across the state. According to the Miami County LEPC the most probable site for a hazardous materials incident in Miami County would be the villages and cities where industries that use hazardous materials and areas where transportation routes cross. Hazardous materials incidents do not follow any seasonal pattern and could occur at any time of the year. An incident causing the accidental release of a hazardous material is spontaneous, with little time for warning. For this reason, evacuation procedures at large industrial/commercial sites and evacuation routes should be identified

and made known to the employees and the public as a mitigation action. Further, the recovery and clean-up activities involved in a hazardous materials incident may require several hours, days, or even weeks to complete.

Because the vulnerability for a hazardous materials incident to occur in Miami County can happen, the Miami County LEPC completed a countywide hazardous materials railroad and truck survey during the months of March and April 2009. The most dramatic illustrated hazardous material area incident, which occurred in adjacent Montgomery County, Ohio, was the 1986 train derailment in Miamisburg. Approximately 5,000 gallons of phosphorus were spilled which prompted the evacuation of 30,000 people.

On June 17, 2014, Interstate 75 was shut down for 6 hours due to a tanker carrying 20 tons of a hazardous chemical experienced a valve leak in neighboring Shelby County. According to federal data Ohio has experienced 22 releases of Anhydrous Ammonia during transport. Since 2005, 2 of these have occurred in Miami County.

The Miami County survey allowed LEPC officials the opportunity to gather data and identify the seven most common carried chemicals by railcars or trucks. The data was broken down per location and time of day. This survey has helped the County planning efforts in better understanding the types of chemicals and the frequency of hazardous chemicals being shipped through Miami County by rail and roadway. The major transportation corridors of the CSX Railroad, I-75, US Route 36, State Route 41, and 571 were observed and surveyed.

Location

Hazardous materials incidents are most likely to occur along the CSX Railroad route throughout the County along I-75 and US Route 36 or at one of the industry sites where hazardous materials are stored and used.

Vulnerability Analysis & Loss Estimation

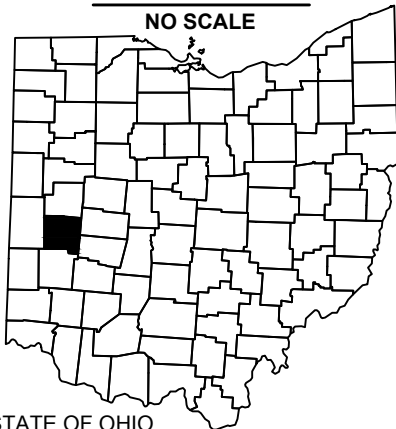
Miami County is susceptible to hazardous material incidents because of the arterial routes and railway system in the County, as well as the commercial truck traffic on US Route 36, Interstate 75, and Interstate 70. Because of the complexity and limited information on a hazardous materials incident no loss estimates have been prepared at this time.

Mapping

See the Miami County Hazardous Materials Incident Map for a graphical representation of high-risk areas with regard to hazardous materials incidents.

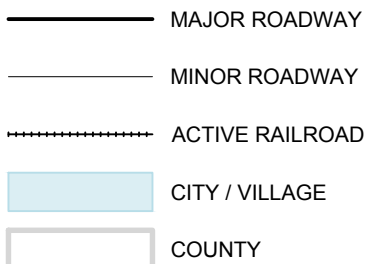
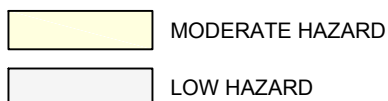
VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND



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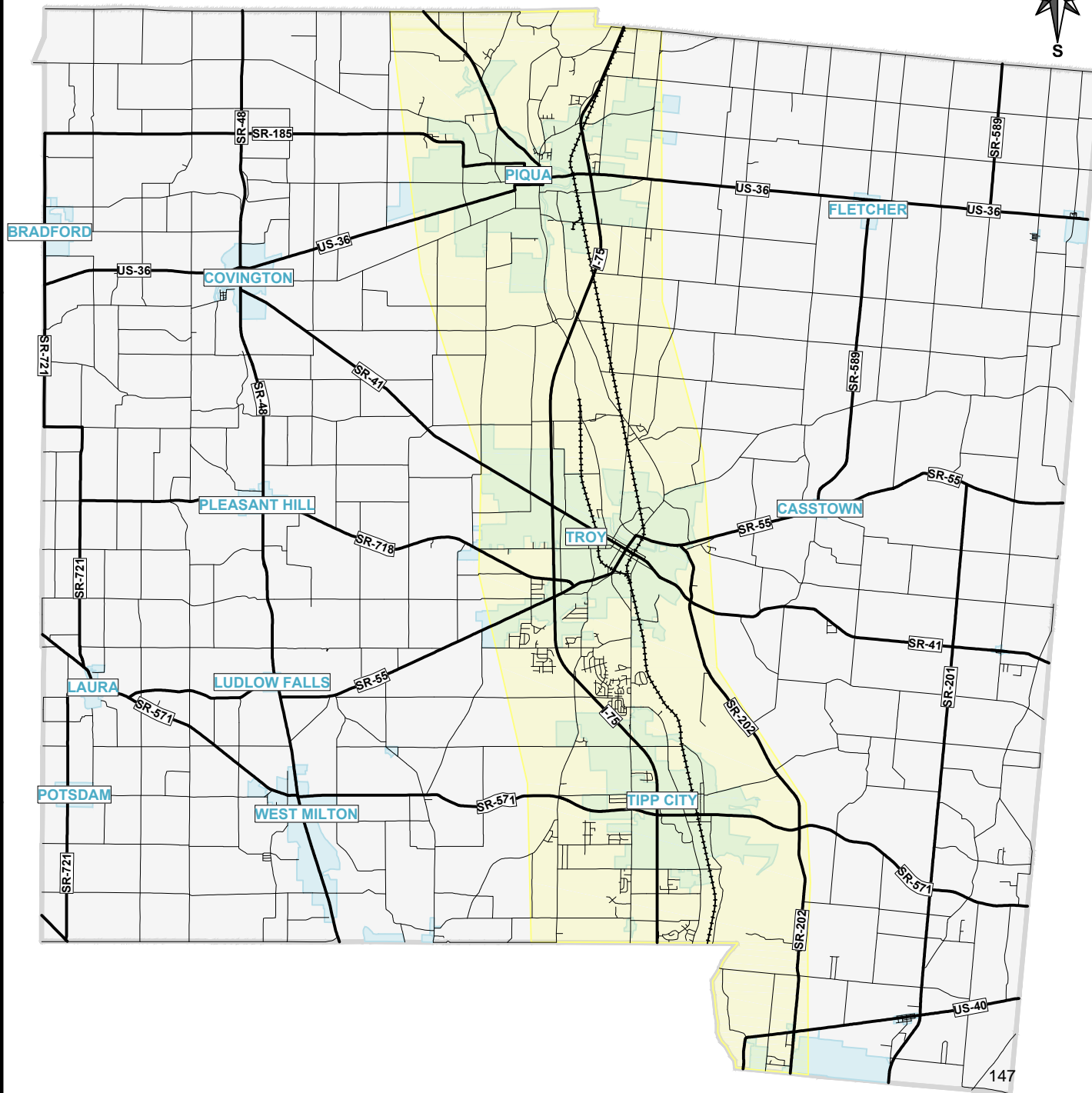
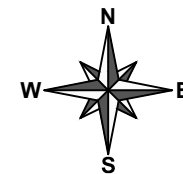
DATE: 8/9/11

SCALE: 1" = 16,000'



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MIAMI COUNTY HAZARDOUS MATERIALS INCIDENT



2.16 Transportation Accident

Overview

Transportation accidents occur frequently in the United States and are caused by several factors. These accidents involve all types of vehicles including cars, trucks, trains, boats, and airplanes. Transportation accidents interrupt commercial and industrial operations and pose a very high risk for human injury or death.

Transportation accidents are reoccurring hazards in Miami County. Transportation accidents involving cars and trucks are frequent occurrences on our nation's highways, including Miami County's 154 miles of state highway and large segment of Interstate I-75. These types of accidents, commonly known as "car wrecks" or "car crashes" occur almost exclusively on roadways.

Other transportation accidents such as train derailments or airplane accidents are much less frequent. The risk associated with these accidents is just as eminent as roadway accidents. Miami County is particularly susceptible to these less-frequent hazards as the County does contain railroads which run through the center of the County. In addition to the miles of roadways and railways, Miami County is near to the Wright Patterson Air Force Base and two commercial airports.

Risk Assessment

Transportation accidents often interrupt commercial and industrial operations delaying deliveries, damaging freight, etc. These accidents pose a substantial threat of causing human injury or death as well. These accidents occur quickly and without warning. The recovery or clean-up period following a transportation accident may take as little as a few minutes or as long as several days.

According to the 2015 Ohio Department of Development – County Profiles, there are 125,106 registered motor vehicles in Miami County. There are approximately 46,100 people that commute daily to work in the County, 37.5% of those (17,321) spend 15 to 30 minutes one way on the road per day, with another 17,657-people traveling 30 to 44 minutes one way. The high number of vehicles on the road combined with the amount of time spent on the road, especially during adverse driving conditions, increases the probability for traffic accidents.

Past Occurrences

According to an article taken from a February 20, 2003, issue of the Dayton Daily News, an accident which occurred in 1990 was said to be one of the worst traffic accidents in Ohio. When the blowing snow subsided, the visibility improved, and the smoke cleared, 9 people were dead and 56 persons were injured. The collision included 38 vehicles which had been damaged or destroyed. The accident occurred at 4:05 P.M. on Saturday, February 24, 1990, on Interstate I-75 about a half mile south of Ohio State Route 571 at Tipp City in Miami County.

On October 9, 2010, a 16-year old Amish boy was seriously injured in a horse and buggy-automobile accident in Miami County. Miami County had a total of 2,711 reported accidents in 2008. Seven of these accidents were fatal.

On November 2, 2015, a two-vehicle accident on State Route 589 occurred and resulted in a fatality when a field sprayer and pick-up truck collided.

Location

In 2014, there were 9 fatalities in Miami County and in 2015 there were 11 fatalities and in 2016 there were 12 fatalities from traffic accidents in Miami County.

See Miami County Fatalities Location Map on the following page for locations of the 2008-2010 reported fatalities within Miami County.

Vulnerability Analysis & Loss Estimation

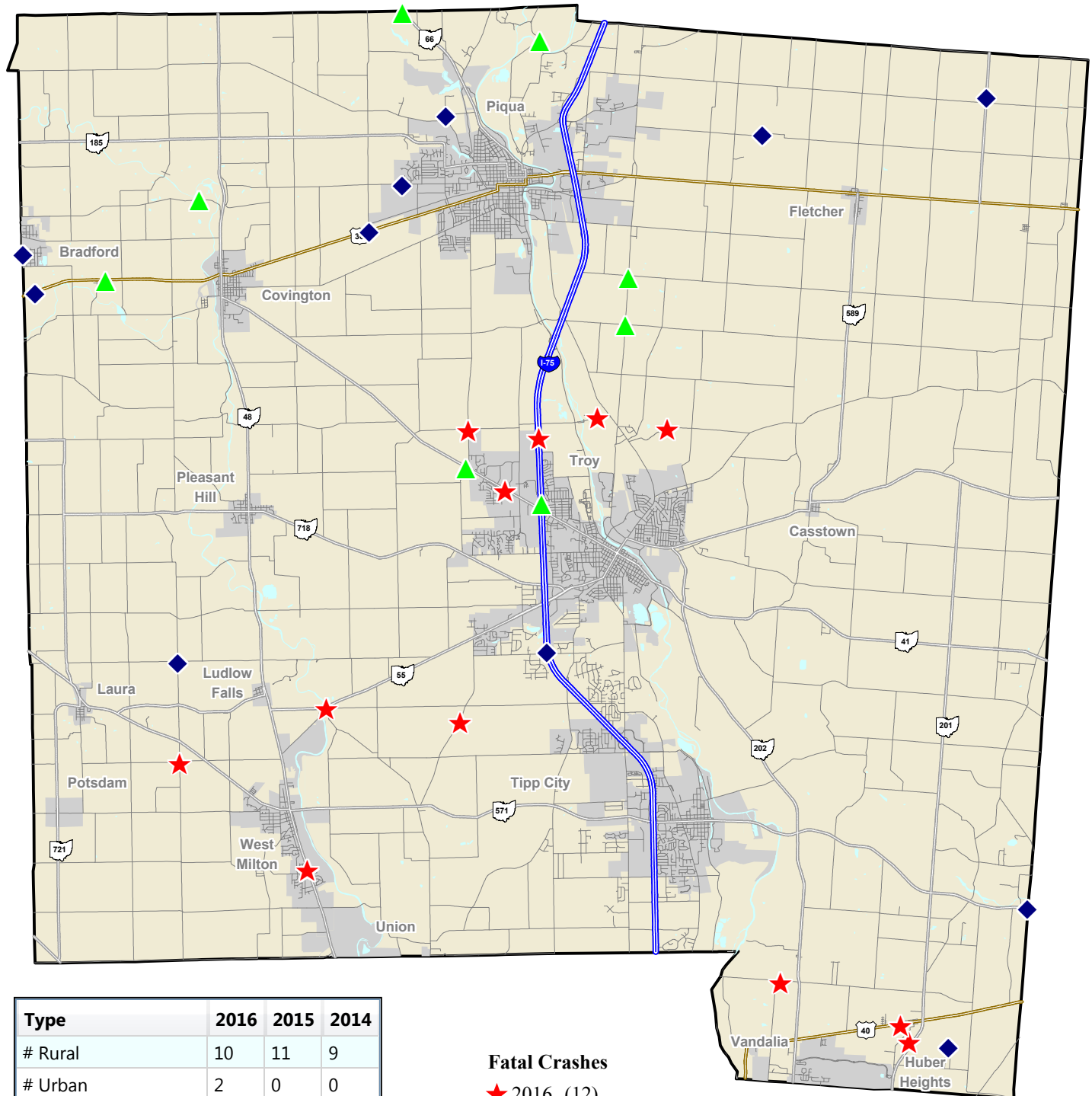
Miami County contains 19.95 miles of US Interstate 75, as well as approximately 152 miles of state highway, 1,011 miles of County roadway, two commercial airports, and railways. According to the 2015 Ohio Department of Development, Miami County Profile, there are 125,106 registered motor vehicles in the county, which does not include the commercial trucks and non-resident traffic that is on the County's highways daily, which increases the probability of an accident occurring.

According to the Ohio Department of Public Safety, in 2016 Miami County had 6,061 enforcement stops, 397 vehicle crash investigations, and eleven reported fatal crashes. Of the fatalities, nine occurred on rural roads and two on urban roads; of these, three were OVI related and there were three motorcyclist fatalities reported.

Mapping

See the Miami County Transportation Accident Map for a graphical representation of the hazard risk areas based on vehicle traffic count of highways when considering transportation accidents.

Miami County Fatal Traffic Crashes 2014 to 2016



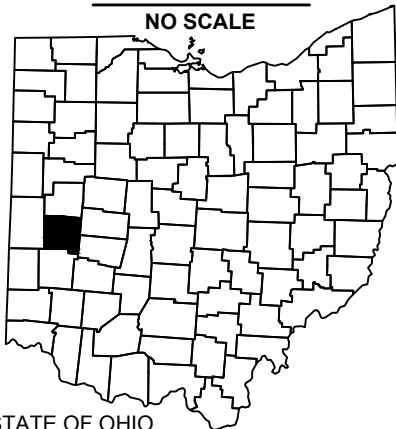
Data Source: OSHP LINC Database
Map Design and Layout: OSHP Statistical Analysis Unit
Ohio State Highway Patrol
March 13, 2017



0 2 4
Miles

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

- HIGH HAZARD
- MODERATE HAZARD
- LOW HAZARD
- MAJOR ROADWAY
- MINOR ROADWAY
- - - ACTIVE RAILROAD
- CITY / VILLAGE
- COUNTY

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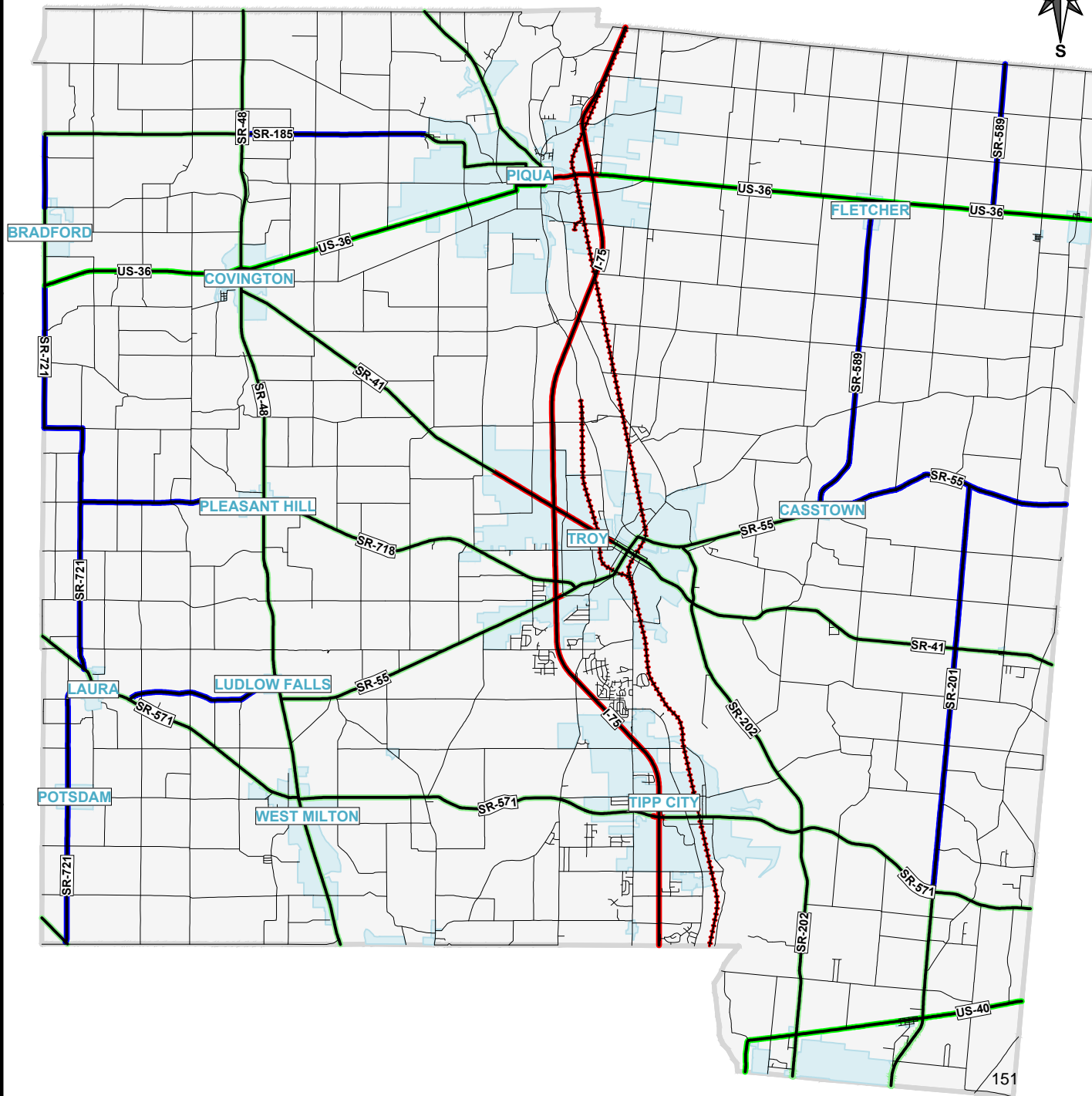
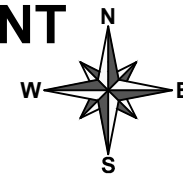
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SCALE: 1" = 16,000'



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MIAMI COUNTY TRANSPORTATION ACCIDENT



2.17 Dam/Levee Failure

Overview

Dam and levee failures are often referred to as disasters. A dam is a barrier built across a waterway to control the flow or raise the level of water. Most dams are constructed of earth. Dams must have a spillway system to safely convey normal stream and flood flows over, around or through the dam. A dam failure occurs when the barrier constructed across the waterway fails or otherwise does not obstruct or restrain the flow of water, which can rapidly result in a large area of completely inundated land.

A levee is an artificial barrier together with appurtenant works that will divert or restrain the flow of a stream or other body of water for the purpose of protecting an area from inundation by flood water. A levee failure occurs when a part of the barrier breaks away causing the previously contained water to flood the water behind the levee.

The Miami Conservancy District reaches into Miami County along the Miami County River corridor. It is one of the oldest conservancy districts in the State of Ohio. It was established after the 1913 flood and was organized on June 28, 1915. As political subdivisions under State of Ohio Law, conservancy districts can form at the initiative of local land owners or communities for various purposes including:

- Solving water management problems (usually flooding).
- Conserving and development of water supplies.
- Treating wastewater.

The law also allows using conservancy land for recreation. Ohio Revised Code 6101 authorizes the formation of conservancy districts and provides the framework for governance and funding of conservancy districts.

Miami County has three Class I dams located in the City of Piqua area. In addition, there are three cities including Piqua, Troy and Tipp City that are protected by levees.

Risk Assessment

Dams

Several methods of research identified dam failure as a hazard in Miami County. There are about 75,000 dams in the United States, the majority of which are privately owned. Others are owned by state and local authorities, public utilities, and federal agencies. They impound about 600,000 miles of river or about 17% of all rivers in the nation. The benefits of dams and levees are numerous; they provide water for drinking, navigation, and agricultural irrigation, and save lives by preventing or reducing floods. General information on dam and levee failures was obtained from the following sources, and Internet sites.

- Ohio Department of Natural Resources Division of Water
www.dnr.state.oh.us/water

- HAZUS Instruction and Technical Information
www.fema.gov/hazus
- Miami Conservancy District
www.mcdwater.org

Because numerous dams and several levees exist in Miami County, the MCHMC chose to profile this hazard in the Miami County Hazard Mitigation Plan.

Dams and levees are man-made structures designed to obstruct or restrain waters that may cause downstream flooding. These structures are generally made with concrete or earthen materials. The failure of these dams or levees, although a man-made structure, would result in a natural event of flooding. There are currently 13 total dams in Miami County. Of those dams, three are Class I, six are Class II, and four are Class III. Class IV dams are shown on the referenced Dam Map at the end of this section in Miami County. Dams are classified under two conditions, height and storage, as illustrated in the charts at right. The height of a dam is defined as the vertical dimension (as measured from the natural streambed at the downstream toe of a dam to the low point along the top of the dam). The storage volume of a dam is defined as the total volume impounded when the pool level is at the top of the dam immediately before it is overtopped. According to the Ohio Department of Natural Resources, the damage predicted by a dam failure coincides with the class of the dam. The potential downstream hazards are defined as the resultant downstream damage should the dam fail, including probable future development.

Height of Dam	
Class I	Greater than 60 feet
Class II	Greater than 40 feet
Class III	Greater than 25 feet
Class IV	Less than or equal to 25 feet

Storage Volume	
Class I	Greater than 5000 acre-feet
Class II	Greater than 500 acre-feet
Class III	Greater than 50 acre-feet
Class IV	Less than/equal to 50 acre-feet

The potential downstream hazards are broken into four (4) classes.

POTENTIAL DOWNSTREAM HAZARDS	
Class I	Probable loss of human life, structural collapse of at least one residence or one commercial or industrial business.
Class II	Disruption of a public water supply or wastewater treatment facility, release of health hazardous industrial or commercial waste, or other health hazards. Flooding of residential, commercial, industrial, publicly owned structures and high-value property. Damage or disruption to major roads including but not limited to interstate highways, and the only access to residential or other critical areas such as hospitals, nursing homes, or correctional facilities. Damage or disruption to railroads or public utilities. Damage to downstream class I, II, or III dams or levees, or other dams or levees of high value. Damage to dams or levees can include, but is not limited to overtopping of the structure.
Class III	Property losses including but not limited to rural buildings, and Class IV dams and levees not otherwise listed as high-value property. Damage or disruption to local roads including but not limited to roads not otherwise listed as major roads listed in Class II above.
Class IV	Losses restricted mainly to the dam and rural lands and loss of life is not probable.

Uncontrolled floodwaters are one of the most powerful and destructive forces in nature. Dams that are not designed to withstand major storms may be destroyed, increasing flood damage downstream.

The potential for damage due to dam failures increases along with the increased number of residential and commercial development downstream of dams. In many cases, existing dams will need to be modified to keep downstream areas safe from disasters resulting from catastrophic flooding.

Levees

The Conservancy Act

The Miami Conservancy District (MCD) was instrumental in the passage of the law that allowed for conservancy districts, even before it was an organization.

If February 1914, the Ohio General Assembly passed the Conservancy Act of Ohio. The act allowed the creation of regional agencies to provide flood protection for communities within the state. Governor James Cox, owner of the Dayton Daily News, signed it into law.

Shortly after the law passed, community leaders in the Miami Valley petitioned to organize The Miami Conservancy District. Opposition to the law delayed MCD's formation for more than a year. MCD organized on June 28, 1915, and is among the oldest conservancy districts in the state.

There are three levee systems in Miami County and they serve the communities of Piqua, Troy and Tipp City.

- Piqua – Miami Conservancy District maintains 2.8 miles of levee and 3 miles of river channel in Piqua. Miami Conservancy District owns and operates a stormwater pump station at the south end of Race Street. *
- Troy – Miami Conservancy District maintains 3.5 miles of levee and 2.2 miles of improved channel in Troy. *
- Tipp City – Miami Conservancy District maintains 1.15 miles of levee in Tipp City. *

*Information provided from Miami Conservancy website www.mcdwater.org.

Levees and River Channel

Levees keep floodwaters out of the cities, whereas dams and retaining basins work in conjunction with levees in the Miami County cities of Piqua, Troy and Tipp City. Earthen levees keep floodwaters within the river channel through these riverfront cities within Miami County.

Caretakers, who work in each city, maintain the levees and channel by:

- Mowing grass to ensure proper turf cover.
- Filling groundhog holes to eliminate seepage paths.
- Controlling vegetation growth on and around the levees.
- Repairing riverbank erosion.
- Removing gravel deposits in the channels.
- Operating floodgates to keep the river from backing up into city streets.
- Removing drift and debris. Drift and debris can inhibit turf growth, cause erosion and obstruct maintenance activities.

During high-water events, caretakers also:

- Monitor precipitation and river stages.
- Read observation wells at the levees to record fluctuations of groundwater pressure.
- Carry out activities as defined by the Emergency Action Plan for the levees.

Geotechnical Studies of Miami Conservancy District Levees in Miami County

Geotechnical services were performed, included geotechnical evaluation, drilling, analysis and geotechnical recommendations for three phases of the Miami Conservancy District Levees. For the first phase, a consultant visually evaluated the levees in Middletown, Hamilton, Franklin, Piqua, and Troy, Ohio. The Consultant then provided the Miami Conservancy District a report that divided the levees into different section for analysis, and proposed an exploration plan for each levee section.

In the second phase, the Consultant completed 83 soil borings and completed 30 soil borings and installed 14 piezometers in Piqua and completed 30 soil borings and installed 10 piezometers in Troy.

The Consultant analyzed the soil samples and calculated the potential for erosion, seepage, and settlement. A study was completed to determine the stability of the levee embankments and foundations and a Consultant completed the reports and recommendations necessary for the accreditation of each levee section.

Location

Miami County contains several dams which could present the possibility of significant flood damage to the residents and businesses located near or downstream from the dams. In many cases, the dams are less than five miles away from the nearest community. There are three Class I dams in the county, all of which are located near the City of Piqua; two are public recreation dams and the other serves as a water supply dam. These dams are located on Swift Run Creek or tributaries of Swift Run.

There are also three dams located near Tipp City. Two are Class II dams and one is a Class III. All are privately owned and are of earth-fill construction.

There are three types of failures of earthen dams: overtopping, seepage, and structural failure. Overtopping failures result from the erosive action of water on the embankment. Erosion is due to uncontrolled flow of water over, around, and adjacent to the dam. Earth embankments are not designed to be overtopped and therefore are particularly susceptible to erosion. Once erosion has begun during overtopping, it is almost impossible to stop.

All earth dams have seepage resulting from water percolating slowly through the dam and its foundation. Seepage must, however, be controlled in both velocity and quantity. If uncontrolled, it can progressively erode soil from the embankment or its foundation, resulting in rapid failure of the dam. Erosion of the soil begins at the downstream side of the embankment; (either in the dam proper or the foundation) progressively works toward the reservoir, and eventually develops a “pipe” or direct conduit to the reservoir. Seepage can cause slope failure by creating high pressures in the soil pores or by saturating the slope.

Structural failures can occur in either the embankment or the appurtenances. Structural failure of a spillway, lake drain, levees, or other appurtenance may lead to failure of the embankment. Cracking, settlement, and slides are the more common signs of structural failure of embankments. Large cracks in an appurtenance or the embankment, major settlement, and major slides will require emergency measures to ensure safety, especially if these problems occur suddenly.

The three types of failures previously described are often interrelated in a complex manner. For example, uncontrolled seepage may weaken the soil and lead to a structural failure. A structural failure may shorten the seepage path and lead to a piping failure. Surface erosion may result in structural failure and so on.

Minor defects such as cracks in the embankment may be the first visual sign of a major problem which could lead to failure of the structure. Officials experienced in dam design and construction should evaluate the seriousness of all deficiencies.

The Lockington Dam, upstream from the City of Piqua in Shelby County, in the spring of 2010 underwent a \$3,700,000 Dam Safety Initiative (DSI) as a part of the Miami Conservancy Districts (MCD) to address vulnerabilities such as under seepage. Under seepage has already been addressed with relief wells, toe berms, and drainage systems for Germantown, Taylorsville & Huffman Dams south of Miami County.

The cities of Piqua, Troy and Tipp City have levees that protect the residents and these communities. The Miami County Dam and levee failure map indicates the location of these levees as previously indicated.

The following table lists the dams in Miami County along with names, classifications, and owners.

Name of Dam	Classification of Dam	Owner of Dam
Piqua Dam	Class I	City of Piqua
Piqua Dam	Class I	City of Piqua
Lake Dam	Class I	City of Piqua
Low Head	Class II	Milton
Head Dam	Class II	City of Troy
Wildlife Dam	Class II	State of Ohio
Bradford Sewage Dam	Class II	Bradford
Bradford Sewage Dam	Class II	Bradford
Golf Course Dam	Class II	Private Golf Course
Matsushita Dam	Class III	Association Inc.
Head Dam	Class III	City of Piqua
Lee R. Healey Dam	Class III	Lee R. Healey
William Brewer Dam	Class III	William Brewer

The following are a list of levees within Miami County:

LEVEES IN MIAMI COUNTY		
City	Length of Levee	Length of River Channel
Piqua	2.8 Miles	3 Miles
Troy	3.5 Miles	2.2 Miles
Tipp City	1.15 Miles	0 Miles

Probability of Future Occurrence

Miami County does not have a history of any dam or levee failures. The State of Ohio Dam Safety Program is in place to monitor and provide dam owners in Miami County pertinent information to support their dam's maintenance requirements. The Dam Safety Program regulates the construction, operation, and maintenance of Ohio's dams, dikes, and levees to protect life and property from damages due to failure. Each year dam safety engineers and staff conduct more than 350 detailed inspections of dams on a 5-year schedule to help prevent failures. Periodic inspections, new dam construction permits, and regulation of improvements, maintenance and operation of existing dams are provided through the Dam Safety Program. The probability of future dam failure occurrences is low, however, the likelihood of severe damage if a Class I or potentially a Class II Dam were to fail is determined on a case by case basis.

Mitigation and safety in areas protected by levees is very important. The Miami Conservancy District and Miami County Emergency Management teamed up in May of 2017 to conduct a "Table top" exercise at the Miami County Communications Center. The exercise scenario was for a 100-year flood event affecting the entire county which would include the three cities of Piqua, Troy and Tipp City. Since there is a 1% annual chance that said event may occur the exercise was vital to reinforce and establish how each entity would react to given problems and actions taken working collaboratively to mitigate the event. The full exercise report, including Executive Summary, Objective Summary and Recommendations can be found in the Appendix under Levy Exercise Report. Such training events are important to establish a network of public information and action items so that various entities operations can be improved upon should such an event occur.

Vulnerability Analysis & Loss Estimation

There are three Class I Dams in Miami County, all of which are located near the City of Piqua. The City has been requested to perform a dam inundation study for all three of the Class I Dams to determine the vulnerability and loss estimation should a dam failure occur. Based on current information, the chances of a dam failure within the County are anticipated to be low to moderate. Since the 2011 Mitigation Plan Update, the City of Piqua has completed the following studies:

- City of Piqua Emergency Action Plan for Swift Run Lake, Echo Lake & Franz Pond Dams & Hydraulic Canal Levee. Prepared December 2014, Revised May 2016.
- City of Piqua Subsurface Exploration & Analysis for Dams – July 2014.
- City of Piqua Source Water Assessment & Protection Plan – March 2011.

There are three levee systems in Miami County and they serve the following communities:

- Piqua – Levees in Piqua protect 1,414 properties, with land and buildings valued at \$111.5 million. Miami Conservancy District maintains 2.8 miles of levee and 3 miles of river channel in Piqua. MCD owns and operates a stormwater pump station at the south end of Race Street. *
- Troy – Levees in Troy protect 3,795 properties, with land and buildings valued at \$230.6 million. MCD maintains 3.5 miles of levee and 2.2 miles of improved channel in Troy. *
- Tipp City – Levees in Tipp City protect 357 properties, with land and buildings valued at \$34.6 million. MCD maintains 1.15 miles of levee in Tipp City. *

*Information provided from Miami Conservancy website www.mcdwater.org.

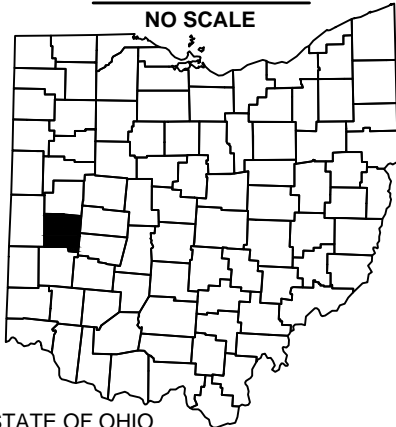
Base on current information the chances of a levee failure within the county are low to moderate and ongoing maintenance of the levy system is a priority for the Miami Conservancy District and the three affected cities in Miami County.

Mapping

See the Miami County Dam and Levee Failure Map for a graphical representation of the hazard areas with regard to dam locations and failure.

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

- LEVEE
- DAM
- RIVER / STREAM
- LAKE / POND
- MAJOR ROADWAY
- MINOR ROADWAY
- - - - - ACTIVE RAILROAD
- CITY / VILLAGE
- COUNTY

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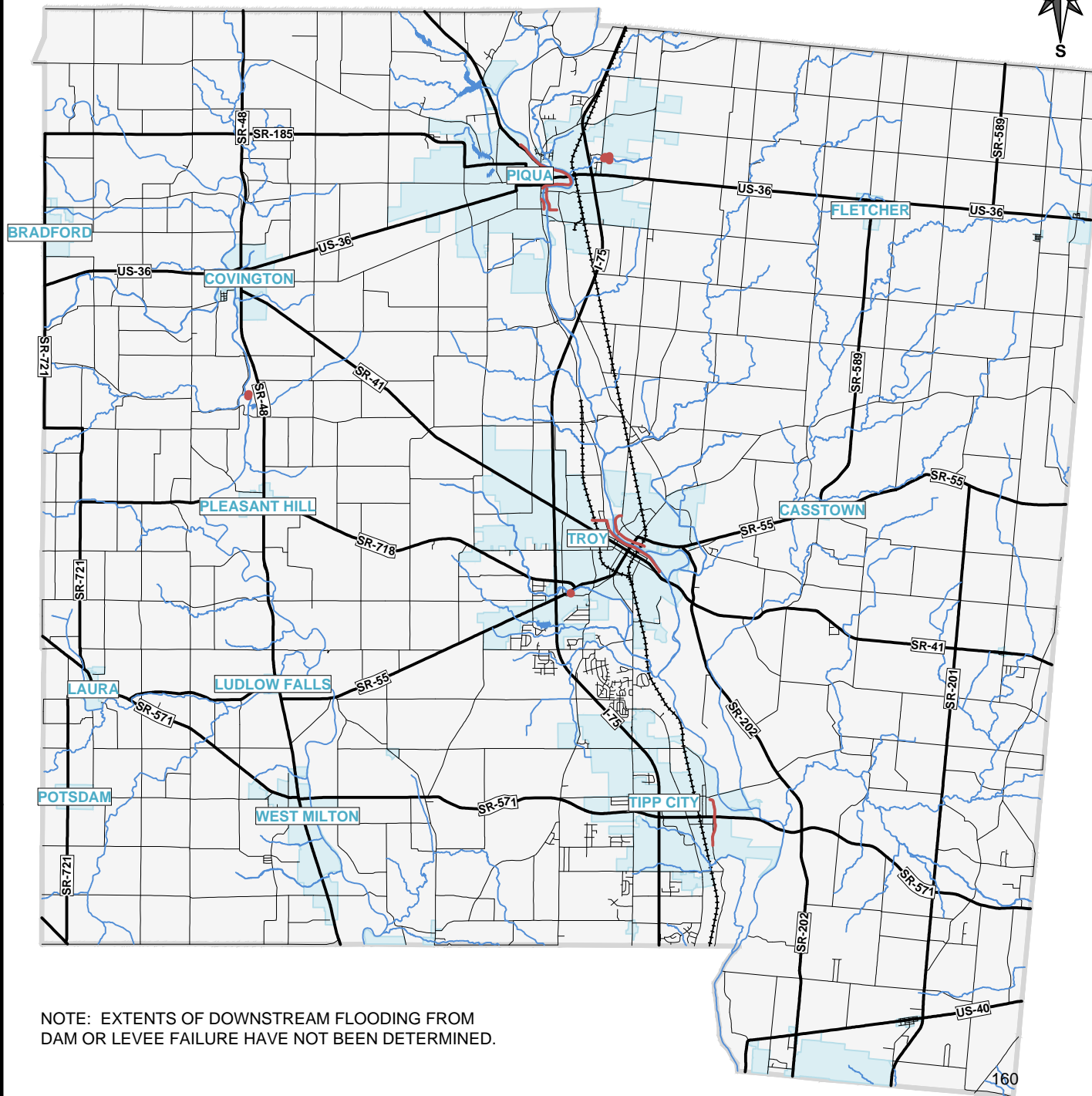
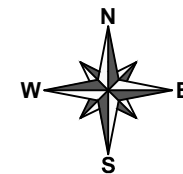
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SCALE: 1" = 16,000'



16,000 FEET 0 16,000

MIAMI COUNTY DAM & LEVEE FAILURE



NOTE: EXTENTS OF DOWNSTREAM FLOODING FROM
DAM OR LEVEE FAILURE HAVE NOT BEEN DETERMINED.

2.18 Addressing Repetitive Loss Structures

The Miami County cities of Piqua, Tipp City and Troy and the villages of Covington, Fletcher, Laura, Ludlow Falls and West Milton are listed as participating in the Natural Flood Insurance Program (NFIP).

Under the NFIP Repetitive Loss Structures are those for which two or more losses of at least \$1,000 each have been paid under the NFIP within any ten-year program since 1978. In Miami County, there are eleven properties that are known to be repetitive loss structures. Seven are located in the unincorporated areas and have had a total of nine losses. Total building payments have been \$348,663.88. Total content payments have been \$70,362.01 for a total payment amount of \$419,025.89. Four are located with the incorporated area of the City of Troy and have had a total of nine losses. Total building payments have been \$150,426.64. Total content losses have been \$25,500.05 for a total payment of \$175,926.69. The total of all repetitive loss structures in Miami County is \$398,322.22. This information is based on information as of January 2017. Currently, there are no severe repetitive loss structures located within the Counties Incorporated Villages.

Miami County, including the City of Troy and Concord Township, has been very proactive in preserving the areas within and along the floodplains as natural corridors. From 2000 to 2016 numerous buildings have been purchased and razed within the floodplain along the Miami River at the north end of Troy and within Concord Township. This area has been developed as a “Recreational Trail” Bike Path corridor which includes Barbee Park and a canoe launch area. Future development in these areas include protecting and preserving the natural and beneficial floodplain functions which yield mitigation benefits while helping to integrate floodplain management efforts with other community goals and objectives. A new bikeway and athletic fields are also planned for the Duke Park area of Troy along the Miami River.

2.19 Asset Inventory

Overview

The Hazard Mitigation Committee secured the help of the County Fire Department Districts to help update the inventory of critical facilities, transportation systems, lifeline utility systems, communication systems, and historic cultural and natural resource areas located in their fire District of Miami County. The fire district personnel were also asked to obtain building data and property values. This Hazard Mitigation Committee was then able to use this data to:

- Determine which critical facilities and structures are susceptible to property damage.
- Determine potential dollars lost based on various levels of damage on different categories and structures
- Evaluate the impact on infrastructure and the municipal or county population.
- Evaluate the amount of property loss, loss of life and the economic impact.

The list of each community's assets and critical facilities are included within this section.

Asset Inventory Methodology

Critical Facilities

Fire department to update a list of critical facilities for their community.

Potential Dollars Lost

The second step of the vulnerability assessment process was to calculate the impact for each of the hazards in terms of property damage and loss of property use.

1. Value of property being damaged was determined based on market value as determined by the County Auditor's data and contents value was calculated as a percentage of the structure's value.

Table "A"
Contents Value as a Percentage of Structure Value

Occupancy Class	Value (%)
Residential	50%
Commercial	100%
Industrial/Utility	150%
Medical Facilities	150%
Emergency Services	150%
General Government	100%
Schools/Libraries	100%
Colleges/Universities	150%
Religion/Non-profit	100%
Shelters	100%
Agricultural	100%

The above values are as recommended by FEMA guidance documents.

2. Levels of damage were evaluated for each category of structure.

Slight Damage

A value of 5% of the structure's market value was used. (No contents losses were assessed with light damage).

Moderate Damage

More serious damage which was calculated at 25% of the structure's market value contents damage used were as per Table "A"

Extensive Damage

The building is heavily damaged and the average dollar figure for this category was calculated at 75% of the structure's market value. Contents were as per Table "A".

Table "B" below shows the calculated dollar losses for each level of damage per the type of facilities. The market value determination was determined by taking the total market value of each category and dividing them by the number of parcels for that property category type (i.e. residential, commercial, industrial, and agricultural). It was not possible to determine vacant parcels at this time.

Table "B"

Potential Dollar Losses Per Property Type

Property Type	Average* Market Value	Slight Damage 5%	Moderate Damage 25%	Extensive Damage 75%
Residential	92,383	4,619	23,096	69,287
Commercial	214,350	10,727	53,588	160,763
Industrial	694,420	34,721	173,605	520,815
Agricultural	108,594	5,430	27,149	81,446
Utility	260,547	13,027	65,137	195,410

*Does not include land value

Vulnerability: Collection of Data

The National Climate Data Center NCDC was used to help assess existing hazards that have affected Miami County. In addition, existing, local information sources were also used when accessible. For earthquakes, the Ohio Seismic Network data was utilized. In some instances, the Miami County Hazard Mitigation Committee used their experience to collect needed information regarding local events in order to help prioritize the hazard information.

Vulnerability Assessment Process

The Vulnerability Assessment Process is addressed under each specific identified hazard listed within this section. A summary of the critical facilities within Miami County have been provided by the Miami County Fire Department Districts and are shown in the following table:

Critical Facilities in Planning Area	
Property	Count
Airports	2
Police/EMS/Fire	23
Schools/Churches	58
Water/Wastewater	33
Government	20
Extended Care Facilities	6
Hospitals	1
Red Cross Facility	1
Utilities	16
<i>Total Critical Facilities</i>	<i>161</i>

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

	BRADFORD FIRE DEPARTMENT
	COVINGTON FIRE DEPARTMENT
	PIQUA FIRE DEPARTMENT
	FLETCHER FIRE DEPARTMENT
	PLEASANT HILL FIRE DEPARTMENT
	TROY FIRE DEPARTMENT
	CASSTOWN FIRE DEPARTMENT
	ELIZABETH TWP FIRE DEPARTMENT
	LAURA FIRE DEPARTMENT
	LUDLOW FALLS FIRE DEPARTMENT
	WEST MILTON FIRE DEPARTMENT
	TIPP CITY FIRE DEPARTMENT
	BETHEL TWP FIRE DEPARTMENT
	CORPORATION LIMIT OUTLINE

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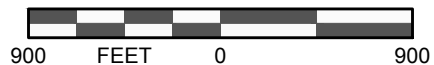
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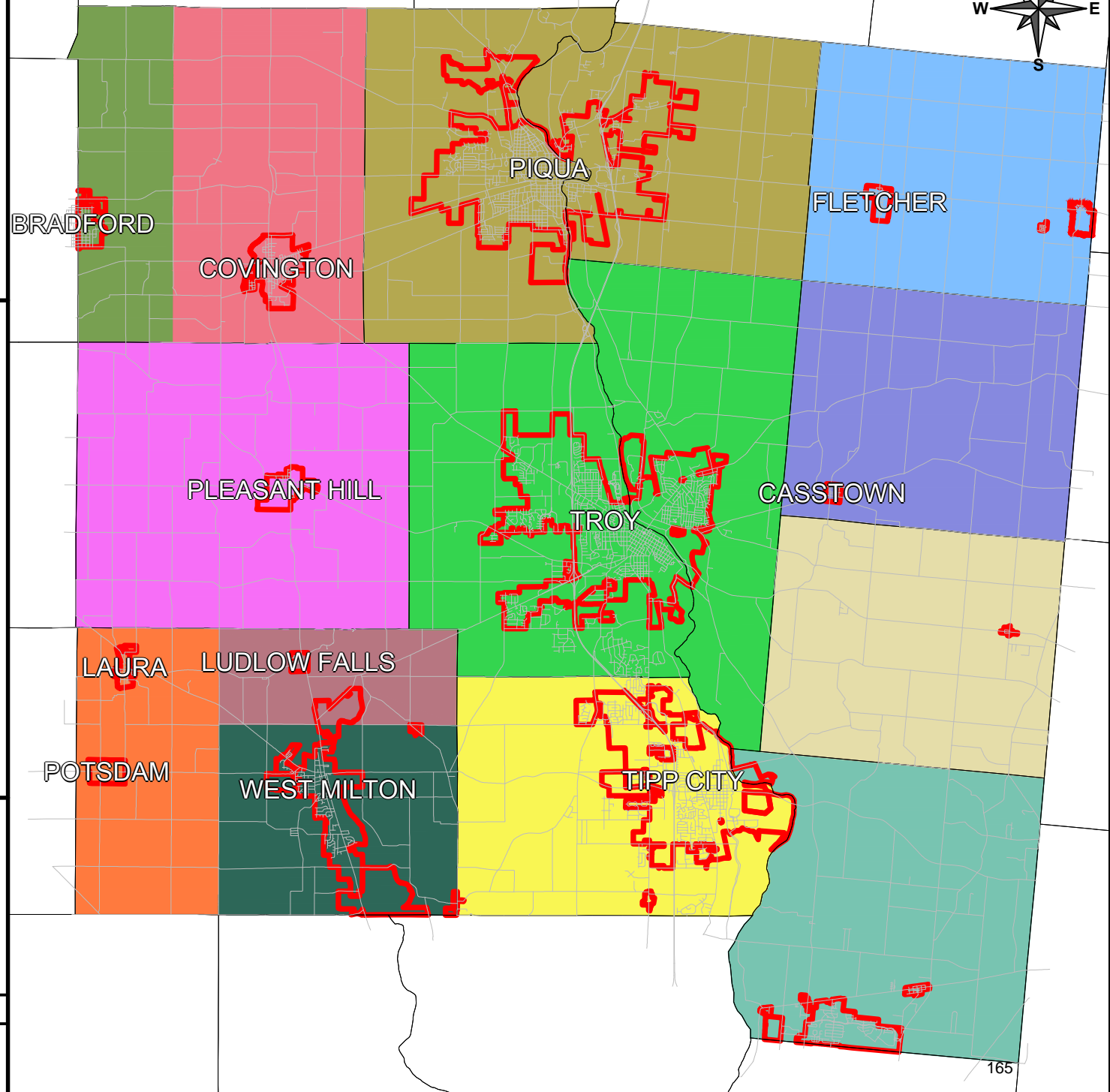
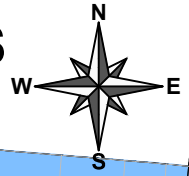
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SCALE: 1" = 900'



MIAMI COUNTY FIRE DEPARTMENT DISTRICTS



2.19 Updating Asset Inventory

ASSET INVENTORY – VILLAGE OF BRADFORD

Methodology

The methodology for the asset inventory of the Village of Bradford is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Bradford.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Bradford and the hazards to which these facilities are susceptible.

The following are assets located within the Village of Bradford and the Bradford Fire Department Jurisdiction.

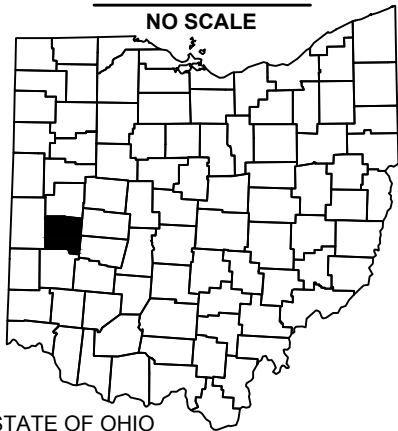
**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Bradford Fire Department
Updated January 2017
Village of Bradford**

Name of Facility	Risk Assessment Category	Size of Facility	Estimated Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
Bradford Fire & Rescue Services, Inc.	I	8,000 S.F. 1.88 Acres	36	\$800,000	\$856,000	X		200 South Miami Avenue Bradford, OH 45308	937-448-2054
Bradford Maintenance Garage	I	2,000 S.F.	1	\$190,000	\$203,300		X	115 North Miami Avenue Bradford, OH 45308	937-448-2718
Bradford Municipal Building	I	3,200 S.F.	20	\$366,000	\$391,620		X	115 North Miami Avenue Bradford, OH 45308	937-448-2718
Bradford Park Shelter	III	400 S.F.	50	\$90,000	\$96,300		X	Bradford, OH 45308	937-448-2718
Bradford Public Library	VI	6,300 S.F.	8	\$892,000	\$954,440			138 East Main Street Bradford, OH 45308	937-448-2612
Wastewater Plant/Government Bldg.	I	1,300 S.F.	1	\$468,000	\$500,760			11750 Klinger Road Bradford, OH 45308	937-448-2718
Water Treatment Facilities	I	2,500 S.F.	1	\$1,000,000	\$1,070,000	X		11755 Klinger Road Bradford, OH 45308	937-448-2718
Wise Street Sewer Lift Station	I	500 S.F.	—	\$218,000	\$233,260	X		Wise Street Bradford, OH 45308	937-448-7218
Bradford Exempted Village School District	II	107,000 S.F.	650	\$12,300,000	\$13,161,000			7500 State Route 721 Bradford, OH 45308	937-448-2770
Bridges	IV								
Roads	IV								
Railroads	IV								
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

** **Precinct and Polling Location**

VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

- BRADFORD FIRE DEPARTMENT
- COVINGTON FIRE DEPARTMENT
- PIQUA FIRE DEPARTMENT
- PLEASANT HILL FIRE DEPARTMENT
- CORPORATION LIMIT OUTLINE

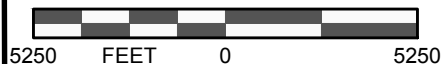
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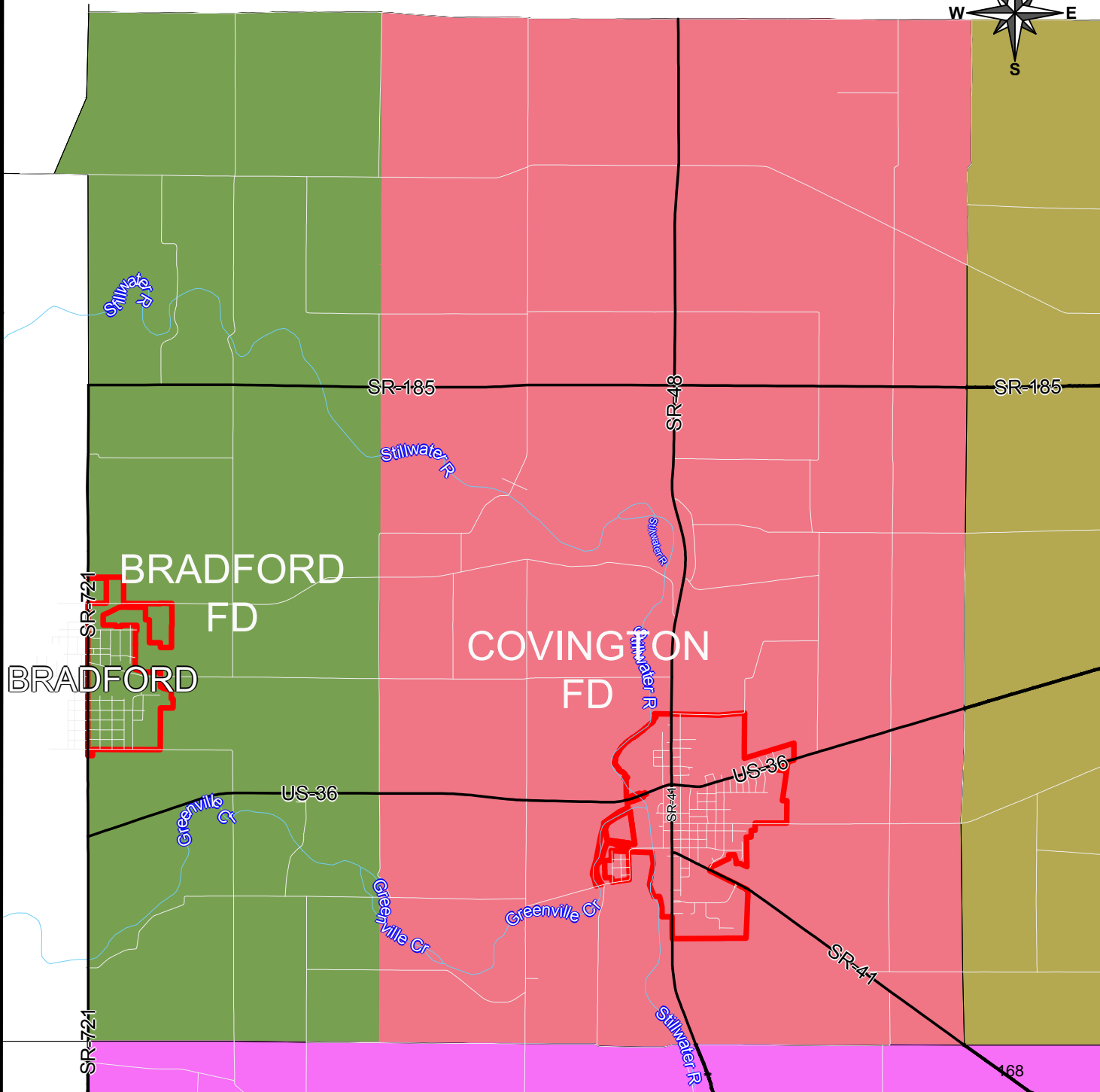
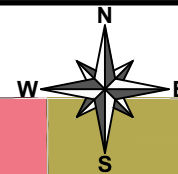
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SCALE: 1"=5250'



BRADFORD & COVINGTON FIRE DISTRICTS



ASSET INVENTORY – VILLAGE OF CASSTOWN

Methodology

The methodology for the asset inventory of the Village of Casstown is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Casstown.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Casstown and the hazards to which these facilities are susceptible.

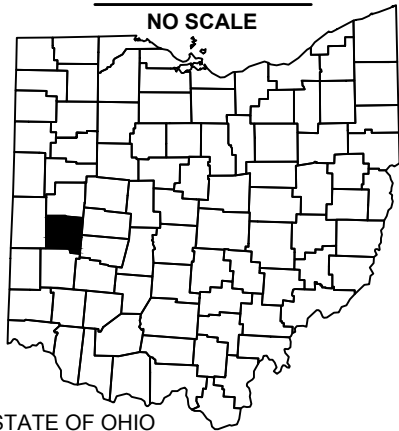
The following are assets located within the Village of Casstown and the Casstown Fire Department Jurisdiction.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Casstown Fire Department
Updated January 2017
Village of Casstown**







Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
						yes	no		
Casstown Community Volunteer Fire Department	I	6,000 S.F.	100	\$1,000,000	\$1,070,000		X	4210 E. State Route 55 Casstown, OH 45312	937-232-0024
Miami East Local Schools Water Tower	I	152,000 gallons		\$544,895	\$583,038		X	3825 N. State Route 589 Casstown, OH 45312	937-902-8110
Miami East High School	II	63,000 S.F.	400	\$10,994,448	\$11,764,059		X	3825 N. State Route 589 Casstown, OH 45312	937-902-8110
Miami East K-8 School	II	120,000 S.F.	900	\$13,281,004	\$14,210,674	X		4025 N. State Route 589 Casstown, OH 45312	937-902-8110
Miami East Varsity Stadium	III	5 Acres	1,500	\$179,744	\$192,326		X	3825 N. State Route 589 Casstown, OH 45312	937-902-8110
Casstown Sewage Pump Station	I		0	\$350,000		X		3680 E. St. Rt. 55 Troy, OH 45373	
Casstown Alley Street Pump Station	I		0	\$100,000			X	24 W. Alley St. Casstown, OH 45312	
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

VICINITY MAP

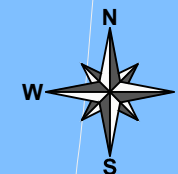
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MAP LEGEND

-  PIQUA FIRE DEPARTMENT
-  FLETCHER FIRE DEPARTMENT
-  TROY FIRE DEPARTMENT
-  CASSTOWN FIRE DEPARTMENT
-  ELIZABETH TWP FIRE DEPARTMENT
-  CORPORATION LIMIT OUTLINE

CASSTOWN FIRE DISTRICT



CASSTOWN FD

SR-589

SR-589

SR-55

SR-55

SR-201

SR-44

171

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DATE: 4/2017

SCALE: 1" = 5500'



5500 FEET 0 5500

ASSET INVENTORY – VILLAGE OF COVINGTON

Methodology

The methodology for the asset inventory of the Village of Covington is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Covington.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Covington and the hazards to which these facilities are susceptible.

The following are assets located within the Village of Covington and the Covington Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Covington Fire Department
Updated January 2017
Village of Covington**

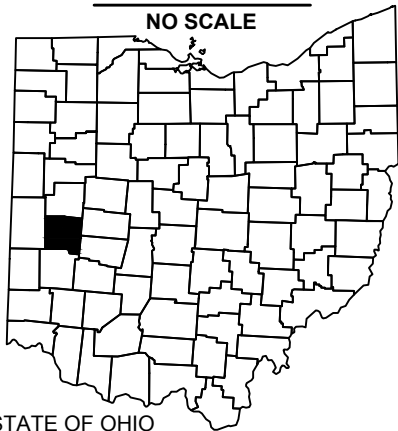
Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
Covington Care Center	I	33,000 S.F.	130	\$6,700,000	\$7,169,000	X		75 Mote Drive Covington, OH 45318	937-473-2075
Covington Fire Department	I	16,600 S.F.		\$3,000,000	\$3,210,000	X		801 East Broadway Covington, OH 45318	937-418-8433
Covington Government Center and Police Department	I	10,800 S.F.	25	\$1,500,000	\$1,605,000	X		1 South High Street Covington, OH 45318	937-473-2102
Covington Elementary School	I	37,997 S.F.		\$7,466,968	\$19,000,000	X		707 Chestnut Street Covington, OH 45318	937-473-2249
Covington High School	I	52,675 S.F.	316	\$8,473,604	\$9,066,756		X	807 Chestnut Street Covington, OH 45318	937-473-2249
Covington Middle School	I	37,997 S.F.		\$8,429,506			X	25 North Grant Street Covington, OH 45318	937-473-2249
Covington Rescue Squad	I	10,000 S.F.		\$1,400,000	\$1,498,000	X		1000 Dick Minnich Drive Covington, OH 45318	
Covington Water Tower (East)	I	500,000 gallons	serves 2,600	\$1,400,000	\$1,498,000		X	938 East Walnut Street Covington, OH 45318	937-473-2103
Covington Water Tower (West)	I	100,000 gallons	serves 2,600	\$1,000,000	\$1,070,000		X	Maple Street Covington, OH 45318	937-473-2103
Covington Water Treatment Plant	I	6,350 S.F.	serves 2,600	\$4,500,000	\$4,815,000	X		123 West Wright Street Covington, OH 45318	937-473-2103
Covington Waste Water Plant	I	3 Acres	serves 2,600	\$5,000,000	\$5,350,000	X		200 West Bridge Street Covington, OH 45318	937-473-2103
DP&L Covington Sub Station	I	66,500 S.F.	0		\$0			Rangeline Rd. @ Greenville Falls, Covington, OH 45318	
Newberry Twp. Garage & Clerk's Office	I	5,580 S.F.		\$495,000	\$529,650		X	7835 Ingle Road Covington, OH 45318	937-473-2469
Pathway School, Inc.	I	9,710 S.F. on 3.025 Acres			\$0		X	6225 Farrington Road Covington, OH 45318	937-473-5436 937-473-5654 (h)
Vectren Energy Delivery	IV	900 S.F.	0		\$0			St. Rt. 41 & Wenrick St. Covington, OH 45318	800-920-9422
Mid-Valley Oil Pipeline Inc.	IV	16" diameter pipe	0		\$0			western Miami County	800-753-5531
Fort Rowdy Museum	VI	2,200 S.F.			\$400,000		X	101 E. Spring Street Covington, OH 45318	937-473-2934
J. R. Clarke Public Library	VI	8,900 S.F.		\$2,500,000	\$2,675,000		X	102 E. Spring Street Covington, OH 45318	937-473-3543
Covington Eagles								715 E. Broadway Ave. Covington, OH 45318	
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

**

** Precinct and Polling Location

VICINITY MAP

NO SCALE

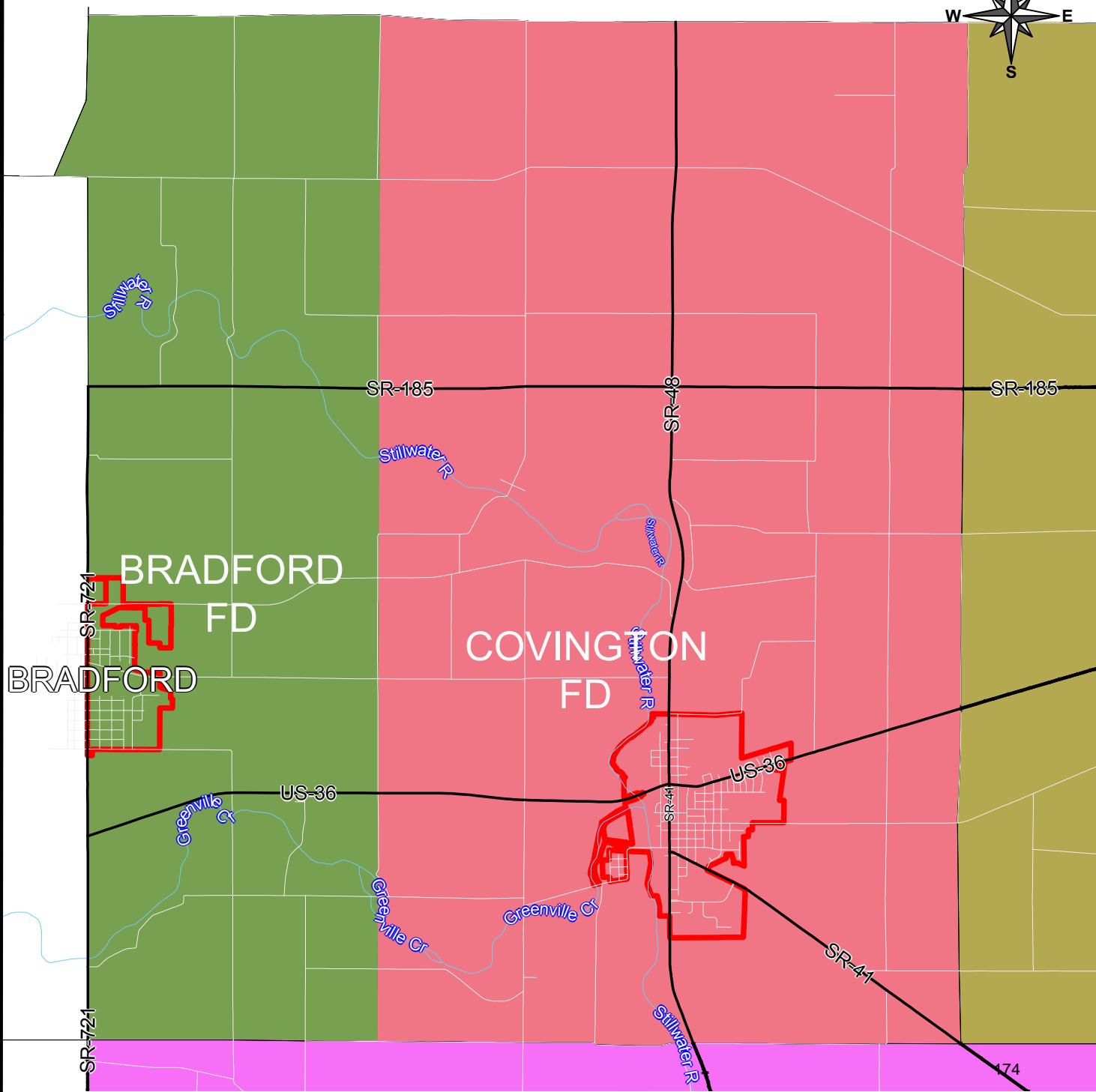
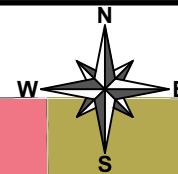


STATE OF OHIO

MAP LEGEND

- BRADFORD FIRE DEPARTMENT
- COVINGTON FIRE DEPARTMENT
- PIQUA FIRE DEPARTMENT
- PLEASANT HILL FIRE DEPARTMENT
- CORPORATION LIMIT OUTLINE

BRADFORD & COVINGTON FIRE DISTRICTS



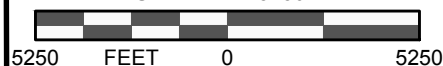
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DATE: 4/2017

SCALE: 1"=5250'



ASSET INVENTORY – VILLAGE OF FLETCHER

Methodology

The methodology for the asset inventory of the Village of Fletcher is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Fletcher.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Fletcher and the hazards to which these facilities are susceptible.

The following are assets located within the Village of Fletcher and the Fletcher Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Fletcher Fire Department
Updated January 2017
Village of Fletcher**

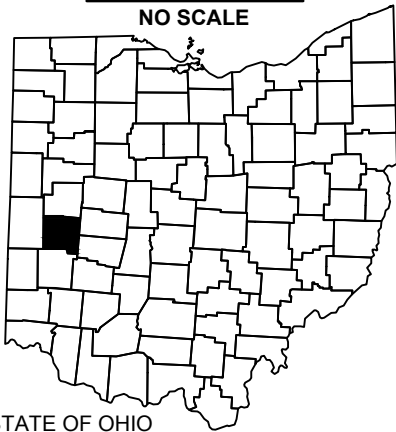
Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
AT & T Transmission Tower	I	1 Acre					X	State Route 36 & Lostcreek Shelby, Fletcher, OH	937-296-3709
BP Pipe Lines North America	I						X	west of Fletcher on Casstown-Sidney Rd., Fletcher, OH	800-842-6561
Brown Township EMS	I	2,400 S.F.	2	\$275,000	\$294,250		X	6605 State Route 589 Fletcher, OH 45326	937-418-2105
Fletcher Fire Department	I	17 Acres	300	\$765,965	\$819,583		X	6605 State Route 589 Fletcher, OH 45326	937-368-3888
Poor Farmers Camp Grounds	III	275 camp sites	600				X	7211 N. Lostcreek-Shelby Rd. Fletcher, OH 45326	937-368-3012
Lena Ag Center, LLC	VI	7 Acres	12				X	7436 North Bollinger Road Fletcher, OH 45326	937-539-1565
Systemax Manufacturing	VI	300,000 S.F.	250				X	6990 State Route 36 Fletcher, OH 45326	937-572-3754
Fletcher United Methodist								205 S. Walnut St. Fletcher, OH 45326	
Fletcher Sewage Pump Station	I		0	\$400,000		X		300 W. Jackson St. Fletcher, OH 45326	
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

**

** Precinct and Polling Location





VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

-  PIQUA FIRE DEPARTMENT
-  FLETCHER FIRE DEPARTMENT
-  CASSTOWN FIRE DEPARTMENT
-  TROY FIRE DEPARTMENT
-  CORPORATION LIMIT OUTLINE

Mote & Associates, Inc.

ENGINEERING, LAND SURVEYING

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Greenville, OH 45331
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Fax: (937)-548-7484
Email: info@moteassociates.com
Website: www.moteassociates.com

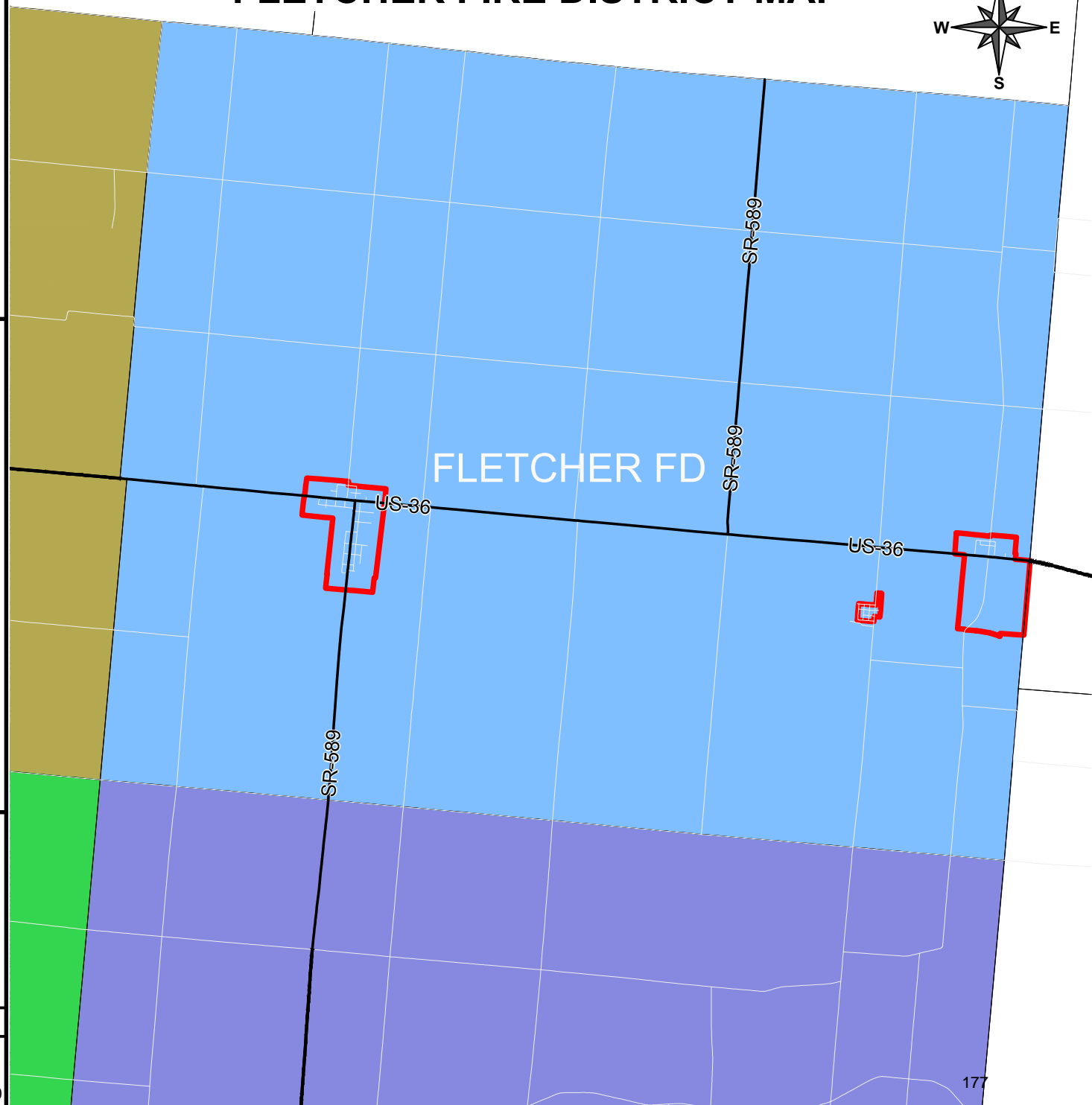
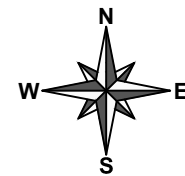
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DATE: 4/2017

SCALE: 1" = 5000'



FLETCHER FIRE DISTRICT MAP



ASSET INVENTORY – VILLAGE OF LAURA

Methodology

The methodology for the asset inventory of the Village of Laura is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Laura.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Laura and the hazards to which these facilities are susceptible.

The following are assets located within the Village of Laura and the Laura Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Laura Fire Department
Updated January 2017
Village of Laura**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$)	Generator System		Address of Facility	Phone Number
					yes	no		
Kevin Mote Petroleum Distributor	I	9.2 Acres	15	\$600,000	X		11611 W. State Route 571 Laura, OH 45337	937-947-1209 937-902-9618 (c)
Laura Fire Department	I	3,200 S.F.	30	\$156,500		X	10 N. Main Street Laura, OH 45337	937-947-2112
Laura Wastewater Treatment Plant	I	2 Acres	2 part-time employees	\$1,199,100	X		S. Main Street Laura, OH 45337	937-947-1568
Laura Water Tower	I	50,000 gallons	205 taps	\$1,500,000		X	N. Main Street Laura, OH 45337	937-947-1175
Laura Water Treatment Plant	I	600 S.F. 1 Acre	1 part-time	\$750,000		X	S. Ludlow Street Laura, OH 45337	937-947-1175
Mid-Valley Pipeline (Sunoco Logistics)	I	20" crude oil pipeline				X	western edge of Union Twp.	800-786-7440
Union Township Trustees	I	24,100 S.F.	9	\$410,500		X	9497 Markley Road Laura, OH 45337	937-698-4480 937-698-3113
Laura Christian Church							1 S. Main St. Laura, OH 45337	
Risk Assessment Categories	I	II	III	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

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** Precinct and Polling Location








VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

-  PLEASANT HILL FIRE DEPARTMENT
-  TROY FIRE DEPARTMENT
-  LAURA FIRE DEPARTMENT
-  LUDLOW FALLS FIRE DEPARTMENT
-  WEST MILTON FIRE DEPARTMENT
-  TIPP CITY FIRE DEPARTMENT
-  CORPORATION LIMIT OUTLINE

Mote & Associates, Inc.

ENGINEERING, LAND SURVEYING

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Website: www.moteassociates.com

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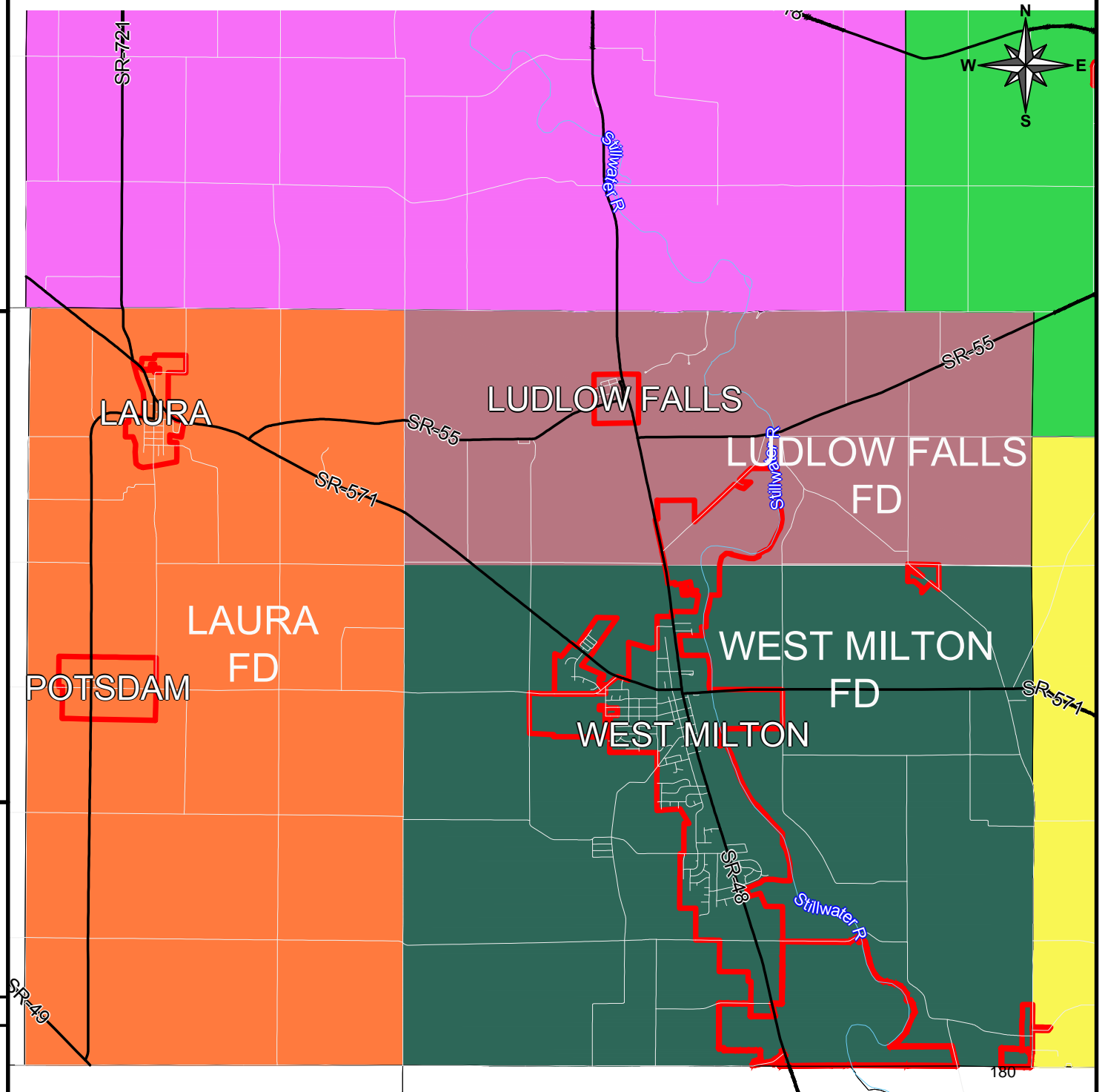
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SCALE: 1" = 6000'



6000 FEET 0 6000

WEST MILTON, LUDLOW FALLS & LAURA FIRE DISTRICT



ASSET INVENTORY – VILLAGE OF LUDLOW FALLS

Methodology

The methodology for the asset inventory of the Village of Ludlow Falls is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Ludlow Falls.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Ludlow Falls and the hazards to which these facilities are susceptible.

The following are assets located within the Village of Ludlow Falls and the Ludlow Falls Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Ludlow Falls Fire Department
Updated January 2017
Village of Ludlow Falls**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
						yes	no		
Ludlow Falls Fire Department	I	6,000 S.F. 8 Acres	15	\$150,000	\$160,500	X		10 Greenville Avenue Ludlow Falls, OH 45339	937-698-6030
Ludlow Falls Post Office	I	980 S.F. 1 Acre	10	\$502,893	\$538,096		X	110 Covington Avenue Ludlow Falls, OH 45339	937-231-7169
Center Friends Church	V	17,000 S.F. 9 Acres	225	\$751,000	\$803,570		X	8550 W. State Route 751 West Milton, OH 45383	937-239-4907
Cooper's Banquet Hall & Catering	V	4,000 S.F. 47 acres	240	\$2,000,000	\$2,140,000	X		3155 State Route 48 Ludlow Falls, OH 45339	937-698-6135
Grace Baptist Church	V	17,000 S.F. 3 acres	250	\$780,000	\$834,600		X	2500 State Route 48 Ludlow Falls, OH 45339	937-676-2216
Ludlow Falls Camp	V	41,220 S.F. building 50 acres	700	\$2,000,000	\$2,140,000		X	2535 S. State Route 48 Ludlow Falls, OH 45339	937-698-4321 (h) 937-417-1404 (c)
Ludlow Falls Christian Church	V	13,000 S.F. 3/4 acre	125	\$311,000	\$332,770		X	213 Vine Street Ludlow Falls, OH 45339	937-307-8911
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	








VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

-  PLEASANT HILL FIRE DEPARTMENT
-  TROY FIRE DEPARTMENT
-  LAURA FIRE DEPARTMENT
-  LUDLOW FALLS FIRE DEPARTMENT
-  WEST MILTON FIRE DEPARTMENT
-  TIPP CITY FIRE DEPARTMENT
-  CORPORATION LIMIT OUTLINE

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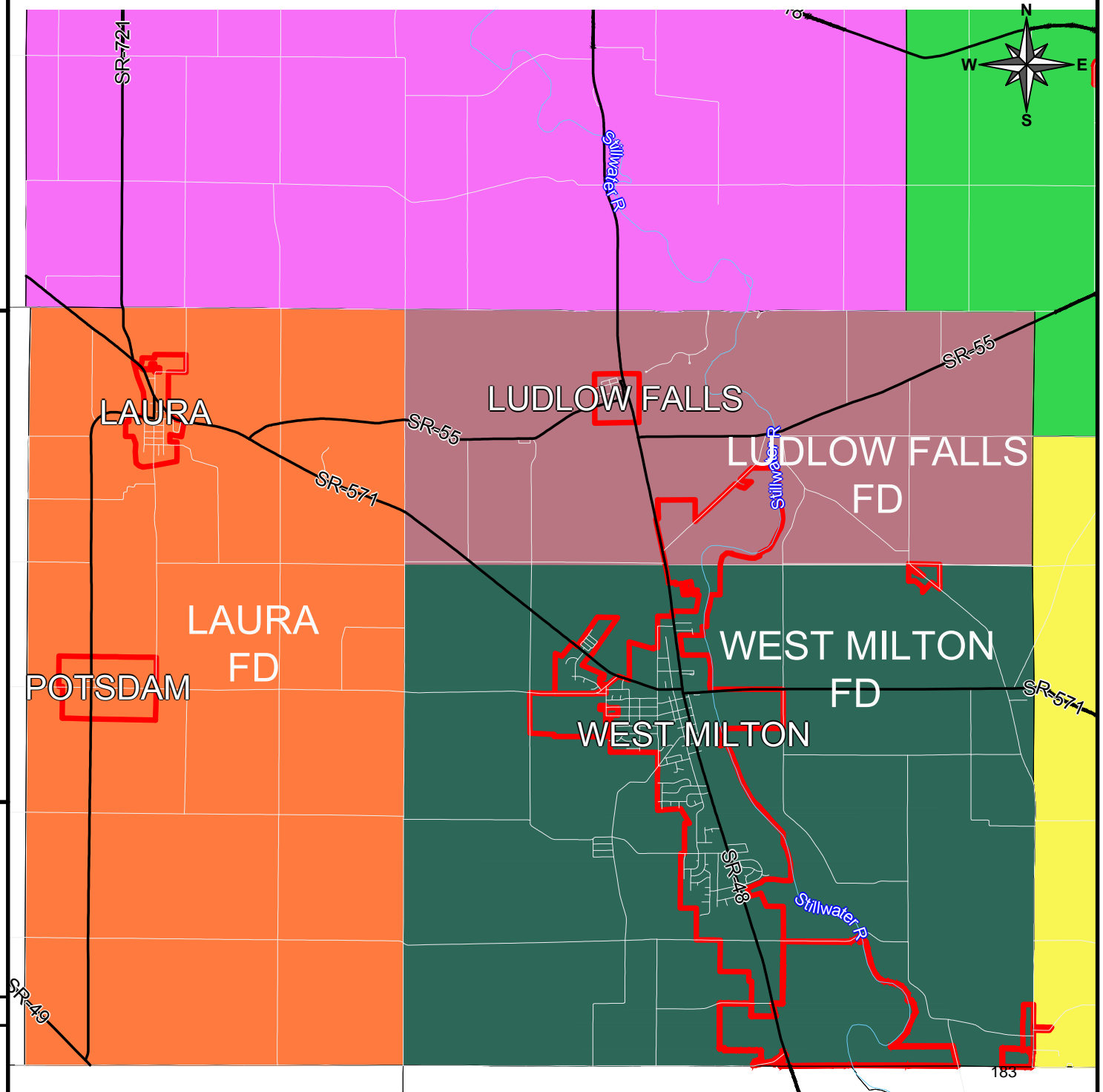
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SCALE: 1" = 6000'



6000 FEET 0 6000

WEST MILTON, LUDLOW FALLS & LAURA FIRE DISTRICT



ASSET INVENTORY – CITY OF PIQUA

Methodology

The methodology for the asset inventory of the City of Piqua is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the City of Piqua.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the City of Piqua and the hazards to which these facilities are susceptible.

The following are assets located within the City of Piqua and the City of Piqua Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Piqua Fire Department
Updated January 2017
City of Piqua**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
					yes	no		
AT&T The Ohio Bell Telephone Co.	I	20,576 S.F.	2		X		630 W. High Street Piqua, OH 45356	937-227-7911
Echo (Cellular Tower)	I				X		441 S. College Street Piqua, OH 45356	800-852-2671
Heavy Equipment Storage	I	16,200 S.F.	17	\$914,085		X	859 S. Main Street Piqua, OH 45356	937-778-2095 937-606-0754 (c)
Hetzler Clean Water Pump	I	768 S.F.	0	\$30,000		X	8605 N. Hetzler Road Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Municipal Government Complex	I	51,600 S.F.	100	\$10,698,000	X		201 W. Water Street Piqua, OH 45356	937-778-2072 937-606-0356 (c)
Piqua Decommissioned Reactor	I	143,168 S.F.	22	\$4,943,337		X	123 Bridge Street Piqua, OH 45356	937-474-8289
Piqua Fire Station	I	15,000 S.F.	15	\$5,199,039	X		229 W. Water Street Piqua, OH 45356	937-778-2015 937-606-0714 (c)
Piqua Race Street Pump Station	I	3-18" vertical pumps 11,000 gpm each				X	Water St. at Race St. Piqua, OH 45356	937-414-7012
Sewage Lift Stations	I		0	\$25,000		X	1710 Echo Lake Drive Piqua, OH 45356	937-773-2088 937-606-0604
Sewage Lift Stations	I		0	\$106,000		X	Candlewood Drive Piqua, OH 45356	937-773-2088 937-606-0604
Sewage Lift Stations	I		0	\$106,000		X	Eagles Lake Drive Piqua, OH 45356	937-773-2088 937-606-0604
Sewage Lift Stations	I		0	\$106,000		X	Maplewood Drive Piqua, OH 45356	937-773-2088 937-606-0604
Sewage Lift Stations	I		0	\$106,000		X	Orchard Drive Piqua, OH 45356	937-773-2088 937-606-0604
Sewage Lift Stations	I		0	\$106,000		X	Stratford Drive Piqua, OH 45356	937-773-2088 937-606-0604
Sewage Lift Stations	I		0	\$106,000		X	Lakeridge Drive Piqua, OH 45356	937-773-2088 937-606-0604
Shawnee Pump Station	I	200 S.F. underground	0	\$557,000	X		100 First Street Piqua, OH 45356	937-778-2095 937-606-0754 (c)
Substation 1	I	2.3 Acres	4	\$11,184,100	X		919 S. Main Street Piqua, OH 45356	937-778-5140 937-606-0734 (c)
Substation 2	I	5,600 S.F.	0	\$172,000		X	135 S. Main Street Piqua, OH 45356	937-778-5140 937-606-0734 (c)

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Piqua Fire Department
Updated January 2017
City of Piqua**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
					yes	no		
Substation 3	I	30,000 S.F.	0	\$575,000		X	N. Sunset Drive Piqua, OH 45356	937-778-5140 937-606-0734 (c)
Substation 4	I	1,000 S.F.	0	\$1,388,300		X	1005 S. Main Street Piqua, OH 45356	937-778-5140 937-606-0734 (c)
Substation 5	I	1,188 S.F.	0	\$2,166,500	X		N. County Road 25A Piqua, OH 45356	937-778-5140 937-606-0734 (c)
Substation 6	I	10,000 S.F.	0	\$80,000		X	N. College Street Piqua, OH 45356	937-778-5140 937-606-0734 (c)
Swift Run Dam and Spillway	I	527 Acres	5,000			X	Piqua, OH 45356	973-778-2072 937-606-0356 (c)
The Dome/Associated Admin. Office	I	2.5 Acres	0	\$225,000		X	123 Bridge Street Piqua, OH 45356	937-778-5140 937-606-0734 (c)
Vectren Natural Gas Transmission Regulator Stations - Piqua #1	I	50' x 100'					East of Gordon, South of Hemm Road, Piqua	800-345-0962
Vectren Natural Gas Transmission Regulator Stations - Piqua #2	I	60' x 120'					West of Sunset Drive, North of St. Rt. 36, Piqua	800-345-0962
Waste Water Plant	I	2 Acres	20	\$2,871,403	X		121 Bridge Street Piqua, OH 45356	937-773-2088 937-606-0604
Water Tower (East)	I		0	\$1,312,810		X	1241 E. Ash Street Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Water Tower (North)	I		0	\$540,000		X	615 N. Spring Street Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Water Tower (South)	I		0	\$540,000		X	925 S. Main Street Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Water Tower (West)	I		0	\$1,597,000		X	Robert M. Davis Parkway Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Water Tower (Hemm Road) Being Constructed	I	1 Acre	0	\$3,597,000		X	316 Fox Drive Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Water Treatment Plant	I	2 Acres	8	\$4,436,000	X		9360 N. State Route 66 Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Water Treatment Plant Being Constructed	I	20.3 Acres	8	\$41,436,000	X		9801 N. State Route 66 Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Ziegler Clean Water Pump	I	768 S.F.	0	\$30,000		X	3050 Ziegler Road Piqua, OH 45356	937-778-2090 937-606-0758 (c)
Piqua Electric Distribution Center	1	5.4 Acres 41,422 SF	25	7,000,000	X		201 Hemm Avenue Piqua, OH 45356	937-778-2077 937-606-0734 (C)
Piqua Electric Diesel Generator 10 MWH	9			10,000,000	X		N Co Road 25A Piqua, OH 45356	937-778-2077 937-606-0734 (C)
Piqua Electric Diesel Generator 15 MWH	9			10,000,000	X		859 S Main Street	937-778-2077 937-606-0734 (C)
A Learning Place	II	32,000 S.F.	540 - hall 120 - offices	\$6,000,000		X	201 RM Davis Parkway Piqua, OH 45356	937-778-5220
A.M. Leonard, Inc.	II	113,852 S.F. 10.252 Acres	125	\$9,100,000		X	241 Fox Drive Piqua, OH 45356	937-773-2694

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**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Piqua Fire Department
Updated January 2017
City of Piqua**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
					yes	no		
Bent Tree Apartments	II		108 units	\$5,255,002		X	1240 E. Garbry Road Piqua, OH 45356	937-778-9155 937-396-9181 (c)
Buckeye Insurance Group	II		70	\$3,000,000	X		256 Looney Road Piqua, OH 45356	937-778-5000
Cinemark Miami Valley Center Movie Theatre	II, III	25,480 S.F.	1,271	\$4,700,000		X	1020 Garbry Road Piqua, OH 45356	330-933-0296
Crayex Corporation	II	126,000 S.F.	35	\$21,550,000		X	1747 Commerce Drive Piqua, OH 45356	937-773-7000
Fort Piqua Plaza	II	60,000 S.F.	575	\$35,000,000		X	110-120 W. High Street Piqua, OH 45356	937-773-6753 937-773-7098 (h)
Fraternal Order of Eagles Aerie 614	II		499	\$1,500,000		X	301 Kienle Drive Piqua, OH 45356	937-570-7830
French Oil Mill Machinery Co. (The)	II	150,841 S.F. 8.23 Acres	56	\$18,000,000		X	1035 W. Greene Street Piqua, OH 45356	937-773-3420 ext. 286
Garbry Ridge Assisted Living	II	35,000 S.F.	60	\$4,950,000	X		1567 Garbry Road Piqua, OH 45356	937-778-9385
Hampshire Co. (The)	II	32,000 S.F.	34	\$1,500,000		X	9225 N. State Route 66 Piqua, OH 45356	937-773-3493 937-773-8579 (h)
Harmony Systems and Service	II	100,000 S.F. 10 Acres	95	\$2,800,000		X	1711 Commerce Drive Piqua, OH 45356	937-778-1082 937-367-8859 (c)
Hartzell Industries, Inc.	II	13,097 S.F.	18	\$2,564,000		X	1025 S. Roosevelt Avenue Piqua, OH 45356	937-418-7190 (c) 937-773-6034 (h)
Hartzell Industries, Inc.	II	58,968 S.F.	1	\$2,637,000		X	Corner Clark & Roosevelt Piqua, OH 45356	937-418-7190 (c) 937-773-6034 (h)
Hartzell Industries, Inc.	II	55,615 S.F.	2	\$2,218,500		X	710 S. Roosevelt Avenue Piqua, OH 45356	937-418-7190 (c) 937-773-6034 (h)
Heartland of Piqua	II, V	31,347 S.F.	100 bed	\$4,165,000	X		275 Kienle Drive Piqua, OH 45356	937-773-9346
Home Depot Store #3862 (The)	II	118,000 S.F.	150	\$22,624,961	X		1200 E. Ash Street Piqua, OH 45356	937-615-9606
Jackson Tube Service	II	400,000 S.F.	161	\$50,000,000		X	8210 Industry Park Drive Piqua, OH 45356	937-773-8550
Market Place Shopping Center	II	180,000 S.F.	22 tenants	\$25,000,000		X	1510-1598 Covington Ave. Piqua, OH 45356	513-315-7958
McDonald's Restaurant	II	4,000 S.F.	65	\$2,300,000		X	1546 Covington Avenue Piqua, OH 45356	937-778-8400

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Piqua Fire Department
Updated January 2017
City of Piqua**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
					yes	no		
Miami County YMCA	II	66,000 S.F.		\$8,666,667		X	223 W. High Street Piqua, OH 45356	937-773-9622
Miami County YMCA - Richard E. Hunt Youth Center	II	5,000 S.F.		\$681,600		X	307 W. High Street Piqua, OH 45356	937-773-9622
Miami Valley Steel Service	II	309,000 S.F.	135	\$88,000,000	X		201 Fox Drive Piqua, OH 45356	937-773-7127
Nicklin	II	14,050 S.F.	30	\$4,500,000		X	821 Nicklin Avenue Piqua, OH 45356	937-440-4515
Nitto Denko Automotive, Ohio, Inc.	II	105,103 S.F. 8.14 Acres	172	\$14,611,185		X	1620 S. Main Street Piqua, OH 45356	937-773-4820 ext. 201
OCCN	II	23,000 S.F.	75	\$6,000,000	X		280 Looney Road Piqua, OH 45356	937-440-4515
Orr Felt Company (The)	II	300,000 S.F.	50	\$73,912,000		X	750 S. Main Street Piqua, OH 45356	937-773-0551
Perfecto Industries, Inc.	II	50,000 S.F.	35	\$1,630,000		X	1729 W. High Street Piqua, OH 45356	937-778-1900 ext. 222
Piqua Battery	II	5,000 S.F.		\$517,000		X	115 Wood Street Piqua, OH 45356	937-773-3652
Piqua Emery Foundry	II	65,000 S.F.	35	\$4,970,000		X	821 S. Downing Street Piqua, OH 45356	937-773-4134 937-418-1480 (c)
Piqua Manor	II, V	37,000 S.F.	130	\$6,100,000	X		1840 W. High Street Piqua, OH 45356	419-704-6741
Piqua Senior Housing	II, V	82,074 S.F. 2.26 Acres	80 residents	\$4,000,000		X	316 N. College Street Piqua, OH 45356	863-453-8444
R K Hydro-Vac	II	16,400 S.F.	13	\$1,400,000		X	322 Wyndham Way Piqua, OH 45356	937-773-8600 937-305-4222 (c)
Rack Processing Company	II	36,000 S.F.	17	\$2,390,000		X	170 Fox Drive Piqua, OH 45356	937-773-0725
Red Carpet Inn	II	50 rooms	125	\$800,000		X	9060 Country Club Road Piqua, OH 45356	937-773-6275
Red Lobster Restaurant #706	II	4,935 S.F.	194	\$2,800,000		X	991 E. Ash Street Piqua, OH 45356	937-308-0300
Rehabilitation Center for Neurological Development	II	22,740 S.F.	60	\$2,100,000		X	1306 Garbry Road Piqua, OH 45356	937-773-7630 ext. 114
SafeHaven, Inc.	II	7,670 S.F.	255	\$1,098,050		X	633 N. Wayne Street Piqua, OH 45356	937-615-0126 ext. 202

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**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Piqua Fire Department
Updated January 2017
City of Piqua**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
					yes	no		
SCHOOLS:								
Alexander Stadium	II		8,200	\$1,318,467		X	Indian Trail Piqua, OH 45356	937-773-4321
Alexander Stadium East Storage	II			\$61,080		X	Indian Trail Piqua, OH 45356	937-773-4321
Alexander Stadium, Unattached Building - East Side	II		20	\$359,707		X	Indian Trail Piqua, OH 45356	937-773-4321
Alexander Stadium, Unattached Building - West Side	II		20	\$369,998		X	Indian Trail Piqua, OH 45356	937-773-4321
Edison State Community College - Main Campus	II	240,000 S.F. 108 Acres	3,000	\$50,000,000		X	1973 Edison Drive Piqua, OH 45356	937-778-7878
Greene Street United Methodist Church & Greene Street Daycare/Preschool	II		225	\$2,500,000		X	415 W. Greene Street Piqua, OH 45356	937-773-5313
Miami County YMCA - Alexander-Davis Childcare Center	II	8,000 S.F.		\$1,150,000		X	300 W. High Street Piqua, OH 45356	937-773-9622
Piqua High School	II	118,224 S.F. 24 Acres	974	\$27,845,762	X		1 Indian Trail Piqua, OH 45356	937.773.6314
Piqua Junior High School	II	113,159 S.F. 24 acres	577	\$15,294,141	X		1 Tomahawk Trail Piqua, OH 45356	937-778-2997
Piqua Kids Learning Place	II	15,500 S.F.	125	\$2,000,000		X	285 RM Davis Parkway Piqua, OH 45356	937-778-5220
Springcreek Primary	II	71,000 S.F. 10.41 Acres	650	\$12,000,000	X		145 E. State Route 36 Piqua, OH 45356	937.773-6540
Upper Valley JVS	II	210,000 S.F.	1,500	\$22,000,000		X	8811 Career Drive Piqua, OH 45356	937-381-1479
Washington Intermediate	II	71,000 S.F. 6.82 Acres	650	\$12,000,000		X	800 N. Sunset Piqua, OH 45356	937-773-8472
Wertz Stadium	II		5,500	\$3,012,626		X	402 E. Ash Street Piqua, OH 45356	937-773-4321
Wertz Stadium (Maintenance Building)	II			\$149,931		X	402 E. Ash Street Piqua, OH 45356	937-773-4321
Piqua Central Intermediate	II	105,000 S.F. 6 Acres	900	\$15,000,000	X		807 Nicklin Piqua, OH 45356	937-773-2017
Speedway #5243	II	2.6 Acres	24	\$1,800,000		X	900 Scott Drive Piqua, OH 45356	419-618-2638
Speedway #5401	II	0.4 Acres	24	\$1,800,000		X	1551 Covington Avenue Piqua, OH 45356	419-618-2638
Sterling House of Piqua	II	148,433 S.F.	38 residents	\$2,500,000		X	1744 W. High Street Piqua, OH 45356	937-773-0500
United Parcel Service-Package Center	II	26,500 S.F. 7.4 Acres	150	\$3,200,000		X	8460 Industry Park Piqua, OH 45356	614-497-6063
Urban Elsass & Son, Inc.	II	8 Acres	18	\$3,000,000		X	600 E. Statler Road Piqua, OH 45356	937-214-0060
YWCA Piqua	II, III, IV	17,000 S.F.	600	\$1,750,000		X	418 N. Wayne Street Piqua, OH 45356	937-773-6626
4th of July Celebration	III						Foundation Park Piqua, OH 45356	

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Piqua Fire Department
Updated January 2017
City of Piqua**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
					yes	no		
Aesthetic Finishers	III							
Christmas on the Green	III							
Corpus Christi Procession	III							
Dancing in the Moonlight	III							
Downtown Holiday Parade	III							
Farmers Market	III							
Mainstreet Piqua Events	III							
Mainstreet Stride and Ride	III							
Memorial Day Parade	III							
Miami Valley Centre Mall - Cruise-In	III						987 E. Ash St. Piqua, OH 45356	
Miami Valley Safety Council - Safety Fair	III						Learning Center	
National Day of Prayer	III							
Piqua Kiwanis Halloween	III							
Piqua - Pep Rally	III							
PYBSA Parade	III							
Readmore's Hallmark	III							
RIP Run Parade	III							
St. Boniface Church Festival	III							
St. Mary's Church Festival	III							
Strawberry Festival Soccer Tournament	III						Pitsenbarger Park	
Taste of the Arts	III							
Various Events	III							
Piqua Airport - Hartzell Field	IV	150 Acres	500			X	5465 W. State Route 185 Piqua, OH 45356	937-778-4207 937-418-2624 (c)
Sunset Box Culvert	IV	10" high, 96" long; 14" wide	0	\$200,000		X	100 block N. Sunset Ave. Piqua, OH 45356	937-778-2095 937-606-0754 (c)
Traffic Management Infrastructure	IV		0	\$5,154,900		X	throughout Piqua, OH	937-778-2095 937-606-0754 (c)

**

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Piqua Fire Department
Updated January 2017
City of Piqua**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Generator System		Address of Facility	Phone Number
					yes	no		
Piqua Electrical Distribution System							City Wide	937-778-2077
Bike Path	VI	11 Miles	350	\$500,000		X	throughout Piqua, OH	937-778-2085 937-606-0692 (c)
Fountain Park	VI	35 Acres	1,000	\$1,200,000		X	1300-1514 Forest Avenue Piqua, OH 45356	937-778-2085 937-606-0692 (c)
French Park	VI	2 Acres	150	\$60,000		X	503 E. Ash Street Piqua, OH 45356	937-778-2085 937-606-0692 (c)
Hollow Park	VI	35 Acres	250	\$105,000		X	820 Scott Drive Piqua, OH 45356	937-778-2085 937-606-0692 (c)
Johnston Farm & Indian Agency	VI	250 Acres	9			X	9845 Hardin Road Piqua, OH 45356	937-773-2522
Lockington Dam	VI					X	Kaser Road, Lockington Shelby County	937-414-7012
Mote Park	VI	32 Acres	500	\$570,000		X	635 Gordon Street Piqua, OH 45356	937-778-2085 937-606-0692 (c)
Piqua Golf Course	VI	145 Acres	125	\$1,929,405		X	2,000, 2030 & 2100 Echo Lake Drive, Piqua, OH	937-778-2086
Piqua Local Flood Protection Feature	VI	15.214 linear feet total length				X	Along the Great Miami River, Piqua	937-414-7012
Piqua Pool	VI	.41 Acre	300	\$891,000		X	1400 South Street Piqua, OH 45356	937-778-2085 937-606-0692 (c)
Pitsenbarger Park	VI	67 Acres	1,500	\$338,000		X	McKinley & South Streets Piqua, OH 45356	937-778-2085 937-606-0692 (c)
Roadside Park	VI	7 Acres	500	\$3,500		X	St. Rt. 66 - near Hardin Rd. Piqua, OH 45356	937-778-2085 937-606-0692 (c)
Veteran's Memorial Park	VI	2 Acres	300	\$100,000		X	1701 Washington Avenue Piqua, OH 45356	937-778-2085 937-606-0692 (c)
Piqua Apostolic Temple							830 Covington Ave Piqua, OH	
Piqua Christian Church							3969 W SR 185 Piqua, OH	
Upper Valley Community Church							1400 Seidel Pkwy Piqua, OH	
Monnin Sewage Pump Station	I		0	\$250,000		X	1675 Stockham Drive Piqua, OH 45356	
Risk Assessment Categories	I	II	III	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

Precinct and Polling Location








VICINITY MAP

NO SCALE

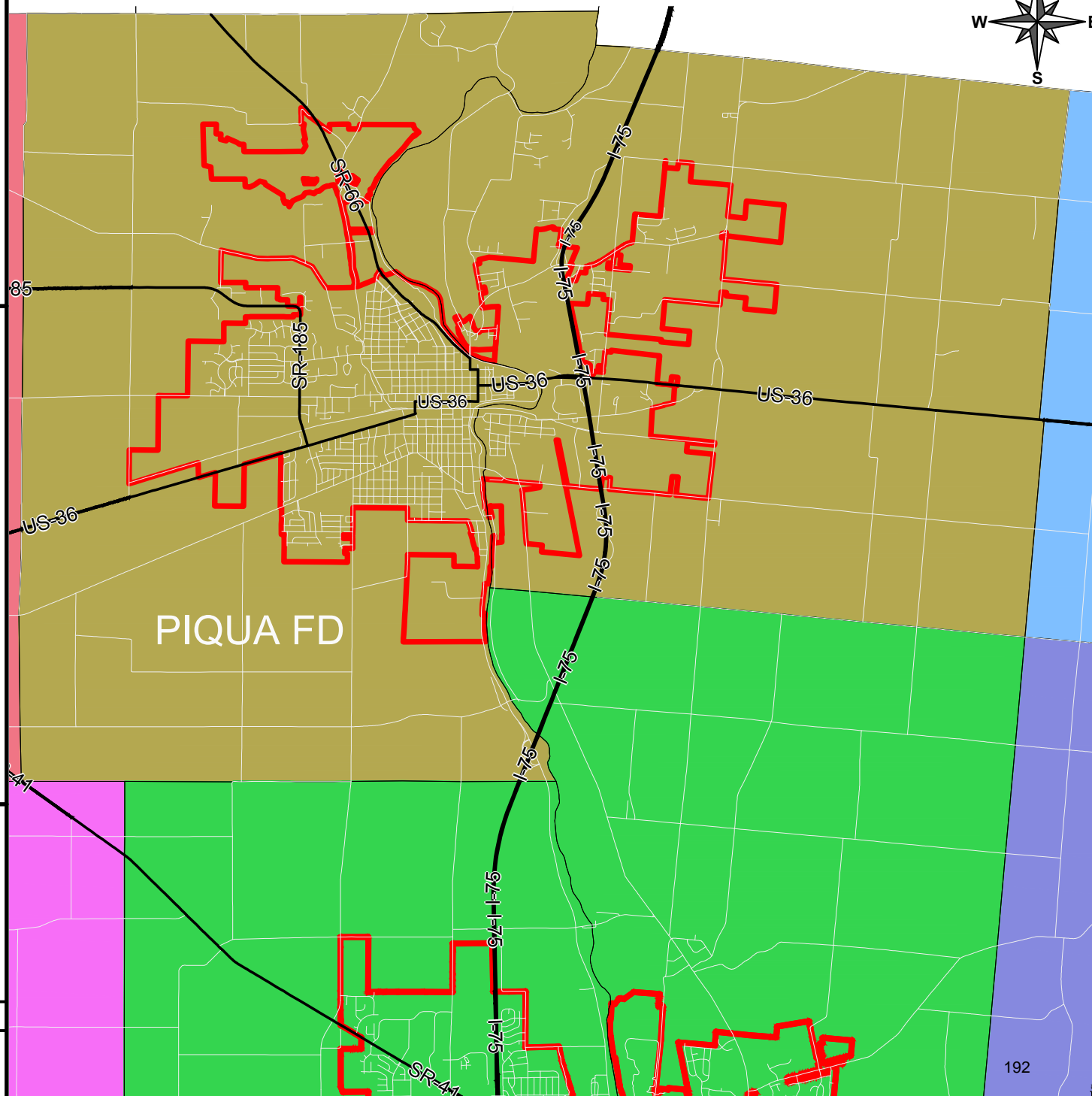
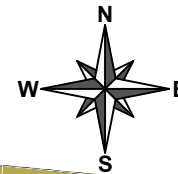


STATE OF OHIO

MAP LEGEND

-  COVINGTON FIRE DEPARTMENT
-  PIQUA FIRE DEPARTMENT
-  FLETCHER FIRE DEPARTMENT
-  PLEASANT HILL FIRE DEPARTMENT
-  TROY FIRE DEPARTMENT
-  CASSTOWN FIRE DEPARTMENT
-  CORPORATION LIMIT OUTLINE

PIQUA FIRE DISTRICT



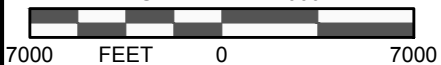
 **Mote & Associates, Inc.**
ENGINEERING, LAND SURVEYING

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Greenville, OH 45331
Phone: (937)-548-7511
Fax: (937)-548-7484
Email: info@moteassociates.com
Website: www.moteassociates.com

DRAWN BY: CMB

DATE: 4/2017

SCALE: 1" = 7000'



ASSET INVENTORY – VILLAGE OF PLEASANT HILL

Methodology

The methodology for the asset inventory of the Village of Pleasant Hill is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Pleasant Hill.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Pleasant Hill and the hazards to which these facilities are susceptible.

The following are assets located within the Village of Pleasant Hill and the Pleasant Hill/Newton Township Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Pleasant Hill Fire Department
Update 2017
Village of Pleasant Hill**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
Pleasant Hill & Newton Twp Joint Fire District	I	Unknown	Unknown	Unknown	Unknown				937.676.2248
Pleasant Hill Water Treatment Facilities	I	Unknown	Unknown	\$145,000	\$155,150				
Pleasant Hill Sewage Treatment Facilities	I			\$53,100	\$56,817			317 West Monument	
Pleasant Hill Elevated Water Storage	I				\$0			State Route 718	
Pleasant Hill Village Building	I				\$0			8 W. High Street	937.676.3321
Oakes Beitman Memorial Library	II	3,500 sq. ft.		\$176,800	\$189,176		X	12 N. Main Street	
** First Brethren Church									
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

** Precinct and Polling Location









VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

	BRADFORD FIRE DEPARTMENT
	COVINGTON FIRE DEPARTMENT
	PIQUA FIRE DEPARTMENT
	PLEASANT HILL FIRE DEPARTMENT
	TROY FIRE DEPARTMENT
	LAURA FIRE DEPARTMENT
	LUDLOW FALLS FIRE DEPARTMENT
	CORPORATION LIMIT OUTLINE

Mote & Associates, Inc.

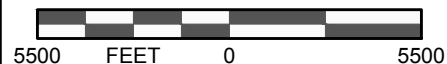
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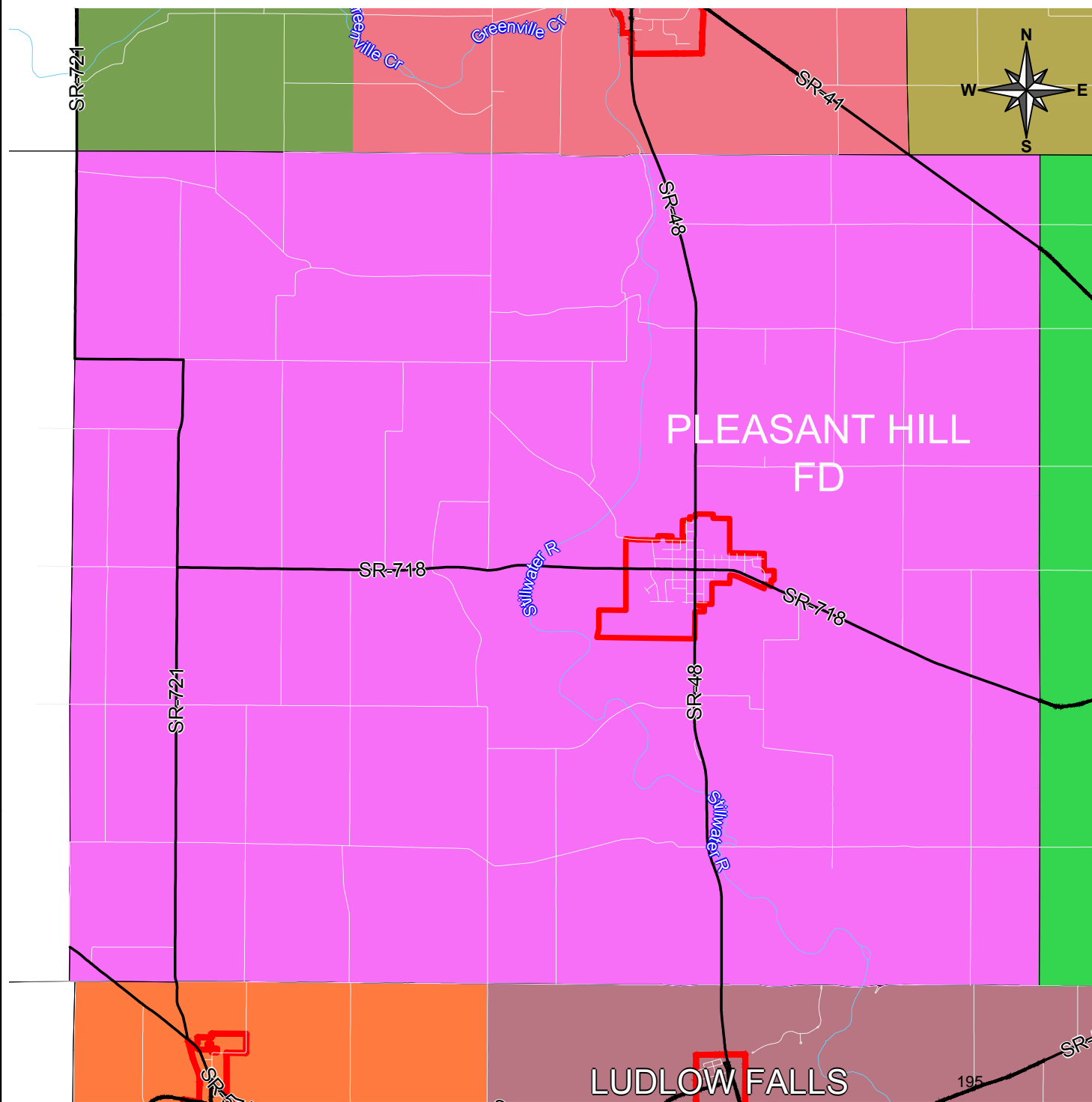
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DATE: 4/2017

SCALE: 1" = 5500'



PLEASANT HILL FIRE DISTRICT



ASSET INVENTORY – VILLAGE OF POTSDAM

Methodology

The methodology for the asset inventory of the Village of Potsdam is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of Potsdam.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of Potsdam and the hazards to which these facilities are susceptible.

The following are assets located within the Village of Potsdam and the Laura Fire Department District.

- Potsdam Municipal Building
- Bridges – Critical Facility (Transportation Infrastructure)
- Roads – Critical Facility (Transportation Infrastructure)
- Railroads – Critical Facility (Transportation Infrastructure)

ASSET INVENTORY – CITY OF TIPP CITY

Methodology

The methodology for the asset inventory of the City of Tipp City is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the City of Tipp City.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the City of Tipp City and the hazards to which these facilities are susceptible.

The following are assets located within the City of Tipp City and the Tipp City Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Tipp City Fire Department
Updated 2017
City of Tipp City**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
					yes	no		
Electrical Substation #1	I	15,000 S.F.	12	\$4,200,000		X	N. 1st Street Tipp City, OH 45371	937-667-0519
Electrical Substation #2	I	10,000 S.F.	0	\$3,000,000		X	Behind A.O. Smith Tipp City, OH 45371	937-667-0519
Electrical Substation #3	I	100 x 100	0	\$5,000,000		X	Harmony Water Tower Tipp City, OH 45371	937-667-0519
Fire House II	I		20	\$3,000,000	X		520 W. Main Street Tipp City, OH 45371	937-669-8477
Government Center/Police Dept.	I	10,000 S.F.	40	\$4,000,000	X		260 S. Garber Drive Tipp City, OH 45371	937-506-3182
Hyatt Center	I	30,000 S.F.	100	\$3,000,000	X		450 N. Hyatt Street Tipp City, OH 45371	937-440-4000
Lift Station	I	2,500 S.F.	0	\$2,000,000	X		E. Main Street Tipp City, OH 45371	937-667-7298
Lift Station	I	2,500 S.F.	0	\$1,000,000	X		Rosewood Tipp City, OH 45371	937-667-7298
NAWA Water Plant	I		3	\$7,000,000	X		525 S. First Street Tipp City, OH 45371	937-313-9361
Tipp City Fire Department - West Side	I	9,800 S.F.	25	\$1,200,000	X		520 W. Main Street Tipp City, OH 45371	937-667-3112
Tipp City Police Department	I	19,400 S.F.	10	\$1,000,000	X		260 S. Garber Drive Tipp City, OH 45371	937-667-3112
Tipp City Post Office	I	1,400 S.F.	30	\$1,300,000		X	520 N. Hyatt Street Tipp City, OH 45371	937-667-3012
Tipp City Public Library	I	10,000 S.F.	20	\$1,500,000		X	11 E. Main Street Tipp City, OH 45371	937-667-3826
Water Tower	I			\$750,000				
Water Tower	I			\$4,000,000		X	Bowman & Walnut Tipp City, OH 45371	937-667-7298
Water Tower	I	1 million gallon	0	\$2,500,000		X	Harmony Tipp City, OH 45371	937-667-7298

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Tipp City Fire Department
Updated 2017
City of Tipp City**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
					yes	no		
Well Fields	I			\$500,000		X	E. Main Street Tipp City, OH 45371	937-667-7298
A.O. Smith Corporation/Regal Beloit	II	200,000 S.F.	300	\$4,000,000		X	531 N. Fourth Tipp City, OH 45371	937-667-2431
BASF Construction Chemicals LLC	II	40,000 S.F.	30	\$1,500,000		X	310 Park Avenue Tipp City, OH 45371	937-547-6798
BP Gas Line	II							800-842-6561
CSX Railroad	II, IV					X		800-232-0144
DAP, Inc.	II	80,000 S.F.	50	\$20,000,000	X		875 N. Third Street Tipp City, OH 45371	937-335-3826
Ginghamsburg Church	II	121,000 S.F.		\$14,000,000			6759 S. Co. Rd. 25A Tipp City, OH 45371	937-667-1069
Meijer's	II		830	\$3,700,000	X		4200 S. Co. Rd. 25A Tipp City, OH 45371	937-667-9628
SCHOOLS:								
Broadway Elementary	II	88,806 S.F.	459	\$7,003,245		X	223 W. Broadway Tipp City, Ohio 45371	937-667-6216
L.T. Ball Intermediate	II	88,806 S.F.	428	\$5,521,057		X	575 N. Hyatt Tipp City, Ohio 45371	937-667-8444
Little Light House Day Care/ Community Bible Church	II	10,000 S.F.	30	\$2,000,000		X	1427 West Main Tipp City, Ohio 45371	937-667-2710
Main S. Day Care/ Tipp City United Methodist Church	II	50,000 S.F.	40	\$5,000,000		X	8 West Main Street Tipp City, Ohio 45371	937-667-4924 ext. 206
Nazarene Church Day Care	II	50,000 S.F.	50	\$4,000,000		X	1221 W. Main Street Tipp City, Ohio 45371	937-667-6586
Nevin Coppock Elementary	II	40,000 S.F.	250	\$4,000,000		X	525 N. Hyatt Street Tipp City, Ohio 45371	937-667-8444
St. John's Preschool	II	50,000 S.F.	50	\$5,500,000		X	753 S. Hyatt Tipp City, Ohio 45371	937-667-4983 937-623-0447 (c)
Tipp City Christian School	II	7,000 S.F.	20	\$1,700,000		X	445 Evanston Road Tipp City, Ohio 45371	937-667-9167

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Tipp City Fire Department
Updated 2017
City of Tipp City**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
					yes	no		
Tippecanoe High School	II	100,666 S.F.	952	\$7,468,128			615 E. Kessler-Cowlesville Tipp City, OH 45371	
Tippecanoe Middle School	II	45,000 S.F.	675	\$7,003,245		X	555 N. Hyatt Tipp City, Ohio 45371	
Liberty Commons	II, V	206,000 S.F. 4.75 Acres	160	\$2,200,000		X	101 Rohrer Drive Tipp City, Ohio 45371	937-667-3650
Springmeade Health Center	II, V	41,000 S.F.	300	\$5,000,000	X		4385 S. County Road 25A Tipp City, OH 45371	937-667-7500
Tippecanoe Aquatic Center	II	5,542 S.F.	1,000	\$7,000,000		X	N. Third Street-City Park Tipp City, OH 45371	
Bridges Over Interstate	IV			\$299,977,500		X	25A-571 - Evanston-Shoop- Gingham, Tipp City	
Mum Festival	VI	10 Acres	3,000	\$200,000		X	25 Parkwood Drive Tipp City, OH 45371	937-667-5816
Tippecanoe Football Stadium/Track	VI	2 Acres	3,000	\$2,000,000		X	225 Park Avenue Tipp City, OH 45371	937-667-8444
YMCA - Robinson Branch	VI	52,000 S.F.	200	\$7,000,000		X	3060 S. County Rd. 25A Troy, OH 45373	
** Randall Residence							6400 S. County Rd. 25A Tipp City, OH	
** Victory Church							4645 S. County Rd. 25A Tipp City, OH	
** Upper Room							648 N. Hyatt St. Tipp City, OH	
Risk Assessment Categories	I	II	III	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

** Precinct and Polling Location








VICINITY MAP

NO SCALE



STATE OF OHIO

MAP LEGEND

-  TROY FIRE DEPARTMENT
-  ELIZABETH TWP FIRE DEPARTMENT
-  LUDLOW FALLS FIRE DEPARTMENT
-  WEST MILTON FIRE DEPARTMENT
-  TIPP CITY FIRE DEPARTMENT
-  BETHEL TWP FIRE DEPARTMENT
-  CORPORATION LIMIT OUTLINE

Mote & Associates, Inc.

ENGINEERING, LAND SURVEYING

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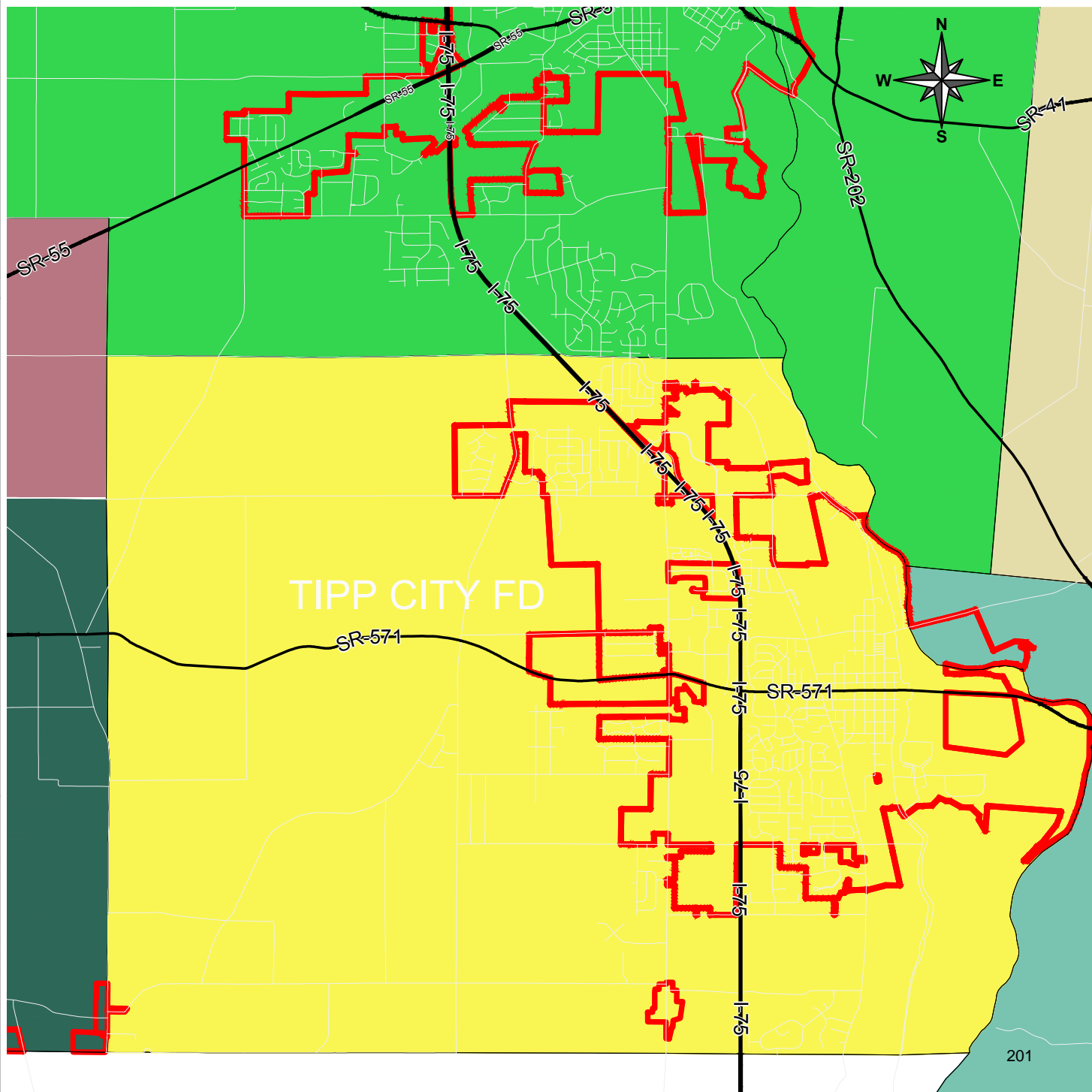
DATE: 4/2017

SCALE: 1" = 5500'



5500 FEET 0 5500

TIPP CITY FIRE DISTRICT



ASSET INVENTORY – CITY OF TROY

Methodology

The methodology for the asset inventory of the City of Troy is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the City of Troy.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the City of Troy and the hazards to which these facilities are susceptible.

The following are assets located within the City of Troy and the City of Troy Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Troy Fire Department
Updated January 2017
City of Troy**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
911 Building	I, III, V	12,520 S.F.		\$4,350,742	\$4,655,294	X		210 Marybill Drive Troy, OH 45373	937-339-6400
American Red Cross	I	7,344 S.F.	100	\$750,000	\$802,500		X	1314 Barnhart Road Troy, OH 45373	937-332-1414 937-232-1064 (c)
Miami County Animal Shelter	I	1.81 Acres		\$686,743	\$734,815		X	1110 N. County Road 25A Troy, OH 45373	937-332-6919
Miami County Dispatch Center	I	11,730 S.F.	100	\$10,000,000	\$10,700,000	X		210 Marybill Drive Troy, OH 45373	937-232-1819
Miami County Sanitary Engineering Office Building	I	15,404 S.F.		\$1,492,339	\$1,596,803		X	2200 N. County Road 25A Troy, OH 45373	937-440-5653
Miami County Transfer Station - Waste Management	I	23,728 S.F.		\$4,015,039	\$4,296,092			2200 N. County Road 25A Troy, OH 45373	937-440-5653
Troy Fire Department - Station 1	I	11,000 S.F.	7	\$2,000,000	\$2,140,000	X		19 E. Race Troy, OH 45373	937-335-5678
Troy Fire Department - Station 2	I	10,622 S.F.	5	\$3,500,000	\$3,745,000	X		1528 N. Market Street Troy, OH 45373	937-339-3140
Troy Fire Department - Station 3	I	8,920 S.F.	5	\$2,000,000	\$2,140,000	X		40 S. Stanfield Troy, OH 45373	937-335-2227
Troy Maintenance Facility	I	44,500 S.F.	65	\$6,000,000	\$6,420,000		X	1400 Experiment Road Troy, OH 45373	937-875-2571
Troy Police Department	I	22,731 S.F.	30	\$5,580,000	\$5,970,600	X		124 E. Main Street Troy, OH 45373	937-875-0209
Troy Wastewater Treatment Plant	I	12,000 S.F.	8	\$20,000,000	\$21,400,000	X		1400 Dye Mill Road Troy, OH 45373	937-875-2497
Troy Water Treatment Plant	I	1,200 S.F.	6	\$30,000,000	\$32,100,000	X		300 E. Staunton Road Troy, OH 45373	937-875-0107
Upper Valley Hospital	I	270,468 S.F.	875	\$107,000,000	\$114,490,000	X		3130 N. County Road 25A Troy, OH 45373	937-440-4515
Alterra Sterling House	II				\$0		X	81 Stanfield Road Troy, OH 45373	937-339-5900
Caldwell House	II	8,000 S.F.	50	\$2,000,000	\$2,140,000		X	2900 Corporate Drive Troy, OH 45373	937-339-5199 937-573-6812 (c)

**

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Troy Fire Department
Updated January 2017
City of Troy**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
F & P	II	325,000 S.F.	650	\$200,000,000	\$214,000,000		X	2101 Corporate Drive Troy, OH 45373	937-414-7142
Incarceration Center	II	30,000 S.F.		\$4,382,165	\$4,688,917			2042 N. County Road 25A Troy, OH 45373	937-440-5650
Miami County Jail	II	49,496 S.F.		\$10,138,651	\$10,848,357		X	2042 N. County Road 25A Troy, OH 45373	937-440-6085
SCHOOLS:									
Concord Elementary	II	67,598 S.F.	650	\$10,925,000	\$11,689,750		X	3145 State Route 718 Troy, OH 45373	937-332-6730
Cookson Elementary	II	41,877 S.F.	350	\$6,850,000	\$7,329,500		X	921 Mystic Lane Troy, OH 45373	937-332-6700
Forrest Elementary	II	41,481 S.F.	320	\$5,800,000	\$6,206,000		X	413 E. Canal Street Troy, OH 45373	937-332-6700
Heywood Elementary	II	37,231 S.F.	380	\$6,250,000	\$6,687,500		X	260 S. Ridge Avenue Troy, OH 45373	937-332-6700
Hook Elementary	II	31,257 S.F.		\$5,375,000	\$5,751,250		X	729 Trade Square West Troy, OH 45373	937-332-6760
Kyle Elementary	II	33,620 S.F.	270	\$5,425,000	\$5,804,750		X	501 S. Plum Street Troy, OH 45373	937-332-6770
Miami Jacobs Career College	II	60,000 S.F.	700	\$13,000,000	\$13,910,000		X	865 W. Market Street Troy, OH 45373	937-308-1118
Troy Christian Elementary School	II	43,550 S.F.	552	\$4,400,000	\$4,708,000		X	700 S. Dorset Road Troy, OH 45373	937-308-3861
Troy Christian High School	II	62,000 S.F.	368	\$6,200,000	\$6,634,000		X	700 S. Dorset Road Troy, OH 45373	937-339-5692 937-308-3861 (c)
Troy High School	II	221,011 S.F.	1,560	\$37,300,000	\$39,911,000		X	151 W. Staunton Road Troy, OH 45373	937-332-6710
Troy Junior High School	II	104,689 S.F.	775	\$19,000,000	\$20,330,000		X	556 N. Adams Street Troy, OH 45373	937-332-6720
Van Cleve Elementary	II	82,253 S.F.	370	\$13,500,000	\$14,445,000		X	617 E. Main Street Troy, OH 45373	937-332-6780

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Troy Fire Department
Updated January 2017
City of Troy**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
Troy Care & Rehabilitation Center	II	20,000 S.F.	220	\$4,000,000	\$4,280,000	X		512 Crescent Drive Troy, OH 45373	937-509-5824 (c)
West Central Juvenile Facility	II	49,272 S.F.		\$12,195,224	\$13,048,890		X	201 W. Main Street Troy, OH 45373	937-440-5651
Hobart Arena	III	43,004 S.F. 0.99 Acre	5,332	\$8,297,000	\$8,877,790	X		255 Adams Street Troy, OH 45373	937-339-2911
Miami County Fairgrounds	III	100 Acres		\$8,240,000	\$8,816,800		X	650 N. County Road 25A Troy, OH 45373	937-335-7492
Miami County Safety Building	III, V, VI, II	104,048 S.F.		\$24,174,768	\$25,867,002			201 W. Main Street Troy, OH 45373	937-418-8335
Strawberry Festival	III, VI	13.4 Acres	80,000		\$0		X	Levee by Troy Memorial Stadium, Troy, OH 45373	937-339-7714
Troy Memorial Stadium	III	8.95 Acres	10,000	\$3,890,000	\$4,162,300		X	150 W. Staunton Road Troy, OH 45373	937-332-6700
Adams Street Bridge (over river)	IV						X	Adams Street Troy, OH 45373	937-440-5656
Adams Street Bridge (over CSX RR)	IV						X	Adams Street Troy, OH 45373	937-339-2641
Broadford Bridge (over river)	IV						X	S. R. 41 (E. Main Street) Troy, OH 45373	937-492-1141
N. Market Street Bridge (over river)	IV						X	N. Market Street Troy, OH 45373	937-492-1141
CSX Railroad Bridge (over river)	IV							East of N. Market St. Bridge Troy, OH 45373	800-232-0144
Interstate 75	IV						X	City of Troy Troy, OH 45373	937-492-1141
Miami County Engineering Building	IV	4,104 S.F.	10	\$721,544	\$772,052		X	2100 N. County Road 25A Troy, OH 45373	937-440-5656
Miami County Garage	IV	49,816 S.F.		\$5,926,568	\$6,341,428		X	2100 N. County Road 25A Troy, OH 45373	937-440-5656
Miami County Storage Building	IV	14,400 S.F.		\$371,280	\$397,270		X	2100 N. County Road 25A Troy, OH 45373	937-440-5656

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Troy Fire Department
Updated January 2017
City of Troy**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
Boyer House	V	4,059 S.F.			\$0		X	109 S. Walnut Street Troy, OH 45373	937-653-1320
Cell Tower/Old Grain Elevator/Silo	V				\$0		X	229 South Mulberry Street Troy, OH 45373	937-603-3456
Community Park	V	5,979 S.F.		\$528,187	\$565,160		X	200 Adams Street Troy, OH 45373	937-335-4612
Dam (Great Miami River)	V				\$0		X	Behind Water Treatment Plant (Staunton Rd.)-Troy	937-339-2641
Duke Park	V				\$0			1670 Troy-Sidney Road Troy, OH 45373	937-335-4612
Hobart Building (County Government)	V, VI	68,582 S.F.		\$10,221,388	\$10,936,885		X	510 W. Water Street Troy, OH 45373	937-440-5656
Job & Family Services Building	V, VI	16,246 S.F.		\$5,305,418	\$5,676,797		X	2040 N. County Road 25A Troy, OH 45373	937-440-3471
Mennel Milling Company	V	13.96 Acres	12	\$10,000,000	\$10,700,000		X	2600 County Road 25A Troy, OH 45373	937-335-8334
Miami County Abuse Shelter	V	0.17 Acre	25		\$0		X	16 E. Franklin Street Troy, OH 45373	937-339-6761
Morris House	V, II	0.18 Acre			\$0		X	1 W. Franklin Street Troy, OH 45373	937-335-7921
Overfield Tavern Museum	V				\$0		X	201 E. Water Street Troy, OH 45373	937-335-4019
Waco Field Air Museum	V, VI	72.38 Acres			\$0			1865 S. County Road 25A Troy, OH 45373	937-335-9226
Eldean Bridge (over river)	VI	3,990 S.F.		\$2,207,414	\$2,361,933		X	Eldean Road Troy, OH 45373	937-440-5656
Hayner Cultural Center	VI	8,337 S.F. .71 Acre	200		\$0		X	301 W. Main Street Troy, OH 45373	937-339-0457
Hobart Arena	VI	25,000 S.F.	4,000	\$12,500,000	\$13,375,000	X		255 Adams Street Troy, OH 45373	937-339-2911 937-875-0243 (c)

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Troy Fire Department
Updated January 2017
City of Troy**

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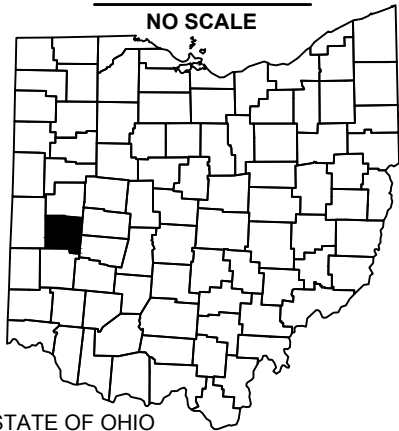
Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
Miami County Courthouse	VI, III	38,985 S.F.		\$23,092,510	\$24,708,986		X	201 West Main Street Troy, OH 45373	937-440-6050
Miami County YMCA	VI	50,000 S.F.	250	\$10,000,000	\$10,700,000		X	3060 S. County Road 25A Troy, OH 45373	937-440-9622
Troy Public Library	VI	20,930 S.F. 1.32 Acres	900	\$400,000	\$428,000		X	419 W. Main Street Troy, OH 45373	937-339-0502
Waste Water Lift Station	I							S Co Rd 25-A Troy, OH 45373	
Troy Christian Church								1440 E. SR 55 Troy, OH 45373	
Grace Baptist Church								1400 N. Market St. Troy, OH 45373	
Hobart Ridge Ave. Building								701 S. Ridge Ave. Troy, OH 45373	
Koinos Christian Fellowship								722 Grant St. Troy, OH 45373	
Troy Church of the Nazarene								1200 Barnhart Rd. Troy, OH 45373	
Mid-County Church of Christ								1580 N. Dorset Rd. Troy, OH 45373	
Trinity Episcopal Church								60 S. Dorset Rd. Troy, OH 45373	
First Lutheran Church								2899 W. Main St. Troy, OH 45373	
Saxony Woods Sewage Pump Station	I		0	\$150,000				257 Countryside Drive North Troy, OH 45373	
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

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Precinct and Polling Location

VICINITY MAP

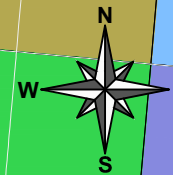
NO SCALE



MAP LEGEND

-  COVINGTON FIRE DEPARTMENT
-  PIQUA FIRE DEPARTMENT
-  FLETCHER FIRE DEPARTMENT
-  PLEASANT HILL FIRE DEPARTMENT
-  TROY FIRE DEPARTMENT
-  CASSTOWN FIRE DEPARTMENT
-  ELIZABETH TWP FIRE DEPARTMENT
-  LUDLOW FALLS FIRE DEPARTMENT
-  WEST MILTON FIRE DEPARTMENT
-  TIPP CITY FIRE DEPARTMENT
-  BETHEL TWP FIRE DEPARTMENT
-  CORPORATION LIMIT OUTLINE

TROY FIRE DISTRICT



TROY FD

TROY

CASSTOWN

Mote & Associates, Inc.

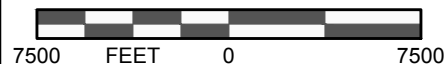
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Website: www.moteassociates.com

DRAWN BY: CMB

DATE: 4/2017

SCALE: 1" = 7500'



ASSET INVENTORY – VILLAGE OF WEST MILTON

Methodology

The methodology for the asset inventory of the Village of West Milton is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the corporate limits of the Village of West Milton.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the Village of West Milton and the hazards to which these facilities are susceptible.

The following are assets located within the Village of West Milton and the West Milton Fire Department District.

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by West Milton Fire Department
Updated January 2017
Village of West Milton**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
West Milton City Hall, Fire Department and Police Department Station	I	22,500 S.F.		\$1,500,000	\$1,605,000		X	701 S. Miami Street West Milton, OH 45383	937-698-1500
McKinley Commons	I	12,300 S.F.	33 units		\$0		X	240 S. Main Street West Milton, OH 45383	937-698-3456
Church of the Transfiguration	II		500		\$0		X	972 S. Miami Street West Milton, OH 45383	
Milton-Union High School	II	106,000 S.F.		\$17,000,000	\$18,190,000		X	221 S. Jefferson Street West Milton, OH 45383	937-884-7910
Milton-Union Middle & Elementary School	II	100,000 S.F.	1,200	\$15,000,000	\$16,050,000		X	112 East Spring Street West Milton, OH 45383	937-884-7910
Princeton Village Apartments	II	40 units	40		\$0		X	68 Bevonne Court West Milton, OH 45383	937-698-4104
Rudy's, Inc.	II		15		\$0		X	149 West Hayes West Milton, OH 45383	937-621-4094 937-698-4501
4th of July Festival	III, VI		500		\$0		X	East Tipp Pike West Milton, OH 45383	937-947-1012
Lowry Sports Complex	III, VI	129 Acres	1,500		\$0		X	7600 Milton-Potsdam West Milton, OH 45383	937-901-7370
Frederick-Garland Bridge	IV				\$0		X		
Community Grace Brethren Church	VI, II		500	\$6,000,000	\$6,420,000		X	2261 S. Miami Street West Milton, OH 45383	937-416-5831
Risk Assessment Categories	I	II	III	IV	IV	V	VI		
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs	High Profile Community Locations/Assets		

** Precinct and Polling Location

VICINITY MAP

NO SCALE

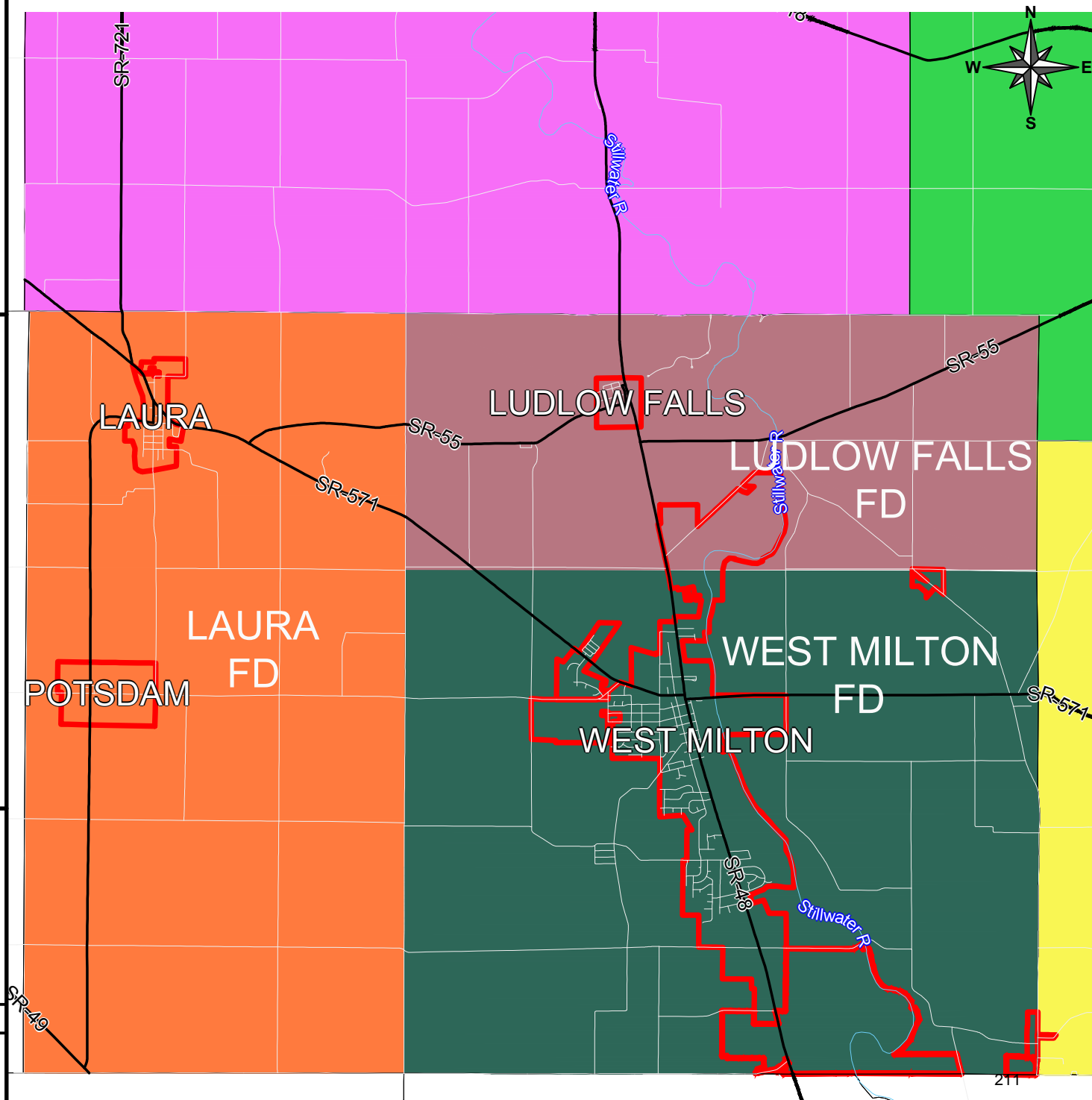


STATE OF OHIO

MAP LEGEND

- PLEASANT HILL FIRE DEPARTMENT
- TROY FIRE DEPARTMENT
- LAURA FIRE DEPARTMENT
- LUDLOW FALLS FIRE DEPARTMENT
- WEST MILTON FIRE DEPARTMENT
- TIPP CITY FIRE DEPARTMENT
- CORPORATION LIMIT OUTLINE

WEST MILTON, LUDLOW FALLS & LAURA FIRE DISTRICT



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DRAWN BY: CMB

DATE: 4/2017

SCALE: 1" = 6000'



6000 FEET 0 6000

ASSET INVENTORY – BETHEL TOWNSHIP FIRE DEPARTMENT DISTRICT

Methodology

The methodology for the asset inventory of the Bethel Township Fire Department District is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the limits of the Bethel Township Fire Department District.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout Bethel Township Fire Department District and the hazards to which these facilities are susceptible.

The following are assets located within Bethel Township Fire Department District

- There are no incorporated municipalities within Bethel Township except for a small portion of the City of Huber Heights. The City of Huber Heights is not addressed within this Plan
- Bridges – Critical Facility (Transportation Infrastructure)
- Roads – Critical Facility (Transportation Infrastructure)

**Miami County Hazard Mitigation
Risk Assessment Asset Inventory as Compiled by Bethel Township Fire Department
Updated January 2017
Bethel Township**

Name of Facility	Risk Assessment Category	Size of Facility	Population of Facility	Replacement Value (\$) 2010	Replacement Value (\$) 2017	Generator System		Address of Facility	Phone Number
						yes	no		
911 Communications Tower	I					X		8735 S. Second Street Tipp City, OH 45371	937-440-9911
Bethel Township Fire Department	I	10,000 S.F.	12	\$3,000,000	\$3,210,000	X		8735 S. Second Street Tipp City, OH 45371	937-380-3075
Bethel Local Schools	II	152,000 S.F.	1,200	\$20,000,000	\$21,400,000	X		7490 State Route 201 Tipp City, OH 45371	937-845-414 937-901-2751 (c)
First Baptist Church								8870 E SR 571 New Carlisle, OH 45344	
West Charleston Church								4817 S SR 202 Tipp City, OH 45371	
Palmer Road Water Pumping Station	I		0	\$300,000			X	8775 Palmer Road New Carlisle, OH 45344	
Wildcat Sewage Pumping Station	I		0	\$400,000		X		9095 S. Wildcat Road Tipp City, OH 45371	
Bethel School Sewage Pump Station	I		0	\$200,000			X	7568 S. St. Rt. 201 Tipp City, OH 45371	
Brandt Sewage Pump Station	I		0	\$400,000		X		7156 E. US Rt. 40 New Carlisle, OH 45344	
Brandt Water Tower	I		0	\$400,000			X	8650 First St. Tipp City, OH 45371	
Crestview MHP Sewage Pump Station	I		0	\$50,000			X	6205 US Rt. 40 Tipp City, OH 45371	
Wileys Pump Station	I		0	\$200,000		X		4070 Gibson Dr. Tipp City, OH 45371	
Risk Assessment Categories	I	II	III	IV	IV	V		VI	
	Critical Facilities	Facilities with Substantial Hazards to Human Life	High Risk Event Locations	Transportation Considerations and Infrastructure	Transportation Considerations and Infrastructure	Special Needs		High Profile Community Locations/Assets	

** Precinct and Polling Location

ASSET INVENTORY – ELIZABETH TOWNSHIP FIRE DEPARTMENT DISTRICT

Methodology

The methodology for the asset inventory of the Elizabeth Township Fire Department District is exactly the same as for Miami County. In fact, the assets that are located within the corporate limits are listed on the composite asset and hazard lists that encompass the county assets. For the purpose of clarity, the following assets are located within the limits of the Elizabeth Township Fire Department District.

Assets

Miami County's Hazard Risk Assessment identifies specific assets located throughout the municipalities within Elizabeth Township Fire Department District and the hazards to which these facilities are susceptible.







The following are assets located within Elizabeth Township Fire Department District.

- There are no incorporated municipalities within Elizabeth Township Fire Department District
- Bridges – Critical Facility (Transportation Infrastructure)
- Roads – Critical Facility (Transportation Infrastructure)



STATE OF OHIO

MAP LEGEND

- | | |
|---|-------------------------------|
|  | TROY FIRE DEPARTMENT |
|  | CASSTOWN FIRE DEPARTMENT |
|  | ELIZABETH TWP FIRE DEPARTMENT |
|  | TIPP CITY FIRE DEPARTMENT |
|  | BETHEL TWP FIRE DEPARTMENT |
|  | CORPORATION LIMIT OUTLINE |



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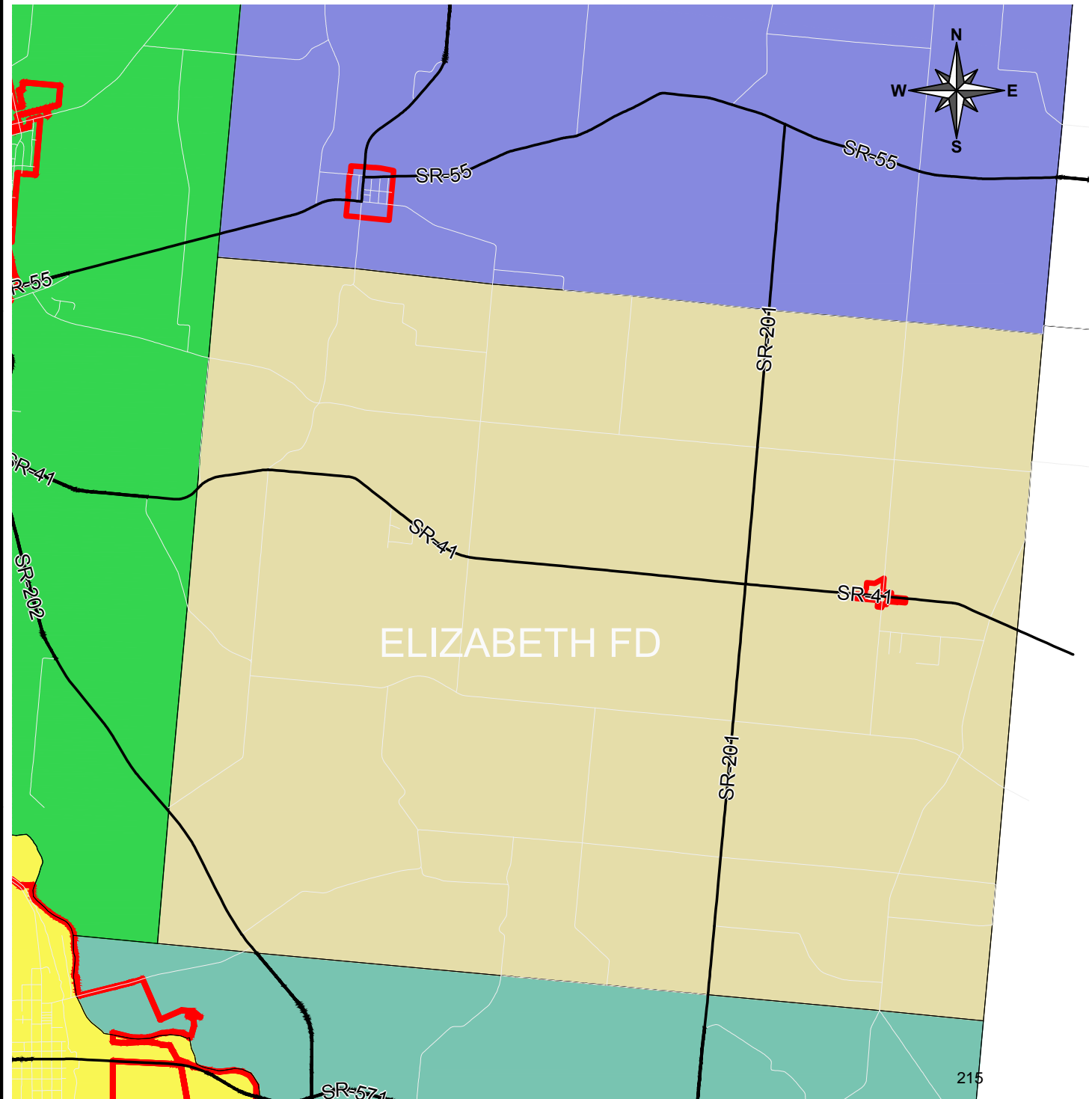
DATE: 4/2017

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ELIZABETH FIRE DISTRICT



2.20 Multi-Jurisdictional Risk Assessment

As part of the Risk Assessment process, the Miami County Hazard Mitigation Committee looked at each community and reviewed where unique and varied risks will occur. The following Multi-Jurisdictional Risk Chart indicates where the risk to Miami County residents will vary from the risks facing the entire Miami County planning area. See the attached chart – Multi-Jurisdictional Risk Chart.

The risks that vary include:

Riverine Flooding:

The Village of Bradford, Casstown, Ludlow Falls, Potsdam, Pleasant Hill, and some unincorporated areas of the County are not threatened by riverine flooding as they do not have a 100-year floodplain within the village corporation limits or there are not structures within a 100-year floodplain. See Floodplain Maps located at the end of Section 2.5 Natural Hazards - Flooding which identify and show the locations of the 100-year floodplain areas.

Railroad Transportation Accident:

Piqua, Troy, and Tipp City and Concord, Monroe, Staunton, and Springcreek Townships are the only areas that would be affected by a railroad accident. See Section 2.16 Transportation Accident which indicates the routing of the current active railroads through Miami County.

Class I Dam Failure:

Piqua has three Class I Dam structures located nearby or within the city corporation. The City of Piqua and the downstream City of Troy, City of Tipp City and the adjacent unincorporated areas along the Great Miami River are subject to flooding should there be a Class I Dam failure. The Dam Map found in Section 2.17 Dam Failure identifies and indicates the Class I Dams located in Miami County.

Increased Risk Factor Due To Construction Method Techniques

Past risk assessment data indicates mobile homes are more vulnerable to risk and damage incurred in tornado, wind, or severe summer storms.

The following Mobile Home Parks are listed in Miami County:

MOBILE HOME PARKS IN MIAMI COUNTY
2017

<u>NAME</u>	<u>ADDRESS</u>	<u>APPROXIMATE # OF UNITS</u>
Sunshine Mobile Home Park	6254 US Route 40, Tipp City, OH 45371	88
Leona Falls Court	8112 W. SR 55, Ludlow Falls, OH 45339	16
A&R Reck Mobile Home Park	4220 US Route 40, Tipp City, OH 45371	34
Pinebrook Estates	7515 W. St. Rt. 571, West Milton, OH 45383	77
Recks Court	8785 N. SR 66, Piqua, OH 45373	14
Shooks Riverside Court	1501 1727 S. Main St., Piqua, OH 45356	43
Uptown Court	7 S. Main St., Covington, OH 45318	9
Al Ballinger Mobile Home Park	4220 US Rt 40, Tipp City, OH 45371	34
Coopers Court	909 S. Miami St., West Milton, OH 45383	18
Overlook Court	501 N. Main St., Covington, OH 45318	32
Whitackers Court	1320 Garby, Piqua, OH 45356	9

Multi-Jurisdictional Risk Chart																	
Natural Hazards												Other Hazards					
Jurisdiction	Tornado/Windstorm	Severe Winter Storms/Blizzard/Ice/Sleet	Riverine Flooding	Urban/Small Stream Flooding	Earthquake	Severe Thunderstorm/Lightning/Hail	Temperature Extremes & Heatwave	Epidemic/Disease Impact	Drought	Infestation/Invasive Species	Wildfire	Terrorism	Utility/Communication Failures	Hazardous Materials Incident	Transportation Accident Railway	Transportation Accident Air/Vehicle	Class I Dam/Levy Failure
Piqua	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tipp City	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A
Troy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bradford	X	X	N/A	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
Casstown	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
Covington	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
Fletcher	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
Laura	X	X	N/A	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
Ludlow Falls	X	X	N/A	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
Potsdam	X	X	N/A	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
West Milton	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	X	N/A
Unincorporated Areas	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A

2.21 Analyzing Development Trends

This section provides a general overview of future growth and development occurring throughout Miami County and what impact natural hazards will have on it. To determine growth patterns the Miami County Hazard Mitigation Committee reviewed cumulative county and community statistics. The profiles covered a broad range of characteristics including land development per the community's comprehensive plan, the population growth and decline of each prospective community. The County population increased from 102,506 in 2010 to 104,224 in 2015 (estimated July 1, 2015) for an approximate 2% increase in population. Communities showing the largest growth included Troy and Tipp City which are along the north/south I-75 corridor. Troy is the county seat and has experienced a population growth of nearly 2.4%. Other smaller communities' lost population such as Fletcher and Laura. The projected county population for 2020 is 106,770 and for 2030 it is 107,930. In 2015, there were 44,274 housing units within the county. Since 2010 there have been 240 new housing units added which is approximately a 0.5% increase in the number of housing units.

Some moderate storm runoff problems and small stream flooding have occurred in the Kerns-Alexander Ditch, Schauer-Ziegenfelder Ditch, Clayton Ditch, as well as home areas near Troy adjacent to recent development areas. However, the City of Troy, Concord Township Trustees, and County Officials have a good understanding of the problems and are working to address these issues through mitigation planning and cooperative efforts among the involved entities. Several of the County mitigation problem areas are along the north/south 25-A corridor that runs adjacent to the Great Miami River. Issues that are being addressed include:

- Replacement storm sewer systems in Tipp City associated with street reconstruction properties.
- East Tipp City Levee closure.
- Continue to buyout older cottages and mobile homes and properties along the banks of the Great Miami River that are in the floodplain and do not have central sewage systems along County Road 25A.
- Removal of several additional buildings within the Miami County Fairgrounds that are within the 100-year floodplain.
- Modify the flood gate #25 on Morgan Ditch for improved drainage at the fairgrounds.
- Extension of water & sewer to Camp Troy Boone Hill for ±100 properties.
- Monroe Township water and sewer extensions.

The Concord Township Trustees have a clear understanding of addressing the above needs and have already completed numerous mitigation projects in this corridor. This corridor is being preserved as open space along the Great Miami River and includes park land, preserves, bike ways, and waterway separation facilities. In August 2010, the Great Miami River and Stillwater River were designated as State water trails. The County has over 2,000 areas of scenic parks and wildlife areas many which border on these

waterways. Many of the City, County and Regional Resource Agencies work together to educate, promote, and preserve the natural areas that border the Great Miami and Stillwater Rivers. This collaborative effort helps steer inappropriate development away from these natural riparian corridors. Commercial development is occurring in a well planned and structural growth primarily northwest of Troy along State Route 41 and along the main I-75 and U.S. Route 36 interchange east of Piqua and at I-75 and U.S. Route 571 interchange in Tipp City. The industrial base growth areas for the County is mainly along and adjacent to the I-75 corridor or within existing community industrial development parks. Miami County is located just north of the I-70 and I-75 interchange known as the “Crossroads of America” and is within 600 miles of 64% of the U.S. population.

Both the cities of Piqua and Troy have adopted recent plans for downtown riverfront redevelopment to rehabilitate older buildings and reserve their waterfront for river related recreational activities. The cities are pursuing community support and grant activities for development.

The Miami County Regional Planning Commission and Miami County communities encourage planned residential growth in proximity to existing residential areas where existing water and sanitary sewer is available. The Miami County Planning and Zoning Department administers county zoning for 8 of the 12 townships including: Concord, Monroe, Newberry, Springcreek, Staunton, Union, and Washington. The townships of Bethel, Brown, Elizabeth, and Lostcreek administer their own zoning. Miami County’s modern zoning resolution dates back to 1972. While there have been numerous plan changes over the years, Miami County’s zoning districts are very established and well planned. The Miami County Planning Commission is “to provide quality public service assistance to the citizens of Miami County with the goal of protecting health, safety and welfare and property rights of our citizens and to promote community development for member political subdivisions”.

Miami County is within the Miami Valley Regional Planning Program which emphasizes “sustainable growth” philosophies, better integration of land use planning, and transportation planning. The general accepted principles of sustainable growth which includes several objectives supported by the Miami County Mitigation Committee. These objectives include:

- Preserve flood plain areas and areas prone to flooding, open space, farmland, natural beauty and critical environmental areas.
- Encourage community and stakeholder collaboration.
- Make development decisions predictable, fair and cost-effective.
- Provide a variety of transportation choices including pedestrian, bicycle, transit, rail and automobiles.
- Develop “walkable” communities.
- Strengthen and direct new development towards existing communities.

Mitigation Strategy

- 3.1 Overview
- 3.2 Accomplishing Mitigation Strategies
- 3.3 2011 Plan Goals
- 3.4 2017 Plan Goals
- 3.5 Identifying Mitigation Activities
- 3.6 Re-Evaluating The County's Problems
- 3.7 Updated Action Plan

3.1 Overview

Miami County has experienced numerous natural hazard events and disasters throughout history and has had for many years a very active Hazard Mitigation Planning Committee. The County has been very proactive with mitigation progress as indicated with the following highlights:

- A portion of the Miami Conservancy District is located within Miami County which was created in 1915 as a result of the 1913 flood. This Miami Conservancy District (MCD) is one of the most comprehensive flood management authorities in the region and has extensive flood control measures in place. It is designed to contain runoff that is 40% more than the 1913 flood which is well over a 1,000-year flood level. Representatives from the MCD serve on the Miami Hazard Mitigation Committee.
- All incorporated cities and villages within Miami County except for Casstown and Ludlow Falls participated in and adopted the 2012 Miami County Multi-Jurisdictional Mitigation Plan.
- The cities of Piqua, Tipp City and Troy and the villages of Covington, Laura, Ludlow Falls, Fletcher and West Milton are all participating communities with the National Flood Insurance Protection Program (NFIP). The county has been very proactive in promoting that homeowners and businesses that are within flood prone areas to participate in the NFIP.
- The Miami County Hazard Mitigation Committee has held an annual public meeting each year since 2006* to review progress and accountability for over 75 mitigation projects that have been identified throughout the county with approximately 33 of these being completed.
- The completion of the north/south 30 miles of paved bike way corridor, which meanders along the path of the Great Miami River and the Miami and Erie Canal through the county.
- The August 26, 2010, dedication of the Great Miami, Stillwater, and Mad Rivers as official state water trails.
- A series of public planning meetings were held by the Miami County Mitigation Committee from November 2016 through April of 2017 to re-evaluate the current plan goals, objectives, actions, and to address any needs or changes necessary to update the Miami County Mitigation Plan.
- The Committee re-evaluated and ranked the natural hazards in order of priority with the top 3 being:
 - 1. Tornado/Windstorm
 - 2. Severe Winter Storm/Blizzards/Ice/Sleet
 - 3. Flooding

*With the exception of 2015.

The Miami County Hazard Mitigation strategy in this section of the plan utilizes the following terminology based on March 2013 edition of FEMA's State and Local Mitigation Planning Handbook:

- *Goals* – General guidelines that explain what is desired to be achieved. They are usually broad policy-type statements, long term, and represent global visions.
- *Objectives* – Strategies or implementation steps to attain identified goals. Unlike goals, objectives are specific and measurable.
- *Mitigation Actions* – Specific actions to achieve a plan goal and its objectives. The action items are prioritized mitigation actions which identify a lead or coordinating agency for implementation, a time line and a method to track implementation status.

Progress on 2012 Plan Update Goals, Objectives, and Action Items;

The Miami County Mitigation Committee has met each year from 2006-2016* to review the progress of each of action items listed in the plan and to raise awareness on any mitigation concerns. The meeting is an open meeting and the public is invited to attend.

*Except for 2015.

The format used to report the goals, objectives, and mitigation actions in the 2016 plan update is consistent with the plan approved in July of 2006 and updated and re-approved by FEMA in January 2012. During the annual meeting of the Miami County Hazard Mitigation Team the action item list has been updated to reflect completed action items as well as to incorporate any new action items. The list includes the name of the public entity, the hazard category type, the action item to be performed, the lead agency in charge of the project, timeline, priority level, and plan goals to be addressed. Overall, ongoing or specific mitigation action items have been successfully completed from 2011-2016 by the various county entities and agencies.

Some of the projects and action items completed include:

- The Red Cross of Northern Miami Valley continues to be proactive in the ongoing promotion of "Prepare Your School and Students Program" instructing students what to do in the event of an emergency that can help save lives at school and at home. The Red Cross also provides training assistance to prepare your workplace and employees in community disaster preparedness education activities.
- The Board of Commissioners upgraded and installed a new state of the art countywide 911 emergency call center for Miami County in 2016-2017.
- The buyout and the removal of additional residential and business structures within the 100-year flood zone located in Concord Township along 25A and the Miami River corridor.
- Completion of a hazardous materials railroad and truck survey in May 2009.

- Installation and upgrades to several community outdoor warning sirens.
- Continued programs to provide NOAA weather radios for schools, commercial, industrial, and outdoor recreation facilities.
- In process in 2017 is the completion of the County FIRM Flood Plain Mapping updates.
- Completion Tipp City Comprehensive Water Management plan.
- Flood proofing of several critical facility pump stations and controls.
- Installation of emergency generator systems for critical facilities in several communities.
- Replacement of several bridges throughout the County.
- Completion of several municipal sanitary sewer systems and storm sewer upgrades.
- Alleviating urban and small stream flooding problems in various County locations and for county ditches.
- Completion of several ongoing dam maintenance studies and projects.
- Tree management plans in several communities to address dead tree removal in street right-of-way.

For a complete reference of completed projects see the following Miami County Hazard Mitigation Action Item list following Section 3.2 – Accomplishing Mitigation Strategies.

Non-completion of several goals and action items was a result of: large ongoing workload with limited staff and volunteer resources; state, county and local budget issues; and lowering of priority or changes in action item goals, data, information or processes.

The Miami County Mitigation Committee reviewed the progress and appropriateness of the former goals and found that while most of the goals are still appropriate some of the objectives have been modified to address current trend issues and priorities. Some notable changes include:

Modifications to Goal #6

- A) The objective regarding special needs population was revised to include assessment and to accommodate.
- B) Deleted objective reference to the ODOT message sign boards as such message boards are typically only provided by Ohio Department of Transportation.
- C) Revised objective to encourage use of “multiple” types of emergency notification systems.

Modifications to Goal #7

- A) Changed goal statement to include all-natural hazards and not just earthquake, tornado and high wind events.

Modifications to Goal #8

- A) Deleted from 2017 Plan and combined Winter Storm preparation into Goal #7.

The following sections of this plan addresses the current status and progress of county mitigation action items and re-evaluates the county's mitigation goals and objectives.

3.2 Accomplishing Mitigation Strategies

The Plan Mission Statement:

It shall be the Mission of the Miami County Hazard Mitigation Committee to promote the public health, safety, and welfare by pursuing the reduction of natural hazards impacted through the following goals.

From November 2016 through April 2017, the Hazard Mitigation Committee met monthly to address new hazard mitigation problem statements and to reevaluate the past mitigation goals of the county. The goals were modified slightly to guide development and implement mitigation measures for the future. This Section reaffirms what the goals are and how they were developed. These goals are a refinement based on the hazard risk assessment update findings, research, discussions and public input received by the Committee members. They are intended to be compatible with the other planning goals of the community as expressed in these documents.

The goals and objectives represent a long-term vision for hazard reduction and enhancement of mitigation capabilities for the citizens of Miami County since its inception. The Hazard Mitigation Committee has sought to develop goals and activities that would be achievable, measurable, and effective in reducing or eliminating the hazards developed from the Hazard Mitigation Committee's problem statements.

Many local and several regional agencies have been involved in the hazard mitigation process for Miami County and they will have the authority to regulate development. Many local agencies as well as other businesses, academia and other private non-profit interests provided their assistance and their contribution has been an excellent source in helping to prepare this update to the Plan. Their existing plans, studies, reports and technical information have helped to develop a more comprehensive approach in reducing the effects of potential disasters.

Some of the main tools available include the Miami County Comprehensive Plan, FEMA Local Mitigation Planning Handbook, Miami Conservancy District web site data, various publications of the Ohio Emergency Management Agency, State of Ohio Mitigation Plan, FEMA, State and Local Mitigation Guide Documents, the Miami County Emergency Operations Plan, the Miami County Hazard Risk Assessment, Stillwater Watershed Plan, County Greenspace Plan, Miami County Bikeway and Recreational Trail Plan, CAMEO Hazardous Materials Plan, County LEPC Plan, Northern Miami County Trail System Plan, City of Tipp City Comprehensive Plan, Downtown Piqua Riverfront Re-development Project, Troy Downtown Riverfront Study, update County FIRM Flood Plain Maps, the Soil Survey of Miami County, comments received from Municipal and County officials, and from comments received from all of the 7 Public Planning Meetings and presentation held by the Miami County Hazard Mitigation Committee.

The Miami County Board of Commissioners has been very proactive in the mitigation planning efforts for the County and is planning for the future. The current Miami County Comprehensive Land Use Plan intended to protect the county's rural urban environment continued to be the county's guide for future development practices. The county, with its planning efforts ensured wise use of open space and farmland.

The County EMA in conjunction with the County Board of Commissioners are in the process of completing the updates for Miami County Emergency Operations Plan being prepared to cope with the effects of a disaster in having a well-integrated emergency management system involving all departments of local governments, private support agencies, as well as the private citizen.

The Miami County Communications Center opened in December 1989 and was recently upgraded in 2016-2017 with new state of the art dispatch stations and equipment and the center provides continuous consolidated emergency dispatch services for police, fire and EMS agencies in Miami County. It is an answering point for over 104,000 customers covering a 407-square mile geographical area. The Miami County Communication Center is the primary answering point for all 911 calls and the sole dispatch agency for all Police, Fire, and Emergency Medical Services in Miami County. There are 17 full time dispatchers, five supervisors, and a director. The dispatchers and supervisors are all certified thru APCO and Emergency Medical Dispatchers with CPR certification. The Miami County Dispatch Center is one of the most technologically advanced in the state and provides dispatchers with map based location of all incoming calls and access to state and federal data bases. The Miami County Emergency Notification System (MCENS) became fully operational on February 8, 2007. In the event of a significant emergency, weather event or other catastrophe, citizens can be alerted by telephone with information and instructions to publically published wireline numbers.

The county has fully equipped and educated police, fire and rescue personnel as well as health care workers to respond to the emergency needs of The Miami County citizens.

The county continues to be very proactive in mitigation of flooding hazards since the Great 1913 Flood. As a result of this flood, the Miami Conservancy District was created which operates and maintains a flood protection system for the Great Miami River Watershed through Miami County and adjacent counties. The system is made up of five dams and includes 60 miles of levee and 37 miles of modified river channel. One reason the Great Miami River corridor has remained relatively undeveloped is the Miami Conservancy District Flood easement and floodplain zoning as administered by the cities and county. Open space, conservation, recreation and designated nature areas exist throughout Miami County and also include the river/stream corridors of the scenic Stillwater River, scenic Greenville Creek, Spring Creek, Lost Creek, Indian Creek, Honey Creek, Brush Creek, Mill Creek as well as others. Many public open space quality recreational and scenic areas are preserved along these water corridors. Ludlow Falls, Greenville Falls, Stillwater Prairie Preserve, Goode Prairie Preserve, Blankenship Preserve, West Milton and Covington Parks, and Big Wood Preserve are some of the natural conservation and open space recreational areas.

The Miami County Bike Trail Task Force and the County Commissioners have completed their goal to connect parks, historic sites, and Miami County communities by a system of paved, well-planned and maintained bike trails. The main North/South trail runs along and parallel to the Great Miami River corridor as well as the Miami & Erie Canal. The North/South corridor connects the county's largest cities, Piqua, Troy and Tipp City. The bikeway begins at the southern Miami County border and leads north through Monroe Township entering Tipp City at

Thomas B. Kyle Park which has many recreational activities to enjoy. The trail also is along the former Miami & Erie Canal within close proximity to historic downtown Tipp City. The trail heads north from Tipp City to Troy along the Tipp City Park and the Tipp City National Preserve running along the Great Miami River corridor. The Miami and Erie Canal also runs parallel to the River corridor. The bike trail in the Troy vicinity continues to meander along the pristine Great Miami River through Troy and near the 1860 Eldean Covered Bridge which is the second longest covered bridge of its type in Ohio. From Troy, the bike path continues its course along the Miami County Fairgrounds and the Great Miami River corridor to connect to the existing bike paths in service in the City of Piqua which has one of the first nuclear power plants and museum of the Piqua historical area. Through the countless efforts of the Miami County Bike Trail Task Force, they have dedicated and preserved many areas along the Miami River corridor for open space and removed numerous structures that previously were flood prone.

The Miami County Hazard Mitigation Committee continues to meet regularly to strive to have its goals match with the capital improvements plans of its county, cities, villages and townships.

All of the Miami County cities and villages also have in place mitigation goals and opportunities. For example, all cities, villages and townships in Miami County have planning and zoning documents which limit development in established flood zones. Over the past 5 years the City of Troy, through their capital improvement plan continued to include funding for hazard mitigation activities. To that end, City Council approved and staff have begun constructing three interrelated projects to develop and redevelop the Great Miami River corridor. The development of Treasure Island Park and the renovation of the Marina Building are nearing completion, and the expansion and modernization of Hobart Arena should be completed by year end. The summer of 2016 promises wonderful new events at Treasure Island, as we strive to connect this park with our historic downtown, creating the riverfront corridor. Other priorities will include assessing the best use of the new addition to the Paul G. Duke Park and expanding recreational opportunities there and throughout the City; encouraging the future development of the former Hobart/ITW site on West Main Street; and continuing our multi-million-dollar capital infrastructure investment program. Mayor Beamish continues to promote the maintenance of a well-rounded set of basic services and amenities, all of which has made Troy the unique and proud community it is today.

- McKaig Avenue Reconstruction, that includes road reconstruction, sidewalk, curb and drive approach replacement, stormwater drainage and utility improvements.
- Elevated Water Storage Tank. New extra high service water tower to be located on the west side of Troy.
- North Market Street Bridge Redecking. The City of Troy and Ohio Department of Transportation (ODOT) are partnering to resurface the North Market Street Bridge.
- Marina Building. Located in Treasure Island, the renovation to this building has begun and include upgrades to the interior of the building.

- Treasure Island Park. The development of this park is underway. Development plans include construction of a new shelter house, gazebo, amphitheater, and the extension of the bike path. The project is expected to be completed Spring 2017.

The City of Troy also has completed a bridge connecting Treasure Island Park and the Paul G. Duke Park. The project included dredging a stretch of the West Miami River between Market Street Bridge and Treasure Island which has made it more suitable for motorboats. The City of Tipp City has implemented stormwater programs in the Great Miami Watershed that affect Tipp City management practices and the City's relationship with the Miami Conservancy District. The City of Tipp City has also appointed a citizen's capital program review Committee comprised of 21 volunteers to evaluate the long-term capital needs of the City. Their recommendations include storm sewer upgrades to reduce flooding.

The Miami County Emergency Management Agency and the Miami County Hazard Mitigation Committee is pleased that Miami County has taken a proactive role with many mitigation activities already occurring. The county has developed, as part of its Comprehensive Plan, a goal to manage surface water and ground water in a manner providing safety for the people while maintaining environmental quality and conserving both surface water and groundwater as a valuable resource. The objectives include a stormwater management program to utilize and maintain the existing drainage system, to maintain the water quality at or above State of Ohio water quality standards, to utilize and enhance the storage capacity of the natural systems while conserving values and function and also to protect the Miami County residents from flood hazards.

The open space, conservation and recreation designation along parts of the Great Miami River and its tributaries continues to restore the river systems to a healthy environment. This corridor also serves as a water supply for three communities. The Hazard Mitigation Committee continues to support and re-emphasize its goals that coincide with the Miami County Comprehensive Plan goals to maintain the county river corridors as open space and to protect the woodlands, wetlands, and compatible farming practices that contribute to a healthy river system. Open spaces are encouraged within the drainage basin of Swift Run Lake north of Piqua and around the Tipp City and Troy well fields. Recreation facilities and sites are very appropriate along this corridor and fit well with the bike path plan and recreational facilities that are already established. Some examples of the major recreational sites include Piqua Country Club, Johnston Farm, the Hollow, Forest Park, Eldean Road Covered Bridge, Mark Knoop Ball fields, Paul G. Duke Park, North Market Street Ball Fields, Archer Park, Troy Community Park and Miami Shores Golf Course next to the river. Hobart Arena recreation area and the Troy High School and associated recreational facilities are landmarks in this downtown area. Remnants of the old canal wind through this corridor and are tied into the historic downtown Tipp City area. Cliffside Gold Course, Charleston Falls, and Taylorsville Reserve are prominent large recreational facilities. The completed bikeway from Piqua south to the county line is another example of the recreation excitement of the river corridor which is in process. The purchase and removal of 3 numerous commercial and residential structures along the Great Miami River in Concord Township and the construction and dedication of Barbee Park is another mitigation success story for the County.

In addition, the scenic Stillwater River corridor is meant to encourage conservation and maintain good water quality. Both the Stillwater River and Greenville Creek are designated scenic rivers by the State of Ohio. The Villages of West Milton, Ludlow Falls and Covington are found along this scenic waterway. Limited residential development is encouraged to preserve the open space and floodplains in the southeast corner of the county. The Honey Creek corridor has flood hazard conditions overseen by the county and the Miami Conservancy District as well as the Honey Creek Watershed Association. Again, the Hazard Mitigation Committee supports to maintain its open space, protection of the floodplains, several significant woodlands, and wetlands.

The following action item table summarizes all of the Miami County Hazard Mitigation 2006-2016 projects as completed, deferred, deleted, new, unchanged or as ongoing. If the project was not completed a reference note in the far-right hand column indicates the reasoning for the uncompleted project.

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS
Annual Meeting Update - Revised January 16, 2018

Annual Meeting Update - Revised January 26, 2018																							
Note: Yellow highlighted areas indicate Completed items since 2012 Plan																							
Action Item Number (New)	Action Item Number (Old)	Completed	Deferred	Deleted	New	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornadoes	Severe Winter Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information	Reference Note
		Action Taken							Hazard Type								Plan Goals Addressed						
CW1	1						X	Countywide	X	X	X	X	Provide workshops, promotions, and distribution of natural and manmade disaster & tornado safety flyers & data through school system, public functions to increase people's awareness to their vulnerability during these events.	Miami County EMA Northern Miami Valley, Ohio Red Cross Chapter	Ongoing	High	X					X	
CW2	2						X	Countywide				X	Special Needs Assessment.	Miami County EMA Northern Miami Valley Red Cross Chapter	1-3 Years	High	X					X	
CW3	3						X	Countywide	X	X	X	X	On-going training of Emergency Service Personnel on what to do and how to respond during disaster and hazard events.	Miami County EMA	3-5 Years	Moderate			X				
CW4	4						X	Countywide		X			Recommend code updates to include tornado resistant construction techniques such as hurricane straps, tiedowns, & tornado saferooms within structures.	Miami County Building Regulations	2 - 3 Years	Moderate	X	X					
CW5	5						X	Countywide		X			Promote & expand outdoor warning siren use for all communities & for remote county park areas.	Miami County EMA Miami County Park District	3 - 5 Years	Low	X	X				X	
CW6	6	X						Countywide		X			Set up & perform public building & school building assessment program to establish designated tornado safety areas.	Miami County EMA Northern Miami Valley Red Cross Chapter	2 - 4 Years	Moderate	X		X			X	
CW7	7	X						Countywide	X				Implement plan to collect base flood plain elevations and building inventory throughout county. Updated Preliminary FEMA Flood plain maps have been completed for public comment.	Miami County EMA Miami County Planning & Zoning	1-3Years	High	X	X					

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS
Annual Meeting Update - Revised January 16, 2018

Note: Yellow highlighted areas indicate Completed items since 2012 Plan																								
Action Item Number (New)	Action Item Number (Old)	Completed	Deferred	Deleted	New	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornados	Severe Winter Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information	Reference Note	
		Action Taken							Hazard Type								Plan Goals Addressed							
CW8	8	X						Countywide	X				Preserve floodplain areas as natural areas, wetland protection, bike trails, etc. along river corridors, in & around designated flood plains.	Miami Conservancy District Miami County Commissioners Miami County Park District	Ongoing	High	X	X				X		
CW9	9						X	Countywide	X				Continue to replace bridges & roadways so they are constructed and elevated above base flood elevations.	Miami County Engineer	Ongoing	Low		X		X				
CW10	10	X						Countywide	X				Continued strong participation & maintenance in the Miami Conservancy District structures including protection of existing dams, dikes, floodwalls, levees.	Miami Conservancy District Engineer Representative	Ongoing	High	X	X		X	X			
CW11	11						X	Countywide	X	X		X	Identify critical facilities that need emergency backup generator systems.	Miami County EMA	2 - 4 Years	Moderate	X		X					
CW12	12						X	Countywide		X			Continued maintenance & operation of existing tornado warning sirens.	Public Municipalities	Ongoing	Moderate	X		X			X		
CW13	13	X						Countywide	X	X	X		Increase communication, coordination & collaboration between community leaders, property owners, local & county building regulations and zoning authorities to address risk & to provide uniformity & consistency in implementing sound mitigation practices.	City/Village Administrator Township Zoning & Planning Administrator Miami County Hazards Mitigation Planning Committee	Ongoing	High	X					X		
CW14	14						X	Countywide		X			Encourage construction of saferooms at county & community parks, large mobile home parks, campgrounds, fairgrounds.	Miami County EMA Communities Private Park Owners	Ongoing	Moderate	X			X		X		

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS
Annual Meeting Update - Revised January 16, 2018

Annual Meeting Update - Revised January 18, 2018																								
	Note: Yellow highlighted areas indicate Completed items since 2012 Plan																							
Action Item Number (New)	Action Item Number (Old)	Completed	Deferred	Deleted	New	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornados	Severe Winter Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information	Reference Note	
																								Action Taken
		CW15	15							X	Countywide	X					X			Continue promotion of NOAA Weather Radio program and text alerts for festivals, fairgrounds, campgrounds, parks, recreation areas, & medical facilities.	Miami County EMA	Ongoing		Moderate
CW16	16	X						Countywide	X				Identify and remedy surface water/county tile drainage obstructions for incorporated and unincorporated areas of Miami County.	Miami County Engineer Township Trustees Soil & Water District	2 - 4 Years	Moderate	X	X		X				
CW17	17	X						Countywide		X			Tornado saferoom for Community Parks. (Stillwater Preserve Restroom Completed).	Miami County EMA Miami County Park District	3 - 5 Years	Low	X			X				
CW18	18					X		Countywide			X		Evaluate traffic hazard warning devices/systems.	Miami County EMA	3 - 5 Years	Low	X	X	X		X			A
CW19	18A						X	Countywide	X	X	X	X	Right-of-Way hazardous and dead tree removal including all right-of-way, public lands, parks and easement areas.	EMA County Engineer	2 - 4 Years	Moderate	X	X			X	X		
CW20	18B						X	Countywide	X		X		Sanitary sewer infiltration and inflow for central sewage systems for all municipal and county systems.	City Village Administrator County Sanitary	3 - 4 Years	Moderate	X	X			X			
CW21	58						X	Countywide / Miami County Park District	X	X		X	Expand weather warning sirens in the major county parks.	Miami County EMA Miami County Park District	2 - 4 Years	Moderate	X	X					X	
CW22	58A	X						Countywide / Miami County Park District	X	X		X	Expand weather monitor program to outdoor activity sites.	Miami County EMA Miami County Park District	Completed 2012		X	X					X	
CW23	59			X				Countywide / Miami County Park District		X			Provide multi-purpose safe building at the Stillwater Prairie Reserve. New concrete masonry block restroom facility was constructed at the Stillwater Prairie Reserve which affords some safety from storms.	Miami County Park District Miami County Building Regulations Dept.	2 - 4 Years	Moderate	X	X						

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS
Annual Meeting Update - Revised January 16, 2018

Note: Yellow highlighted areas indicate Completed items since 2012 Plan																								
Action Item Number (New)	Action Item Number (Old)	Completed	Deferred	Deleted	New	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornados	Severe Winter Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information	Reference Note	
		Action Taken							Hazard Type								Plan Goals Addressed							
1PQ	19						X	City of Piqua	X				Floodproof lower level of floodprone commercial structure along Miami River (St. Rt. 25A, south of Piqua).	Miami County EMA	2 - 4 Years	Moderate	X	X		X				
2PQ	20					X		City of Piqua	X				Mitigate 3 or 4 houses in the 100 year flood plain below Swift Run at the water plant within the City of Piqua.	Miami County EMA City of Piqua	2 - 4 Years	Moderate	X	X		X		A		
3PQ	21						X	City of Piqua	X				Mitigate flooding of homes in floodprone area, City of Piqua along Lockington Road area.	Miami County EMA	2 - 4 Years	Moderate	X	X		X				
4PQ	22	X						City of Piqua				X	Complete Flood Inundation Study and Emergency Action Plan for 3 Class I Dams. (Swift Run, Echo Lake, Franz Pond Dam and Hydraulic Canal Levy)	Piqua City Engineer	Completed	High			X					
5PQ	23						X	City of Piqua	X				Continued maintenance of the Swift Run Class I Dam (#1) (Public Recreation).	Piqua City Engineer	Ongoing	Moderate	X	X		X	X			
6PQ	24						X	City of Piqua	X				Continued maintenance of the Swift Run Class I Dam (#2) (Public Recreation).	Piqua City Engineer	Ongoing	Moderate	X	X		X	X			
7PQ	25						X	City of Piqua	X				Continued maintenance of the Swift Run Class I Dam (Water Supply Dam).	Piqua City Engineer	Ongoing	Moderate	X	X		X	X			
8PQ		X						City of Piqua	X				Subsurface Exploration & Analysis for Class I Dams.	Piqua City Engineer	Completed	High	X	X						
9PQ		X						City of Piqua	X				Sourc Water Assessment & Protection Plan	Piqua City Engineer	Completed	High	X	X						
1TC	26						X	City of Tipp City		X			Provide for additional tornado sirens.	Tipp City Administrator	2 - 4 Years	Moderate	X				234	X		

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS
Annual Meeting Update - Revised January 16, 2018

Note: Yellow highlighted areas indicate Completed items since 2012 Plan																								
Action Item Number (New)	Action Item Number (Old)	Completed	Deferred	Deleted	New	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornados	Severe Winter	Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information	Reference Note
		Action Taken							Hazard Type				Plan Goals Addressed											
2TC	27	X						City of Tipp City	X					East Tipp City levee closure (sand bag closure) - North End.	Tipp City Administrator Miami Conservancy District	Completed 2012		X	X		X			
3TC	28						X	City of Tipp City	X					Mitigate 3 homes, garages, farm bldgs., a sewer pumping station, 2 well head bldgs., 2 park bldgs., & 1 athletic field on E. Main Street and 1 home, 1 athletic field & 1 parking lot on Wagon Wheel Road all of which are in 100 year flood plain.	Tipp City Manager	2 - 4 Years	Moderate		X		X			
4TC	29	X						City of Tipp City	X					Provide New Storm Sewer Systems associated with Street Projects.	Tipp City Manager	Completed 2013-2014		X	X		X		X	
5TC	66						X	City of Tipp City	X					Protect 2 N. First Street electric substation #1 from high water.	City Manager	1 -3 Years	Moderate	X	X		X			
6TC								City of Tipp City	X					Levee repairs along Miami River within City of Tipp City (Phase II)	Tipp City Manager Miami Conservancy District	1-3 Years	High				X			
1TR	30						X	City of Troy	X					Phase II: Repair and replace catch basins.	Director of Public Service & Safety	3 - 5 Years	Moderate				X			
2TR	31							City of Troy	X					Phase II: Address flooding of McKaig Ditch and Kidder Ditch systems.	Director of Public Service & Safety	Completed	Moderate		X		X			
3TR					X			City of Troy				X		Development of a long term storm water master plan to identify problem areas.	Director of Public Service & Safety	1 - 3 Years	Moderate	X	X					
4TR					X			City of Troy				X		Design of a storm water pumping station for the Hobart Arena parking lot.	Director of Public Service & Safety	1 - 2 Years	Moderate	X	X					
5TR					X			City of Troy				X		Sanitary sewer flow monitoring and skip lining to prevent ini.	Director of Public Service & Safety	1 - 5 Years	Moderate	X	X					
6TR					X			City of Troy				X		Stanfield Storm water outlet to address limited flooding south of Commerce Drive.	Director of Public Service & Safety	1 - 2 Years	Moderate	X	X					

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS
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Action Item Number (New)	Action Item Number (Old)	Completed	Deferred	Deleted	New	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornadoes	Severe Winter Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information	Reference Note	
		Action Taken							Hazard Type								Plan Goals Addressed							
1BR	32	X						Village of Bradford		X			Connect outdoor warning siren system to Darke County warning system.	Miami County EMA Village of Bradford Administrator	Completed 2013-2014							X		
1CS	33						X	Village of Casstown				X	Perform evaluations of water system.	Miami County Health Department/Village Water Superintendent	3 - 5 Years	Low	X	X		X	X	X		
2CS	33A	X						Village of Casstown		X			Install tornado warning siren.	Village Mayor	Completed 2011-2012		X		X			X		
1CO	62						X	Village of Covington	X		X		General storm water evaluation for the community.	Village Administrator	1 - 3 Years	High	X	X		X				
2CO	63						X	Village of Covington	X		X		Floodplain Assessment for Rocky Branch Creek	Village Administrator	2 - 4 Years	Moderate	X	X		X	X			
3CO	64						X	Village of Covington	X		X		Floodproofing of Village WWTP	Village Administrator To be Completed 2017	2 - 4 Years	Moderate	X	X						
4CO	65						X	Village of Covington		X			Installed tornado siren on the east end of the Village and constructed two tornado shelters at each of the two main street trailer parks.	Village Administrator	2 - 4 Years	Moderate	X		X			X		
5CO							X	Village of Covington			X		Add East Broadway Storm Sewer	Village Administrator	2 - 4 Years	Moderate	X	X						
1FL	34							Village of Fletcher	X			X	Storm sewer work.	Village Mayor	2 - 4 Years	Moderate	X				X			
1LA	35						X	Village of Laura		X			Construct community tornado saferoom for the Mobile Homes.	Miami County EMA Mobile Home Park Owner	3 - 5 Years	Low	X			X		X		
2LA	36						X	Village of Laura				X	Emergency generator power line from sewer plant to water plant.	Village Mayor	1 - 2 Years	High	X	X	X					

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		Action Taken							Hazard Type								Plan Goals Addressed						
3LA	37						X	Village of Laura	X			X	Extend storm sewers for flood prone homes on Pemberton Road.	Village Mayor	2 - 3 Years	Moderate	X	X		X			
1PH	38						X	Village of Pleasant Hill	X				Sanitary sewer infiltration protection.	Service Superintendent	3 - 5 Years	Moderate	X	X			X	X	
1WM	55			X				Village of West Milton		X			Tornado saferoom for Mobile Home Court located west of West Milton on S.R. 571.	Mobile Home Court Owner Miami County EMA	3 - 5 Years	Low	X			X			
2WM	57	X						Village of West Milton		X			Install 3 tornado warning sirens.	Service Director	Completed 2011-2012		X		X			X	
3WM	57A						X	Village of West Milton	X		X		Extension of sanitary sewer system from West Milton to Ludlow Falls.	Service Director County Sanitation	2 - 4 Years	Moderate	X	X			X		
1BE Twp	39						X	Bethel Township	X				Phase III - Honey Creek Stream Bank Repair.	Honey Creek Watershed Miami Conservancy District Miami County Park District	2 - 4 Years	Moderate	X	X		X	X		B
1BR Twp	40			X				Brown Township	X				Identify surface water & drainage tile obstructions.	Brown Township Trustees Miami County Engineer Soil & Water District	3 - 5 Years	Low	X	X		X			B
1CO Twp	41					X		Concord Township		X			Evaluate potential tornado saferoom for the Fairgrounds.	Miami County Fair Board Miami County EMA	3 - 5 Years	Moderate	X			X			A
2CO Twp	41A	X						Concord Township	X				Mitchell Property CDBG approved this year.	Concord Township Trustees	Completed 2012			X		X	X		
3CO Twp	42						X	Concord Township	X				Elevate or buy out of flood prone structures in the flood plain along the Miami River north of Troy.	Township Trustees Miami County EMA Miami Conservancy District	Ph. III - 3 - 4 Years	High	X	X		X	X		A
4CO Twp	42A	X						Concord Township	X				Removal of additional Fairground Buildings.	Miami County Fair Board Director	Completed 2011-2012			X		X			
5CO Twp	43						X	Concord Township	X				Modify flood gate #24 on Morgan Ditch for improved drainage of Fairgrounds.	Miami Conservancy District	3 - 5 Years	Low	X	X		X	X		B

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		Action Taken							Hazard Type									Plan Goals Addressed								
6CO Twp	44						X	Concord Township	X					Improve the Kerns/Alexander ditch along Fenner Road west of Barnhart Road to eliminate flooding of the land around the homes in that area.	Concord Township Trustees Miami County Engineer	1-3 Years	High	X	X							
7CO Twp	45						X	Concord Township	X					Mitigate floodprone structures north of Boone Hill, +/- 1/2 mile strip along both sides of C.R. 25A (several businesses, residences).	Concord Township Trustees Miami County EMA	2 - 4 Years	Moderate	X	X		X					
8CO Twp	46						X	Concord Township	X					Improve the Schauer and Ziegenfelder ditches along St. Rt. 718 (west & east of Washington Road) and McKaig Road to eliminate continued standing surface water issues around homes and on agriculture land & to eliminate periodic flooding of other land in the area.	Concord Township Trustees Miami County EMA	1-3 Years	High	X	X							
9CO Twp	47	X						Concord Township	X					Camp Troy/Boone Hill ±100 properties Water & Sanitary Sewer System Extension to replace wells and septic systems (under construction).	Concord Township Trustees Miami Co. Sanitary Engineering	Completed 2011-2012		X	X		X		X			
10CO Twp					X			Concord Township	X					Improve the Clayton ditch in and around Beechwood Drive in the Lakeshore subdivision to eliminate flooding of homes and land in this area.	Concord Township Trustees Miami Co. Sanitary Engineering	1-3 Years	High	X	X							
11CO Twp					X			Concord Township	X					Improve the Boone Creek ditch along Swailes Road west of St. Rt. 25A and east of Swailes Road to eliminate flooding of land around residential housing.	Concord Township Trustees Miami Co. Sanitary Engineering	3 - 5 Years	Moderate	X	X							
1EL Twp	48			X				Elizabeth Township	X					Identify surface water & drainage tile obstructions.	Elizabeth Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X			B		
1LC Twp	49			X				Lost Creek Township	X					Identify surface water & drainage tile obstructions.	Lost Creek Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X			B		

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																									Action Taken
		1MO Twp	60							X	Monroe Township									X	Water and Sewer extensions to serve township residents.	Monroe Township Water & Sewer District	3-5 Years		Moderate
2MO Twp	60A	X						Monroe Township					X	Water and Sewer extensions to serve township residents.	Monroe Township Trustees, Tipp City Manager	Completed 2013-2014			X				X		
3MO Twp	61	X						Monroe Township						Install 3 tornado warning sirens.	Monroe Township Trustees	Completed 2011		X		X				X	
1NB Twp	50					X		Newberry Township	X					Identify surface water & drainage tile obstructions.	Newton Township Trustees Miami County Engineer Soil & Water District	3 - 5 Years	Low	X	X		X				B
1NW Twp	51						X	Newton Township	X					Owens Road flooding.	Newton Township Trustees Miami County Engineer	2 - 4 Years	Moderate	X	X		X				A
1SC Twp	52			X				Spring Creek Township	X					Identify surface water & drainage tile obstructions.	Spring Creek Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X				B
2SC Twp	53					X		Spring Creek Township (or City of Piqua)		X				Tornado saferoom for the Mobile Home Court on 25A.	Mobile Home Court Owner Miami County EMA	3 - 5 Years	Low	X			X				A
1ST Twp	54						X	Staunton Township	X					Identify surface water & drainage tile obstructions.	Staunton Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X				B
1WA Twp	56			X				Washington Township	X					Identify surface water & drainage tile obstructions.	Washington Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X				B

Reference Note:

A. Not completed due to lack of staffing and funding.

B. No issues identified by township.

3.3 2011 Plan Goals

GOAL #1 Continuation (Property Protection and Natural Resource Protection)

It shall be the goal of the Miami County Hazard Mitigation Committee to promote the continued preservation of open space, floodplains, wetlands, woodlands, and recreation areas along Miami County's stream and river corridors.

Objectives

- Promote and acquire conservation easements to allow for preservation of open space, recreation areas, and recreational trails along the Miami County stream and river corridors.
- Protect Miami County residents from flooding by promoting and utilizing Hazard Mitigation Grant Program funding and alternate source funding initiatives including voluntary buyout or flood proofing of structures within the 100 year floodplains. A priority emphasis will be placed on the current list of repetitive loss structures.
- Relocate critical facilities out of the 100-year floodplain.
- Continue to compile enhanced data regarding floodplain structures and elevations within Miami County and seek funding to alleviate flood prone area problems that exist within the 100-year floodplain.
- Identify funding opportunities and obtain funds from various federal, state, and local entities to implement mitigation activities.
- Obtain public support and seek source funding for the above objectives.

Discussion

Miami County continues to make good progress in preserving green space within the 100-year flood plain areas with acquisition of additional land for that purpose and by the removal of several structures. However, according to the updated FIRM flood plain maps numerous residences and buildings still exist within the 100-year designated floodplains in various areas of Miami County.

Several of these structures are located along the Great Miami River north of Troy. Some of these structures have failing septic systems and these buildings have been damaged numerous times during past major flooding events. With the recent updating of county flood plain maps, several additional repetitive structures in Troy and within the unincorporated areas of the county, have been identified. A new objective has been added to this goal to address these repetitive loss structures. The county has approximately six critical facilities that are within the 100-year floodplain.

GOAL #2: Continuation (Property Protection and Structural Projects)

It shall be the goal of the Miami County Hazard Mitigation team to identify and reduce the impact of urban and small stream flooding and surface drainage problems throughout Miami County and its communities and continue to promote ongoing maintenance and improvement to storm drainage systems and flood control structures.

Objectives

- To protect Miami County residents from flooding.
- To support the programs for the management of surface water and groundwater in Miami County and promote sustainable land design, construction and maintenance practices.
- To develop strategic partnerships with other organizations for opportunities that will reduce flooding.
- To utilize, maintain, and improve storm sewers, county drainage systems, detention and retention basins, flood protection structures, flood walls, levees, dams, and spillway structures in good condition.
- To repair or replace weakened or deteriorating structures in order to maintain safety for the Miami County residents.
- Identify funding opportunities and obtain funds from various federal, state, and local entities to implement mitigation activities.
- Obtain public support and seek source funding for the above objectives.

Discussion

Several areas of Miami County have had past urban and small stream flooding issues and these structures are not located within a designated river line flood plain area. These drainage problems in some cases are a result of poor site selection during the initial construction of these homes or businesses. The sites lack proper drainage and generally were built during the large growth period of the 1950's – 1970's. Progress is being made with enhanced storm management practices which help to address these types of flooding issues. This goal is still valid and the objectives have been modified slightly to address changing conditions. Several of these types of mitigation activities have been addressed as indicated within the completed list of action items.

Having adequately sized drainage structures, storm sewers, detention/retention facilities, and maintaining dams, levees, and flood control structures in good condition is essential to reduce flood damage, injuries, and loss of life during major flooding events. Miami County continues to have good ongoing initiatives to maintain or replace these systems and the Miami County Hazard Mitigation Committee concurred that these goals and objectives shall remain. Several mitigation activities relative to this goal are identified and addressed within the action items.

GOAL #3: Continuation (Public Information)

It shall be the goal of the Miami County Hazard Mitigation Committee to encourage, promote and implement public awareness and education programs of manmade and natural hazards for citizens, private property owners, public agencies, businesses, industry and schools.

Objectives

- Continue curriculum for school programs and public education on reducing risk and implementing mitigation techniques.
- Continue promotional mitigation materials for disbursement to the public.

- Effectively communicate with the public through workshops to raise awareness of various mitigation programs and techniques.

Discussion

The disruptions caused by the loss of use of structures and infrastructure can leave the general population vulnerable and jeopardize the safety and well being of communities' Temporary loss of facilities cause stoppage of goods and services, lost wages, and tax revenue for all sizes of government. Large devastation can result in the interference of the social well being of a community The Miami County Hazard Mitigation Committee with the assistance of such organizations as the Northern Miami Valley of the Red Cross, Calamityville (in association with Wright State University), the Miami County Emergency Management Agency, and the Miami County Local Emergency Planning Committee continues to promote awareness and education of natural and manmade hazards that threaten them. Community representatives, public service announcements, workshops, and printed, electronic, and video materials were disseminated throughout the past 5 years that inform the public about how to stay safe and protect their homes, businesses, and families. The Miami County Hazard Mitigation Committee intends to continue this Community Disaster Education (CDE) Program.

GOAL #5: New (Preventative-Public Information)

Provide improved integration and coordination of hazard mitigation policies and programs throughout the county and with the State of Ohio mitigation policies and procedures.

Objectives

- Work with county municipalities, townships, county agencies and Ohio Emergency Management to better align mitigation policies and programs so they see how all the pieces of the mitigation puzzle fit together.
- Create a "hazard mitigation specialist" program whereby representative(s) from each community or agency can be trained and learn the importance of integrating and coordinating hazard mitigation programs and policies into local planning mechanisms.
- Educate municipalities and county agencies on hazard mitigation funding opportunities available from various federal, state, and local entities for implementation of mitigation activities.
- Obtain public support for the above objectives.

Discussion

Many communities do not fully understand the importance of hazard mitigation planning strategies and how such activities can reduce risk, save lives and make for a better community. Communities must be educated to understand that the results of being proactive and implementing pre-disaster mitigation activities can lead to results that save lives, reduce risk and lessen hazard event damages.

GOAL #6: Continuation (Public Information-Emergency Service Measures)

It shall be the goal of the Miami County Hazard Mitigation Committee to encourage and promote installation of up-to-date hazard warning and communication systems throughout the county and address proper response for the special needs population of the county.

Objectives

- Evaluate current tornado warning systems to assure effectiveness and efficiency and increase coordination and implementation between local jurisdictions.
- Work with Ohio Department of Transportation on encouraging the installation and use of electronic message boards along the I-75 corridor.
- Encourage adding tornado siren systems with battery backup for remote park system areas and for festival areas.
- Encourage continued use of NOAA weather radios for business, industry, schools, daycare center, hospitals, nursing homes, and private residences.
- Assess the “special needs population” for Miami County.
- Identify funding opportunities and obtain funds from various Federal, State, and Local entities to implement mitigation activities.
- Obtain public support and seek source funding for the above objectives.

Discussion

The Miami County Communications Center telecommuters respond to an average of over 81,000 incoming calls per year. On February 8, 2007, the Miami County Emergency Notification System (MCNS) became fully operational. In the event of a significant emergency, extreme weather event, or other catastrophe citizens can be alerted by telephone with information and instructions.

The Miami County Communications Center provides not only call handling but radio communication services to 49 agencies and data services for 28 agencies in the county. The data services are provided to public service organizations through (CAD) computer aided dispatch and records systems. The Miami County dispatch center and communications center is one of the most technologically advanced in the state and it is the intent of the Miami County Hazard Mitigation Committee to continue to promote the use of the latest technology systems for hazard warning and communication systems for the good of its citizens.

GOAL #7: Continuation (Preventative-Property Protection)

It shall be the goal of the Miami County Hazard Mitigation Committee to establish and implement measures that will reduce damage, risk, and loss of life from earthquake, tornado and high wind events.

Objectives

- To promote the construction of community tornado shelters for community parks, recreational areas, mobile home parks and other vulnerable areas.
- To promote the benefits of incorporating tornado shelters into new residential building construction.

- To encourage local building officials to include in building code updates the latest industry and technology which improves seismic and wind design and construction techniques.
- Encourage private and public removal of potentially hazardous tree failure which threatens lives, property and public infrastructure.
- Support and encourage urban forestry recommendations and practices and recommend implementation into planning documents.
- Support and encourage underground utility use.
- Identify funding opportunities and obtain funds from various Federal, State, and Local entities to implement these mitigation activities.
- Obtain public support and seek source funding for the above objectives.

Discussion

It is essential that mitigation planning be incorporated into the local land use initiatives and building code regulations. Strengthening the codes for building design to resist the forces of nature and by locating buildings out of high hazard areas will reduce physical, social, and large economic disruption that accompanies disasters. Damages and loss of lives by falling trees is substantial. Taking advantage of urban forestry programs and policies can pay huge dividends in regards to reducing wind storm losses caused by downed limbs or trees.

GOAL #8: New Goal (Preventative Public Information)

It shall be the goal of the Miami County Hazard Mitigation Committee to reduce risk, loss of lives by promoting preparedness and awareness of Severe Winter Storm events to its county residents.

Objectives

- To better prepare the citizens of Miami County for severe winter storms.
- Educate the public on the safety precautions and procedures for such an event.
- Develop programs to assist the segments of the population that are more vulnerable to the severe winter storm events.

Discussion

It is desirable that mitigation planning for severe winter storms be incorporated into the local planning initiatives. Past severe winter storms have caused some of the most significant property damages and loss of life for county residents. Better education, awareness and preparation for these events can help lessen the impact and reduce risk and loss of life. Because the county is largely rural it is prone to greater risk from such a hazard. A larger elderly population can also make the county more vulnerable for such an event. Taking advantage of better communication systems and pre-disaster planning and public awareness can help reduce risk and loss of life for such an event.

3.4 2017 Plan Goals

Mission Statement

It shall be the mission of the Miami County Hazard Mitigation Committee to promote the public health safety and welfare by pursuing the reduction of Natural Hazard impacts through the following goals and objectives

GOAL #1 Continuation (Property Protection and Natural Resource Protection)

It shall be the goal of the Miami County Hazard Mitigation Committee to promote the continued preservation of open space, floodplains, wetlands, woodlands, and recreation areas along Miami County's stream and river corridors.

Objectives

- Promote and acquire flood prone properties conservation easements to allow for preservation of open space, recreation areas, and recreational trails along the Miami County stream and river corridors.
- Protect Miami County residents from flooding by promoting and utilizing Hazard Mitigation Grant Program funding and alternate source funding initiatives including voluntary buyout or flood proofing of structures within the 100-year floodplains. A priority emphasis will be placed on the current list of repetitive loss structures.
- Relocate critical facilities out of the 100-year floodplain.
- Continue to compile enhanced data regarding floodplain structures and elevations within Miami County and seek funding to alleviate flood prone area problems that exist within the 100-year floodplain.
- Identify funding opportunities and obtain funds from various federal, state, and local entities to implement mitigation activities.
- Obtain public support and seek source funding for the above objectives.

GOAL #2: Continuation (Property Protection and Structural Projects)

It shall be the goal of the Miami County Hazard Mitigation team to identify and reduce the impact of urban and small stream flooding and surface drainage problems throughout Miami County and its communities and continue to promote ongoing maintenance and improvement to storm drainage systems and flood control structures.

Objectives

- To protect Miami County residents from flooding.
- To support the programs for the management of surface water and groundwater in Miami County and promote sustainable land design, construction and maintenance practices.
- To develop strategic partnerships with other organizations for opportunities that will reduce flooding.
- To utilize, maintain, and improve storm sewers, county drainage systems, detention and retention basins, flood protection structures, flood walls, levees, dams, and spillway structures in good condition.
- To repair or replace weakened or deteriorating structures in order to maintain safety for the Miami County residents.
- Identify funding opportunities and obtain funds from various federal, state, and local entities to implement mitigation activities.
- Obtain public support and seek source funding for the above objectives.

GOAL #3: Continuation (Public Information)

It shall be the goal of the Miami County Hazard Mitigation Committee to encourage, promote and implement public awareness and education programs for manmade and natural hazards to citizens, private property owners, public agencies, businesses, industry and schools.

Objectives

- Continue curriculum for school programs and public education for reducing risk and implementing mitigation techniques.
- Continue promotional mitigation materials for disbursement to the public.
- Effectively communicate with the public through workshops to raise awareness of various mitigation programs and techniques.
- Promote Mitigation partnerships with county wide agencies.

GOAL #5: Continuation – Also in 2011 Plan (Preventative-Public Information)

Provide improved coordination and integration of hazard mitigation policies and programs throughout the county and with the State of Ohio mitigation policies and procedures.

Objectives

- Work with municipalities, townships, county agencies and Ohio Emergency Management to better align mitigation policies and programs so they understand how all the pieces of the mitigation puzzle fit together.
- Create a “hazard mitigation specialist” program whereby representative(s) from each community or agency can be trained and learn the importance of integrating and coordinating hazard mitigation programs and policies into local planning mechanisms.
- Educate municipalities and county agencies on hazard mitigation funding opportunities available from various federal, state, and local entities for implementation of mitigation activities.
- Obtain public support for the above objectives.

GOAL #6: Continuation (Public Information-Emergency Service Measures)

It shall be the goal of the Miami County Hazard Mitigation Committee to encourage and promote implementation of up-to-date hazard warning and communication systems throughout the county and address proper response for the special needs population of the county.

Objectives

- Evaluate current tornado warning systems to assure effectiveness and efficiency and increase coordination and implementation between local jurisdictions.
- Encourage use of multiple notification systems.
- Encourage continued use of NOAA weather radios for business, industry, schools, daycare center, hospitals, nursing homes, and private residences.
- Assess and accommodate for Miami County the special needs population for Miami County.
- Identify funding opportunities to obtain funds from various Federal, State, and Local entities to implement mitigation activities.
- Obtain public support and seek source funding for the above objectives.

GOAL #7: Continuation (Preventative-Property Protection – Public Information)

It shall be the goal of the Miami County Hazard Mitigation Committee to establish and implement measures that will reduce loss of life, damage and risk from all natural hazard events.

Objectives

- To promote the construction of community tornado saferooms for community parks, recreational areas, mobile home parks and other vulnerable areas.
- To promote the benefits of incorporating tornado saferooms into new residential building construction and participating in the construction project through Ohio EMA.
- To inform residents of code updates the latest industry and technology which improves seismic and wind design and construction techniques.
- Encourage private and public removal of potentially hazardous tree failure which threatens lives, property and public infrastructure.
- Support and encourage urban forestry recommendations and practices and recommend implementation into planning documents.
- Support and promote underground utility use.
- Identify funding opportunities and obtain funds from various Federal, State, and Local entities to implement these mitigation activities.
- To educate the public on safety precautions and procedures for natural hazard events.
- To develop programs to assist segments of the population that are more vulnerable to natural hazard events.

3.5 Identifying Mitigation Activities

Since the 2006 Miami County Hazard Mitigation Plan approval the Miami County Hazard Mitigation Committee has met yearly and on an “as needed” basis to add, delete, change or reprioritize hazard mitigation activities based on Miami County’s changing needs and conditions. The Committee has made a good faith effort to foster partnerships to address hazard mitigation actions and promote a more resilient and sustainable communities throughout the county. The objective is to reduce the costs associated with disaster response and recovery. The Miami County Hazard Mitigation Committee’s annual review and re-evaluation process has permitted steady progress to occur and allows for good communication with all project stakeholders. The ongoing collaborative effort lets the stakeholders be aware of progress, new funding opportunities (which are crucial to project success) and changes necessary to accomplish the overall plan goals.

Generally, the activity items determined are a result of the following:

- From analyzing the results of the Miami County Hazard Risk Assessment.
- From problem statements developed by the Miami County Hazard Mitigation Committee.
- Public input from public meetings, contributions from County agencies and from County mitigation workshops and good participation from municipalities in the ongoing planning process.
- Continuous coordination of partnerships among all participating communities and agencies.
- Aligned with other county and local planning documents.
- The activities selected are in line with the plans overall goals as established by a consensus of the Miami County Hazard Mitigation Committee.

The research and problem statements tend to show that high winds/tornados, severe winter storms, and flooding events are of primary concern and were the most “probable” and “critical” of the hazards identified within the County. According to the NCDC past losses for these three hazards in the Miami County Hazard Risk Assessment were \$13,835,000 for windstorms/tornados; \$2,131,000 for severe winter storms; and \$3,020,000 for flooding events.

Although many of the action items considered and chosen as priority will reduce risk and losses for all of the potential County hazards identified in the Miami County Hazard Risk Assessment, the Hazard Mitigation Committee considered tornados/high wind events, flooding and winter storm hazard categories the priority hazard activities to mitigate over the next five-year plan period. In addition to the hazard risk assessment severity level, other county planning document goals and citizens input were influential in the committee’s preferences on which mitigation activities should be considered and will offer more resilient and sustainable communities and will reduce costs associated with disaster response and recovery.

The Miami County Hazard Mitigation Committee has continued to use the following criteria in ranking and selection of the general hazard mitigation activities:

- Cost effectiveness.
- Technical feasibility.
- Environmental soundness.

- Social impacts.
- Does the activity address the problem?
- Does the activity meet federal, state and local regulations?
- Is the activity politically acceptable?
- Does the activity reduce the risk?

The Hazard Mitigation Committee then determined a rating scale for each of these activity categories which were as follows:

Excellent	5
Good	4
Fair	3
Bad	2
Unacceptable	1

The general activity categories were originally developed by the Miami County Hazard Mitigation Committee and the members unanimously agreed to these general overall hazard categories. The committee members continue to form a consensus before scoring each category with a one through five ranking. Each general activity is then discussed and the committee members, in consensus, gave each criteria category a ranking. All of the criteria category scores are totaled to see which general hazard activity would be given a priority rating. The Committee concurred for the 2017 Plan Update that the original plan scoring was still valid and the preferred methodology of evaluation.

For the 2017 Planning Sessions the top priority activity categories, by score, have been determined to be as follows (see Table 1 for complete results):

- Activity 1: Provide public information and awareness programs through county agency partnerships.
- Activity 4: Communication system upgrades and rapid technology changes. (911 Center upgrade)
- Activity 5: Promote advanced technology warning system use for all communities. (Alert radios tied to outdoor warning system.)
- Activity 9: Presentation of river and stream corridor areas which are generally floodplain areas, open natural areas which are generally preserved open space, wetlands, woodlands and floodplain areas that may be used for recreation, park land, bike trails, nature and preserve areas.
- Activity 12: Support of dam and levee studies and safety maintenance programs. Continued strong participation in maintenance and replacement of county flood structures such as dams, dikes, floodwalls, levees and floodgates along Miami County's rivers, lakes and streams.
- Activity 13: Improve mitigation activity interface between all county municipalities and agencies
- Activity 15: Facilitate annual Hazard Mitigation Committee planning meetings to monitor and support all agency partnerships towards completing mitigation goals, objectives and action items.

The mid-ranking activities were then assigned a medium priority ranking. The medium priority categories, by score, were determined to be as follows:

- Activity 3: Support building code updates to include the latest in technology and upgraded construction techniques.
- Activity 6: Continued hazard assessment program of public buildings and school buildings for emergency shelter needs as well as occupant safety needs.
- Activity 7: Compile additional building and floodplain elevation data. Tornado safe rooms (due to readiness of available funding)
- Activity 8: Mitigate structures from flood zones and implement dry and wet flood proofing techniques.
- Activity 10: Continued enhancements and updates to storm water management ordinances and regulations and continue studies and improvement activities to the countywide drainage maintenance program, storm drainage improvements and storm sewer maintenance. Create an outreach strategy and coordinate planning efforts between all county agencies.
- Activity 14: Tornado saferoom support since state funding programs for public and residential saferooms are currently available.

The low priority categories, by score, were determined to be as follows:

- Activity 2: On-going training of emergency service personnel on what to do and how to respond during tornado disaster events. (The committee felt this activity was better addressed by the first responder groups)
- Tornado safe rooms (due to readiness of available funding)
- Activity 11: Continue to replace bridges and roadways so they are constructed and elevated above base flood elevations. (lesser degree of anticipated damages and better supported by the County Engineer and Highway Department)

The activities list includes individual activities and projects recommended by the county, cities, villages, townships or other agencies or groups. At least one project activity was established for each community. The Hazard Mitigation Committee included for each action item:

- Identified the name of the community.
- Identified type of hazard.
- Provided a description of the action item.
- Established a coordinating organization or service agency.

Each Action Item includes a priority level of high, medium or low.

Plan goals that are to be addressed use the following six categories of hazard mitigation activities:

1. **Preventative:** Activities that keep problems from getting worse. The use and development of hazard areas are limited through planning or regulations. These activities are usually administered by building, zoning, planning, and/or code enforcement officials.

2. **Property Protection:** This is usually undertaken by property owners on a building-by-building or parcel basis.
3. **Emergency Service Measures:** Measures are taken during disaster events to minimize their impact. These measures are usually the responsibilities of city or county emergency management staff.
4. **Structural Projects:** These projects keep hazards away from an area. They include dams, dikes and levees and are usually long-term actions that have very high up-front costs and on-going maintenance costs.
5. **Natural Resource Protection:** This preserves or restores natural areas or the natural function of hazard areas. A floodplain or wetland area maintained in its natural state is an example of this.
6. **Public Information:** Programs that advise property owners, potential property owners, and visitors to hazard areas, as well as protect people and property from them. Public information can also increase people's awareness to their vulnerability and property risk.

TABLE 1
Miami County Hazard Mitigation Planning
General Mitigation Activities Evaluation Criteria

		Criteria									
Proposed Types of Activities		Cost Effective	Technically Feasible	Environmentally Sound	Social Impacts	Activity Addresses The Problem	Meets Federal, State & Local Regulations	Politically Acceptable	Activity Reduces the Risk	Total	Priority Range
Activity 1	Public Information ~ Distribution of tornado safety flyers and data through school system, public functions. Joint effort by Miami County EMA and Northern Miami Valley Red Cross Chapter to increase people's awareness to their vulnerability and property.	5	5	4	4	3	4	4	3	32	High
Activity 2	On-going training of Emergency Service Personnel on what to do and how to respond during tornado disaster events.	3	4	4	5	3	4	4	2	29	Low
Activity 3	Support code changes to include latest construction technology.	3	4	4	3	5	4	3	5	31	Mid
Activity 4	Communication system upgrades and rapid technology changes.	4	3	5	5	5	4	4	5	35	High
Activity 5	Promote advanced technology warning system use for all communities. (Alert radios tied to outdoor warning system.)	3	4	4	4	3	4	4	4	30	High
Activity 6	Set up and perform public building and school building emergency shelter assessment program.	3	3	5	5	3	4	5	4	32	Mid
Activity 7	Compile additional floodplain building and elevation data.	3	2	4	4	4	4	3	2	26	Mid
Activity 8	Remove structures from flood zones, implement dry and wet floodproofing techniques.	3	3	4	3	4	4	3	5	29	Mid
Activity 9	Preserve floodplain areas as natural areas, wetland protection, recreational trails, etc. along river corridors.	4	4	4	3	4	5	3	5	32	High
Activity 10	Continued implementation of stormwater management, ordinances and regulations. Continue countywide drainage maintenance program, storm drainage improvements, and storm sewer maintenance.	3	4	3	3	4	4	3	4	28	Mid
Activity 11	Continue to replace bridges and roadways so they are constructed and elevated above base flood elevations.	3	3	3	3	4	4	4	3	27	Low
Activity 12	Promote dam and levee safety maintenance programs.	5	4	3	4	5	5	4	5	35	High
Activity 13	Create an outreach strategy to coordinate planning efforts.	5	4	5	4	4	4	4	4	34	High
Activity 14	Promote tornado safe rooms	3	3	4	4	4	4	4	4	30	High
Activity 15	Facilitate annual hazard mitigation planning meeting and activity interface	5	5	4	4	4	4	4	4	34	High

Rating Scale:
 Excellent = 5
 Good = 4
 Fair = 3
 Bad = 2
 Unacceptable = 1

3.6 Re-Evaluating the County's Problems

During the October 2016 – March 2017 monthly planning sessions, the Miami County Hazard Mitigation Committee reviewed the updated Hazard Risk Assessment information provided by the local fire departments and County Auditor's office. The committee re-evaluated the vulnerability analysis and estimate of losses, redefined problem statements, re-examined goals, identified additional mitigation activities, and update action plans necessary for the multi-jurisdictional plan of Miami County. In addition, the Miami County Hazard Mitigation Committee also held open public meetings and invited all of the municipal officials to update the status of current mitigation activities and identify any new or changing mitigation issues experienced in their communities. The annual mitigation activity update process has been ongoing with the Miami County participating communities and agencies since the approval of the initial 2006 plan. By identifying and confronting problems and utilizing a continuous mitigation process the residents have been better informed and have become more educated to understand the threat of future hazards and how they may impact the county.

The Hazard Mitigation Committee re-evaluated ongoing activities and discussed new issues that have come about over the five years since those identified in the last FEMA Approved and Hazard Risk Assessment Update. The Hazard Mitigation Committee reviewed and discussed the many types of hazards that can and will affect Miami County. The largest most recent challenge was the flash flooding that occurred on May 21, 2014 over much of the county and affected the Tipp City, Troy, Covington, Piqua, Bethel Township and New Carlisle. Interstate 75 was closed at State Route 55 to State Route 571. Many of the older residential areas in Tipp City were flooded as was many basements throughout the area. The Committee discussed the Repetitive Flooding issues in Concord Township along the Keans/Alexander Ditch, Schauer/Zigenfelder Ditch along State Route 718 and the Clayton Ditch in and around Beechwood Drive in the Lakeshore Subdivision. The City of Piqua completed studies of the counties Class I Dams and is an example of 3 Complete Action Items that were addressed over the past five years. This will give direction to the ongoing maintenance of these structures and safety for the county residents. Such as the August 1995 flooding in Piqua and the flooding of the Troy Fairgrounds area, progress has been made with several Fairground structures have been removed and new ones constructed that are elevated above the 100-year flood elevations. The City of Piqua was able to address some of the flooding problems by installing larger relief storm sewer systems, some of which were already designed. This is an example of continuous mitigation planning and actions already at work within Miami County communities. Some of the storm sewer projects that various Miami County communities have undertaken have lessened the losses of localized storms. While they will not prevent future major flooding, the new sewer systems will lessen the effects. The Cities of Piqua, Troy, and Tipp City, and the Villages of Covington, Fletcher, Laura, Ludlow Falls, and West Milton are all listed as participating communities within the Federal Emergency Management Agency National Flood Insurance Protection Program (NFIP). The county has been very proactive in recommending homeowners that are in flood prone areas to participate in the NFIP program.

In addition to flooding, the other most likely hazard to significantly affect the county is tornadoes and high wind events. The damaging events of Tropical Storm Ike in 2008 indicated how vulnerable the County can be to a prolonged high wind event. In some cases, power was out for five days causing considerable downtime and loss of revenue for many businesses. The benefits of incorporating mitigation strategies over time can help reduce the impact of future

events such as tropical storm winds. For example, the benefits of an urban tree program can help lessen the impact by having fewer falling limbs and trees fall down on power and utility lines. Having emergency shelters with backup emergency power can be of great assistance to those that must have power for medical equipment needs. During high wind events, the costs for shingle repairs and debris removal can be extensive. Heavier grade, higher wind resistant shingles can reduce the need for future roof repairs. Incorporating increased wind load requirements in to building codes will most likely lessen the damage and impact from future high wind events.

The Miami County Board of Commissioners adopted an updated Emergency Operations Plan on November 24, 2015, so that the County and local government would have a plan to adequately confront the aftermath of natural and manmade disasters. The Miami County Emergency Operations Plan provides a comprehensive framework for countywide emergency management. While the countywide Hazard Mitigation Committee believes the County is well prepared to respond to these manmade and natural disasters, it is this committee's challenge to further identify problems in order to mitigate them. These mitigation activities will also help lessen the burdens experienced by the public officials, emergency operations staff and emergency personnel. The National Center for Medical Readiness at Wright State University in Fairborn, Ohio, is operating the Calamityville Tactical Laboratory Project, a state-of-the-art, innovative, integrated, collaborative training and research facility to provide a one-of-a-kind training opportunity for the world's medical, public health, public safety, and civilian and military disaster response decision. Miami Counties Emergency responders continue to partner nearby. This nearby state-of-the art readiness training facility continues to allow nearby emergency operations personnel and emergency management personnel to improve their skills and to be better prepared to respond to both natural and manmade hazards.

The Miami County Hazard Mitigation Committee decided to continue to utilize the current plan goals with just a few minor modifications to coincide with other goals of the Miami County community. The Committee focused on the main tools available which included the Miami County Emergency Operations Plan, Miami County Zoning, Subdivision and Area Planning Regulations, Miami County Comprehensive Plans, City Comprehensive Plans, Local Township and Village Zoning Regulations, Miami County Economic Planning and area accepted stormwater practices, and the Miami County Park District's open space goals and objectives. Also considered was the agricultural influence in the county and available watershed studies, floodplain studies, and the Miami Conservancy District goals and objectives.

The Miami County Emergency Management Agency is pleased that the Miami County community and its leaders have taken a proactive role with the completion of a good number of the 2006 priority mitigation activities outlines in the plan, along with the modifications to the plan that occurred through a yearly meeting to review progress and make necessary plan adjustments.

Some areas flash flooding and urban and small stream flooding still exist due to the 1960's and 1970's rapid development, and limited inspections for homes built during that time period. As a result of these problems, several countywide flash flooding areas and issues have been identified and are listed as mitigation activity items.

Many of the tools, such as the Miami County zoning and land use ordinances, are in place to prevent similar poor development practices. Over time with good mitigation practices and corrective measures the impact of future hazard events such as flooding should be eventually reduced.

3.7 Updated Action Plan

The Miami County Hazard Mitigation Committee outlined and ranked possible hazard mitigation activities in the preceding Section 3.05 “Identifying Mitigation Activities.” Those activities ranked as a high priority activity were then analyzed and put into an Action Plan format. Some of the activities were chosen by the Hazard Mitigation Committee to fulfill countywide projects and some were selected for each jurisdiction such as a city, village or township entity within Miami County. Some of the projects were unable to be completed in the previous 5-year plan due to funding issues and therefore are still considered high priority projects within this plan update. The Action Plan indicates those program’s policies or resources that can be used to implement the project. It also indicates which primary goal has been met, the implementation timeline, possible funding sources, and the agency or personnel responsible for carry-out actions.

Reference Activity #CW1

Goal #3:	It shall be the goal of the Miami County Hazard Mitigation Committee to encourage, promote and implement public awareness and education programs of manmade and natural hazards for citizens, private property owners, public agencies, businesses, industry and schools.
Activity:	Promote public awareness of manmade and natural hazards at public events and hold workshops to educate the public. Distribute appropriate mitigation publications.
Reason Chosen:	The Mitigation Committee, from group meetings, questionnaires and public workshops, sees the need for increased public awareness, education and integration of hazard mitigation for the communities and its citizens of Miami County. It is imperative to get a system implemented throughout the county whereby hazard mitigation is incorporated into all county planning mechanisms.
Hazard Type:	All Hazards
Hazard Category:	Public Information
Lead:	North Miami Valley Red Cross Chapter Miami County Emergency Management Agency
Start Date:	Ongoing
End Date:	Ongoing
Task 1:	Determine and obtain available FEMA publications and other promotional publications.
Task 2:	Determine type and location of events to attend.

- Task 3:** Establish volunteer base.
- Task 4:** Secure possible funding sources (Red Cross Funding, County General Fund, and Community Funds).
- Task 5:** Organize program.
- Task 6:** Implement program and events.

Reference Activity #CW2

- Goal #6:** It shall be the goal of the Miami County Hazard Mitigation Committee to encourage and promote installation of up-to-date hazard warning and communication systems throughout the county and address proper response for the special needs population of the county.
- Activity:** Complete special needs assessment of the county.
- Reason Chosen:** The Miami County Hazard Risk Assessment identifies the importance of evaluating the special needs population of Miami County. Many individuals have limited mobility, need continuous power to operate medical equipment or may have a language barrier during a hazard event. These individuals must be identified so their priority needs can be met.
- Hazard Type:** All Hazards
- Hazard Category:** Preventative and Emergency Service Measures
- Lead:** Northern Miami Valley Red Cross Chapter
Miami County EMA
- Start Date:** January 2018
- End Date:** January 2021
- Task 1:** Establish special needs reporting criteria and system.
- Task 2:** Gather data.
- Task 3:** Summarize data into a reporting document.
- Task 4:** Release document to first responder agencies.

Reference Activity #CW7

Goal #1:	It shall be the goal of the Miami County Hazard Mitigation Committee to promote the continued preservation of open space, flood plains, recreation areas, wetlands, woodlands and recreation areas along Miami County's stream and river corridors.
Activity:	Update and complete an inventory of buildings and building data within the 100-year flood plain boundaries of Miami County. Coordinate with recently completed GIS flood plain maps.
Reason Chosen:	The Miami County Hazard Risk Assessment identifies the Great Miami River corridor as a source of flooding. Development within this area per the Miami County Comprehensive Plan should be limited to natural open spaces. Numerous structures have been identified to exist within these flood plain boundaries. Having an inventory of these structures, building data, and determined elevations will help to better prioritize the mitigation process for these structures.
Hazard Type:	Flooding
Hazard Category:	Natural Resource Protection, Property Protection, Structural
Lead:	Miami County Board of Commissioners Miami County Area Planning Department
Start Date:	January 2018
End Date:	January 2021
Task 1:	Identify master list of residential, commercial, industrial and agricultural structures in coordination with the FEMA 100-year flood plain maps currently being updated. Anticipated adoption of updates late 2017 or early 2018.
Task 2:	Gather data on structures such as construction date, construction type, foundation type, structure type, lowest floor elevation, repetitive loss status.
Task 3:	Prioritize structures based on repetitive losses and elevations.
Task 4:	Update risk assessment.

Reference Activity #CW8

Goal #1: It shall be the goal of the Miami County Hazard Mitigation Committee to promote the continued preservation of open space, flood plains, recreation areas, wetlands, woodlands and recreation areas along Miami County's stream and river corridors.

Activity: Preserve floodplain areas along river corridors as natural open space areas. Provide for wetlands and woodlands protection.

Reason Chosen: The Miami County Hazard Risk Assessment identifies the Great Miami River corridor as a source of flooding. Development along this area per the Miami County Comprehensive Plan should be limited to natural open spaces. The Comprehensive Plan further states, "The bike path from Piqua south to the county line is another example of the recreation potential of the River corridor which should be further explored." Another reason this area remains relatively undeveloped is due to Miami Conservancy Flood Easement and 100-year floodplain.

"Fingers of open space/conservation/recreation are designated in parts of the corridor away from the Great Miami River. These are designated to encourage conservation of existing woodlands and drainage capacity of the waterways passing through future urban areas and feeding into the river. A coordinated system of open space and greenways should be built along the waterways as these areas develop. Thus, the four objectives of providing recreation corridors for walking and biking, connecting parks, maintaining water quality, and stormwater management could all be met with one system." (Reference Miami County Comprehensive Plan, Page 21).

Hazard Type: Flooding

Hazard Category: Natural Resource Protection

Lead: Miami County Board of Commissioners
Concord Township Trustees

Start Date: January 2018

End Date: Ongoing

Task 1: Identify possible flood prone structures to be mitigated along this corridor.

Task 2: Establish damaged and frequency relationship for floods.

- Task 3:** Perform a benefit/cost analysis.
- Task 4:** Identify interest in buyouts. Identify and consider voluntary buyouts through the Hazard Mitigation Grant Program.
- Task 5:** Secure possible funding sources (Clean Ohio Funds—local funds; Hazard Mitigation Grant Program—HMGP; local county funds; Ohio Department of Natural Resources funds—ODNR).
- Task 6:** Identify and secure open space Conservation District easements.
- Task 7:** Make offer on applicable structures.
- Task 8:** Bidding and demolition of structures

Reference Activity #CW10

- Goal #2:** It shall be the goal of the Miami County Hazard Mitigation Committee to promote the continued maintenance and improvement of the county flood protection structures such as floodwalls, levees, floodgates, dam and spillway structures, retention/detention basins, storm sewer and county drainage systems.
- Activity:** Ongoing levee system maintenance.
- Reason Chosen:** The levee systems through Miami Counties Cities of Piqua, Troy and Tipp City require continuous maintenance to retain in good condition. Tree removal, groundhog hole filling, ditch obstruction removal procedures and erosion control measures are necessary.
- Hazard Category:** Preventative-Property Protection
- Lead:** Miami Conservancy District
- Start Date:** Ongoing
- End Date:** Ongoing
- Task 1:** Identify Maintenance Issues.
- Task 2:** Secure funding sources for ongoing maintenance projects.
- Task 3:** Make repairs.

Reference Activity #CW13

Goal #5:	Provide improved integration and coordination of hazard mitigation policies and programs throughout the County and with the State of Ohio mitigation policies and procedures.
Activity:	Increase communication, coordination, and collaboration between community leaders, property owners, local and county building regulations, floodplain managers and zoning authorities to address risk and to provide uniformity and consistency in implementing sound mitigation practices.
Reason Chosen:	Because of the challenges with the many levels of government and the numerous types of regulations and codes, it is difficult for communities to understand how all of the mitigation planning requirements and activities fit together. Integration of planning documents and code consistency is one significant way hazard mitigation policies and problems can be interfaced.
Hazard Type:	All
Hazard Category:	Public Information
Lead:	Miami County Board of Commissioners Miami County EMA
Start Date:	January 2018
End Date:	Ongoing
Task 1:	Miami County EMA shall develop program to encourage inter-agency participation.
Task 2:	Provide training for local communities and start a “Volunteer Mitigation Specialist” program.
Task 3:	Coordinate training events and obtain the help of Ohio EMA specialists.
Task 4:	Create three-year activity plan and schedule of events.
Task 5:	Implement Action Plan.

Reference Activity #6TC

Goal:	It shall be the goal of the Miami County Hazard Mitigation Committee to promote the continued maintenance and improvement of the county flood protection structures such as floodwalls, levees, floodgates, dam and spillway structures, retention/detention basins, storm sewer and county drainage systems.
Activity:	Levee repairs along Miami River within City of Tipp City. (Phase 2)
Reason Chosen:	In accordance with the Miami County Hazard Risk Assessment profile of riverine flooding, this area has received past flooding and is very likely to be repeated in the future in these areas. The surrounding area is located within the 100-year floodplain. This levee area needs repair as it protects considerable amounts of the eastern portion of the Tipp City area including historic downtown Tipp City and is also identified in the Miami Conservancy District Maintenance Plan.
Hazard Type:	Flooding
Hazard Category:	Structural Project
Lead:	Miami Conservancy District Village Administrator, City of Tipp City
Start Date:	June 2018
End Date:	June 2021
Task 1:	Establish damage and frequency relationship for floods.
Task 2:	Perform cost/benefit analysis.
Task 3:	Provide project description.
Task 4:	Secure possible funding sources such as Miami Conservancy District funds, City of Tipp City local funds, and Hazard Mitigation Grant Program funds.
Task 5:	Provide plans and specifications.
Task 6:	Perform construction work.

Reference Activity #1CO

- Goal #2:** It shall be the goal of the Miami County Mitigation team to identify and reduce the impact of urban and small stream flooding and surface drainage problems throughout Miami County and its communities and continue to promote ongoing maintenance and improvement to storm drainage systems and flood control structures.
- Activity:** General storm water evaluation for the Covington community.
- Reason Chosen:** In accordance with the Miami County Hazard Risk Assessment profile of flash flooding, this area has received past flooding and is very likely to be repeated in the future in these areas. The surrounding area is located within the 100-year floodplain. This levee area needs repair as it protects considerable amounts of the eastern portion of the Tipp City area including historic downtown Tipp City and is also identified in the Miami Conservancy District Maintenance Plan.
- Hazard Type:** Flooding
- Hazard Category:** Preventative
- Lead:** Village Administrator, Village of Covington
- Start Date:** January 2018
- End Date:** June 2021
- Task 1:** Perform damage analysis and frequency relationship for floods.
- Task 2:** Develop and provide project(s) description.
- Task 3:** Perform cost/benefit analysis.
- Task 4:** Secure possible funding sources such as Clean Ohio funds, Village of Covington local funds, and Hazard Mitigation Grant Program funds.
- Task 5:** Develop plans and specifications.
- Task 6:** Bid and perform construction work.

Reference Activity #2LA:

- Goal #7:** It shall be the goal of the Miami County Hazard Mitigation Team to improve critical facilities so they are located out of the 100-year floodplain, are constructed using tornado resistant construction techniques, have emergency backup power, are secure and afford adequate security for the purposes they serve.
- Activity:** Provide power line for emergency backup power generator for the Village of Laura from the wastewater treatment facilities to the water treatment facilities
- Reason Chosen:** The Miami County Hazard Risk Assessment lists Water and Wastewater Treatment Plants as critical facilities. The water and wastewater system is needed to operate at all times to maintain sanitary operations and water supply for the safety of public health. Public water supply is also essential for fire protection systems. An emergency backup power unit is necessary for these facilities during periods of power outages that may occur due to many various hazards.
- Hazard Category:** Property Protection
- Lead:** Mayor, Village of Laura
- Start Date:** June 2018
- End Date:** June 2021
- Task 1:** Perform a cost/benefit analysis.
- Task 2:** Secure possible funding sources (i.e. Village funds, FEMA funds).
- Task 3:** Develop plans and specifications.
- Task 4:** Seek bids and provide for installation.

Reference Activity #3CO Twp:

- Goal #1:** It shall be the goal of the Miami County Hazard Mitigation Committee to promote the continued preservation of open space, flood plains, recreation areas, wetlands, woodlands and recreation areas along Miami County's stream and river corridors.
- Activity:** Buy out of additional flood prone residences, businesses and structures in Concord Township, north of Troy along scenic Great Miami River.

Reason Chosen: Per the Miami County Hazard Risk Assessment and per historic data available, this area has received flooding in the past. Several homes and structures are located within the 100-year flood plain. Also, the river corridor is part of the County Master Plan to remain as open space/recreation area. Within this corridor are several homes and a business that have already been purchased and removed. The Buyout of additional homes and properties within the area are recommended but would be voluntary through the Hazard Mitigation Grant Program or Clean Ohio Funds.

Hazard Type: Flooding

Hazard Category: Property Protection, Natural Resource Protection

Lead: Concord Township Trustees
Miami County EMA

Start Date: June 2017

End Date: June 2020

Task 1: Identify the structures subject to flood damage and initiate voluntary buy-out process with land owners.

Task 2: Establish damage and frequency relationship for floods.

Task 3: Perform a cost/benefit analysis for each structure.

Task 4: Identify the interest in buy-outs.

Task 5: Secure possible funding sources (Hazard Mitigation Grant Program funds, Clean Ohio funds, and local County and township funds).

Task 6: Negotiate and secure open space conservation easements for the properties with interested property owners.

Task 7: Close on the structures.

Task 8: Demolish the structures.

Task 9: Clean up and maintain the property.

Reference Activity #6CO Twp:

- Goal #2:** It shall be the goal of the Miami County Hazard Mitigation team to identify and reduce the impact of urban and small stream flooding and surface drainage problems throughout Miami County and its communities and continue to promote ongoing maintenance and improvement to storm drainage systems and flood control structures.
- Activity:** Improve the Kerns/Alexander ditch along Fenner Road west of Barnhart Road to eliminate flooding of the land around the homes in that area.
- Reason Chosen:** Per the Miami County Hazard Risk Assessment and per historic data available, this area has received flooding in the past. Several homes and structures have been subject to repetitive flooding.
- Hazard Type:** Flooding
- Hazard Category:** Property Protection, Natural Resource Protection
- Lead:** Concord Township Trustees
Miami County EMA
- Start Date:** June 2017
End Date: June 2020
- Task 1:** Perform Flood Drainage Study.
- Task 2:** Determine what options are available to alleviate flooding.
- Task 3:** Perform a cost/benefit analysis.
- Task 4:** Secure possible funding sources (Hazard Mitigation Grant Program funds, local County and township funds, Clean Ohio funds).
- Task 5:** Establish project scope.
- Task 6:** Prepare plans and bid documents.
- Task 7:** Construction of flood control project.

Reference Activity #8CO Twp:

- Goal #2:** It shall be the goal of the Miami County Hazard Mitigation team to identify and reduce the impact of urban and small stream flooding and surface drainage problems throughout Miami County and its communities

and continue to promote ongoing maintenance and improvement to storm drainage systems and flood control structures.

Activity: Improve the Schaurer and Ziegenfelder ditches along State Route 718 (west and east of Washington Road) and McKaig Road to eliminate continued standing surface water issues around homes and on agriculture land and to eliminate periodic flooding of other land in the area.

Reason Chosen: Per the Miami County Hazard Risk Assessment and per historic data available, this area has received flooding in the past. Several homes and structures are located near the 100-year flood plain.

Hazard Type: Flooding

Hazard Category: Property Protection, Natural Resource Protection

Lead: Concord Township Trustees
Miami County EMA

Start Date: June 2017

End Date: June 2020

Task 1: Perform Flood Drainage Study.

Task 2: Determine what options are available to alleviate flooding.

Task 3: Perform a cost/benefit analysis.

Task 4: Secure possible funding sources (Hazard Mitigation Grant Program funds, local County and township funds, Clean Ohio funds).

Task 5: Establish project scope.

Task 6: Prepare plans and bid documents.

Task 7: Construction of flood control project.

Reference Activity #10CO Twp:

Goal #2: It shall be the goal of the Miami County Hazard Mitigation team to identify and reduce the impact of urban and small stream flooding and surface drainage problems throughout Miami County and its communities and continue to promote ongoing maintenance and improvement to storm drainage systems and flood control structures.

Activity:	Improve the Clayton ditch in and around Beechwood Drive in the Lakeshore subdivision to eliminate flooding of homes and land in this area.
Reason Chosen:	Per the Miami County Hazard Risk Assessment and per historic data available, this area has received flooding in the past. Several homes and structures are located near the 100-year flood plain.
Hazard Type:	Flooding
Hazard Category:	Property Protection, Natural Resource Protection
Lead:	Concord Township Trustees Miami County EMA
Start Date:	June 2017
End Date:	June 2020
Task 1:	Perform Flood Drainage Study.
Task 2:	Determine what options are available to alleviate flooding.
Task 3:	Perform a cost/benefit analysis.
Task 4:	Secure possible funding sources (Hazard Mitigation Grant Program funds, local County and township funds, Clean Ohio funds).
Task 5:	Establish project scope.
Task 6:	Prepare plans and bid documents.
Task 7:	Construction of flood control project.

Plan Maintenance Process

- 4.1 Overview
- 4.2 Monitoring, Evaluating & Updating the Plan
- 4.3 Incorporating into Existing Planning Mechanism
- 4.4 Funding Resources

4.1 Overview

Since the last Plan Update for the Miami County Mitigation Plan was approved, the County has followed the plan maintenance process with much success. Over twenty-three mitigation actions have been successfully completed. Under the leadership of Chairman Paul Huelskamp, the Committee held an annual mitigation meeting to report on the successfully completed mitigation activities that occurred throughout the preceding year with the exception of year 2015. In addition, occasional special meetings of the Miami County Hazard Mitigation Committee were held to address funding needs and project coordination so that plans could move forward.

The Mitigation Committee has put forth a continued effort to collaborate and coordinate activities for funding sources so that mitigation projects could move forward. Possible funding resources have been added to the plans, as shown in Section 4.4. While not all communities may have implemented separate line items in their budget for mitigation activities, many have found the financial means to accomplish several of the goals and objectives set forth in the Plan. It is the desire of the Miami County Hazard Mitigation Committee to continue to follow the current plan maintenance section as it has allowed the hazard mitigation process to move forward in Miami County with positive results.

It is anticipated over time through good planning efforts and coordination between State and County Emergency Management Agencies and communities that all mitigation plans will become more enhanced and refined. It is the intention of the Miami County Hazard Mitigation Planning Committee to support pre-disaster planning and project activities that can help reduce risk and mitigate future disaster costs for Miami County citizens.

4.2 Monitoring, Evaluating and Updating The Plan

Data listed in Miami County Hazard Risk Assessment shows Miami County's population increased from 102,506 persons in 2010 to 104,224 persons in 2015. This mirrors the historic trends of the past and seems to indicate Miami County has been a progressive county and that it will most likely experience future growth and change. As shown over the past five to six years since the last plan approval, completed hazard mitigation activities can have a positive impact on future hazard events. It is important to continue to update the Plan periodically and maintain a monitoring system to aid in this process. This current monitoring system will also keep the Plan activities on schedule. Adjustments and revisions are an important part of any Plan since events, contingencies, and unforeseen circumstances cannot always be predicted. Community needs will change and there will be advances in technology and mitigation techniques. All these factors considered will require the Plan to be periodically updated and revised.

An annual progress meeting will also be a way to effectively monitor the Plan's success and to assure goals and objectives are met. The Miami County Hazard Mitigation Committee shall meet annually to review and revise the Plan's goals and objectives and to share progress of the Hazard Mitigation Action Plan. The Miami County Hazard Mitigation Committee shall make recommended changes and updates to activities as conditions may warrant.

Continuance of the countywide Hazard Mitigation Committee will include a representative from the following organizations:

- Miami County Emergency Management representative
- Miami County Board of Commissioners representative
- Emergency Responder representative
- County Mayor representative
- County Trustee representative
- Miami County Department of Development representative
- Miami County Economic Development representative
- Miami County Engineer representative
- Miami Conservancy District representative
- North Miami Valley Red Cross Chapter representative
- Miami County Public Health representative
- Miami County Park District representative
- Miami County Soil & Water District representative
- Miami County Citizen-at-Large representative
- Miami County Auditor representative
- An open invitation to adjacent County EMA Agencies
- Miami County residents

The Miami County Emergency Management Agency, under the direction of the Miami County Board of Commissioners, will be responsible for contacting committee members and organizing the annual meeting. The Miami County Emergency Management Agency shall be responsible for issuing an annual report on the progress of all mitigation

activities. In addition, the Miami County Emergency Management Agency shall prepare an agenda and distribute to the committee members. The meeting shall be publicly advertised and open to the public. The meeting is scheduled to be held the last Wednesday in February of each year at an announced time and location and committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies of the Plan. In addition to the annual meeting, members are also encouraged to bring forth at any time any concerns or ideas relative to changes in goals or strategies for discussion. The special meetings may be held on call of the Hazard Mitigation Chairperson. The Miami County Emergency Management Director shall provide quarterly updates on mitigation projects and activities through the Agency's newsletter and/or website. By providing updates, the Agency will be able to keep the public entities and general public informed as to the progress being made.

At the annual meeting, the Miami County Hazard Mitigation Committee will review each action item to determine their relevance to changing situations in the county, as well as changes in state or federal policy, and to ensure that they are addressing current and expected conditions. The activities will be ranked as completed, deferred, deleted, new, unchanged or ongoing. The Committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified. The parties responsible for the implementation of the various action items will report on the status of their projects and will include which implementation process worked well, any difficulties encountered, how coordination efforts are proceeding, and which strategies should be revised. The following questions shall be asked:

- Are current resources appropriate, and in order, to implement the projects outlined in the Plan?
- Is the progress on track and are the outcomes as anticipated?
- Are there implementation problems? If so, what are they?
- Are all involved agencies participating or are there legal, technical, or political coordination issues? If so, how can they be addressed?
- What are additional funding sources that may be available?

The Miami County Emergency Management Agency under the direction of the Miami County Board of Commissioners will then have three months to update, make modifications to the Plan, and submit it to the committee members for approval.

The Miami County Emergency Management Agency under the direction of the Miami County Board of Commissioners shall be the responsible party to monitor the Plan. The Miami County EMA shall at the end of each year collect and update reports from each coordinating organization indicating the status and progress on each action item or activities that occurred during the preceding year.

The Miami County EMA shall obtain information on each project activity as to whether the activity is completed, deferred, deleted, new, unchanged or ongoing. If the activity is deleted, deferred or unchanged, the County EMA should report the reasoning as to why the action item was deleted or unchanged. The Miami County EMA shall also request consideration for new activities. This information will be requested from the

coordinating organizations at the beginning of each year so that the Miami County EMA can prepare a report to be provided to the Miami County Hazard Mitigation Committee (MCHMC) and distributed to MCHMC members along with the yearly meeting agenda at the annual Hazard Mitigation Committee meeting to be held the last Wednesday in February of each year.

The Miami County Hazard Mitigation Committee shall then utilize the report to assist in evaluating the Plan each year.

Plan Monitoring Schedule		
Timeline	Action	Responsible Party
December 31st	Year's activity reporting, cycle ends	Coordinating organizations
January 15th	Coordinating organizations prior years status reports due to Miami County EMA	Coordinating organizations
February 1st	Miami County EMA yearly reports due to Chairman of Miami County Hazard Mitigation Committee (MCHMC)	Miami County EMA
February 15th	Chairperson of MCHMC distributes agenda and reports to MCHMC and stakeholders	Chairperson of MCHMC
Last Wednesday of February	MCHMC holds annual mitigation meeting	MCHMC
March 15th	Minutes of annual meeting distributed to MCHMC members and stakeholders	Chairperson and Secretary of MCHMC
April 15th	Plan amendments/updates shall be added to Plan	Miami County EMA

4.3 Incorporating into Existing Planning Mechanism

The Miami County Hazard Mitigation Committee (MCHMC) in collaboration with the Miami County Emergency Management Agency continues to put forth a dedicated effort to promote hazard mitigation activities in Miami County. It is the Committee's goal to promote projects and plans which reduce the exposure of the citizens and their property to natural and manmade hazards. The Miami County Hazard Mitigation Committee has met on an annual and on-call basis since 2004 to help guide and spearhead the mitigation process.

Miami County is subjected to natural and manmade hazards that threaten life and health as well as causing extensive property damage. The Disaster Mitigation Act of 2000 (Public Law 106-390 October 30, 2000), requires that an approved mitigation plan must be prepared and approved by FEMA in order to receive federal mitigation funding. The Miami County Multi-Jurisdictional Mitigation Plan was approved in 2006 and updated and approved by FEMA in 2012 to serve as a comprehensive guide for ongoing and future mitigation projects throughout the County.

The County and its incorporated municipalities have participated in the Miami County planning efforts. Since the 2012 FEMA approval plan of the Miami County Hazard Mitigation Plan approval the County and its communities have completed numerous mitigation activities and are proud of its progress.

The Miami County Mitigation Planning Committee will oversee and regularly monitor the progress of the Plan. The Miami County Hazard Mitigation Committee will strive to create sustainable communities that are resistant to human and economic costs and disasters. The local planning collaborative invited to participate includes:

- Elected officials and local administrators including:
 - County Board of Commissioners
 - Mayors, Village Administrators, and Council Members
 - Township trustees, City and Village council members
 - Miami County Auditor
- Planning expertise:
 - Miami County Department of Development including:
 - Building Regulations
 - Community Development
 - Economic Development
 - Building Department
 - Miami County Planning & Zoning
 - County Engineer
 - City Engineers
 - Fire Department Representatives
 - Project Managers
 - Village Administrators/Managers
- Local Boards and Services
 - Miami County Public Health

- Miami County Park District
- Miami Conservancy District
- Miami County Economic Development
- Miami County Grants
- Flood Plan Administrators
- Community Representatives
- Non-Profit Partners and Business Organizations
 - North Miami Valley Red Cross Chapter
 - Media Representative
- Citizens
 - Local volunteers
- State Agencies
 - Ohio Emergency Management Agency
 - Ohio Department of Natural Resources
 - Ohio Department of Development
 - Ohio Environmental Protection Agency
 - Academic Institutes

The Miami County Hazard Mitigation Committee will collaborate with the above referenced organizations and their administrative officials. They will work to integrate the goals of the Miami County Hazard Mitigation Committee into the countywide general operations. By working within these established state and community leaders, this Plan will more efficiently implement and finance the hazard mitigation projects and programs. The goal is to update the work plans, policies, and procedures to include sound mitigation concepts into the daily operations of all administrative programs.

Instead of relying solely on funding from hazard mitigation programs or external sources, the Miami County Hazard Mitigation Committee recommends that all Miami County communities including the County, Cities, Villages, Townships, and independent Boards and Agencies consider including the addition of a line item and funding within budget solely for mitigation type projects.

The County, Cities, Villages and Townships will include directives to require its departments and agencies to evaluate and carry out mitigation activities and initiatives. The Miami County Area Planning will continue to provide, as a part of its latest Plan, revised, effective up-to-date mechanisms for integrating mitigation practices into its comprehensive planning. A primary benefit of combining these processes is that they both influence the location, type and characteristics of physical growth, specifically buildings and infrastructure.

The Miami County Hazard Mitigation Committee further recommends that incentive programs be developed to stimulate momentum to undertake mitigation initiatives. Public/private partnerships and the use of community volunteers and community public awareness are ways to help further the County's mitigation goals.

The Miami County Hazard Mitigation Committee and its represented County Agencies have developed a successful program to identify and implement numerous mitigation

actions. The Miami County Hazard Mitigation Committee has developed a collaborative effort of mutual agreement with various agencies and organizations to:

- To help define the duties and specific responsibilities among the different agencies and organizations.
- To provide a clear statement of values, principles and community hazard mitigation goals and establishes an organization structure to assist in measuring and evaluating the Plan process.

The collaborative effort includes a clear vision between various entities and partners and generally includes:

- The vision or goal statement.
- The organization lead.
- The timeline.
- How the mutual agreement statement process is to be reviewed or revised.
- A statement on how decisions will be made.
- A statement on describing the circumstances under which each partner should consult each other.
- A statement requiring each partner or organization to submit periodic or annual reports on the progress or program.
- A statement on responsibility for actions.
- A statement on how each partner or organization with staff, provide technical resources and funding that the department, agency or organization is expected to provide.

Upon commitment from all partners and organizations involved for each mitigation activity or process, the partner or organization shall provide yearly reports to the Miami County Hazard Mitigation Committee through the Miami County Emergency Management Agency which will detail the following information:

- The hazard mitigation action's objectives.
- Who the lead and supporting agencies responsible for implementation are.
- How long the project should take, including a delineation of the various stages of work along with timelines (milestones should be included).
- Whether the resources needed for implementation, funding, staff time, and technical assistance are available, or if other arrangements must be made to obtain them.
- The types of permits or approvals necessary to implement the action.
- Details on the ways the actions will be accomplished within the organization, and whether the duties will be assigned to agency staff or contracted out.
- Current status of the project, identifying any issues that may hinder implementation.

The Miami County Hazard Mitigation Committee has been successful in breaking down the mitigation projects into smaller, more manageable tasks. This way the responsible agency, department or organization can determine the particular details in order to incorporate these additional considerations into the routine of their daily operations.

Since the 1913 flood left a legacy of flood control claims along the Great Miami River running north and south through the County. The flood control measures taken after the 1913 flood have helped limit development and preserve many scenic recreational resources along the County's river corridors.

Miami County has been progressive with incorporating mitigation actions into many of their existing planning mechanisms and programs. Some of these mitigation incorporations include the following:

Early Planning Documents of Miami County

Since the early 1960's the Route 25 – I-75 corridor has been driving residential, commercial, and industrial development along the County's central axis. The three communities of Piqua, Tipp City, and Troy are the urban areas of the County. Those early developments created a need for a County thoroughfare plan which was adopted in 1974. Shortly thereafter, in the mid 1970's, two planning studies were conducted on the high growth areas of the County including Camp Troy (the area between Troy and Tipp City) and the Piqua East area. In 1991, the County adopted an open space plan which provided invaluable guidance to a variety of agencies charged with the mission of protecting open space and recreational sites.

Miami County Comprehensive Planning Documents

Miami County has several Comprehensive Planning Documents which provide a vision for Miami County and guides future land development. All of these planning documents are sensitive to the protection of floodplain areas and restricting development in the County's floodplains.

Comprehensive Planning Documents include:

- Bethel Township Strategic Development Plan (adopted March 2, 2005)
- City of Piqua Comprehensive Plan (adopted January 22, 2008)
- City of Tipp City Comprehensive Plan (updated & adopted 2016)
- City of Troy Comprehensive Plan (adopted February 1, 2005)
- Miami County Comprehensive Plan (updated 2006)
- Miami Valley Regional Planning Commission Planning Documents
- Village of West Milton-Union Township Comprehensive Plan (adopted 2004)

Countywide Zoning & Planning Documents

In 1972 a referendum vote supported the adoption of countywide zoning for eight of 12 townships in Miami County. (The eastern four townships have township zoning). Zoning and planning regulations have been updated numerous times over the years. They all promote floodplain overlay districts, green space, and preservation of open land. Miami County Planning & Zoning administers zoning for: Concord, Monroe, Newberry, Newton, Spring Creek, Staunton, Union and Washington Townships. Bethel, Brown, Elizabeth and Lost Creek administer their own zoning.

Open Space Preservation

Miami County has abundant parks and preserves located throughout the County. The

Miami County Park District has many open space lands and easements to help provide for flood flow, drainage, and maintenance.

Farmland Preservation Measures

Bethel Township promotes preservation of agricultural lands as an integral part of keeping Bethel Township “A model rural community” through Section 5301.691 of the Ohio Revised Code to purchase, hold, enforce agriculture, and conservation events through the Agriculture & Conservation Easement Program.

County & Community Subdivision Regulations

Subdivision regulations have been adopted for quite some time and have had numerous updates over the years. The County subdivision regulations govern how land will be divided. These regulations set forth design standards to be adhered to by land developers.

Miami County Engineer Subdivision Design & Construction Standards

The County Engineer has established design criteria to supplement the only subdivision regulations of the Miami County Zoning Commission. The plans include addressing technical specifications and construction standards for storm drainage, culverts, pavements, and roadway design.

Miami Conservancy District Stormwater Management Program

The Miami Conservancy District is a river management agency operating in Southwest Ohio to control flooding of the Great Miami River and its tributaries. It was organized in 1914 following the catastrophic Great Dayton Flood of the Great Miami River in March 1913, which hit Dayton, Ohio particularly hard. Designed by Arthur Ernest Morgan, the Miami Conservancy built levees, straightened the river channel throughout the Miami Valley, and built five dry dams on various tributaries to control flooding. The district and its projects are unusual in that they were funded almost entirely by local tax initiatives, unlike similar projects elsewhere which were funded by the federal government and coordinated by the U.S. Army Corps of Engineers.

The Miami Conservancy District has a stormwater management plan as required by Ohio law. The purpose is to reduce discharge pollutants to the maximum extent possible and to protect appropriate requirements of the Clean Water Act.

Countywide Building Codes

The Miami County Building Regulations oversees commercial and residential buildings with many of the cities, villages, and townships within Miami County. Potsdam is the only non-participating village, and Ludlow Falls and Laura have commercial permitting only through the Miami County Building Department. The Miami County Building Department enforces the current Ohio Building Code regulations.

Natural Resource Protection Plans

Several natural resource protection plans are available to Miami County residents.

Those include:

- Urban forestry and tree ordinances which reduce the damage potential of trees and alleviate the extent of fallen trees and limbs caused by wind and ice build up.
- Watershed planning efforts associated with the Great Miami & Stillwater Rivers and Honeycreek Watershed Association. Habitat restoration programs use vegetative and other natural materials to achieve stream management objectives and control erosion.
- The Great Miami and Stillwater Rivers were designated as “State Water Trails” in 2010.
- City and Village well fields protection plans.

Miami County’s Floodplain Management Program

This program requires floodplain development permits for improvements within the designation 100-year flood hazard areas as established by the Federal Emergency Management Agency (FEMA). The goal of the program is to ensure minimal flooding effects and damage prevention. Miami County adopted the Miami County Flood Damage Reduction Resolution on April 11, 2011.

In regulated areas, construction and fill activity is prohibited unless a floodplain development permit has been issued. All incorporated villages also now participate in the Flood Insurance Program. In addition, the Miami Conservancy District has flood control easements along the Great Miami and Stillwater Rivers and their tributaries.

Miami County Stormwater Management Control Regulations

The purpose of this resolution is to establish standards, principles, and procedures by which Miami County can regulate construction-oriented, earth-disturbing site development activities which cause or may cause erosion, and sediment deposition, and thereby prevent an increase in existing off-site impact potentials at lower elevations for sedimentation of lands and drainage ways, siltation of drainage waters, and the flooding of watercourses. The ordinance was adopted on February 28, 1987.

Conservation Reserve Program (CRP)

The Conservation Reserve Program (CRP) is a voluntary program for agricultural landowners. Through CRP, you can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. The CRP program reduces soil erosion, the ability to protect food and fiber; reduces the sedimentation in streams and waterways; and improves wildlife habitat.

Farmable Wetlands Program (FWP)

The Farmable Wetlands Program (FWP) is a voluntary program to restore up to one million acres of farmable wetlands and associated buffers by improving the land’s hydrology and vegetation. Eligible producers in all states can enroll eligible land in the FWP through the Conservation Reserve Program.

Producers plant long-term, resource-conserving covers to improve the quality of water, control soil erosion and enhance wildlife habitat on land enrolled in CRP. In

return, FSA (Farm Service Agency) provides participants with rental payments and cost-share assistance. Contract duration is between 10 and 15 years. FWP is designed to prevent degradation of wetland areas, increase sediment trapping efficiencies, improve water quality, prevent soil erosion, and provide habitat for waterfowl and other wildlife.

Wetland Reserve Program (WRP)

The Wetland Reserve Program (WRP) is a voluntary conservation program that offers landowners the means and opportunity to protect, restore, and enhance wetlands on their property through perpetual easements, 30-year easements or Land Treatment Contracts. The USDA Natural Resources Conservation Service (NRCS) manages the program as well as provides technical and financial support to help landowners who participate in WRP.

Ohio Environmental Quality Incentives Program (EQIP)

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program administered by the USDA Natural Resources Conservation Service (NRCS) reauthorized in the 2008 Farm Bill. It supports production, agriculture, and environmental quality as compatible goals. Through EQIP, agricultural producers may receive financial and technical help with structural and management conservation practices on agricultural land.

EQIP offers contracts with a minimum term that ends one year after the implementation of the last scheduled practice and a maximum term of ten years. Persons who are engaged in livestock or agricultural production on eligible land may participate in the EQIP program. EQIP activities are carried out according to a plan of operation developed in conjunction with the producer that identifies the appropriate conservation practice or practices to address the resource concerns. The practices are subject to NRCS technical standards adapted for local conditions.

Ohio NRCS supports the locally led conservation effort in the delivery of conservation programs. The USDA local work group (LWG) serves as the starting point for the development and coordination of USDA programs to provide an integrated approach for addressing local natural resource concerns.

Dam Protection Plans

- City of Piqua Emergency Action Plan for Swift Run Lake, Echo Lake & Franz Pond Dams & Hydraulic Canal Levee. Prepared December 2014, Revised May 2016.
- City of Piqua Subsurface Exploration & Analysis for Dams – July 2014.
- City of Piqua Source Water Assessment & Protection Plan – March 2011.

4.4 Funding Resources

There are several possible sources of funding for hazard mitigation action plans. The following are some of the options currently available, which Miami County, its localities, and local contributors, have and will consider when procuring funds to support the activities set forth, and expressly noted within this plan, where applicable.

FEMA Resources

- The Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster. HMGP is available when authorized under the Presidential major disaster declaration, in the areas of the State requested by the Governor.
- The Pre-Disaster Mitigation (PDM) program is authorized by Section 203 of the Stafford Act, 42 U.S.C. 5133. The PDM program is designed to assist states, Territories, Indian Tribal governments, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding from future major disaster declarations.
- The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). The Repetitive Flood Claims (RFC) program has the goal of reducing flood damages to individual properties for which one or more claim payments for losses have been made under flood insurance coverage and that will result in the greatest savings to the National Flood Insurance Fund (NFIF) in the shortest period of time.
- The Severe Repetitive Loss (SRL) program is authorized by Section 1361A of the NFIA has the goal of reducing flood damages to residential properties that have experienced severe repetitive losses under flood insurance coverage and that will result in the greatest amount of savings to the NFIF in the shortest period of time.

State Resources

- The Ohio Development Services Agency provides multiple avenues from which to pull resources for developmental funding. One of which is the Office of Community Development. They provide federal and state funding to qualifying communities, through the help of Community Development Analysts. Applications for these resources are available online at, www.development.ohio.gov/cs/cs_cdbg.htm.

- The Nature Works program is an up to 75% reimbursement grant for all local subdivisions of government, via state funding. This funding is allocated for the acquisition, development, and/or rehabilitation of public parks and recreation areas. More information is available at www.ohiodnr.gov/grants.
- The Land and Water Conservation Fund (LWCF) is an up to 50% reimbursement assistance grant for all local subdivisions of government, via state funding. This funding is allocated for outdoor recreation projects which meet the expressed written guidelines of the Ohio Statewide Comprehensive Outdoor Recreation Plan (SCORP). More information is available at www.ohiodnr.gov/grants.
- The Clean Ohio Trails Fund is available to local governments, and water conservation districts. This funding is allocated for the acquisition and/or development of trails, trailhead facilities, and engineering and design. More information is available at www.ohiodnr.gov/grants.
- The Recreational Trails program is available to all cities, villages, counties, townships, special districts, and state and federal agencies. This funding is allocated for the development of trail linkages, trail facilities, maintenance and restoration of existing trails, improving trail access for persons with disabilities, the acquisitions of easements and properties, and more. More information is available at www.ohiodnr.gov/grants.

Local Resources

- Recurring community capital improvement programs are available in most localities for small infrastructure projects. Check with your local government for further information.
- Special purpose assessments, impact fees, and tax increment financing are possible leverage points to fund more significant infrastructural endeavors. Check with your local government and or officials for further information.
- Private funding is always a welcomed, and possible source of funding for any local community. Check with your local government and or officials for possible philanthropic alternatives.

APPENDIX

Invitation to Surrounding Counties EMA Director to Attend Kick-Off Meeting, Kick-Off Meeting Minutes	A – 1
Letter to Cities, Villages, Etc. & Action Item List	A – 2
Meeting Minutes #2	A – 3
Meeting Minutes #3	A – 4
Invitation to Attend Miami Co. Mitigation Meeting, Meeting Minutes #4	A – 5
Meeting Minutes #5	A – 6
Invitation to Ohio EMA to Attend Public Meetings, Troy Daily News Public Meeting Posting, Invitation to Committee to attend Public Meetings, Minutes – Public Informational Meeting 6, Minutes – Public Informational Meeting 7	A – 7
Committee Invitation to Attend Miami County Council Meeting, Miami County Council Minutes - Meeting 8	A – 8
Questionnaire for Villages	A – 9
Plan Participation / Documentation	A – 10
Levy Exercise Report	A – 11

Mary Kester

From: Mike Henderson
Sent: Friday, October 21, 2016 1:58 PM
To: ldallessandris@clarkcountyohio.gov; kmichael@co.champaign.oh.us; Mindy Saylor; jordanj@mcoho.org; shelbycountyema@gmail.com
Cc: Mary Kester
Subject: Miami County Hazard Mitigation Plan - 5 Year Update
Attachments: Miami County EMA Public Meeting Notice - 10-06-16.pdf; Miami County Hazard Mitigation Committee - Agenda - Meeting 1- 10-27-16.pdf

Dear EMA Director:

The Miami County Hazard Mitigation Committee is preparing the 5 year plan updates for the Miami County Hazard Mitigation Plan. We invite neighboring counties and agencies involved in hazard mitigation activities the opportunity to be involved in the planning process. I have attached the Public Meeting notice and the Agenda for our kick off meeting on October 27, 2016. The first meeting will mostly be explaining the planning process with the actual planning sessions starting with the November meeting. You are welcome to attend the introductory session and future planning sessions.

Mike Henderson
Mitigation Consultant

Press Release – For Immediate Release
Miami County Ohio Emergency Management Agency
5 Year Mitigation Planning

The Miami County Emergency Management Agency has received a Hazard Mitigation Planning Grant for the purpose of updating the Miami County Hazard Mitigation Plan which was approved in 2012. Miami County is required by the Federal Emergency Management Agency to review and revise its plan to reflect progress in local mitigation efforts and changes in priorities in order to continue to be eligible for mitigation project grant funding. The purpose of hazard mitigation planning is to plan and take actions to reduce or eliminate the long-term risk to human life and property from hazards. It has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

The Miami County Hazard Mitigation Committee will begin this planning process at a workshop meeting scheduled for **Thursday, October 27th, 2016 at 10:00 am at the Miami County Communications Center, 210 Marybill Drive, Troy, Ohio.** The public is invited to participate and attend.

The current plan, approved in 2012, can be viewed at the Miami County Ohio Emergency Management Agency (EMA) website at <http://www.miamicountyohio.gov/index.aspx?NID=753> or at the Miami County Emergency Management Office located at **510 West Water Street, Troy, OH, 45373**. Please call 937-332-8560 to schedule an appointment to view the plan. Comments, recommendations or questions for plan updates are encouraged. Questions and comments can be submitted to the above address or can be emailed to the Miami County Planning Grant consultant, Mote & Associates, Inc., by email to info@moteassociates.com. Questions, suggestions and comments will be received through December 15, 2016.

It is the Hazard Mitigation Committees goal to have the updated plan completed and approved in June 2017.

Kenneth Artz
Miami County EMA Director
October 6, 2016

MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016 5-Year Planning Update
Agenda-Meeting #1

Date: Thursday, October 27, 2016 – 10:00 A.M.
Miami County Communications Center
210 Marybill Drive
Troy, Ohio 45373

- Welcome & Introductions
- Public Comments
- Schedule & Future Work Shop Meetings
- In Kind Service Records
- Review FEMA comments from 2012 Plan Approval
- 5 Year Plan Update Review Process
- Adjourn

MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016-2017 / 5-Year Planning Update
Minutes - Meeting #1

Date: Thursday, October 27, 2016 – 10:00 A.M.
Miami County Communications Center
210 Marybill Drive
Troy, Ohio 45373

Welcome/Call Meeting to Order

- The meeting was called to order at 10:00 A.M.
- A copy of the sign-in sheet is attached.

Public Comments

- No one spoke from the public although the public was invited to attend.

Mitigation Team Member Introductions

- Introductions were made for those present
- Members present introduced themselves & indicated the organization they represented.

Tentative Planning Schedule

- A tentative schedule for the planning process was provided to the committee members present. It was decided to schedule the next meeting for Tuesday, December 13, 2016 at 10:30 AM at this location. Tentative future workshop meetings for January – February will also be second Tuesday of the month at 10:30 AM. The tentative schedule is attached to these minutes.
- Mike Henderson & Kenny Artz reviewed the requirements for tracking In-Kind Services and request all members of their committee record their time spent on the mitigation planning. Fact sheet regarding In-Kind Services is attached to these meeting minutes.

Program Overview of Planning Grant Requirements

- Mike Henderson of Mote & Associates, Inc., provided a PowerPoint presentation giving an overview of the expectations for updating the Miami County Hazard Mitigation Plan. The power point was provided by Dean Ervin of the State of Ohio EMA Mitigation Branch office.
- Currently all communities in Miami County adopted the current plan except for Casstown & Ludlow Falls.

Public Comment Period

- Mike Henderson indicated the existing Miami County Hazard Mitigation Plan is on Miami County EMA website and is available for public comment.
- Mike Henderson indicated all mitigation planning meetings are open to the public and the public is encouraged to attend.

- A public comment period is also planned for April 2017. After plan is revised, public meetings will be announced.
- The committee members were encouraged to review the current plans to determine what changes in development throughout the county have occurred since the 2012 Plan Approval. In addition each hazard must be re-evaluated to determine if it is still relevant & what may have changed since the last plan re-write.

Adjourn

- The meeting adjourned at 11:15 A.M.

Next meeting is scheduled for Tuesday, December 13, 2016 at 10:30 A.M. at the Miami County Communications Center.

Meeting Sign-In Sheet					
Project: Miami County Hazard Mitigation Committee Annual Meeting			Meeting Date:		Wednesday, October 27, 2016
Start Time: 10:00 AM			End Time:		
Person In Charge: Kenny Artz, Miami County EMA Director			Place/Room:		Miami County Communications Center, 210 Marybill Drive, Troy, Ohio
Purpose of Meeting:					
Name	Title	Organization	Phone	Email	Signature
Mike Henderson	Presenter	MORE Assoc.	937-548-7571	mhenderson@moreassociates.com	Mike Henderson
Jim Bowell		Miami Co EMA			
Kenny Artz		" EMA			
Bryan Puskar	MER TECH SERVICES	MCD	937-223-1271	bpuskar@madwaters.org	Bryan Puskar
Paul Huelskamp	County Engineer	Engineer's Office	937-446-5656	phuelsk	Paul E. Huelskamp
Corey Thompson	Safety Coordinator County Engineer	Engineer's Office	937-440-5656	CThompson@miamicounty.org	Corey J. Thompson
Mike Beamish					Michael R. Beamish
Amy Havenar	City Eng.	Piqua	937-778-2044	ahavenar@piquach.org	Amy Havenar
Dan Suerdieck	Miami County Planning + Zoning	Miami County	937-440-8121	dsuerdieck@miamicounty.ohio.gov	Dan Suerdieck
John Evans	Comm	" "			
Amber Neal	Deputy Auditor	miami co.	937-440-3563	aneal@miamicounty.ohio.gov	Amber Neal
Scott Moyer	Deputy Auditor	Miami Co	440-5931	smoyer@miamicounty.ohio.gov	Scott Moyer
Scott Myers	Ex. Dir.	MIAMI COUNTY PARK DISTRICT	335-6273	smyers@miamicountyparks.com	Scott Myers
STAD LEGLEY					

(Signature of Official in Charge of Meeting) I hereby certify this meeting was conducted attended by those participants listed above. This form adheres to guidance IAW OMB Cir A-87 and 2 CFR Part 225

**MIAMI COUNTY OHIO 5 YEAR MITIGATION
PLAN UPDATE
ANTICIPATED SCHEDULE**
Thursday, October 27, 2016

October 27, 2016 – Planning Kickoff Meeting

Planning Meeting #2 – December 13, 2016 @ 10:30 A.M.

Planning Meeting #3 – January 10, 2017 @ 10:30 A.M.

Planning Meeting #4 – February 9, 2017 @ 10:30 A.M.

Draft Plan updates – February & March 2017

Release for Distribution & Review – Week of March 20, 2017

Public Comment Period – Month of April 2017

Public Hearing – Third week of April 2017

Month of May 2017 – Final Draft based on Public comments & Committee recommendations

Submission to Ohio EMA – First week of June 2017

What are In-Kind Contributions?

The Hazard Mitigation Grant Program (HMGP) requires all grantees to meet a 25 percent cost share for a single project. Fortunately, the cost does not have to be just cash for the projects expenses. These non-cash contributions are often referred to as "In-kind contributions". They may consist of grantee/sub-grantee contributions such as property or, third party contributions including services, equipment, or property. The value of the donation goes toward the 25 percent the grantee/sub-grantee has to contribute. Cash contributions by a third party are not considered in-kind contributions but can make up part or all of the 25 percent the grantee/sub-grantee contributes. The following information is for reference use only. Please locate full regulations in Title 44, Part 13, Section 13.24 of the Code of Federal Regulations.

To qualify as in-kind the following conditions apply:

1. Must be necessary and reasonable to accomplish the projects objectives.
2. Cannot be from a Federal source.
3. Cannot be program income. (Any unspent funds from an approved Mitigation project may not be used)
4. Cannot be used to match another Federal grant.
5. Must apply to the cost sharing requirement of the grant.

In kind contributions must be documented and verifiable in the grantee's records. Records must be maintained to support how the value of the in-kind contribution was determined.

Note: Good Question to ask **"Would it be necessary to buy the service or property in order to accomplish the projects objectives, and is the cost (value) reasonable for this purpose?"**

Determining the value of the In-Kind Contributions

Donated Services:

- **Volunteers-** Unpaid services provided to a grantee/sub-grantee by an individual are valued at the pay for similar work in the grantee's organization. If the job is foreign to your agency, it's suggested to use minimum wage or seek private market value of the work to be performed. i.e. A local attorney affected by the flood donates her time to review the real property acquisition contract documents and conduct the settlements for the grantee/sub-grantee. The normal cost of the attorney's professional time donated to the project (based on her normal per hour or per settlement rate) is allowable as local in-kind cost-share.

What are In-Kind Contributions Cont.

- **Employees of other organizations** – When another organization provides, free of charge, the service of an employee in that employee's line of work, the services are valued at the employee's regular rate of pay. This does not include the employee's fringe benefits and overhead costs. If the services are in another line of work, then the value is calculated in the same manner as that for volunteers. i.e. Local contractors donate their services to complete seismic retrofit work to residents' homes. The normal cost of their time is allowable as a third party in-kind contribution. It should be noted that Federal employee's time on duty cannot be used as in-kind.

Donated Use of Equipment or Space: (Title is retained by the donor)

- **Equipment or Space** – the contribution will be valued at the fair rental rate.

Donated Supplies, Equipment, Buildings and Land (Title passes to the grantee or subgrantee)

- **Supplies** – Supplies are valued at the market value at the time of donation i.e. The local hardware store donates construction materials for a hurricane shuttering project. The retail value of those materials is an allowable third party in-kind contribution.
- **Equipment, buildings, and land** – The purpose of the grant will determine how the donated property will be administered.
 - Grant Acquisition of property – the market value of the property at the time of donation may be counted as cost sharing or matching. i.e. A homeowner accepts 75 percent of the value of his home in cash and donates the rest of the appraised value to the project. The 25 percent he donated is allowable as a third party in-kind contribution.
 - All Other Grants – the market value at the time of donation of the donated equipment or building and fair rental rate of the donated land may be counted. Approval may be given only if the equipment or rental of the land purchased is approved as an allowable direct cost. If any part of the donated property was acquired with Federal funds, only the non-federal share of the property may be counted.
- **Grantee or Subgrantee donated real property** – the estimated value of grantee-owned real property is determined by the current market value (assuming that these items were not purchased with Federal funds).

Note: In some cases it might be required to use an independent appraiser to determine fair market value of land or buildings, or the fair rental rate of land or of space in a building. This requirement will be set by the grantee or sub-grantee.

Miami County EMA

2016-2017 Mitigation Plan Timesheet

Employee: Jim Bowell

Director: Kenny Artz

Function	Date	Time In	Time Out	Time In	Time Out	Overall Total	Comments
Mitigation Time	10/27/2016	8:15	9:15	9:45	11:45	3:00	Review Plan & initial planning mtg
Mitigation Time	10/31/2016	7:45	8:45			1:00	Develop Facebook posting
Mitigation Time						0:00	
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					Total Hrs.	4:00	

Employee signature

Date _____

Director signature

Date _____

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS

Annual Meeting Update - Revised June 6, 2014

Note: Green highlighted areas indicate changes that occurred at the Annual Meeting of 04-16-14

Note: Yellow highlighted areas indicate changes that occurred after the Annual Meeting of 04-16-14

Action Item Number	Completed	Deleted	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornadoes	Severe Winter Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information
	Action Taken					Hazard Type								Plan Goals Addressed					
1				X	Countywide	X	X	X	X	Provide workshops, promotions, and distribution of natural and manmade disaster & tornado safety flyers & data through school system, public functions to increase people's awareness to their vulnerability during these events.	Miami County EMA Northern Miami Valley Red Cross Chapter	Ongoing	High	X					X
2				X	Countywide				X	Special Needs Assessment.	Miami County EMA Northern Miami Valley Red Cross Chapter	1-3 Years	High	X				X	
3				X	Countywide	X	X	X	X	On-going training of Emergency Service Personnel on what to do and how to respond during disaster and hazard events.	Miami County EMA	3-5 Years	Low			X			
4				X	Countywide		X			Recommend code updates to include tornado resistant construction techniques such as hurricane straps, tiedowns, & tornado saferooms within structures.	Miami County Building Regulations	2 - 3 Years	Moderate	X	X				
5				X	Countywide		X			Promote & expand outdoor warning siren use for all communities & for remote county park areas.	Miami County EMA Miami County Park District	3 - 5 Years	Low	X	X				X
6				X	Countywide		X			Set up & perform public building & school building assessment program to establish designated tornado safety areas.	Miami County EMA Northern Miami Valley Red Cross Chapter	2 - 4 Years	Moderate	X		X			X
7				X	Countywide	X				Implement plan to collect base flood plain elevations and building inventory throughout county.	Miami County EMA Miami County Planning & Zoning	1-3Years	High	X	X				
8				X	Countywide	X				Preserve floodplain areas as natural areas, wetland protection, bike trails, etc. along river corridors, in & around designated flood plains.	Miami Conservancy District Miami County Commissioners Miami County Park District	Ongoing	High	X	X			X	
9				X	Countywide	X				Continue to replace bridges & roadways so they are constructed and elevated above base flood elevations.	Miami County Engineer	Ongoing	Low		X		X		
10				X	Countywide	X				Continued strong participation & maintenance in the Miami Conservancy District structures including protection of existing dams, dikes, floodwalls, levees.	Miami Conservancy District	Ongoing	High	X	X		X	X	

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	Action Taken					Hazard Type									Plan Goals Addressed					
11				X	Countywide	X	X			X	Identify critical facilities that need emergency backup generator systems.	Miami County EMA	2 - 4 Years	Moderate	X		X			
12				X	Countywide		X				Continued maintenance & operation of existing tornado warning sirens.	Miami County EMA	Ongoing	Moderate	X		X			X
13				X	Countywide	X	X	X			Increase communication, coordination & collaboration between community leaders, property owners, local & county building regulations and zoning authorities to address risk & to provide uniformity & consistency in implementing sound mitigation practices.	Local & City Village Officials Township Zoning & Planning Officials Miami County Hazards Mitigation Planning Committee	Ongoing	High	X					X
14				X	Countywide		X				Encourage construction of saferooms at county & community parks, large mobile home parks, campgrounds, fairgrounds.	Miami County EMA Local Park Boards Private Park Owners	Ongoing	Moderate	X			X		X
15				X	Countywide	X	X				Continue promotion of NOAA Weather Radio program for festivals, fairgrounds, campgrounds, parks, recreation areas, & medical facilities.	Miami County EMA	Ongoing	Moderate	X					X
16			X		Countywide	X					Identify and remedy surface water/county tile drainage obstructions for incorporated and unincorporated areas of Miami County.	Miami County Engineer Township Trustees	2 - 4 Years	Moderate	X	X		X		
17				X	Countywide		X				Tornado saferoom for Community Parks. (Stillwater Preserve Restroom Completed).	Miami County EMA Miami County Park District	3 - 5 Years	Low	X			X		
18			X		Countywide			X			Evaluate traffic hazard warning devices/systems.	Miami County EMA	3 - 5 Years	Low	X	X	X		X	
18A				X	Countywide	X	X	X	X		Right-of-Way hazardous and dead tree removal including all right-of-way, public lands, parks and easement areas.	EMA County Engineer	2 - 4 Years	Moderate	X	X			X	X
18B				X	Countywide	X		X			Sanitary sewer infiltration and inflow for central sewage systems for all municipal and county systems.	City Village Officials County Sanitary	3 - 4 Years	Moderate	X	X			X	
19				X	City of Piqua	X					Floodproof lower level of floodprone commercial structure along Miami River (St. Rt. 25A, south of Piqua).	Miami County EMA	2 - 4 Years	Moderate	X	X		X		

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	Action Taken					Hazard Type									Plan Goals Addressed							
20			X		City of Piqua	X					Mitigate 3 or 4 houses in the 100 year flood plain below Swift Run at the water plant within the City of Piqua.	Miami County EMA City of Piqua	2 - 4 Years	Moderate	X	X		X				
21				X	City of Piqua	X					Mitigate flooding of homes in floodprone area, City of Piqua along Lockington Road area.	Miami County EMA	2 - 4 Years	Moderate	X	X		X				
22				X	City of Piqua					X	Complete Flood Inundation Study for 3 Class I Dams.	City of Piqua	1-3 Years	High			X					
23				X	City of Piqua	X					Continued maintenance of the Swift Run Class I Dam (#1) (Public Recreation).	City of Piqua	Ongoing	Moderate	X	X		X	X			
24				X	City of Piqua	X					Continued maintenance of the Swift Run Class I Dam (#2) (Public Recreation).	City of Piqua	Ongoing	Moderate	X	X		X	X			
25				X	City of Piqua	X					Continued maintenance of the Swift Run Class I Dam (Water Supply Dam).	City of Piqua	Ongoing	Moderate	X	X		X	X			
26				X	City of Tipp City		X				Provide for additional tornado sirens.	Tipp City Officials	2 - 4 Years	Moderate	X					X		
27	X				City of Tipp City	X					East Tipp City levee closure (sand bag closure) - North End.	Tipp City Officials Miami Conservancy District	Completed 2012		X	X		X				
28				X	City of Tipp City	X					Mitigate 3 homes, garages, farm bldgs., a sewer pumping station, 2 well head bldgs., 2 park bldgs., & 1 athletic field on E. Main Street and 1 home, 1 athletic field & 1 parking lot on Wagon Wheel Road all of which are in 100 year flood plain.	Tipp City Officials	2 - 4 Years	Moderate		X		X				
29	X				City of Tipp City	X					Provide New Storm Sewer Systems associated with Street Projects.	Tipp City Officials	Completed 2013-2014		X	X		X		X		
30				X	City of Troy	X					Phase II: Repair and replace catch basins.	City of Troy Officials	3 - 5 Years	Moderate				X				

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	31					X	City of Troy	X								Phase II: Address flooding of McKaig Ditch and Kidder Ditch systems.	City of Troy Officials	1 - 3 Years	Moderate
32	X				Village of Bradford		X			Connect outdoor warning siren system to Darke County warning system.	Miami County EMA City of Bradford	Completed 2013-2014							X
33				X	Village of Casstown				X	Perform evaluations of water system.	Miami County Health Department/Village Officials	3 - 5 Years	Low	X	X		X	X	X
33A	X				Village of Casstown		X			Install tornado warning siren.	Village Officials	Completed 2011-2012		X		X			X
34					Village of Fletcher	X			X	Storm sewer work.	Village Officials	2 - 4 Years	Moderate	X				X	
35				X	Village of Laura		X			Construct community tornado safe room for the Mobile Homes.	Miami County EMA Village Officials	3 - 5 Years	Low	X			X		X
36				X	Village of Laura				X	Emergency generator power line from sewer plant to water plant.	Village Officials	1 - 2 Years	High	X	X	X			
37				X	Village of Laura	X			X	Extend storm sewers for flood prone homes on Pemberton Road.	Village Officials	2 - 3 Years	Moderate	X	X		X		
38				X	Village of Pleasant Hill	X				Sanitary sewer infiltration protection.	Village Officials	3 - 5 Years	Moderate	X	X			X	X
39				X	Bethel Township	X				Phase III - Honey Creek Stream Bank Repair.	Honey Creek Watershed Miami Conservancy District Miami County Park District	2 - 4 Years	Moderate	X	X		X	X	
40		X			Brown Township	X				Identify surface water & drainage tile obstructions.	Brown Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
41			X		Concord Township		X			Evaluate potential tornado safe room for the Fairgrounds.	Miami County Fair Board Miami County EMA	3 - 5 Years	Moderate	X			X		

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	41A	X					Concord Township	X								Mitchell Property CDBG approved this year.	Concord Township Trustees	Completed 2012	
42				X	Concord Township	X				Elevate or buy out of flood prone structures in the flood plain along the Miami River north of Troy.	Township Trustees Miami County EMA Miami Conservancy District	Ph. III - 3 - 4 Years	High	X	X		X	X	
42A	X				Concord Township	X				Removal of additional Fairground Buildings.	Miami County Fair Board	Completed 2011-2012			X		X		
43				X	Concord Township	X				Modify flood gate #24 on Morgan Ditch for improved drainage of Fairgrounds.	Miami Conservancy District	3 - 5 Years	Low	X	X		X	X	
44				X	Concord Township	X				South Concord Township flooding along Fenner Road areas west of Barnhart Rd. and near Wilson Rd. City of Troy's corrective plan has been adopted and is moving forward.	Concord Township Trustees Miami County Engineer	2 - 4 Years	Moderate	X	X		X		
45				X	Concord Township	X				Mitigate floodprone structures north of Boone Hill, +/- 1/2 mile strip along both sides of C.R. 25A (several businesses, residences).	Concord Township Trustees Miami County EMA	2 - 4 Years	Moderate	X	X		X		
46				X	Concord Township	X				State Route 718 Ziegenfelder ditch.	Concord Township Trustees Miami County EMA	2 - 4 Years	Moderate	X	X		X		
47	X				Concord Township	X				Camp Troy/Boone Hill ±100 properties Water & Sanitary Sewer System Extension to replace wells and septic systems (under construction).	Concord Township Trustees Miami Co. Sanitary Engineering	Completed 2011-2012		X	X		X		X
48		X			Elizabeth Township	X				Identify surface water & drainage tile obstructions.	Elizabeth Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
49		X			Lost Creek Township	X				Identify surface water & drainage tile obstructions.	Lost Creek Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
50			X		Newberry Township	X				Identify surface water & drainage tile obstructions.	Newton Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
51				X	Newton Township	X				Owens Road flooding.	Newton Township Trustees Miami County Engineer	2 - 4 Years	Moderate	X	X		X		

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	52		X				Spring Creek Township	X									Identify surface water & drainage tile obstructions.	Spring Creek Township Trustees Miami County Engineer	3 - 5 Years	Low
53			X		Spring Creek Township (or City of Piqua)		X				Tornado saferoom for the Mobile Home Court on 25A.	Mobile Home Court Owner Miami County EMA	3 - 5 Years	Low	X			X		
54				X	Staunton Township	X					Identify surface water & drainage tile obstructions.	Staunton Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
55		X			Village of West Milton		X				Tornado saferoom for Mobile Home Court located west of West Milton on S.R. 571.	Mobile Home Court Owner Miami County EMA	3 - 5 Years	Low	X			X		
56		X			Washington Township	X					Identify surface water & drainage tile obstructions.	Washington Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
57	X				Village of West Milton		X				Install 3 tornado warning sirens.	Village Officials	Completed 2011-2012		X		X			X
57A				X	Village of West Milton	X		X			Extension of sanitary sewer system from West Milton to Ludlow Falls.	Village Officials	2 - 4 Years	Moderate	X	X			X	
58				X	Miami County Park District	X	X		X		Expand weather warning sirens in the major county parks.	Miami County EMA Miami County Park District	2 - 4 Years	Moderate	X	X				X
58A	X				Miami County Park District	X	X		X		Expand weather monitor program to outdoor activity sites.	Miami County EMA Miami County Park District	Completed 2012		X	X				X
59				X	Miami County Park District		X				Provide multi-purpose safe building at the Stillwater Prairie Reserve. New concrete masonry block restroom facility was constructed at the Stillwater Prairie Reserve which affords some safety from storms.	Miami County Park District Miami County Building Regulations	2 - 4 Years	Moderate	X	X				
60				X	Monroe Township				X		Water and Sewer extensions to serve township residents.	Monroe Township Trustees,Tipp City Officials	3-5 Years	Moderate		X			X	

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	60A	X					Monroe Township								X	Water and Sewer extensions to serve township residents.	Monroe Township Trustees, Tipp City Offices	Completed 2013-2014	
61	X				Monroe Township					Install 3 tornado warning sirens.	Monroe Township Trustees	Completed 2011		X		X			X
62				X	Village of Covington	X		X		General storm water evaluation for the community.	Village Officials	1 - 3 Years	High	X	X		X		
63				X	Village of Covington	X		X		Floodplain Assessment for Rocky Branch Creek	Village Officials	2 - 4 Years	Moderate	X	X		X	X	
64				X	Village of Covington	X		X		Floodproofing of Village WWTP	Village Officials	2 - 4 Years	Moderate	X	X				
65				X	Village of Covington		X			Installed tornado siren on the east end of the Village and constructed two tornado shelters at each of the two main street trailer parks.	Village Officials	2 - 4 Years	Moderate	X		X			X
66				X	City of Tipp City	X				Protect 2 N. First Street electric substation #1 from high water.	Village Officials	1 -3 Years	High	X	X		X		

MIAMI COUNTY HAZARD MITIGATION TEAM ROSTER
As of November 11, 2016

Name	Agency	Phone	Ext.	Fax	E-mail
Artz, Ken	Miami County EMA	332-8560		440-9004	kartz@miamicountyema.org
Beamish, Michael	Mayor, City of Troy	339-1221		339-8601	mayor.beamish@troyohio.gov
Bowell, Jim	Miami County EMA	332-8562			jbowell@miamicountyema.org
Busse, Michael	Covington Village Administrator	473-3420	29	473-3853	administrator@covington-oh.gov
Calicoat, Jeff	Chief, Tipp City EMS	313-5788			jcalicoat@me.com
Cantrell, Marc	American Red Cross	332-1414		332-1441	marc.cantrell@redcross.org
Cox, Phil	Monroe Township Trustee	667-4716		667-3136	monroetwp@woh.rr.com
Evans, John	Miami County Commissioner	440-5910		440-5911	jevans@co.miami.oh.us
Havenar, Amy	Piqua City Engineer	778-2044		778-5165	ahavenar@piquaoh.org
Henderson, Michael	Mote & Associates, Inc.	548-7511		548-7484	mhenderson@moteassociates.com
Herron, Ben	West Milton Public Works	698-1500	116	698-3900	herron@ci.west-milton.oh.us
Huelskamp, Paul	Miami County Engineering	440-5656		440-5659	phuelskamp@co.miami.oh.us
Kegley, Stan	City of Troy Project Manager	335-1725		339-8601	stan.kegley@troyohio.gov
Looker, Rick	Bradford Village Administrator	448-2718		448-0221	rlooker@bradfordoh.com
Mercer, Tom	Concord Township Trustees	308-2591		332-1828	tmercerc2625@gmail.com
Moyer, Scott	Miami County Auditor	440-5931			Smoyer@MiamiCountyOhio.gov
Myers, Scott	Miami County Park District	335-6273		335-6221	smyers@miamicountyparks.com
Neal, Amber	Miami County Auditor	440-3563			aneal@miamicountyohio.gov
Pohlscheider, Brent	Piqua Fire Department	778-2013			bpohlschneider@piquaoh.org
Propes, Dennis	Miami County Public Health	573-3505		573-3501	dpropes@miamicountyhealth.net
Puskas, Barry	Miami Conservancy District	223-1278	3243	223-4730	bpuskas@miamiconservancy.org
Shook, Robert	Citizen-At-Large	339-2637			rjshook115@gmail.com
Suerdieck, Dan	Miami Co. Planning/Zoning Manager	440-8111		440-8124	dsuerdieck@co.miami.oh.us
Thompson, Corey	Miami County Engineer's Office	440-5656			cithompson@miamicounty.org
Vallieu, Melody	Troy Daily News	440-5265			mvallieu@civitasmedia.com
Wagar, Richard	Miami County Engineering	440-5656		440-5659	rwagar@co.miami.oh.us
	Miami County Sheriff	440-6078			adminassist@miamicountyso.com

Mary Kester

From: Mary Kester
Sent: Friday, November 18, 2016 3:13 PM
To: mayorstump@bradfordoh.com
Cc: rlooker@bradfordoh.com
Subject: Miami Co. Hazard Mitigation Plan Update
Attachments: Bradford, Village of - Letter to D. Stump - 11-15-16.pdf; Action Items - Miami County Hazard Mitigation - Updated - 06-06-14.pdf

Mayor Stump,

Attached please find a letter and Action Item list in regards to the Miami County Hazard Mitigation Plan Update.

Thank you,

Mary Kester, Administrative Assistant
Mote & Associates, Inc.
214 West Fourth Street
Greenville, Ohio 45331
P: 937-548-7511
F: 937-548-7484
mkester@moteassociates.com

Hazard Mitigation Planning

Miami County Emergency Management Agency

510 W. Water Street
Troy, Ohio 45373
937-332-8560

November 18, 2016

Mr. Don Stump, Mayor
Village of Bradford
115 N. Miami Avenue
Bradford, Ohio 45308

Dear Mr. Stump:

The Miami County Emergency Management Agency (MCEMA) is completing the 5 year planning updates to the Countywide Multi-jurisdictional Hazards Mitigation Plan. Local Plans must be updated and resubmitted to the Federal Emergency Management Agency (FEMA) every 5 years in order to continue eligibility for FEMA Hazard Mitigation Programs. The 2011 Plan is available for review at the MCEMA office or online at www.miamicountyohio.gov

The Miami County Hazard Mitigation Committee and its consultant, Mote & Associates, Inc., are currently in the process of updating the countywide plan. Each community shall identify local problems and mitigation activities to help reduce damage and loss of life during a natural or manmade hazard event.

Attached are mitigation actions that were identified in the previous FEMA-approved countywide plan for your community. Please review these previously identified action items for your community only, then mark and return them to our office as **completed, deleted or unchanged**. Your community may also submit additional future mitigation projects or activities to be included in the updated plan. Some examples of Hazard Mitigation Grant Program, Post Disaster Mitigation and Flood Mitigation Assistance Projects, projects or programs that may qualify for future FEMA project funds are:

- Acquisition of real property for willing sellers and demolition or relocation of buildings to convert the property to open space use.
- Retrofitting structures and facilities to minimize damages from high winds, earthquake, flood, wildfire, or other natural hazards.
- Elevation of flood prone structures.
- Development and initial implementation of vegetative management programs.
- Minor flood control projects that do not duplicate the flood prevention activities of other Federal agencies.
- Localized flood control projects, such as certain ring levees and floodwall systems, which are designed specifically to protect critical facilities.

- Post-disaster building code related activities that support building code officials during the reconstruction process.

To learn more about the Hazard Mitigation Grant Program you may visit FEMA's web site at:
<http://www.fema.gov/hazard-mitigation-grant-program>

Please respond with your community's action item updates by mailing, faxing, or e-mailing to the Miami County Emergency Management Agency, Attn: Mr. Kenneth Artz, 510 West Water Street, Troy, Ohio 45373; Fax: 937-440-9004; E-mail: kartz@miamicountyema.org. **Please respond no later than Thursday, December 8, 2016.**

Your community is invited to attend future mitigation planning meetings. The next scheduled public meetings are to be held at the following times and place:

Public Hazard Mitigation Planning Meeting:

Date & Time: Tuesday, December 13, 2016 @ 10:30 A.M.

Date & Time: Tuesday, January 10, 2017 @ 10:30 A.M.

Location: Miami County Communications Center, 210 Mary Bill Drive, Troy, OH 45373

The Draft Plan will be posted on the Miami County website miamicountyohio.gov under Services during April 2017 for public review and comments. Thereafter, the plan will be submitted for FEMA plan approval. Once FEMA has approved the plan, your community will be asked to pass a resolution adopting the plan. This must be done within one year after FEMA's approval has been given.

Please do not hesitate to contact me if you have any questions or would like additional information. MCEMA looks forward to serving Miami County in preparing these plan updates and encourage our community's participation.

Sincerely,

Kenneth Artz

Mr. Kenneth Artz, Director
Miami County Office of Emergency Management

Enclosures

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS

Annual Meeting Update - Revised June 6, 2014

Note: Green highlighted areas indicate changes that occurred at the Annual Meeting of 04-16-14

Note: Yellow highlighted areas indicate changes that occurred after the Annual Meeting of 04-16-14

Action Item Number	Completed	Deleted	Unchanged	Ongoing	City Village Township Countywide	Flooding	Tornadoes	Severe Winter	Storm	Other	Action Item	Coordinating Organization or Service Agency	Timeline	Priority Level	Preventative	Property Protection	Emergency Service Measures	Structural Projects	Natural Resource Protection	Public Information	
	Action Taken					Hazard Type									Plan Goals Addressed						
1				X	Countywide	X	X	X	X		Provide workshops, promotions, and distribution of natural and manmade disaster & tornado safety flyers & data through school system, public functions to increase people's awareness to their vulnerability during these events.	Miami County EMA Northern Miami Valley Red Cross Chapter	Ongoing	High	X						X
2				X	Countywide					X	Special Needs Assessment.	Miami County EMA Northern Miami Valley Red Cross Chapter	1-3 Years	High	X					X	
3				X	Countywide	X	X	X	X		On-going training of Emergency Service Personnel on what to do and how to respond during disaster and hazard events.	Miami County EMA	3-5 Years	Low			X				
4				X	Countywide		X				Recommend code updates to include tornado resistant construction techniques such as hurricane straps, tiedowns, & tornado saferooms within structures.	Miami County Building Regulations	2 - 3 Years	Moderate	X	X					
5				X	Countywide		X				Promote & expand outdoor warning siren use for all communities & for remote county park areas.	Miami County EMA Miami County Park District	3 - 5 Years	Low	X	X					X
6				X	Countywide		X				Set up & perform public building & school building assessment program to establish designated tornado safety areas.	Miami County EMA Northern Miami Valley Red Cross Chapter	2 - 4 Years	Moderate	X		X				X
7				X	Countywide	X					Implement plan to collect base flood plain elevations and building inventory throughout county.	Miami County EMA Miami County Planning & Zoning	1-3 Years	High	X	X					
8				X	Countywide	X					Preserve floodplain areas as natural areas, wetland protection, bike trails, etc. along river corridors, in & around designated flood plains.	Miami Conservancy District Miami County Commissioners Miami County Park District	Ongoing	High	X	X				X	
9				X	Countywide	X					Continue to replace bridges & roadways so they are constructed and elevated above base flood elevations.	Miami County Engineer	Ongoing	Low			X		X		
10				X	Countywide	X					Continued strong participation & maintenance in the Miami Conservancy District structures including protection of existing dams, dikes, floodwalls, levees.	Miami Conservancy District	Ongoing	High	X	X			X	X	

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS

Annual Meeting Update - Revised June 6, 2014

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	Action Taken					Hazard Type									Plan Goals Addressed					
11				X	Countywide	X	X			X	Identify critical facilities that need emergency backup generator systems.	Miami County EMA	2 - 4 Years	Moderate	X		X			
12				X	Countywide		X				Continued maintenance & operation of existing tornado warning sirens.	Miami County EMA	Ongoing	Moderate	X		X			X
13				X	Countywide	X	X	X			Increase communication, coordination & collaboration between community leaders, property owners, local & county building regulations and zoning authorities to address risk & to provide uniformity & consistency in implementing sound mitigation practices.	Local & City Village Officials Township Zoning & Planning Officials Miami County Hazards Mitigation Planning Committee	Ongoing	High	X					X
14				X	Countywide		X				Encourage construction of saferooms at county & community parks, large mobile home parks, campgrounds, fairgrounds.	Miami County EMA Local Park Boards Private Park Owners	Ongoing	Moderate	X			X		X
15				X	Countywide	X	X				Continue promotion of NOAA Weather Radio program for festivals, fairgrounds, campgrounds, parks, recreation areas, & medical facilities.	Miami County EMA	Ongoing	Moderate	X					X
16			X		Countywide	X					Identify and remedy surface water/county tile drainage obstructions for incorporated and unincorporated areas of Miami County.	Miami County Engineer Township Trustees	2 - 4 Years	Moderate	X	X		X		
17				X	Countywide		X				Tornado saferoom for Community Parks. (Stillwater Preserve Restroom Completed).	Miami County EMA Miami County Park District	3 - 5 Years	Low	X			X		
18			X		Countywide				X		Evaluate traffic hazard warning devices/systems.	Miami County EMA	3 - 5 Years	Low	X	X	X		X	
18A				X	Countywide	X	X	X	X		Right-of-Way hazardous and dead tree removal including all right-of-way, public lands, parks and easement areas.	EMA County Engineer	2 - 4 Years	Moderate	X	X			X	X
18B				X	Countywide	X			X		Sanitary sewer infiltration and inflow for central sewage systems for all municipal and county systems.	City Village Officials County Sanitary	3 - 4 Years	Moderate	X	X			X	
19				X	City of Piqua	X					Floodproof lower level of floodprone commercial structure along Miami River (St. Rt. 25A, south of Piqua).	Miami County EMA	2 - 4 Years	Moderate	X	X		X		

MIAMI COUNTY HAZARD MITIGATION – ACTION ITEMS

Annual Meeting Update - Revised June 6, 2014

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																					Action Taken		
20			X		City of Piqua	X					Mitigate 3 or 4 houses in the 100 year flood plain below Swift Run at the water plant within the City of Piqua.	Miami County EMA City of Piqua	2 - 4 Years	Moderate	X	X		X					
21				X	City of Piqua	X					Mitigate flooding of homes in floodprone area, City of Piqua along Lockington Road area.	Miami County EMA	2 - 4 Years	Moderate	X	X		X					
22				X	City of Piqua					X	Complete Flood Inundation Study for 3 Class I Dams.	City of Piqua	1-3 Years	High			X						
23				X	City of Piqua	X					Continued maintenance of the Swift Run Class I Dam (#1) (Public Recreation).	City of Piqua	Ongoing	Moderate	X	X		X	X				
24				X	City of Piqua	X					Continued maintenance of the Swift Run Class I Dam (#2) (Public Recreation).	City of Piqua	Ongoing	Moderate	X	X		X	X				
25				X	City of Piqua	X					Continued maintenance of the Swift Run Class I Dam (Water Supply Dam).	City of Piqua	Ongoing	Moderate	X	X		X	X				
26				X	City of Tipp City		X				Provide for additional tornado sirens.	Tipp City Officials	2 - 4 Years	Moderate	X					X			
27	X				City of Tipp City	X					East Tipp City levee closure (sand bag closure) - North End.	Tipp City Officials Miami Conservancy District	Completed 2012		X	X		X					
28				X	City of Tipp City	X					Mitigate 3 homes, garages, farm bldgs., a sewer pumping station, 2 well head bldgs., 2 park bldgs., & 1 athletic field on E. Main Street and 1 home, 1 athletic field & 1 parking lot on Wagon Wheel Road all of which are in 100 year flood plain.	Tipp City Officials	2 - 4 Years	Moderate		X		X					
29	X				City of Tipp City	X					Provide New Storm Sewer Systems associated with Street Projects	Tipp City Officials	Completed 2013-2014		X	X		X		X			
30				X	City of Troy	X					Phase II: Repair and replace catch basins.	City of Troy Officials	3 - 5 Years	Moderate				X					

MIAMI COUNTY HAZARD MITIGATION - ACTION ITEMS

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	Action Taken					Hazard Type									Plan Goals Addressed					
31				X	City of Troy	X					Phase II: Address flooding of McKaig Ditch and Kidder Ditch systems.	City of Troy Officials	1 - 3 Years	Moderate		X		X		
32	X				Village of Bradford		X				Connect outdoor warning siren system to Darke County warning system.	Miami County EMA City of Bradford	Completed 2013-2014							X
33				X	Village of Casstown					X	Perform evaluations of water system.	Miami County Health Department/Village Officials	3 - 5 Years	Low	X	X		X	X	X
33A	X				Village of Casstown		X				Install tornado warning siren.	Village Officials	Completed 2011-2012		X		X			X
34					Village of Fletcher	X				X	Storm sewer work.	Village Officials	2 - 4 Years	Moderate	X				X	
35				X	Village of Laura		X				Construct community tornado safe room for the Mobile Homes.	Miami County EMA Village Officials	3 - 5 Years	Low	X			X		X
36				X	Village of Laura					X	Emergency generator power line from sewer plant to water plant.	Village Officials	1 - 2 Years	High	X	X	X			
37				X	Village of Laura	X				X	Extend storm sewers for flood prone homes on Pemberton Road.	Village Officials	2 - 3 Years	Moderate	X	X		X		
38				X	Village of Pleasant Hill	X					Sanitary sewer infiltration protection.	Village Officials	3 - 5 Years	Moderate	X	X			X	X
39				X	Bethel Township	X					Phase III - Honey Creek Stream Bank Repair.	Honey Creek Watershed Miami Conservancy District Miami County Park District	2 - 4 Years	Moderate	X	X		X	X	
40		X			Brown Township	X					Identify surface water & drainage tile obstructions.	Brown Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
41			X		Concord Township		X				Evaluate potential tornado safe room for the Fairgrounds.	Miami County Fair Board Miami County EMA	3 - 5 Years	Moderate	X			X		

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS

Annual Meeting Update - Revised June 6, 2014

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41A	X				Concord Township	X					Mitchell Property CDBG approved this year.	Concord Township Trustees	Completed 2012			X		X	X	
42				X	Concord Township	X					Elevate or buy out of flood prone structures in the flood plain along the Miami River north of Troy.	Township Trustees Miami County EMA Miami Conservancy District	Ph. III - 3 - 4 Years	High	X	X		X	X	
42A	X				Concord Township	X					Removal of additional Fairground Buildings.	Miami County Fair Board	Completed 2011-2012			X		X		
43				X	Concord Township	X					Modify flood gate #24 on Morgan Ditch for improved drainage of Fairgrounds.	Miami Conservancy District	3 - 5 Years	Low	X	X		X	X	
44				X	Concord Township	X					South Concord Township flooding along Fenner Road areas west of Barnhart Rd. and near Wilson Rd. City of Troy's corrective plan has been adopted and is moving forward.	Concord Township Trustees Miami County Engineer	2 - 4 Years	Moderate	X	X		X		
45				X	Concord Township	X					Mitigate floodprone structures north of Boone Hill, +/- 1/2 mile strip along both sides of C.R. 25A (several businesses, residences).	Concord Township Trustees Miami County EMA	2 - 4 Years	Moderate	X	X		X		
46				X	Concord Township	X					State Route 718 Ziegenfelder ditch.	Concord Township Trustees Miami County EMA	2 - 4 Years	Moderate	X	X		X		
47	X				Concord Township	X					Camp Troy/Boone Hill ±100 properties Water & Sanitary Sewer System Extension to replace wells and septic systems (under construction).	Concord Township Trustees Miami Co. Sanitary Engineering	Completed 2011-2012		X	X		X		X
48		X			Elizabeth Township	X					Identify surface water & drainage tile obstructions.	Elizabeth Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
49		X			Lost Creek Township	X					Identify surface water & drainage tile obstructions.	Lost Creek Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
50			X		Newberry Township	X					Identify surface water & drainage tile obstructions.	Newton Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
51				X	Newton Township	X					Owens Road flooding.	Newton Township Trustees Miami County Engineer	2 - 4 Years	Moderate	X	X		X		

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS

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	Action Taken					Hazard Type								Plan Goals Addressed					
52		X			Spring Creek Township	X				Identify surface water & drainage tile obstructions.	Spring Creek Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
53			X		Spring Creek Township (or City of Piqua)		X			Tornado saferoom for the Mobile Home Court on 25A.	Mobile Home Court Owner Miami County EMA	3 - 5 Years	Low	X			X		
54				X	Staunton Township	X				Identify surface water & drainage tile obstructions.	Staunton Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
55		X			Village of West Milton		X			Tornado saferoom for Mobile Home Court located west of West Milton on S.R. 571.	Mobile Home Court Owner Miami County EMA	3 - 5 Years	Low	X			X		
56		X			Washington Township	X				Identify surface water & drainage tile obstructions.	Washington Township Trustees Miami County Engineer	3 - 5 Years	Low	X	X		X		
57	X				Village of West Milton		X			Install 3 tornado warning sirens.	Village Officials	Completed 2011-2012		X		X			X
57A				X	Village of West Milton	X		X		Extension of sanitary sewer system from West Milton to Ludlow Falls.	Village Officials	2 - 4 Years	Moderate	X	X			X	
58				X	Miami County Park District	X	X		X	Expand weather warning sirens in the major county parks.	Miami County EMA Miami County Park District	2 - 4 Years	Moderate	X	X				X
58A	X				Miami County Park District	X	X		X	Expand weather monitor program to outdoor activity sites.	Miami County EMA Miami County Park District	Completed 2012		X	X				X
59				X	Miami County Park District		X			Provide multi-purpose safe building at the Stillwater Prairie Reserve. New concrete masonry block restroom facility was constructed at the Stillwater Prairie Reserve which affords some safety from storms.	Miami County Park District Miami County Building Regulations	2 - 4 Years	Moderate	X	X				
60				X	Monroe Township				X	Water and Sewer extensions to serve township residents.	Monroe Township Trustees,Tipp City Officials	3-5 Years	Moderate		X			X	

MIAMI COUNTY HAZARD MITIGATION ~ ACTION ITEMS

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	Action Taken					Hazard Type									Plan Goals Addressed					
60A	X				Monroe Township					X	Water and Sewer extensions to serve township residents.	Monroe Township Trustees, Tipp City Offices	Completed 2013-2014			X			X	
61	X				Monroe Township						Install 3 tornado warning sirens.	Monroe Township Trustees	Completed 2011		X		X			X
62				X	Village of Covington	X		X			General storm water evaluation for the community.	Village Officials	1 - 3 Years	High	X	X		X		
63				X	Village of Covington	X		X			Floodplain Assessment for Rocky Branch Creek	Village Officials	2 - 4 Years	Moderate	X	X		X	X	
64				X	Village of Covington	X		X			Floodproofing of Village WWTP	Village Officials	2 - 4 Years	Moderate	X	X				
65				X	Village of Covington		X				Installed tornado siren on the east end of the Village and constructed two tornado shelters at each of the two main street trailer parks.	Village Officials	2 - 4 Years	Moderate	X		X			X
66				X	City of Tipp City	X					Protect 2 N. First Street electric substation #1 from high water.	Village Officials	1 -3 Years	High	X	X		X		

MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016 5-Year Planning Update
Minutes-Meeting #2

Date: Tuesday, December 13, 2016 – 10:30 A.M.
Miami County Communications Center
210 Marybill Drive
Troy, Ohio 45373

- Welcome & Introductions

- Public Comments
 - None

- Schedule Clarification
 - Mike Henderson clarified that the January & February meeting will be the second Tuesday of the month at 10:30 A.M. at same location.

- In Kind Service Records – Reminder
 - Mike Henderson & Kenny Artz reminded team members to record & report monthly all time spent on review of existing & plans & any research time or meeting time. Mote & Associates will track so please complete reporting time monthly & send to Kenny Artz or Mike Henderson.
Email: KArtz@MiamiCountyEMA.org
mhenderson@moteassociates.com

- 2011 Plan Review – What has changed since 2012?
 - A. Community Profile & Development Trends
 - The Committee participated in discussing and listing community changes in past 5 years. A question was raised how are cities & villages, like Union & Huber Heights that have a portion in 2 counties structured? Answer: Any structures inside Miami region are included in the Miami County Mitigation Plan.

 - B. Review of Referenced Plans & New Planning Documents
 - The Committee discussed Community Plan updates since 2011.
 - > Kenny Artz mentioned Emergency Operations Plan update is underway.

- > Discussed 2011 FEMA Discovery Report for Upper Great Miami County Watershed – June 2011.
- > Miami County Flood Damage Reduction Resolution – April 19, 2011.
- > City of Piqua Emergency Action Plan for Swift Run Lake, Echo Lake & Franz Pond Dams & Hydraulic Canal Levee. Prepared December 2014, Revised May 2016.
- > City of Piqua Subsurface Exploration & Analysis for Dams – July 2014.
- > City of Piqua Source Water Assessment & Protection Plan – March 2011.

C. Discussion of New Plans

- See above.

D. Review of Risk Assessment Strategy

- The Committee reviewed the current list of Natural Hazards & all agreed that there should not be any changes to current list of hazards.
- Discussed Repetitive Losses and Mike Henderson indicated he has requested updates from OEMA.
- Reviewed list of other hazards in current Plan. All agreed to keep the other hazards “As is”.
- Discussed County Development trends.
 - > Major Huber Heights residential subdivision expansion in south end of county.
 - > Residential & Commercial Development in Troy-Tipp City.
 - > It was noted Piqua did not have much residential growth.

E. Reassessment of Hazard Vulnerability

- The Committee discussed events that have occurred since last plan updates including:

> Tornado Events since 2011

October 31, 2013	North Lena-Palestine Road	(F-0)
March 14, 2016	Laura	(F-0)
August 20, 2016	Bradford / Piqua	(F-0)

> Flooding Events since 2011
May 22, 2014

Countywide – Major flooding in Troy,
Covington & Tipp City.

> Severe Storms since 2011
June 30, 2012
September 20, 2012

Statewide FEMA Declaration
Storms and Straight-line Winds – FEMA
Declaration for 37 Ohio Counties, including
Miami County.

- Open Discussion – Comments & Questions
- Adjourn
 - Meeting adjourned at 11:55 A.M.

Next meeting Tuesday, January 10, 2017 at 10:30 A.M.

MIAMI COUNTY HAZARD MITIGATION MEETING #2 - SIGN-IN SHEET
December 13, 2016

[illegible]

MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016-2017 5-Year Planning Update
Minutes - Meeting #3

Date: Tuesday, January 10, 2017 – 10:30 A.M.
Miami County Communications Center
210 Marybill Drive
Troy, Ohio 45373

- Welcome
- Public Comments
 - > No comments
- In Kind Service Records – Reminder
 - > Mike Henderson reminded committee to provide in kind services work sheet to him or Kenny Artz on a monthly basis.
- Plan Update Assistance
 - A. Residential, Commercial & Agricultural Tax Evaluation Information
 - > Mike Henderson to get with County Auditor on information needed.
 - B. Review and Update of Epidemic/Disease Impact since 2011
 - > Mike Henderson to get with Miami County Board of Health.
- 2011 Plan Review
 - A. Repetitive Flood Update
 - > Participating NFIP Committees are Piqua, Troy, Tipp City, Covington, Fletcher, Laura & West Milton.
 - > Currently there are 11 Repetitive loss structures in the County (to qualify must have 2 or more losses of \$1,000 within a 10 year period).
 - > There are 7 new Repetitive losses since 2012 plan approval.
 - > Total Repetitive claims for Miami County since tracking began on January 31, 1982 is \$594,952.66.

B. Other Hazards in Plan

- Terrorism
- Utility Communication Failures
- Hazardous Material Incidents
- Transportation Accidents
- Dam Levee Failure

> Committee agreed to keep these “Other Hazards” in the Plan.

C. Asset Inventory

> Asset inventory requirements were presented.

> County EMA is currently working to get Risk Assessment updates.

D. Review of Current Action Item List

> Reviewed FEMA evaluation criteria for residential, commercial, industrial, Agricultural & utility property type losses.

- Open Discussion – Comments & Questions

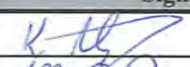

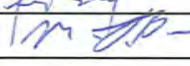

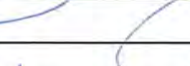
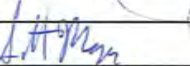
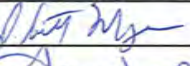



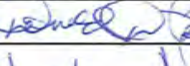
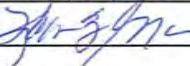
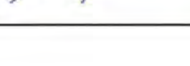
> Reviewed current Action Item List and made updates to Completed, Deleted, Unchanged or Ongoing Action items.

- Adjourn

Next meeting Tuesday, February 14, 2017, 10:30 a.m.

MIAMI COUNTY HAZARD MITIGATION MEETING #3 - SIGN-IN SHEET

January 10, 2017

Name	Agency	Phone	Ext.	Fax	E-mail	Signature
Artz, Ken	Miami County EMA	332-8560		440-9004	kartz@miamicountyema.org	
Beamish, Michael	Mayor, City of Troy	339-1221		339-8601	mayor.beamish@troyohio.gov	
Bowell, Jim	Miami County EMA	332-8562			jbowell@miamicountyema.org	
Busse, Michael	Covington Village Administrator	473-3420	101	473-3853	administrator@covington-oh.gov	
Calicoat, Jeff	Chief, Tipp City EMS	313-5788			jcalicoat@me.com	
Cantrell, Marc	American Red Cross	332-1414		332-1441	marc.cantrell@redcross.org	
Cox, Phil	Monroe Township Trustee	667-4716		667-3136	monroetwp@woh.rr.com	
Evans, John	Miami County Commissioner	440-5910		440-5911	jevans@co.miami.oh.us	
Havenar, Amy	Piqua City Engineer	778-2044		778-5165	ahavenar@piquaoh.org	
Henderson, Michael	Mote & Associates, Inc.	548-7511		548-7484	mhenderson@moteassociates.com	
Herron, Ben	West Milton Public Works	698-1500	116	698-3900	herron@ci.west-milton.oh.us	
Huelskamp, Paul	Miami County Engineering	440-5656		440-5659	phuelskamp@co.miami.oh.us	
Kegley, Stan	City of Troy Project Manager	335-1725		339-8601	stan.kegley@troyohio.gov	
Looker, Rick	Bradford Village Administrator	448-2718		448-0221	rlooker@bradfordoh.com	
Mercer, Tom	Concord Township Trustees	308-2591		332-1828	tmrcer2625@gmail.com	
Moyer, Scott	Miami County Auditor	440-5931			Smoyer@MiamiCountyOhio.gov	
Myers, Scott	Miami County Park District	335-6273		335-6221	smyers@miamicountyparks.com	
Neal, Amber	Miami County Auditor	440-3563			aneal@miamicountyohio.gov	
Pohlschneider, Brent	Piqua Fire Department	778-2013			bpohlschneider@piquaoh.org	
Propes, Dennis	Miami County Public Health	573-3505		573-3501	dpropes@miamicountyhealth.net	
Puskas, Barry	Miami Conservancy District	223-1278	3243	223-4730	bpuskas@miamiconservancy.org	
Shook, Robert	Citizen-At-Large	339-2637			rjshook115@gmail.com	
Suerdieck, Dan	Miami Co. Planning/Zoning Manager	440-8111	8123	440-8124	dsuerdieck@co.miami.oh.us	
Thompson, Corey	Miami County Engineer's Office	440-5656			cjthompson@miamicounty.org	
Vallieu, Melody	Troy Daily News	440-5265			mvallieu@civitasmedia.com	
Wagar, Richard	Miami County Engineering	440-5656		440-5659	rwagar@co.miami.oh.us	
	Miami County Sheriff	440-6078			adminassist@miamicountyso.com	
PENCE, DAN	CONCORD TOWNSHIP	216-4211		332-1828	DPENCE@WOH.RR.COM	
Bednar, Nate	Miami Co Public Health	573-3509			nbednar@miamicountyhealth.net	
BLACKMORE, ART	MIAMI CTY. LEPC					
BOB GRABER	CITY OF PIQUA	778-2044			BOBGRABER@PIQUA-PAH-DEPT	

Mary Kester

From: Mike Henderson
Sent: Friday, January 20, 2017 9:47 AM
To: lknguyen@dps.ohio.gov
Cc: kartz@miamicountyema.org; jmhoover@dps.ohio.gov; Mary Kester; Cindy Bach
Subject: Miami County Hazard Mitigation Planning

Hello Mr. Nguyen,

I would like to introduce myself. I am Mike Henderson, a consultant working with the Miami County Hazard Mitigation Committee on their 5 year Mitigation Plan updates. I look forward to meeting you in the future and congratulations on your new position!

Kenny Artz, Miami County EMA Director, and I would like to invite you to attend our next Miami County Mitigation Team meeting to share with the committee any new mitigation updates or information you may want to bring forth. We are currently holding a series of workshops in regards to the 5 year planning updates for Miami County Hazard Mitigation plan.

The next meeting is scheduled for **Tuesday February 14th at 10:30 am at the 911 Center, 210 Mary Bill Drive in Troy** and we look forward to having you attend as our guest if you are available. We also will be inviting Mr. Jacob Hoover, Mitigation Branch Supervisor, as well.

Thank you for your consideration,
Mike

Michael W. Henderson, LEED GA
Mote & Associates Inc.
Engineers & Land Surveyors
214 West Fourth Street
Greenville, Ohio 45331
P: 937.548.7511
F: 937.548.7484
mhenderson@moteassociates.com
www.moteassociates.com

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MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016-2017 5-Year Planning Update
Minutes-Meeting #4

Date: Tuesday, February 14, 2017 – 10:30 A.M.
Miami County Communications Center
210 Marybill Drive
Troy, Ohio 45373

- Welcome
- Public Comments
 - > None
- In Kind Service Records – Status report
 - > Mike Henderson indicated we have about 25% of In Kind Services accounted for.
- Schedule Review
 - > Mike Henderson reviewed updated schedule to include FEMA Community Meeting and changed plan distribution date to March 27, 2017.
- Future Meetings
 - A) FEMA Community Meeting – February 23, 2017
 - > The meeting is from 2:00 – 3:30, with an Open House from 4:00 – 7:00 at the 405 Building in Troy (405 SW Public Square).
 - > A discussion is to be held on flood insurance rate maps, flood insurance study and National Flood Insurance Program.
 - B) Public hearing – Mid – late April
 - > To be determined.
 - C) Schedule meeting with Jacob Hoover, State Mitigation Official and Luan Nguyen, State Mitigation Planner, regarding new mitigation opportunities.
 - > Mike Henderson will reach out to Jacob Hoover and Luan Nguyen to reschedule their visit.
- Review mitigation successes since 2012 Plan
 - > Reviewed the 22 listed mitigation successes since 2012 Plan Approval.

- Review and Discussion – Current Plan Goals
 - > Mike Henderson went over the current plan goal statements & objectives.
 - > The committee agreed it would be better to send out & discuss at the next meeting after the committee had more time to review.
 - > Mayor Mike Beamish suggested we come up with a vision statement for goals.
 - > Chairman Paul Huelskamp will address.
 - > Kenny Artz mentioned schools now are required to prepare and have approved by Emergency Management Agency an Emergency Response Plan.
 - > Discussed addressing importance of agriculture & large production losses that can be anticipated during weather events such as drought, storms & flooding.
 - > Discussed issues with corn stock residue during flooding events clogging storm drainage inlets and systems.
 - > Discussed new water tower critical infrastructure.
 - > City of Troy & Piqua – New water tower construction.
 - > City of Tipp City – New water tower in planning stage.
 - > Barry Puskas from the Miami Conservancy District indicated
 - > Technology is available with river gauges, and topography.
 - > Aerial mapping components available to create electronic “real time” flooding map projections for public use.
 - > Discussed possibility that this would be a good action item to explore pilot program for Miami County.
- Next meeting scheduled for Tuesday, March 14, 2017, 10:30 AM at 911 Center.
- Adjourn

MIAMI COUNTY HAZARD MITIGATION MEETING #4 - SIGN-IN SHEET

Date: 02-14-17

Name	Agency	Phone	Ext.	Fax	E-mail	Signature
Artz, Ken	Miami County EMA	332-8560		440-9004	kartz@miamicountyema.org	Ken Artz
Beamish, Michael	Mayor, City of Troy	339-1221		339-8601	mayor.beamish@troyohio.gov	Michael Beamish
Bowell, Jim	Miami County EMA	332-8562			jbowell@miamicountyema.org	Jim Bowell
Busse, Michael	Covington Village Administrator	473-3420	101	473-3853	administrator@covington-oh.gov	Michael Busse
Calicoat, Jeff	Chief, Tipp City EMS	313-5788			icalicoat@me.com	Jeff Calicoat
Cantrell, Marc	American Red Cross	332-1414		332-1441	marc.cantrell@redcross.org	Marc Cantrell
Cox, Phil	Monroe Township Trustee	667-4716		667-3136	monroetwp@woh.rr.com	Phil Cox
Evans, John	Miami County Commissioner	440-5910		440-5911	jevans@co.miami.oh.us	John Evans
Havenar, Amy	Piqua City Engineer	778-2044		778-5165	ahavenar@piquaoh.org	Amy Havenar
Henderson, Michael	Mote & Associates, Inc.	548-7511		548-7484	mhenderson@moteassociates.com	Michael Henderson
Herron, Ben	West Milton Public Works	698-1500	116	698-3900	herron@ci.west-milton.oh.us	Ben Herron
Huelskamp, Paul	Miami County Engineering	440-5656		440-5659	phuelskamp@co.miami.oh.us	Paul P. Huelskamp
Kegley, Stan	City of Troy Project Manager	335-1725		339-8601	stan.kegley@troyohio.gov	Stan Kegley
Looker, Rick	Bradford Village Administrator	448-2718		448-0221	rlooker@bradfordoh.com	Rick Looker
Mercer, Tom	Concord Township Trustees	308-2591		332-1828	tmercerc2625@gmail.com	Tom Mercer
Moyer, Scott	Miami County Auditor	440-5931			Smoyer@MiamiCountyOhio.gov	Scott Moyer
Myers, Scott	Miami County Park District	335-6273		335-6221	smyers@miamicountyparks.com	Scott Myers
Neal, Amber	Miami County Auditor	440-3563			aneal@miamicountyohio.gov	Amber Neal
Pohlschneider, Brent	Piqua Fire Department	778-2013			bpohlschneider@piquaoh.org	Brent Pohlschneider
Propes, Dennis	Miami County Public Health	573-3505		573-3501	dpropes@miamicountyhealth.net	Dennis Propes
Puskas, Barry	Miami Conservancy District	223-1278	3243	223-4730	bpuskas@miamiconservancy.org	Barry Puskas
Shook, Robert	Citizen-At-Large	339-2637			rjshook115@gmail.com	Robert Shook
Suerdieck, Dan	Miami Co. Planning/Zoning Manager	440-8123		440-8124	dsuerdieck@co.miami.oh.us	Dan Suerdieck
Thompson, Corey	Miami County Engineer's Office	440-5656			cjthompson@miamicounty.org	Corey Thompson
Vallieu, Melody	Troy Daily News	440-5265			mvallieu@civitasmedia.com	Melody Vallieu
Dave Duchak	Miami County Sheriff	440-6078			adminassist@miamicountyso.com	Dave Duchak
Blackmore, Art	Mt. City EMA					Art Blackmore
Don Pence						Don Pence
Walt Becker	Miami Co. Public Health	473-3420			admin@covington-oh.gov	Walt Becker

MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016-2017 5-Year Planning Update
Minutes - Meeting #5

Date: Tuesday, March 14, 2017 – 10:30 A.M.
Miami County Communications Center
210 Marybill Drive
Troy, Ohio 45373

*Attendance sheet attached.

*Meeting called to order at 10:30 A.M.

- Welcome
- No Public Comments received.
- In Kind Service Records – Status report
 - Mike Henderson indicated report of 112.50 hours of In Kind Services and reminded the Committee to provide In Kind hours for mitigation work outside of mitigation meetings.
- Schedule Review
 - The schedule remains the same.
- Future Public hearings
 - Committee member Paul Huelskamp, Chairperson, voted to have public meetings to review Draft Plan on Tuesday, April 25, 2017 at 6:00 P.M. at the County Safety Building, Troy, Ohio and Thursday, April 27, 2017 at 2:30 P.M. at the County Safety Building. (Commissioner Evans called later and changed Thursday, April 27, 2017 public meeting to 3:00 P.M.)
 - Mike Henderson will invite Jacob Hoover, State Mitigation Official and Luan Nguyen, State Mitigation Planner, to meetings to address new mitigation opportunities to attend public meeting.
 - Mike Henderson indicated Press Releases would be sent out to the cities, villages, and township contacts several weeks prior to the public meetings.
 - Mike Henderson also indicated the public will be able to send in written comments if unable to attend.

- FEMA Community Meeting on February 23, 2017.
 - Mike Henderson, Dan Suerdieck, Barry Puskas and Kenny Artz attended.
 - Key points were NFIP Requirements and open house for citizens to review proposed draft updated Flood Plan maps. There are not a lot of changes proposed for Miami County maps this update period. Adoption will not take place until later this year do to the process involved. Dan stayed for the open house and indicated approximated 25 people attended that portion of the meeting.
- Review and Discussion on Current and Proposed Plan Goals
 - The Committee reviewed and edited current Plan Goals.
 - A revised draft copy is included with these minutes.
- Questions and Comments
- The meeting adjourned at 11:45 A.M.

MIAMI COUNTY HAZARD MITIGATION MEETING #5 - SIGN-IN SHEET

Date: March 14, 2016

Name	Agency	Phone	Ext.	Fax	E-mail	Signature
Artz, Ken	Miami County EMA	332-8560		440-9004	kartz@miamicountyema.org	
Beamish, Michael	Mayor, City of Troy	339-1221		339-8601	mayor.beamish@troyohio.gov	
Bowell, Jim	Miami County EMA	332-8562			jbowell@miamicountyema.org	<i>Jim Bowell</i>
Busse, Michael	Covington Village Administrator	473-3420	101	473-3853	administrator@covington-oh.gov	
Calicoat, Jeff	Chief, Tipp City EMS	313-5788			jcalicoat@me.com	
Cantrell, Marc	American Red Cross	332-1414		332-1441	marc.cantrell@redcross.org	
Cox, Phil	Monroe Township Trustee	667-4716		667-3136	monroetwp@woh.rr.com	
Evans, John	Miami County Commissioner	440-5910		440-5911	jevans@co.miami.oh.us	<i>John Evans</i>
Havenar, Amy	Piqua City Engineer	778-2044		778-5165	ahavenar@piquaoh.org	
Henderson, Michael	Mote & Associates, Inc.	548-7511		548-7484	mhenderson@moteassociates.com	<i>Mike Henderson</i>
Herron, Ben	West Milton Public Works	698-1500	116	698-3900	herron@ci.west-milton.oh.us	
✓ Huelskamp, Paul	Miami County Engineering	440-5656		440-5659	phuelskamp@co.miami.oh.us	<i>Paul Huelskamp</i>
Kegley, Stan	City of Troy Project Manager	335-1725		339-8601	stan.kegley@troyohio.gov	<i>Stan Kegley</i>
Looker, Rick	Bradford Village Administrator	448-2718		448-0221	rlooker@bradfordoh.com	
Mercer, Tom	Concord Township Trustees	308-2591		332-1828	tmercer2625@gmail.com	
Moyer, Scott	Miami County Auditor	440-5931			Smoyer@MiamiCountyOhio.gov	<i>Scott Moyer</i>
Myers, Scott	Miami County Park District	335-6273		335-6221	smyers@miamicountyparks.com	<i>Scott Myers</i>
Neal, Amber	Miami County Auditor	440-3563			aneal@miamicountyohio.gov	
Pence, Don	Concord Township Trustees				dpence@woh.rr.com	
Pohlscheider, Brent	Piqua Fire Department	778-2013			bpohlschneider@piquaoh.org	
Propes, Dennis	Miami County Public Health	573-3505		573-3501	dpropes@miamicountyhealth.net	
Puskas, Barry	Miami Conservancy District	223-1278	3243	223-4730	bpuskas@miamiconservancy.org	
Shook, Robert	Citizen-At-Large	339-2637			rshook115@gmail.com	
Suerdieck, Dan	Miami Co. Planning/Zoning Manager	440-8123		440-8124	dsuerdieck@co.miami.oh.us	<i>Dan Suerdieck</i>
Thompson, Corey	Miami County Engineer's Office	440-5656			cjthompson@miamicounty.org	
Vallieu, Melody	Troy Daily News	440-5265			mvallieu@civitasmedia.com	
Duchak, Dave	Miami County Sheriff	440-6078			adminassist@miamicountyso.com	
Art Blackmore	EMA				ablackmore@miamicountyema.org	<i>Art Blackmore</i>
Bob Blackmore	CITY OF PIQUA (ENGINEERING)				bbblackmore@piqua-oh.org	<i>Bob Blackmore</i>

Mary Kester

From: Mike Henderson
Sent: Monday, April 03, 2017 8:10 AM
To: jmhoover@dps.ohio.gov; lknguyen@dps.ohio.gov
Cc: kartz@miamicountyema.org; Mary Kester; Cindy Bach; 'Paul Huelskamp'
Subject: RE: Miami County Hazard Mitigation Planning

Good Morning Mr. Hoover and Mr. Nguyen,

The Miami County Mitigation Committee has scheduled 2 public meetings in regards to the 5 year planning updates for Miami County Hazard Mitigation plan. These public meetings are scheduled for Tuesday, April 25, 2017 at 6:00 P.M. and Thursday, April 27, 2017 at 3:00 P.M. at the County Safety Building, Troy, Ohio.

We would like to invite you to attend either meeting session and share with the committee and public any new mitigation updates or information you may want to bring forth. Please let us know if you are able to attend either session.

We appreciate all that you do to assist in the planning efforts for the State of Ohio Mitigation process.

Thanks!
Mike

Michael W. Henderson, LEED GA
Mote & Associates Inc.
Engineers & Land Surveyors
214 West Fourth Street
Greenville, Ohio 45331
P: 937.548.7511
F: 937.548.7484
mhenderson@moteassociates.com
www.moteassociates.com
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From: Mike Henderson
Sent: Monday, February 06, 2017 2:28 PM
To: 'jmhoover@dps.ohio.gov' <jmhoover@dps.ohio.gov>
Cc: kartz@miamicountyema.org; Mary Kester <mkester@moteassociates.com>; Cindy Bach <CBach@MiamiCountyEMA.org>; lknguyen@dps.ohio.gov
Subject: RE: Miami County Hazard Mitigation Planning

Thanks Jacob,

We understand and I will discuss with Kenny to see if we can schedule a future date that may work out for you and Mr. Nguyen.

Mike

Michael W. Henderson, LEED GA
Mote & Associates Inc.
Engineers & Land Surveyors
214 West Fourth Street
Greenville, Ohio 45331
P: 937.548.7511
F: 937.548.7484

mhenderson@moteassociates.com
www.moteassociates.com

***Exceeding Engineering Expectations Today
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From: jmhoover@dps.ohio.gov [<mailto:jmhoover@dps.ohio.gov>]
Sent: Monday, February 06, 2017 12:49 PM
To: Mike Henderson <mhenderson@moteassociates.com>; lknguyen@dps.ohio.gov
Cc: kartz@miamicountyema.org; Mary Kester <mkester@moteassociates.com>; Cindy Bach
<CBach@MiamiCountyEMA.org>
Subject: RE: Miami County Hazard Mitigation Planning

Mike,

Due to some scheduling conflicts, namely I forgot that the EMA 101 course was going to be that same week as this meeting, neither Luan or I will be available to attend the meeting. Let me know when the next one is scheduled and we will see if that one works a little better timing wise.

Jacob

Jacob Hoover AICP, CFM
Mitigation Branch Supervisor
Ohio EMA
Department of Public Safety
(614) 799-3538

From: Mike Henderson [<mailto:mhenderson@moteassociates.com>]
Sent: Friday, January 20, 2017 9:47 AM
To: Nguyen, Luan <lknguyen@dps.ohio.gov>
Cc: Artz, Kenneth <kartz@miamicountyema.org>; Hoover, Jacob <jmhoover@dps.ohio.gov>; Mary Kester
<mkester@moteassociates.com>; Cindy Bach <CBach@MiamiCountyEMA.org>
Subject: Miami County Hazard Mitigation Planning

Hello Mr. Nguyen,

I would like to introduce myself. I am Mike Henderson, a consultant working with the Miami County Hazard Mitigation Committee on their 5 year Mitigation Plan updates. I look forward to meeting you in the future and congratulations on your new position!

Kenny Artz, Miami County EMA Director, and I would like to invite you to attend our next Miami County Mitigation Team meeting to share with the committee any new mitigation updates or information you may want to bring forth. We are currently holding a series of workshops in regards to the 5 year planning updates for Miami County Hazard Mitigation plan.

The next meeting is scheduled for **Tuesday February 14th at 10:30 am at the 911 Center, 210 Mary Bill Drive in Troy** and we look forward to having you attend as our guest if you are available.
We also will be inviting Mr. Jacob Hoover, Mitigation Branch Supervisor, as well.

Thank you for your consideration,
Mike

Michael W. Henderson, LEED GA
Mote & Associates Inc.
Engineers & Land Surveyors
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mhenderson@moteassociates.com
www.moteassociates.com

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POSTED ON [APRIL 20, 2017](#) BY [TROY DAILY NEWS](#)

Public meetings set for county's mitigation plan

OUTDOORS

Staff Report

TROY — A public informational meeting to review the updated Miami County Hazard Mitigation Plan is scheduled for 6 p.m. Tuesday, May 2 at the Miami County Safety Building, 201 W. Main St., Troy, or 4 p.m. Thursday, May 4 at the Miami County Safety Building, 201 W. Main St., Troy, as recommended by the Miami County EMA Mitigation Committee.

The initial draft of the 2017 plan updates can be reviewed online the week of April 24 at the Miami County Emergency Management Agency (EMA) website at <http://www.miamicountyohio.gov> or can be viewed at the Miami County Emergency Management office located at 201 W. Main St., Troy. Call (937) 332-8560 to schedule an appointment to review the initial draft of the 2017 plan updates.

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During the meeting, the public is invited to ask questions, and make comments or suggestions. City, county and emergency management officials will be on hand to answer any questions. All comments will be accepted through May 17 and will be documented and considered for inclusion in the plan.

The purpose of hazard mitigation planning is to reduce or eliminate the long-term risk to human life and property from hazards. It has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

The update Miami County plan is designed to mesh with and support MEMA's statewide Hazard Mitigation Plan. This will help increase coordination between local, state and federal agencies during times of disaster. In addition, by completing a hazard mitigation plan, Miami County is entitled to apply for future federal relief dollars to fund specific mitigation projects, designed to reduce and/or eliminate vulnerabilities resulting from disaster events throughout the County.

Mary Kester

From: Mary Kester
Sent: Wednesday, April 26, 2017 3:53 PM
To: 'ward1comm@piqua.oh.org'; 'jerry.hirt@betheltownship.org';
'beth.vanhaaren@betheltownship.org'; 'jdwirrig@woh.rr.com'; 'halep@tippcity.net';
'joe@gibsonlawohio.com'; 'gibsonj@tippcity.net'; 'vathb@tippcity.net';
'jim.dando@troyohio.gov'; 'PQuillen@Concord-Township.com';
'gdilts@elizabethtownshipohio.com'; 'jobrien@miamicountyohio.gov'; 'kline@ci.west-milton.oh.us'; 'tpuckett@miamiswcd.org'; 'brandycasstowncouncil@gmail.com';
'rbair1066@gmail.com'; 'stpost23@roadrunner.com'; 'rosgood@miamicountyohio.gov';
'Commissioners@MiamiCountyOhio.gov'; 'villageofludlowfalls@yahoo.com';
'uniontownship@frontier.com'; 'ema@co.champaign.oh.us';
'ldallessandris@clarkcountyohio.gov'; 'mindy@darkecountyema.org';
'jordanj@mcohio.org'; 'shelbycountyema@gmail.com'
Cc: 'Cindy Bach'
Subject: Miami County EMA Public Meeting News Release
Attachments: Miami County EMA Public Meeting News Release.pdf

Good Morning,

Please find attached invitation to Public Meetings regarding the 2017 Hazard Mitigation Plan Updates. Questions or comments will be received by the Mitigation Committee through May 17, 2017 and can be emailed to: Cindy Bach, Miami County EMA, cbach@miamicountyema.org or Mike Henderson, Consultant at mhenderson@moteassociates.com, or mailed to: Miami County EMA, 201 West Main Street, Troy, Ohio 45373. (937) 440-5900.

Thank you,

Mary Kester, Administrative Assistant
Mote & Associates, Inc.
Engineers & Land Surveyors
214 West Fourth Street
Greenville, Ohio 45331
P: 937.548.7511
F: 937.548.7484
mkester@moteassociates.com

NEWS RELEASE

Miami County Emergency Management Agency
201 W. Main St.
Troy, Ohio 45373

Kenny Artz, Director
(937) 332-8560

PUBLIC MEETING SCHEDULED FOR REVIEW OF THE DRAFT MIAMI COUNTY HAZARD MITIGATION PLAN

Troy, Ohio, Monday, April 24, 2017 – A public informational meeting to review the updated Miami County Hazard Mitigation Plan is scheduled for Tuesday, May 2, 2017 at 6:00 PM at the Miami County Safety Building, 201 West Main Street, Troy, Ohio or Thursday, May 4, 2017 at 4:00 PM at the Miami County Safety Building, 201 West Main Street, Troy, Ohio as recommended by the Miami County EMA Mitigation Committee. The initial draft of the 2017 Plan Updates can be reviewed online the week of April 24, 2017 at the Miami County Emergency Management Agency (EMA) website at <http://www.miamicountyohio.gov/index.aspx?NID=753> or can be viewed at the Miami County Emergency Management office located at 201 West Main Street, Troy, Ohio 45373. Please call 937-332-8560 to schedule an appointment to review the initial draft of the 2017 Plan Updates.

During the meeting, the public is invited to ask questions, and make comments or suggestions. City, County, and emergency management officials will be on hand to answer any questions. All comments will be accepted through May 17, 2017 and will be documented and considered for inclusion in the Plan.

The purpose of hazard mitigation planning is to reduce or eliminate the long-term risk to human life and property from hazards. It has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

The update Miami County plan is designed to mesh with and support FEMA's statewide Hazard Mitigation Plan. This will help increase coordination between local, state, and federal agencies during times of disaster. In addition, by completing a hazard mitigation plan, Miami County is entitled to apply for future federal relief dollars to fund specific mitigation projects, designed to reduce and/or eliminate vulnerabilities resulting from disaster events throughout the County.

MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016-2017 5-Year Planning Update
Minutes - Public Informational Meeting

Date: Tuesday, May 2, 2017 – 6:00 P.M.
Miami County Safety Building,
201 West Main Street, Troy, Ohio. 45373

- Welcome and introductions. (Sign-in sheet attached)
- Public comments – None
- Plan Purpose was given.
 - The purpose of hazard mitigation planning is to reduce or eliminate the long-term risk to human life and property from hazards. It has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.
 - The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by the Disaster Mitigation Act of 2000, provides the legal basis for state, tribal, and local governments to undertake risk-based approaches to reducing natural hazard risks through mitigation planning. Specifically, the Stafford Act requires state, tribal, and local governments to develop and adopt FEMA-approved hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance.
- Draft Plan Review
 - A brief draft plan review was given.
 - Comments will be received by the Miami County EMA through May 17, 2017.
- Questions and comments – None received

Public Meeting - May 2, 2017 @ 6:00 PM

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MIAMI COUNTY HAZARD MITIGATION COMMITTEE
2016-2017 5-Year Planning Update
Minutes – Public Informational Meeting

Date: Thursday, May 4, 2017 – 4:00 P.M.
Miami County Safety Building,
201 West Main Street, Troy, Ohio. 45373

- Welcome and introductions. (Sign-in sheet attached)
- Public comments – None
- Plan Purpose was given.
 - The purpose of hazard mitigation planning is to reduce or eliminate the long-term risk to human life and property from hazards. It has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.
 - The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by the Disaster Mitigation Act of 2000, provides the legal basis for state, tribal, and local governments to undertake risk-based approaches to reducing natural hazard risks through mitigation planning. Specifically, the Stafford Act requires state, tribal, and local governments to develop and adopt FEMA-approved hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance.
- Draft Plan Review
 - A brief draft plan review was given.
 - Comments will be received by the Miami County EMA through May 17, 2017.
- Questions and comments – None received

MIAMI COUNTY HAZARD MITIGATION MEETING - SIGN-IN SHEET

Date: May 4, 2017 @ 4:00 p.m.

[illegible]

Mary Kester

From: Mary Kester
Sent: Wednesday, May 17, 2017 10:58 AM
To: Kenneth Artz; mayor.beamish@troyohio.gov; administrator@covington-oh.gov; jcalicoat@me.com; marc.cantrell@redcross.org; monroetwp@woh.rr.com; Jack Evans; ahavenar@piquaoh.org; Herron, Ben; Paul Huelskamp; stan.kegley@troyohio.gov; rlooker@bradfordoh.com; Tom Mercer; Scott Moyer; Scott Myers; bpohlschneider@piquaoh.org; Dennis Propes; bpuskas@miamiconservancy.org; rjshook115@gmail.com; Dan Suerdieck; Richard Wagar; mvallieu@civitasmedia.com; dpence@woh.rr.com
Cc: Mike Henderson; Cindy Bach
Subject: Miami Co. EMA - Hazard Mitigation Plan Update
Attachments: Mitigation Plan Timesheet.xlsx

Good Morning,

There a few items I wanted to inform everyone about.

1. On June 7, 2017 at 7:30 PM there is a Miami County Council Meeting in the County Engineer's Highway Garage on County Road 25A. Jacob Hoover from the Ohio EMA will be there to talk about grant opportunities and Mike Henderson will be there to review the mitigation plan details and process. You are invited to attend.
2. A reminder, the initial draft of the 2017 Plan Update can be reviewed online at the Miami County EMA website at <http://www.miamicountyohio.gov/index.aspx?NID=753>. Please review the draft plan and if you have any edits or questions email Mike Henderson or Cindy Bach. (We plan to submit the draft June 15, 2017 to the EMA).
3. I have attached a timesheet to track In-Kind Services. Please send me or Cindy anytime you have so we can update the master sheet. Please include time spent reviewing the plan as it can be counted towards the counties share of In-Kind services which will help defer the costs.

Thank you,

Mary Kester, Administrative Assistant
Mote & Associates, Inc.
Engineers & Land Surveyors
214 West Fourth Street
Greenville, Ohio 45331
P: 937.548.7511
F: 937.548.7484
mkester@moteassociates.com

MIAMI COUNTY COUNCIL PRESENTATION

Wednesday, June 7, 2017 @ 7:30 PM

Miami County Engineers Highway Garage

(See attached list of attendees)

- Mike Henderson, Consultant with Mote & Associates and Jacob Hoover, Mitigation Branch Supervisor of Ohio EMA presented a mitigation program to the Miami County Council of city, village and township representatives.
- Mike Henderson presented information on the multi-jurisdictional Miami County 5-year Draft Plan Updates, which draft plan is currently found on the Miami County EMA website. Mike explained the Miami County Hazard Mitigation Committee has completed the planning and gave highlights on plan changes. Once approved by State of Ohio EMA & FEMA, the participating county, cities and villages will have one year to pass a resolution and adopt the plan. It was explained that the unincorporated areas including the townships will be approved under the jurisdiction of the County Commission. Cities, villages and townships were all encouraged to bring forth and include mitigation concerns and project activity needs within the plan in order for them to be eligible for mitigation funding opportunities. Mike explained how the committee has met annually since 2006 to make yearly updates and review progress of the plans action items.
- The National Flood Insurance Program was explained along with repetitive flooding issues the county has experienced and the need to address these issues.
- Through the Ohio Mitigation Branch, Jacob explained the complete Hazard Mitigation grant process and discussed funding opportunities such as acquisition & structure demolition/relocation, elevation, dry floodproofing, residential & community safe room opportunities within FEMA's Hazard Mitigation Grant Program.
- Upon the completion of the presentation a question and answer session was held.

MIAMI COUNTY COUNCIL ATTENDANCE: JUNE 7, 2017

NAME	EMAIL ADDRESS	Organization
Dan Suerdieck	dsuerdieck@miami...	Miami County DOD
Jacob Hosler	jmhavre@dps.ohio.gov	Ohio EMA
Mike Busse	administrator@covington-oh.gov	Covington
Paul P. Huelkamp	phuelkamp@miamicountyohio.gov	Miami County
Bill O'Brien	L1413143640@wih.wi.com	WILSON TWP
Pick Osgood	fosgoode@miami...	MC DOD
Mike Henderson	mhenderson@motobassociates.com	Moto Assoc
Art Blackmore	ablackmore@miamicountyema.org	Mt. Ctry. EMA/LEPC
Tom Mercer	tmercerc2625@gmail.com	Concord Twp.
Terry E Wackler	twac71@frontier.com	Newton Twp.
Mike Beamish	mayor.beamish@troyohio.gov	Troy
John O'Brien		MC Commission
Jack Evans		MS Commissioner
Lenny Wirl		Pleasant Hill
Jeff Wierkig		BRADFORD

TERRY HERT

BETHEL

MIAMI COUNTY COUNCIL ATTENDANCE: JUNE 7, 2017

[illegible]

October 4, 2017

Ms. Brandy Norman, Mayor
Village of Casstown
10 South Main St.
Casstown, OH 45312

RE: 2017 Miami County Hazard Mitigation Plan Updates

Dear Mayor Norman:

Please respond to the following questions in order to assist the Hazard Mitigation Committee to complete final updates to the Miami County Hazard Mitigation Plan. We appreciate your participation.

1. Has any improvements been made to your communities' infrastructure or critical facilities from 2012 to present?

☐ Yes

☐ No

If yes, please list: _____

2. Does your Village have any flooding issues that the Mitigation Committee should be aware of?

☐ Yes

☐ No

If yes, please indicate location and extent of flooding: _____

Signature & Title

Date

Again, thank you for your response. Please send your response to: Kenny Artz, EMA Director, 510 West Water Street, Troy, Ohio 45373. Phone: 937-332-8560. Fax: 937-440-9004
Email: kartz@miamicountyema.org.

Thank you,

October 4, 2017

Ms. Penny Reed, Mayor
Village of Fletcher
119 E. Second St.
Fletcher, OH 45326

RE: 2017 Miami County Hazard Mitigation Plan Updates

Dear Mayor Reed:

Please respond to the following questions in order to assist the Hazard Mitigation Committee to complete final updates to the Miami County Hazard Mitigation Plan. We appreciate your participation.

1. Has any improvements been made to your communities' infrastructure or critical facilities from 2012 to present?

☐ Yes

☐ No

If yes, please list: _____

2. Does your Village have any flooding issues that the Mitigation Committee should be aware of?

☐ Yes

☐ No

If yes, please indicate location and extent of flooding: _____

Signature & Title

Date

Again, thank you for your response. Please send your response to: Kenny Artz, EMA Director, 510 West Water Street, Troy, Ohio 45373. Phone: 937-332-8560. Fax: 937-440-9004
Email: kartz@miamicountyema.org.

Thank you,

October 4, 2017

Mr. Ed Guess, Mayor
Village of Laura
107 Ludlow St., PO Box 158
Laura, OH 45337

RE: 2017 Miami County Hazard Mitigation Plan Updates

Dear Mayor Guess:

Please respond to the following questions in order to assist the Hazard Mitigation Committee to complete final updates to the Miami County Hazard Mitigation Plan. We appreciate your participation.

1. Has any improvements been made to your communities' infrastructure or critical facilities from 2012 to present?

☐ Yes

☐ No

If yes, please list: _____

2. Does your Village have any flooding issues that the Mitigation Committee should be aware of?

☐ Yes

☐ No

If yes, please indicate location and extent of flooding: _____

Signature & Title

Date

Again, thank you for your response. Please send your response to: Kenny Artz, EMA Director, 510 West Water Street, Troy, Ohio 45373. Phone: 937-332-8560. Fax: 937-440-9004
Email: kartz@miamicountyema.org.

Thank you,

October 4, 2017

Ludlow Falls, OH

RE: 2017 Miami County Hazard Mitigation Plan Updates

Dear Village Representative:

Please respond to the following questions in order to assist the Hazard Mitigation Committee to complete final updates to the Miami County Hazard Mitigation Plan. We appreciate your participation.

1. Has any improvements been made to your communities' infrastructure or critical facilities from 2012 to present?

☐ Yes

☐ No

If yes, please list: _____

2. Does your Village have any flooding issues that the Mitigation Committee should be aware of?

☐ Yes

☐ No

If yes, please indicate location and extent of flooding: _____

Signature & Title

Date

Again, thank you for your response. Please send your response to: Kenny Artz, EMA Director, 510 West Water Street, Troy, Ohio 45373. Phone: 937-332-8560. Fax: 937-440-9004
Email: kartz@miamicountyema.org.

Thank you,

October 4, 2017

Mr. Steven Post, Mayor
Village of Potsdam
14 E. Cross St., PO Box 52
Potsdam, OH 45361

RE: 2017 Miami County Hazard Mitigation Plan Updates

Dear Mayor Post:

Please respond to the following questions in order to assist the Hazard Mitigation Committee to complete final updates to the Miami County Hazard Mitigation Plan. We appreciate your participation.

1. Has any improvements been made to your communities' infrastructure or critical facilities from 2012 to present?

☐ Yes ☐ No

If yes, please list: _____

2. Does your Village have any flooding issues that the Mitigation Committee should be aware of?

☐ Yes ☐ No

If yes, please indicate location and extent of flooding: _____

Signature & Title

Date

Again, thank you for your response. Please send your response to: Kenny Artz, EMA Director, 510 West Water Street, Troy, Ohio 45373. Phone: 937-332-8560. Fax: 937-440-9004
Email: kartz@miamicountyema.org.

Thank you,



MIAMI COUNTY EMERGENCY MANAGEMENT

Kenneth Artz
Director

Mr. Ed Guess, Mayor
Village of Laura
107 Ludlow St., PO Box 158
Laura, OH 45337

RE: 2017 Miami County Hazard Mitigation Plan Updates

Dear Mayor Guess:

Please respond to the following questions in order to assist the Hazard Mitigation Committee to complete final updates to the Miami County Hazard Mitigation Plan. We appreciate your participation.

1. Has any improvements been made to your communities' infrastructure or critical facilities from 2012 to present?

☐ Yes

☒ No


If yes, please list: _____

2. Does your Village have any flooding issues that the Mitigation Committee should be aware of?

☐ Yes

☒ No

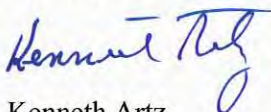
If yes, please indicate location and extent of flooding: _____


Signature & Title

10-9-17
Date

Again, thank you for your response. Please send your response to: Kenny Artz, EMA Director, 510 West Water Street, Troy, Ohio 45373. Phone: 937-332-8560. Fax: 937-440-8145
Email: kartz@miamicountyema.org.

Thank you,



Kenneth Artz
Director, Emergency Management Agency

MIAMI COUNTY EMERGENCY MANAGEMENT



Kenneth Artz
Director

Original Postmark: 10-5-17

Mr. Steven Post, Mayor
Village of Potsdam
14 E. Cross St., PO Box 52
Potsdam, OH 45361

RE: 2017 Miami County Hazard Mitigation Plan Updates

Dear Mayor Post:

Please respond to the following questions in order to assist the Hazard Mitigation Committee to complete final updates to the Miami County Hazard Mitigation Plan. We appreciate your participation.

1. Has any improvements been made to your communities' infrastructure or critical facilities from 2012 to present?

☒ Yes ☐ No

If yes, please list: New Storm Sewer in 2017

2. Does your Village have any flooding issues that the Mitigation Committee should be aware of?

☒ Yes ☐ No

If yes, please indicate location and extent of flooding: Currently will be pursuing A detention system by grant money

Steve Post Mayor
Signature & Title

11-07-17
Date

Again, thank you for your response. Please send your response to: Kenny Artz, EMA Director, 510 West Water Street, Troy, Ohio 45373. Phone: 937-332-8560. Fax: 937-440-8145
Email: kartz@miamicountyema.org.

Thank you,

Kenneth Artz

Kenneth Artz
Director, Emergency Management Agency

HOME. GROWN. GREAT.

visit 510 W. Water Street • Troy, Ohio 45373
phone 937.332.8560

RESOLUTION NO. 17-08-1054

AUTHORIZE/SIGN MEMORANDUMS OF UNDERSTANDING FOR EMERGENCY
MANAGEMENT AGENCY SERVICES WITHIN MIAMI COUNTY, OHIO

EMERGENCY MANAGEMENT AGENCY

Mr. O'Brien moved and Mr. Simmons seconded the motion to authorize and sign the attached *Memorandum of Understanding for Emergency Management Agency Services within Miami County, Ohio* with the following: City of Piqua, City of Troy, Tipp City, Village of Bradford, Village of Casstown, Village of Covington, Village of Fletcher, Village of Laura, Village of Pleasant Hill, Village of Potsdam, Village of West Milton, Bethel Township, Brown Township, Concord Township, Elizabeth Township, Lostcreek Township, Monroe Township, Newberry Township, Newton Township, Springcreek Township, Staunton Township, Union Township and Washington Township. The MOU's state the Miami County Emergency Management Agency will provide emergency management services necessary to perform all of the duties and requirements set forth in Ohio Revised Code section 5502.271 and the Ohio Administrative Code Chapter 4501:3-6, at no cost to the cities, villages and townships.

The Board voted as follows upon roll call:

Mr. Evans, Yea;

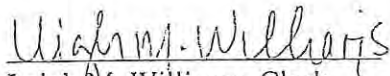
Mr. O'Brien, Yea;

Mr. Simmons, Yea;

DATED: August 8, 2017

CERTIFICATION

I, Leigh M. Williams, Clerk to the Board of Miami County Commissioners, do hereby certify that this is a true and correct transcript of action taken by the board under the date of August 8, 2017.


Leigh M. Williams, Clerk

Cc: Journal
Files
EMA – Kenny Artz

Kennith R. Artz

To: Aimee C. Maychack - UVMC EMS Coordinator (Business Fax); Amy Havenar; Amy Welker (awelker@piquaoh.org); Andy Ehrhart (andy.ehrhart@betheltownship.org); Herron, Ben; Robert J Shook; vathb@tippcity.net; Brent Pohlschneider - Piqua FD (bpohlschneider@piquaoh.org); Britt Havenar (bhavenar@co.miami.oh.us); Bruce Jamison (bjamison@piquaoh.org); Chuck Drake; Dan Suerdieck; dpropes@miamicountyhealth.net; Dick Wagar (rwagar@co.miami.oh.us); Eric Burris (burrise@tippcity.net); Gary Huff; Gary Johnston; Jack Evans; Jeff Busch (director@miamicounty911.com); Jgross65; Kreig Smail; Marcia Doncaster (mcas6@frontier.com); Maria Bayless; sensemanm@tippcity.net; Martin English - Monroe Twp; vallieu@tdnpublishing.com; Mike Busse (administrator@covington-oh.gov); Nancy Bowman; Paul Huelskamp; Earl, Randy; Rick Looker - Bradford Village Mgr (rlooker@bradfordoh.com); Scott Moyer (smoyer@co.miami.oh.us); Scott Pence; Steve Kessler; Sue Knight; Tom Mercer (tmercer2625@gmail.com); Tony Hughs; stan.kegley@troyohio.gov

Subject: Request to participate in County Multi-Hazard Mitigation Plan update and review.

Attachments: Statement of Intent in Multi.docx

Good morning everyone,

Today I submitted an application to FEMA for a grant to support the review and update of the current County Hazard Mitigation Plan. My intent is to hire a contractor to work with the committee once the grant has been approved. This process can take several months (my projected timeline is 86 weeks) to complete and obtain the required local approvals. Don't fret, this office along with the contractor will carry the burden throughout the process. I only ask that you attend meetings when requested and review any documentation that is sent to you. Normally we schedule only 4-5 meetings unless specific issues come up.

If you would, please review , sign and return to me the statement of intent. FYI, this is a Federal requirement of the grant process. I also anticipate a June 2016 kick off meeting if we receive the grant.

As always, feel free to contact me if you have any questions.

Kenny

Kenneth Artz, Director
Miami County Office of Emergency Management
937-332-8560

Kenneth Artz

To: brandycasstowncouncil@gmail.com
Cc: Mike Henderson; Cindy Bach (cbach@miamicountyema.org)
Subject: Mitigation Plan Action items review

Brandy,

Thank you for your response and we appreciate your interest in the County Mitigation Plan 5 year review and update. Over the next several months you may be receiving emails that would encourage you to review and add any comments you wish. You are also invited to attend periodic meeting of the Mitigation Planning group to discuss the progress in developing the plan.

Please do not hesitate to contact me or Mike Henderson if you have any concerns or questions. Once the plan has been finalized sometime during the spring of 2017 we will ask Casstown to formally adopt the plan.

Again, thank you for your participation.

Kenny
Kenneth Artz Director
Miami County office of Emergency Management
937-332-8560

Kenneth Artz

From: Mike Henderson <mhenderson@moteassociates.com>
Sent: Monday, October 10, 2016 11:55 AM
To: mvallieu@civitasmedia.com
Cc: Kenneth Artz; Cindy Bach; Mary Kester
Subject: FW: Miami County Mitigation 5 Year Plan Update Meeting
Attachments: Team Roster - Miami County Hazard Mitigation - Updated 08-13-15.xlsx; Miami County EMA Public Meeting Notice - 10-06-16.pdf

Good Morning,

Attached please find the EMA Public Meeting Notice and current mitigation team roster. Please mark your calendars for **Thursday, October 27, 2016 at 10:00 A.M.** for the kickoff meeting. We would like to have the plan updated and submitted to FEMA prior to June 2017.

An agenda for this meeting will be sent out later this week.

Thank you,

Mike

Michael W. Henderson, LEED GA
Mote & Associates Inc.
Engineers & Land Surveyors
214 West Fourth Street
Greenville, Ohio 45331
P: 937.548.7511
F: 937.548.7484
mhenderson@moteassociates.com
www.moteassociates.com
*Exceeding Engineering Expectations Today
To Achieve The Projects of Tomorrow...*

MIAMI COUNTY HAZARD MITIGATION TEAM ROSTER
August 13, 2015 (Revised September 15, 2016)

Name	Agency	Phone	Ext.	Fax	E-mail
Artz, Ken	Miami County EMA	332-8560		440-9004	kartz@miamicountyema.org
Beamish, Michael	Mayor, City of Troy	339-1221		339-8601	mavor.beamish@trovohio.gov
Busse, Michael	Covington Village Administrator	473-3420	29	473-3853	administrator@covington-oh.gov
Calicoat, Jeff	Chief, Tipp City EMS	313-5788			jcalicoat@me.com
Cantrell, Marc	American Red Cross	332-1414		332-1441	marc.cantrell@redcross.org
Cox, Phil	Monroe Township Trustee	667-4716		667-3136	monroetwp@woh.rr.com
Evans, Jack	Miami County Commissioner	440-5910		440-5911	jevans@co.miami.oh.us
Havenar, Amy	Piqua City Engineer	778-2044		778-5165	ahavenar@piquaoh.org
Henderson, Michael	Mote & Associates, Inc.	548-7511		548-7484	mhenderson@moteassociates.com
Herron, Ben	West Milton Public Works	698-1500	116	698-3900	herron@ci.west-milton.oh.us
Huelskamp, Paul	Miami County Engineering	440-5656		440-5659	phuelskamp@co.miami.oh.us
Kegley, Stan	City of Troy Project Manager	335-1725		339-8601	stan.kegley@trovohio.gov
Looker, Rick	Bradford Village Administrator	448-2718		448-0221	rlooker@bradfordoh.com
Mercer, Tom	Concord Township Trustees	308-2591		332-1828	tmerc2625@gmail.com
Moyer, Scott	Miami County Auditor	440-5931			Smoyer@MiamiCountyOhio.gov
Myers, Scott	Miami County Park District	335-6273		335-6221	smyers@miamicountyparks.com
Pohlschneider, Brent	Piqua Fire Department	778-2013			bpohlschneider@piquaoh.org
Propes, Dennis	Miami County Public Health	573-3505		573-3501	dpropes@miamicountyhealth.net
Puskas, Barry	Miami Conservancy District	223-1278	3243	223-4730	bpuskas@miamiconservancy.org
Shook, Robert	Citizen-At-Large	339-2637			rjshook115@gmail.com
Suerdieck, Dan	Miami Co. Planning/Zoning Manager	440-8111		440-8124	dsuerdieck@co.miami.oh.us
Vallieu, Melody	Troy Daily News	440-5265			mvallieu@civitasmedia.com
Wagar, Richard	Miami County Engineering	440-5656		440-5659	rwagar@co.miami.oh.us

Press Release – For Immediate Release
Miami County Ohio Emergency Management Agency
5 Year Mitigation Planning

The Miami County Emergency Management Agency has received a Hazard Mitigation Planning Grant for the purpose of updating the Miami County Hazard Mitigation Plan which was approved in 2012. Miami County is required by the Federal Emergency Management Agency to review and revise its plan to reflect progress in local mitigation efforts and changes in priorities in order to continue to be eligible for mitigation project grant funding. The purpose of hazard mitigation planning is to plan and take actions to reduce or eliminate the long-term risk to human life and property from hazards. It has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.

The Miami County Hazard Mitigation Committee will begin this planning process at a workshop meeting scheduled for **Thursday, October 27th, 2016 at 10:00 am at the Miami County Communications Center, 210 Marybill Drive, Troy, Ohio.** The public is invited to participate and attend.

The current plan, approved in 2012, can be viewed at the Miami County Ohio Emergency Management Agency (EMA) website at <http://www.miamicountyohio.gov/index.aspx?NID=753> or at the Miami County Emergency Management Office located at 510 West Water Street, Troy, OH, 45373. Please call 937-332-8560 to schedule an appointment to view the plan. Comments, recommendations or questions for plan updates are encouraged. Questions and comments can be submitted to the above address or can be emailed to the Miami County Planning Grant consultant, Mote & Associates, Inc., by email to info@moteassociates.com. Questions, suggestions and comments will be received through December 15, 2016.

It is the Hazard Mitigation Committees goal to have the updated plan completed and approved in June 2017.

Kenneth Artz
Miami County EMA Director
October 6, 2016

SIGN-IN SHEET
MCD AND MIAMI COUNTY EMA TABLETOP EXERCISE
MIAMI COUNTY COMMUNICATION CENTER
MAY 23, 2017

<u>Name</u>	<u>Agency</u>
DAVID STOCKLER	TIPP CITY FIRE
Lisa D'Alessandris	Clark EMA
Art Blackmore	MIAMI CTY. EMA/LEPC
Jim Bowell	Miami Co EMA
BARRY Puskas	MIAMI CONSERVANCY DISTRICT
CATHY PETERSEN	MONTGOMERY COUNTY
DAVE NEIDERMAN	MCOEM
Stephen Hrebennach	NWS
MIKE WHARLEY	MCSO
James Johnson	MCD
Rob Morando	MC SO
STEVE KESSLER	TIPP CITY FIRE
Patrick Titterton	TROY CITY DIRECTOR
Stacy Wall	City of Piqua
Mike Eldey	MCD
Don Freisthler	City of Piqua
KURT RINEHART	MCD
JEFF MONCE	TROY WTP
Brent Poltschneider	PIQUA FIRE
JAMES DAVDO	CITY OF TROY

SIGN-IN SHEET
MCD AND MIAMI COUNTY EMA TABLETOP EXERCISE
MIAMI COUNTY COMMUNICATION CENTER
MAY 23, 2017

<u>Name</u>	<u>Agency</u>
Cindy Bach	MCEMA
Jim Crawford	MCEMA
Julie Dixon Reed	NWS
Amy Havenar	Piqua
Michael Wogoman	MCD
Tim Davis	City of Troy
Phillip Claytor	Ohio EMA
Brenda Gibson	MCD
Angela [Signature]	MCD
Ken [Signature]	MCD
Janet Bly	MCD
NICK MUELLER	MCD
Paul P. Nulshans	MCEO
Sandra Curtis	MCEO
Scott Moyer	M.C. Auditor Ofc
Eric Krites	Troy Fire
Christy Butera	Troy Engineering
John Wehikamp	Troy High School
Amber Neal	Miami Co Auditor

SIGN-IN SHEET
MCD AND MIAMI COUNTY EMA TABLETOP EXERCISE
MIAMI COUNTY COMMUNICATION CENTER
MAY 23, 2017

Name

Agency

JACK EVANS

M.C. Comm.

Steve BUSCH

MIAMI COUNTY COMMUNICATION CTR.

FINAL EXERCISE REPORT
MIAMI CONSERVANCY DISTRICT AND MIAMI COUNTY EMERGENCY MANAGEMENT
AGENCY

August 23, 2017

This exercise was created, presented and evaluated based upon the guidelines developed in the State Emergency Response Commission's Ohio Hazardous Materials Exercise and Evaluation Manual (OHM-EEM). While the OHM-EEM is hazmat specific, the objectives chosen for this exercise were selected by a planning team using an all-hazards approach. This report was created based on the evaluation and recommendations of the chosen evaluators. Each evaluator was chosen based on being a subject matter expert in their field.

The communities of Piqua, Troy and Miami County took part in the exercise and were represented by law enforcement, fire, emergency management, engineering, public works, planning, finance and schools. The Miami Conservancy District was represented by administrative staff and operations-based personnel.

Executive Summary

On May 23, 2017 at 9:00 AM the Miami Conservancy District (MCD) and Miami County Emergency Management Agency (EMA) conducted a Table-Top Exercise at the Miami County Communication Center. The exercise scenario was a 100-year flood event effecting the entire county, but mainly focused on the Miami River corridor and the cities of Piqua, Troy, and Tipp City. Note that for clarification of occurrence possibilities FEMA has stopped describing events as 100-year events but now say a "1% Annual Chance Event". The purpose was to reinforce or establish how each entity would react to given problems and the actions taken working collaboratively to mitigate the event. The event begins with unseasonably warm weather, moderate to heavy rains and high winds in Miami, Shelby, Darke, Logan and Auglaize counties occurring for multiple days. Stream and river levels are rising, with some localized flooding. The conditions grow worse as the weather pattern continues, with major flooding, road closures, rescues, power outages, and food shortages taking place. Rivers, streams and dams are at record levels. Residents become frustrated and social media postings generate issues to address. As the days progress, the weather eventually clears and water levels begin to recede. The effects of the event begin to lessen, with conditions returning to pre-event normalcy over time.

The Facilitators for the exercise were:

Jim Bowell	Miami County EMA	Hazmat Coordinator
Barry Puskas	Miami Conservancy District	Manager, Technical Services
Julia Dian-Reed	National Weather Service	Service Hydrologist/Meteorologist

The OHM-EEM has 13 objectives that can be evaluated. All 13 are not evaluated for each exercise. There are typically 4-6 objectives chosen to be evaluated for each exercise, based upon what the planning team decides needs to be tested and learned for the participants taking part. For exercises that are conducted for Local Emergency Planning Committee (LEPC) credit, the State Emergency Response Commission (SERC) sometimes limits the number evaluated. This was not an LEPC exercise for credit. The planning committee chose the following exercise objectives:

- #3 Incident Command
- #5 Resource Management
- #6 Communications
- #9 Public Information

Exercise design objectives are focused on improving understanding of a response concept, identifying opportunities or problems, and/or achieving a change in attitude. The exercise was evaluated by the following evaluators:

David Stockler	Tipp City Fire and EMS	Objective #3-Incident Command
Dave Neiderman	Montgomery County EMA	Objective #5-Resource Management
Lisa D'Allessandris	Clark County EMA	Objective #6-Communications
Cathy Peterson	Montgomery County Communications	Objective #9-Public Information

Objective Summary

Objective #3: Incident Command Demonstrate the ability to implement an Incident Command System (ICS) and effectively direct, coordinate, and manage emergency response activities.

Points of review available: 10
Number not applicable: 4
Number met: 6

It was assumed the agencies involved used an ICS within their own jurisdictions. The Miami County Emergency Operations Center (EOC) was opened due to the nature and size of the overall incident. The City of Piqua noted early in the exercise that they would open their Operations Center. Information was shared between the MCD, communities and the county EOC. Individual agencies noted early on about opening EOC's to support their command structures. Finance groups were noted as being in operation to monitor resources and personnel. Emergency Action Plans were available regarding flooding. Pre-determined agreements were used for obtaining needed resources. Once the Joint Information Center (JIC) was established public information was shared easier. The agencies involved did well in sharing command type information between them.

Corrective Action Recommendations:

- Earlier implementation of the county EOC to help coordinate needed resources
- More coordination between affected communities, the county and MCD

After Action Meeting notes:

- It was noted the EMA does go into an incident assessment phase very early in an incident before a decision to officially open their EOC is made.
- Discussed pre-planned evacuation and snow routes and debris clearing from those routes.
- Requesting agencies are ultimately responsible for the cost of resources. If a State or Federal declaration is established due to the incident some recovery of expenditures may be realized.
- Who actually owns the bridges?
- Virtual EOC's may be required depending on the expanse of the incident with tie-ins to an EOC by conference call.
- If an event such as this occurred over three counties the MCD would not have enough staff to have a representative in each EOC, thus a virtual EOC would be best for them.

Objective Summary

Objective 5: Resource Management Demonstrate the ability to identify, mobilize, and manage resources required for emergency operations.

Points of review available: 7
Number not applicable: 0
Number met: 7

Organizations involved knew what resources would be needed for the scenario of the exercise. They had resources listed with their departments and discussion took place about getting additional resources through the EMA. Discussion took place regarding monitoring of the equipment due to increased use due to the flooding. Back-up radios for resources from outside of the county was discussed to facilitate communications among all responders. The aspect of recovery operations was noted early in the exercise. The cost of the resources was discussed with event tracking by the Miami County Auditor's office. Plans, operating procedures and lessons learned from past events were all discussed. The MCD talked about connecting generators to pump stations using diagrams and knowledge gained from exercising emergency hook-ups. Various agencies outside of Miami County were noted as available to help in situations such as this. Staffing of multiple operational periods was discussed. Planning was in place with players thinking ahead about resources that would be needed and actions to take to alleviate further resource needs, such as filling water towers early on in case reserve water was needed. Various back-up resources would be called in to fill vacancies of resources in use.

Corrective Action Recommendations:

- No specific recommendations were noted.

After Action Meeting notes:

- No specific comments or questions were noted relative to this objective.

Objective Summary

Objective 6: Communications Demonstrate the ability to effectively establish and maintain communications among all appropriate response locations, organizations, and personnel.

Points of review available: 6
Number not applicable: 1
Number met: 5

Communications overall were good during the exercise, with common communication platforms plentiful throughout Miami County. The statewide Multi-Agency Radio Communication System (MARCS) is used in Miami County. All of the public works offices have a communication network amongst each other. The Miami County Communication Center can add up to six dispatchers and has a cache of nineteen MARCS radios to assist in communications. The Communication Center uses the Integrated Public Alert and Warning System (IPAWS). IPAWS is a federal system to modernize and integrate the nation's alert and warning infrastructure for the public. Cell phones were noted for communication needs during the incident. The use of the Radio Amateur Civil Emergency Service (RACES) was discussed as being available for communication needs. RACES can provide radio communications utilizing amateur radio bands when other means of communication have been made inoperable due to the effects of the event that has occurred. They can communicate directly with Ohio EMA and provide information to the National Weather Service through the Skywarn system. The EMA would establish a WEB EOC event and communications with the Ohio EMA. WEB EOC is an internet based system for Emergency Operation Center event tracking, mission assignment, and communication of actions of an EOC.

Corrective Action Recommendations:

- Develop an all-hazards pre-planned coordinated countywide "Information Sharing Plan".
- Share all information to all parties at all times.
- The county EOC needs to be the CENTRAL POINT for coordination, then the local EOCs transition to command and control of their jurisdiction's assets only.
- Consider having one dedicated Public Information Officer (PIO) for a disaster.
- Consider having the Joint Information Center (JIC) co-located or near the EOC.
- Each jurisdiction should have an antenna connection for Amateur Radio.

After Action Meeting notes:

- PIO's from the various entities in the county have had meetings about having a Joint Information Center (JIC).
- The Miami County PIO situation of not having one other than Cathy Peterson of Montgomery County was discussed.
- The MCD does not have radio communication capability on the MARCS system but are considering it. Should the MCD have their own talk-group? It was agreed it would be a good approach to take.
- If there is an issue with MARCS towers causing radio communication problems it may be possible to borrow a mobile tower from Ohio EMA. The use of RACES for communications was discussed. There are antenna connections in some communities. If there are no connection points in your communities it would be best if one could be supplied so a RACES member could arrive at a facility and "just plug in" to an antenna.

Objective Summary

Objective #9: Emergency Public Information Demonstrate the ability to coordinate and disseminate accurate information about the incident to the public and the media in a timely manner.

Points of review available: 9
Number not applicable: 1
Number met: 8

Each entity designated a Public Information Officer (PIO). A Joint Information Center (JIC) was established later with each entity's PIO participating. Media notifications were made in a timely manner, and social media avenues were utilized. The organizations and municipalities coordinated with each other on public information. Once the JIC was established, public communications were more effectively handled and much more coordinated. The content of the releases were appropriate for the event and distributed thru various communication channels. Each PIO remained aware of the event status and communicated with their entity's various departments to stay updated. The PIO's all mentioned social media and rumor control thru social media. Records of event developments were kept and the actions taken relative to those developments. Each PIO was aware of their roles during the exercise and already established procedures.

Corrective Action Recommendations:

- Establish a network of PIO contacts for municipalities and organizations in Miami County before an actual emergency.
- Miami County should establish/select a trained PIO, other than a County Commissioner. The Commissioners are the spokesperson, but do not have the skills to act as PIO.
- If the municipalities don't have established plans for public information during emergencies, absolutely get that done. Include PIO training for multiple individuals.

After Action Meeting notes:

- If additional PIO training is needed it is possible to get Ohio EMA to come in and provide more training at no cost.
- There is a USGS mapping link on the MCD website available for anyone to use.
- Flood inundation mapping was discussed. There is an upfront cost and a yearly maintenance fee but the actual cost is not known. Jurisdictions should consider going together to finance obtaining the mapping program. Grants may be available to aid in covering the cost. Barry is to check with USGS regarding the program and cost.
- It was recommended to have USGS come in and give a presentation regarding flood inundation mapping as well as protection areas from the levees. Barry will contact USGS to set up a meeting. The meeting should be scheduled at the beginning of October because of budgeting cost.

Additional Recommendations

After the meeting, there was some discussion with a fire department of how to know what areas would be wet during an event and the river depth. Barry Puskas, MCD, noted that there are some mapping capabilities for showing the NWS forecasts as water depth called flood inundation mapping (FIM). Barry noted that MCD, USGS, NWS, and FEMA have many of the required information to develop a FIM system for the Miami County region. This type of mapping system can have numerous partners for development, maintenance, and web hosting. The partnership could include multiple local, state, and federal members.

Summary: This exercise provided a great opportunity for the various entities involved to learn how the others would react to a severe flood event and the interaction between agencies to expect. Having three expert Facilitators of different backgrounds allowed the presentation to include many specific aspects of operation that would take place when a major flood event occurs. Awareness of these operations by the entities is important and may affect their local operations, thus the communications and how they would be conducted during an event were pointed out during the exercise. The exercise included many opportunities to note Public Information, how it is gathered, and how it would be distributed.

The purpose of any exercise is to learn and identify the aspects of our entity's operations where improvements can be made. This exercise did fulfill that purpose with Evaluators that monitored specifics of the chosen objectives to meet and provided recommendations for improvements.

Thank you to all involved with any aspect of the exercise you may have been associated with and we trust what was learned will generate improvements in your operations.

After Action Meeting notes:

- It was voiced that the After Action Meeting should be conducted closer to the exercise so that things regarding the exercise are not forgotten.
- There was some general discussion regarding water distribution points in the jurisdictions if needed due to an event. Accessibility was noted as a priority in establishing water distribution points.

Report submitted by Art Blackmore, Miami County EMA/LEPC