MARION COUNTY LOCAL HAZARD MITIGATION PLAN

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1 | Introduction

1.1 Overview

With the Marion County 2014 Mitigation Plan for Natural Disasters set to expire in July of 2019, Marion County and its constituents are aiming to adopt a new, updated hazard mitigation plan. As outlined in the Disaster Mitigation Act of 2000 (DMA2K), any local jurisdiction seeking funding from the Federal Emergency Management Agency (FEMA) must maintain an up-to-date disaster mitigation plan. This Plan meets the criteria as set forth by FEMA in the DMA2K and provides the County and its participating jurisdictions with a comprehensive guide for future mitigation efforts to combat the hazards that affect their communities.

Both natural and man-made hazards pose a variety of risks to the lives, businesses, and properties within Marion County. The mission of the Marion County Mitigation Planning Committee is to develop and implement a Mitigation Plan for Marion County, Ohio that is directed specifically to natural and relevant man-made disasters. Through cooperative efforts among local subdivisions, state, and federal government agencies, the Plan is designed to minimize the adverse effects of disasters on the people and properties in Marion County.

This Marion County Local Hazard Mitigation Plan is considered a multi-jurisdictional plan which addresses issues specific to individual incorporated areas (cities and villages) and unincorporated areas (townships). The incorporated and unincorporated communities are listed in **Tables 1.1 and 1.2** and displayed on **Figure 1.1** on the following page. The Plan is designed for a five-year implementation period and describes the methods and procedures utilized in its development, provides the results of community involvement and surveys, identifies the mitigation actions determined to be the most important to Marion County, and sets a timeline for the implementation of these actions.

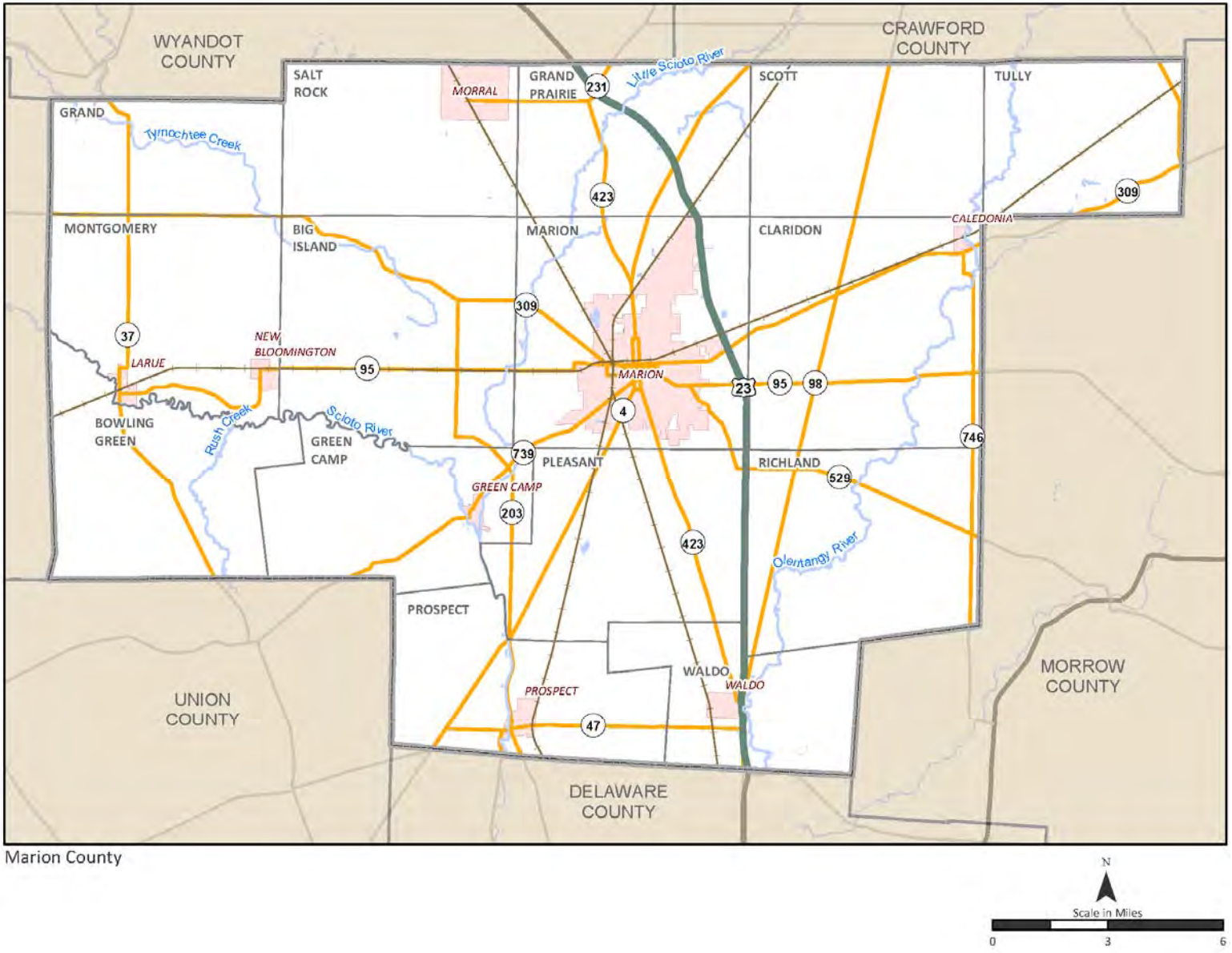
Table 1.1: Marion County Townships

Townships	
Big Island Township	Pleasant Township
Bowling Green Township	Prospect Township
Claridon Township	Richland Township
Grand Township	Salt Rock Township
Grand Prairie Township	Scott Township
Green Camp Township	Tully Township
Marion Township	Waldo Township
Montgomery Township	

Table 1.2: Marion County Jurisdictions

Jurisdictions
City of Marion
Village of Caledonia
Village of Green Camp
Village of LaRue
Village of Morral
Village of New Bloomington
Village of Prospect
Village of Waldo

Figure 1.1 Marion County Jurisdictions and Major Features



This Plan is comprised of six chapters, plus appendices, which detail the methods, analysis, and discussion surrounding the various hazards that threaten Marion County and its jurisdictions. These sections are as follows:

1. This **Introduction** (Chapter 1) provides a discussion about the general purpose and goals that Marion County wishes to achieve throughout the development and implementation of this Plan. This chapter also includes a summary of the Plan's contents.
2. Chapter 2, **History and Demographics**, includes a brief description of Marion County and each of the jurisdictions participating in this Plan, including their history, population, and other general information.
3. The process for the development of this Plan is detailed in Chapter 3, **Planning Process**. This chapter includes details about the formation of this Plan, including a description of who participated, how the community was involved, which hazards were included in the Plan and why, as well as how the Plan was developed through public meetings, reviews, and evaluations.
4. Chapter 4 contains the **Hazard Identification and Risk Assessment (HIRA)**. This chapter provides detailed descriptions and a corresponding analysis for each hazard that could potentially affect the County. The nature, location, extent, historical impact, vulnerability, and likelihood of occurrence for each hazard are provided for each hazard.
5. The goals, strategies, and actions for the County is then outlined in Chapter 5, **Hazard Mitigation**. The proposed actions are presented in tables, categorized by the associated hazard and community, and then ranked from highest to lowest priority based on feedback received from County officials and participating jurisdictions and stakeholders. Excluded hazards are also documented, along with the rationale for exclusion from the Plan.
6. The final chapter of this Plan, **Schedule and Maintenance**, provides a summary of the proposed Plan adoption, integration, and maintenance schedule.

The resulting Local Hazard Mitigation Plan will be submitted to the Ohio EMA and subsequently FEMA for their review. Following the agency review, the jurisdictions will then review the Plan for adoption. This hazard mitigation plan serves as a helpful tool for citizens, policymakers, local businesses, and other local stakeholders who all share a public interest in keeping Marion County as safe and resilient as possible. As such, this Plan aims to:

- Minimize property damage, economic loss, injury, and loss of human life – to achieve the Plan's main goal of reducing the impact of natural and man-made hazards on the County's economy and the well-being of its citizens.
- Enhance public awareness and education – to widen the public's understanding of natural and man-made hazards and how they might affect public health and safety, the environment, the local economy, and basic day-to-day operations.
- Coordinate inter-jurisdictional preparedness measures – to encourage and ensure multi-jurisdictional cooperation in County-wide mitigation actions and programs so that they may be implemented efficiently and effectively.
- Provide decision-making tools for interested stakeholders – to formulate a comprehensive, updated analysis of Marion County's vulnerability to hazards so that decision-makers can better prepare for natural and man-made disasters.
- Achieve regulatory compliance – to ensure that the County and its political subdivisions meet state and federal mitigation planning requirements so that they may be eligible to participate in and receive funding from grant programs, policies, and regulations.

1.2 Setting

Marion County is a rural county in Central Ohio, approximately 404 square miles in area. The County is located north of the outer suburbs of Columbus and Delaware, Ohio. Marion County is bordered by Delaware County and Union County to the south, Morrow County to the east, Crawford County and Wyandot County to the north, and Hardin County to the west. Marion County contains one city, seven villages, and 15 townships (**see Tables 1.1-1.2**). The City of Marion serves as the County seat.

Marion County is comprised of the five major land use types: Agricultural, Commercial, Exempt (including Government, Education, and Religious), Industrial, and Residential. These land uses are displayed in **Figure 1.2**.

Figure 1.3 shows land cover in Marion County. The County has seven land cover types: Developed/Urban Land, Agricultural Land, Rangeland, Forested Land, Water, Wetland, and Barren Land.

1.3 County Features

Major roadways – US Routes (US), and State Routes (SR) – in Marion County include US-23, SR-4, SR-37, SR-47, SR-95, SR-98, SR-203, SR-231, SR-309, SR-423, SR-529, SR-739, and SR-746. There are no interstates that traverse Marion County.

Marion County has one major bike route, the Marion Tallgrass Trail, which runs east-west for 12.4 miles from just west of Marion to the Hardin County line. There are multiple active rail lines in Marion County which are operated by CSX Transportation, Inc. or Norfolk Southern Corporation. These lines run north to south, east to west, and to the northwest. Marion County has one heliport and two airports. The heliport is owned and operated by Marion General Hospital. One airport is privately owned, while the Marion Municipal Airport is publicly owned by the City of Marion.

Major natural features in the County include the Olentangy River, the Scioto River, the Little Scioto River, Rush Creek, and Tymochtee Creek.

Figure 1.2 Marion County Land Use

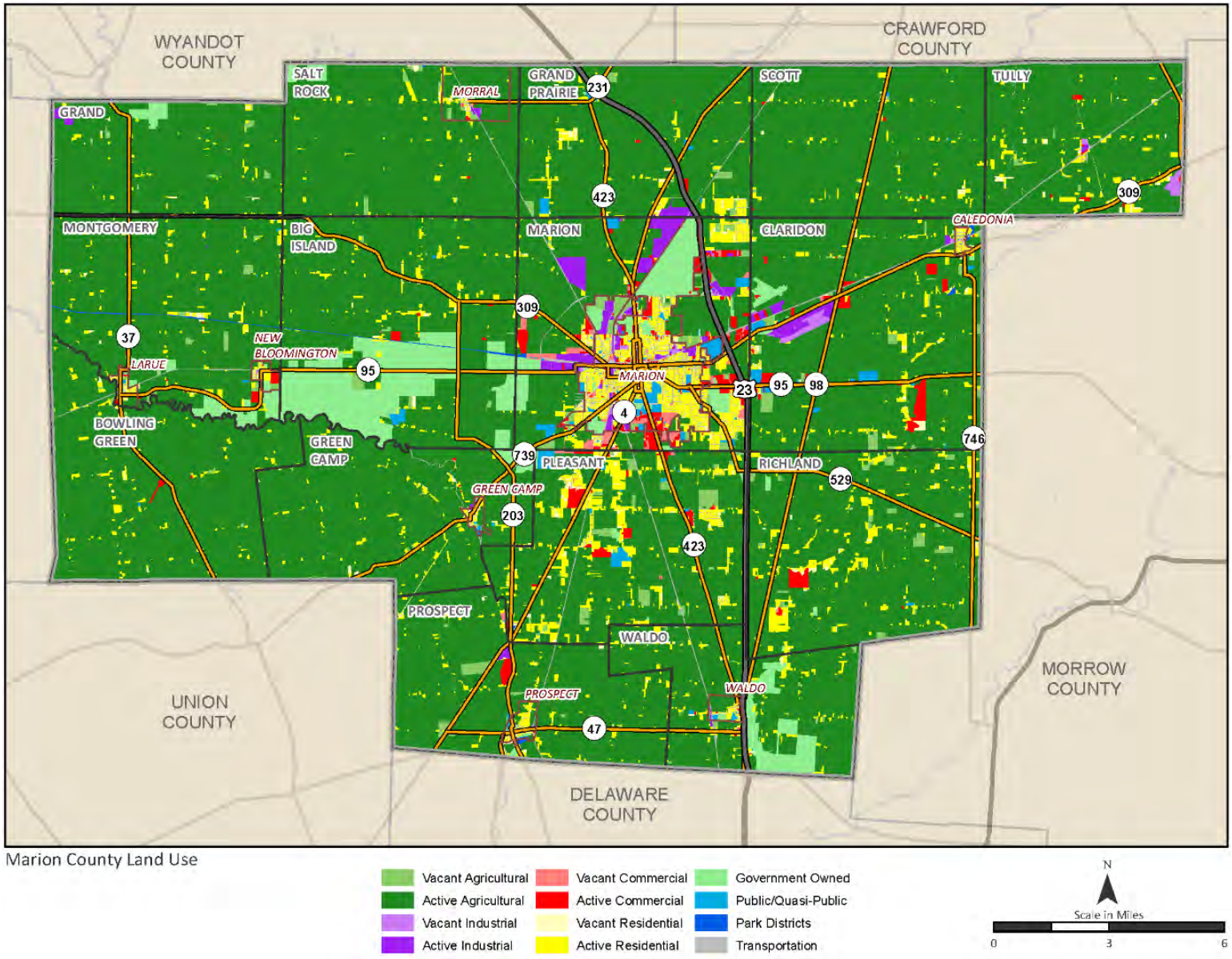
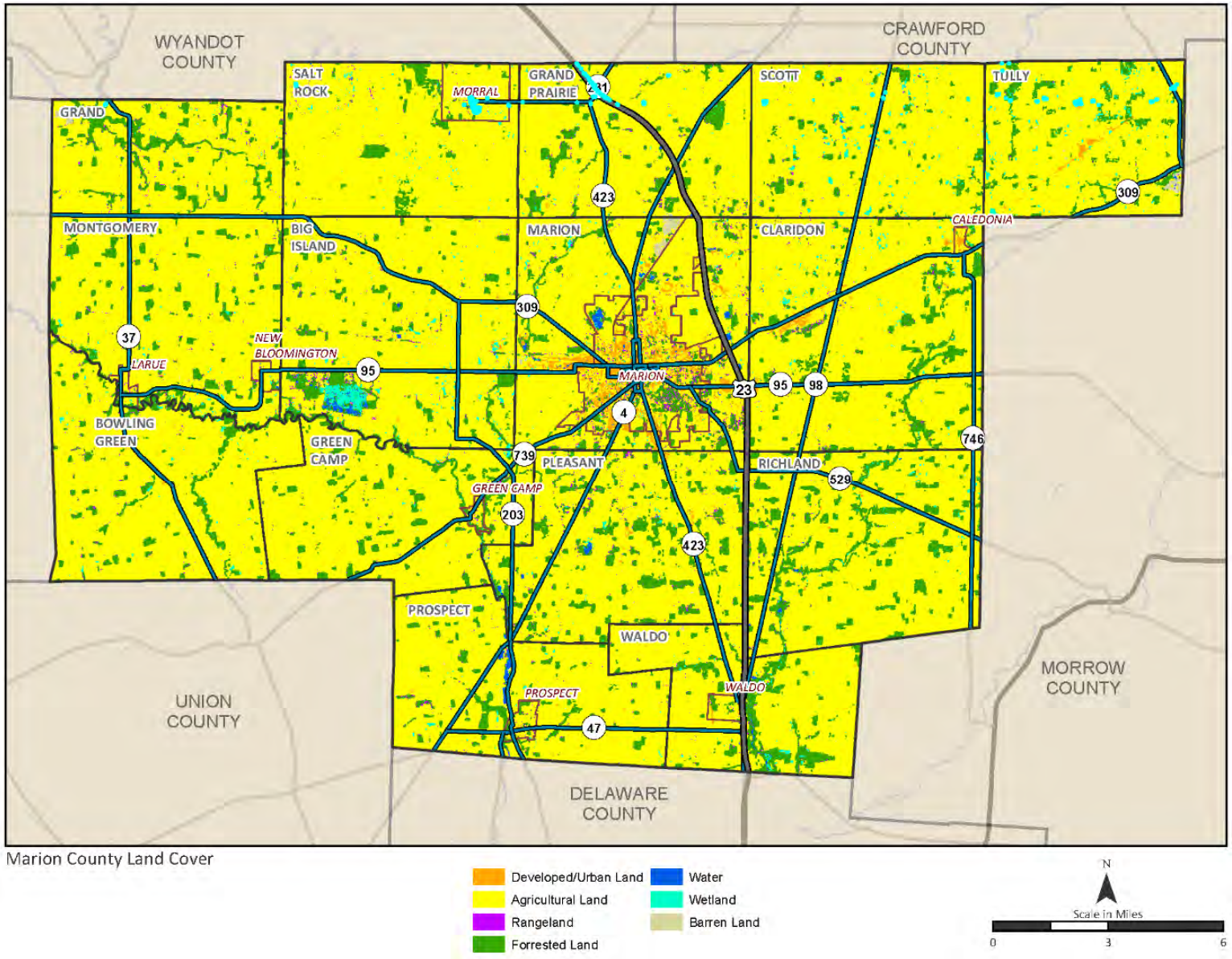


Figure 1.3 Marion County Land Cover



2 | History and Demographics

2.1 History

Marion County was established on February 12, 1820 and is named after Francis Marion, a soldier who fought in the American Revolution who is also considered one of the first soldiers to utilize modern guerilla warfare. The County is made up of one city, seven villages, 15 townships, and 14 unincorporated communities. The City of Marion is the seat of Marion County.

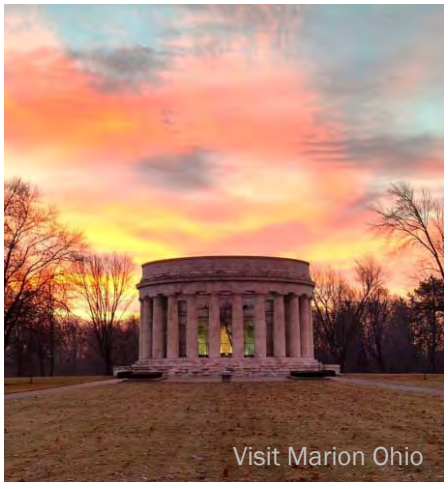
Marion County is known as the birthplace of President Warren G. Harding. Harding's home and his memorial are both located in the City of Marion. His home serves as a museum. Harding's home and memorial are included on the U.S. National Register of Historic Places along with 12 other destinations. The Harding Presidential Library is expected to be opened on the grounds of the home by the end of 2020.

Figure 2.1 Harding's Home

There are several historical societies, museums, and other sources of information that can be found within the County:

- The Marion County Historical Society
- The Wyandot Popcorn Museum
- Harding's Home and Museum (**Figure 2.1**)
- The Harding Memorial (**Figure 2.2**)
- Heritage Hall (**Figure 2.2**)
- Huber Machinery Museum
- The Women's Federation Club Home and the Barlow Art Gallery
- The Marion Public Library
- Owen's Station and Opera House
- The Palace Theater

Figure 2.2 The Harding Memorial (left) and Heritage Hall (right)



2.2 Communication Outlets

Marion County is served by several newspapers, periodicals, and radio stations including:

- Marion Star
- Marion Online / WDCM
- WBCO/WQEL
- WMFD
- WVNO
- Clear Channel
- iHeartMedia
- WDIF

Additional County communication outlets including websites, television, and social media for the Marion County EMA are listed in **Table 2.1**, below.

Table 2.1: Communication Outlets

Type	Source
Website	http://www.co.marion.oh.us/
Twitter	@marion_co_ema
Television	WBNS – Channel 10 (Local News)
	WCMH – Channel 4 (Local News)
	WSYX – Channel 6 (Local News)
	WCBZ-CD – Channel 28 (Local News)
	WOSU-TB – Channel 36 (Public Access)

2.3 Demographics Overview

The 2017 American Community Survey (ACS), provided by the U.S. Census, offers population estimates for all townships within Marion County. **Table 2.2,** below, displays the population estimates for the 2010 Census compared to the estimates provided by the 2017 ACS, as well as the expected percent change in population. These estimates show the population of Marion County shrinking by nearly two percent between 2010 and 2017. Six of the 15 townships are expected to grow in population.

A more detailed description of population, housing, and income demographics for Marion County and each jurisdiction are discussed on the following pages.

Table 2.2: County/Township population growth estimates between 2010 Census and 2017 ACS

County/Township	Total Population 2010 Census	Total Population 2017 ACS	2010-2017	
			Population Change	Percent Change
Marion County	66,501	65,483	-1,018	-1.53%
Big Island Township	1,205	1,071	-134	-11.12%
Bowling Green Township	650	580	-70	-10.77%
Claridon Township	2,742	2,811	69	2.52%
Grand Township	391	218	-173	-44.25%
Grand Prairie Township	1,590	2,057	467	29.37%
Green Camp Township	1,179	1,140	-39	-3.31%
Marion Township	44,749	44,064	-685	-1.53%
Montgomery Township	2,330	2,010	-320	-13.73%
Pleasant Township	4,773	4,681	-92	-1.93%
Prospect Township	2,089	2,232	143	6.85%
Richland Township	1,635	1,354	-281	-17.19%
Salt Rock Township	673	561	-112	-16.64%
Scott Township	498	506	8	1.61%
Tully Township	854	864	10	1.17%
Waldo Township	1,143	1,334	191	16.71%

2.4 Marion County

Tables 2.3 to 2.5 summarize Marion County's population, housing, and income statistics. According to the ACS, Marion County's population declined by 1,018 people between 2010 and 2017. As of 2017, there were over 27,000 total housing units in the County, with homeowner and rental vacancy rates of 9.83 percent and 10.95 percent, respectively. Countywide, 8.0 percent of families make less than $10,000 annually and the average family income is $55,564.

Table 2.3: Marion County Population Totals 2010-2017

Year & Source	Population Total
2010 Census	66,501
2011 ACS Estimate	66,503
2012 ACS Estimate	66,514
2013 ACS Estimate	66,323
2014 ACS Estimate	66,171
2015 ACS Estimate	65,943
2016 ACS Estimate	65,620
2017 ACS Estimate	65,483

Table 2.4: Marion County Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	27,894
Occupied Housing Units	24,699
Vacant Housing Units	3,195
Homeowner Vacancy Rate	9.83%
Rental Vacancy Rate	10.95%

Table 2.5: Marion County Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	8.0%
$10,000 to $14,999	6.8%
$15,000 to $24,999	12.2%
$25,000 to $34,999	12.5%
$35,000 to $49,999	15.2%
$50,000 to $74,999	19.3%
$75,000 to $99,999	11.0%
$100,000 to $149,999	10.9%
$150,000 to $199,999	2.6%
$200,000 or more	1.5%
Median Family Income	$44,708
Mean Family Income	$55,564

2.5 City of Marion

Tables 2.6 to 2.8 summarize the City of Marion's population, housing, and income statistics. Between 2010 and 2017, the City of Marion's population declined by 438 people. In 2017, there were over 15,000 housing units in the City, with homeowner and rental vacancy rates of 11.31 percent and 11.17 percent, respectively. Additionally, 2017 family income statistics show that nearly ten percent of families in the City of Marion make less than $10,000 annually while the mean family income is $49,087.

Table 2.6: City of Marion Population Totals 2010-2017

Year & Source	Population Total
2010 Census	36,837
2011 ACS Estimate	36,987
2012 ACS Estimate	36,974
2013 ACS Estimate	36,857
2014 ACS Estimate	36,791
2015 ACS Estimate	36,701
2016 ACS Estimate	36,568
2017 ACS Estimate	36,399

Table 2.7: City of Marion Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	15,121
Occupied Housing Units	13,008
Vacant Housing Units	2,113
Homeowner Vacancy Rate	11.31%
Rental Vacancy Rate	11.17%

Table 2.8: City of Marion Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	9.9%
$10,000 to $14,999	9.6%
$15,000 to $24,999	15.9%
$25,000 to $34,999	13.8%
$35,000 to $49,999	14.0%
$50,000 to $74,999	18.9%
$75,000 to $99,999	8.7%
$100,000 to $149,999	6.2%
$150,000 to $199,999	1.9%
$200,000 or more	1.0%
Median Family Income	$35,616
Mean Family Income	$49,087

2.6 Village of Caledonia

Tables 2.9 to 2.11 summarize the Village of Caledonia's population, housing, and income statistics. The population of Caledonia increased by five people between 2010 and 2017, according to the ACS. Additionally, the ACS housing statistics indicate that while there is a zero percent homeowner vacancy rate, there is a 15.1 percent rental vacancy rate in the Village. Caledonia has an average family income of $59,431 and less than 0.5 percent of families make less than $10,000 annually.

Table 2.9: Village of Caledonia Population Totals 2010-2017

Year & Source	Population Total
2010 Census	577
2011 ACS Estimate	533
2012 ACS Estimate	677
2013 ACS Estimate	643
2014 ACS Estimate	742
2015 ACS Estimate	617
2016 ACS Estimate	683
2017 ACS Estimate	582

Table 2.10: Village of Caledonia Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	292
Occupied Housing Units	239
Vacant Housing Units	53
Homeowner Vacancy Rate	0%
Rental Vacancy Rate	15.1%

Table 2.11: Village of Caledonia Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	0.4%
$10,000 to $14,999	0.0%
$15,000 to $24,999	15.5%
$25,000 to $34,999	16.7%
$35,000 to $49,999	16.3%
$50,000 to $74,999	25.1%
$75,000 to $99,999	9.6%
$100,000 to $149,999	15.1%
$150,000 to $199,999	1.3%
$200,000 or more	0.0%
Median Family Income	$51,042
Mean Family Income	$59,431

2.7 Village of Green Camp

Tables 2.12 to 2.14 summarize the Village of Green Camp's population, housing, and income statistics. According to the ACS, the Village's population declined by 30 people between 2010 and 2017 but maintains a zero percent homeowner and rental vacancy rate. Over five percent of families in Green Camp make less than $10,000 annually, while the Village has a mean family income of $52,185.

Table 2.12: Village of Green Camp Population Totals 2010-2017

Year & Source	Population Total
2010 Census	374
2011 ACS Estimate	332
2012 ACS Estimate	367
2013 ACS Estimate	383
2014 ACS Estimate	326
2015 ACS Estimate	368
2016 ACS Estimate	349
2017 ACS Estimate	344

Table 2.13: Village of Green Camp Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	142
Occupied Housing Units	132
Vacant Housing Units	10
Homeowner Vacancy Rate	0.0%
Rental Vacancy Rate	0.0%

Table 2.14: Village of Green Camp Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	5.3%
$10,000 to $14,999	14.4%
$15,000 to $24,999	5.3%
$25,000 to $34,999	15.2%
$35,000 to $49,999	22.7%
$50,000 to $74,999	15.2%
$75,000 to $99,999	6.8%
$100,000 to $149,999	12.9%
$150,000 to $199,999	2.3%
$200,000 or more	0.0%
Median Family Income	$39,063
Mean Family Income	$52,185

2.8 Village of LaRue

Tables 2.15 to 2.17 summarize the Village of LaRue's population, housing, and income statistics. According to the ACS, the Village of LaRue's population declined by 80 people between 2010 and 2017. Additionally, LaRue has a total of 359 housing units, with homeowner and rental vacancy rates of 8.0 percent and 10.7 percent, respectively. Compared to all jurisdictions in the County, LaRue has the highest percentage of households with a family income of less than $10,000 (14.4%). Additionally, the mean family income for the Village is $45,812, which is the lowest in the County.

Table 2.15: Village of LaRue Population Totals 2010-2017

Year & Source	Population Total
2010 Census	747
2011 ACS Estimate	684
2012 ACS Estimate	586
2013 ACS Estimate	597
2014 ACS Estimate	606
2015 ACS Estimate	669
2016 ACS Estimate	718
2017 ACS Estimate	667

Table 2.16: Village of LaRue Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	359
Occupied Housing Units	248
Vacant Housing Units	75
Homeowner Vacancy Rate	8.0%
Rental Vacancy Rate	10.7%

Table 2.17: Village of LaRue Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	14.4%
$10,000 to $14,999	1.8%
$15,000 to $24,999	19.0%
$25,000 to $34,999	10.9%
$35,000 to $49,999	20.8%
$50,000 to $74,999	13.7%
$75,000 to $99,999	11.6%
$100,000 to $149,999	7.7%
$150,000 to $199,999	0.0%
$200,000 or more	0.0%
Median Family Income	$38,333
Mean Family Income	$45,812

2.9 Village of Morral

Tables 2.18 to 2.20 summarize the Village of Morral's population, housing, and income statistics. According to the ACS, the population of Morral declined by 28 people between 2010 and 2017. While the Village maintains a zero percent rental vacancy rate, the homeowner vacancy rate is 21.4 percent. Additionally, 1.3 percent of households in the Village have a family income less than $10,000, and the mean family income is $57,481.

Table 2.18: Village of Morral Population Totals 2010-2017

Year & Source	Population Total
2010 Census	399
2011 ACS Estimate	391
2012 ACS Estimate	450
2013 ACS Estimate	436
2014 ACS Estimate	477
2015 ACS Estimate	436
2016 ACS Estimate	425
2017 ACS Estimate	371

Table 2.19: Village of Morral Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	184
Occupied Housing Units	156
Vacant Housing Units	28
Homeowner Vacancy Rate	21.4%
Rental Vacancy Rate	0.0%

Table 2.20: Village of Morral Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	1.3%
$10,000 to $14,999	3.8%
$15,000 to $24,999	8.3%
$25,000 to $34,999	15.4%
$35,000 to $49,999	25.6%
$50,000 to $74,999	23.7%
$75,000 to $99,999	12.8%
$100,000 to $149,999	77%
$150,000 to $199,999	0.0%
$200,000 or more	1.3%
Median Family Income	$46,607
Mean Family Income	$57,481

2.10 Village of New Bloomington

Tables 2.21 to 2.23 summarize the Village of New Bloomington's population, housing, and income statistics. According to the ACS, between 2010 and 2017 the Village's population declined by 56 people. New Bloomington has 219 total housing units and homeowner and rental vacancy rates of 10.9 percent and 21.7 percent, respectively. 2017 ACS income statistics show that 8.8 percent of families make less than $10,000 annually, while the average family income is $52,375.

Table 2.21: Village of New Bloomington Population Totals 2010-2017

Year & Source	Population Total
2010 Census	515
2011 ACS Estimate	594
2012 ACS Estimate	418
2013 ACS Estimate	435
2014 ACS Estimate	422
2015 ACS Estimate	455
2016 ACS Estimate	382
2017 ACS Estimate	459

Table 2.22: Village of New Bloomington Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	219
Occupied Housing Units	173
Vacant Housing Units	46
Homeowner Vacancy Rate	10.9%
Rental Vacancy Rate	21.7%

Table 2.23: Village of New Bloomington Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	8.8%
$10,000 to $14,999	6.9%
$15,000 to $24,999	11.8%
$25,000 to $34,999	14.7%
$35,000 to $49,999	24.5%
$50,000 to $74,999	11.8%
$75,000 to $99,999	15.7%
$100,000 to $149,999	3.9%
$150,000 to $199,999	0.0%
$200,000 or more	2.9%
Median Family Income	$34,432
Mean Family Income	$52,375

2.11 Village of Prospect

Tables 2.24 to 2.26 summarize the Village of Prospect's population, housing, and income statistics. According to the ACS, the Village of Prospect's population declined by 113 people between 2010 and 2017. Additionally, the Village has 462 total housing units with a homeowner vacancy rate of 15.0 percent and a rental vacancy rate of 38.7 percent. Prospect's mean family income is the highest compared to the other jurisdictions in the County ($70,505).

Table 2.24: Village of Prospect Population Totals 2010-2017

Year & Source	Population Total
2010 Census	1,112
2011 ACS Estimate	1,198
2012 ACS Estimate	1,199
2013 ACS Estimate	1,129
2014 ACS Estimate	1,113
2015 ACS Estimate	1,118
2016 ACS Estimate	1,152
2017 ACS Estimate	999

Table 2.25: Village of Prospect Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	462
Occupied Housing Units	382
Vacant Housing Units	80
Homeowner Vacancy Rate	15.0%
Rental Vacancy Rate	38.8%

Table 2.26: Village of Prospect Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	0.0%
$10,000 to $14,999	0.0%
$15,000 to $24,999	9.2%
$25,000 to $34,999	17.0%
$35,000 to $49,999	19.6%
$50,000 to $74,999	20.7%
$75,000 to $99,999	12.0%
$100,000 to $149,999	11.5%
$150,000 to $199,999	7.6%
$200,000 or more	2.4%
Median Family Income	$51,538
Mean Family Income	$70,505

2.12 Village of Waldo

Tables 2.27 to 2.29 summarize the Village of Waldo's population, housing, and income statistics. According to the ACS, the Village of Waldo's population declined by 27 people between 2010 and 2017. Waldo has 180 total housing units, a homeowner vacancy rate of 10.0 percent, and a rental vacancy rate of 27.5 percent. Waldo has the second highest mean family income of all jurisdictions in the County ($59,794) and 4.3 percent of households make less than $10,000 annually.

Table 2.27: Village of Waldo Population Totals 2010-2017

Year & Source	Population Total
2010 Census	338
2011 ACS Estimate	431
2012 ACS Estimate	459
2013 ACS Estimate	474
2014 ACS Estimate	356
2015 ACS Estimate	377
2016 ACS Estimate	358
2017 ACS Estimate	311

Table 2.28: Village of Waldo Housing Statistics 2017 Estimate

Housing Statistics	Number
Total Housing Units	180
Occupied Housing Units	140
Vacant Housing Units	40
Homeowner Vacancy Rate	10.0%
Rental Vacancy Rate	27.5%

Table 2.29: Village of Waldo Income Statistics 2017 Estimate

Family Income Statistics	Percentage of Households
Less than $10,000	4.3%
$10,000 to $14,999	2.9%
$15,000 to $24,999	11.4%
$25,000 to $34,999	13.6%
$35,000 to $49,999	12.1%
$50,000 to $74,999s	35.7%
$75,000 to $99,999	4.3%
$100,000 to $149,999	12.9%
$150,000 to $199,999	0.7%
$200,000 or more	2.1%
Median Family Income	$56,786
Mean Family Income	$59,794

3 | Planning Process

3.1 Methodology

This chapter describes the process involved in the development of the Marion County Local Hazard Mitigation Plan. Specifically, it details who participated in the process, how community involvement was incorporated, what hazards were included in the Plan, as well as how the Plan was composed through stakeholder and public meetings, research, reviews, and evaluations.

3.2 Existing Plans and Regulations

Preparation for this Local Hazard Mitigation Plan included the review of existing planning documents for Marion County. Pertinent information from these documents was incorporated into this Plan. Furthermore, following the completion of this Plan, Marion County and its jurisdictions are encouraged to incorporate appropriate mitigation actions and strategies into their plan updates.

The following planning documents and regulations were utilized during the development of the Marion County Local Hazard Mitigation Plan, as needed:

- 2014 Natural Disaster Mitigation Plan
- Hazardous Materials Plan
- Marion County 2011 Land Use Plan
- Zoning Regulations
- Subdivision Regulations

3.3 Marion County Authority to Adopt Plan

Table 3.1 lists the existing authorities and regulations existing in Marion County's municipalities. It is important to note that, according to the 2014 Marion County Local Hazard Mitigation Plan, only local building codes are related to plumbing and construction within a floodplain. Other than plumbing or floodplain regulations, there are no local building codes for one-, two-, or multi-family housing. All commercial and industrial projects are subject to state building codes.

3.4 Notification Process

A Core Planning Committee was formed that included representatives from each of Marion County's jurisdictions, as well as township and County representatives. Each of the jurisdictions were engaged with the Core Planning Committee and provided pertinent feedback to complete this Plan, as well as more specific feedback related to their communities' experiences with hazards.

To include a diverse perspective on the County's needs, major employers, colleges and universities, and other organizations were invited to participate, as well. EMA Directors from counties contiguous to Marion County were also invited to participate. The complete list of Core Planning Committee members is listed in Table 3.2, along with which meetings they attended.

Table 3.1: Existing Authorities and Regulations in Marion County's Municipalities

Community	Planning Commission	Comprehensive Plan	Floodplain Regulation	Building Codes*	Zoning Regulations	Capital Budget	Public Works Budget
Marion County	Yes	Yes	Yes	Yes	Yes	None	Limited to in-kind wages only
City of Marion	Yes	Yes	No	Yes	Yes	None	Limited to in-kind wages only
Village of Caledonia	Yes	Yes	Yes	Yes	Yes	None	Limited to in-kind wages only
Village of Green Camp	Yes	No	Yes	Yes	Yes	None	Limited to in-kind wages only
Village of LaRue	Yes	Yes	Yes	Yes	Yes	None	Limited to in-kind wages only
Village of Morral	Yes	No	Yes	Yes	Yes	None	Limited to in-kind wages only
Village of New Bloomington	Yes	No	No	Yes	No	None	Limited to in-kind wages only
Village of Prospect	Yes	Yes	Yes	Yes	No	None	Limited to in-kind wages only
Village of Waldo	Yes	No	No	Yes	Yes	None	Limited to in-kind wages only

*As discussed in Section 3.3 above, the 2014 Marion County Local Hazard Mitigation Plan, only local building codes are related to plumbing and construction within a floodplain. Other than plumbing or floodplain regulations, there are no local building codes for one-, two-, or multi-family housing. All commercial and industrial projects are subject to state building codes.

Table 3.2: Core Planning Committee Members and Organizations

Organization	Representative(s)	Core Planning Meeting 1 (March 13, 2019)	Core Planning Meeting 2 (May 16, 2019)
Marion County EMA	Sarah McNamee	Attended	Attended
Marion County Recorder	Karen Douglas	Attended	Did Not Attend
Marion County Sanitary Engineer	Phil Wright, Scott Pierce	Attended	Attended
Marion County Sheriff's Office	Jeff Cline	Did Not Attend	Attended
Marion County Public Health	Tyler Pigman, Rachel Hill	Attended	Did Not Attend
Marion County Regional Planning Commission	Robert Morris	Attended	Did Not Attend*
City of Marion	Tom Robbins, Jim Bischoff	Attended	Attended
City of Marion Fire Department	Charles A. Deem	Attended	Did Not Attend
City of Marion Police Department	Jamie Ralston	Attended	Attended
Village of Caledonia	Maureen Welch	Attended	Did Not Attend*
Village of Green Camp	Michael Strawser	Attended	Did Not Attend*
Village of LaRue	John J. Boyd, Milton Lightfoot, Clarence Greer, John Howard	Attended	Did Not Attend*
Village of Morral	Rosemary Craig, Darla Hicks	Attended	Did Not Attend*
Village of New Bloomington	Melinda Mosley	Did Not Attend*	Did Not Attend*
Village of Prospect	Ken Blue	Did Not Attend*	Did Not Attend*
Village of Waldo	Bruce Baker, Douglas Parks, Rex Henry, Shirley Groll, William Hollaway, William Groll, Jimmie Cellar	Did Not Attend*	Did Not Attend*
Bowling Green Township	David Trihaft, Paul Kerr	Attended	Attended
Cleridon Township	Tim Mooney	Attended	Did Not Attend
Grand Prairie Township	James Schertzer, Wilfred Thiel Jr., Ron Thiel	Attended	Did Not Attend
Marion Township	Larry Ballinger	Attended	Attended
Marion Township Fire Department	Ben Meddles	Attended	Did Not Attend
Montgomery Township	Thomas Ford	Attended	Did Not Attend

Organization	Representative(s)	Core Planning Meeting 1 (March 13, 2019)	Core Planning Meeting 2 (May 16, 2019)
Pleasant Township	Wayne Creasap	Attended	Did Not Attend
Pleasant Township Fire Department	Clint Canterbury	Attended	Did Not Attend
Pleasant Local Schools	Jennifer Adams	Attended	Did Not Attend
Scott Township	Clint Canterbury	Attended	Did Not Attend
Aqua Ohio	Rob Reeder	Attended	Did Not Attend
Crawford County EMA	Kirk Williamson, Jette Candor	Attended	Attended
Elgin Local Schools	Bruce Gast	Attended	Did Not Attend
Marion Correctional Institute/ORDC	Jacob Brewer	Attended	Did Not Attend
Mid-Ohio Energy Cooperative	Mark Terrill, Gary Vanderhoff	Attended	Did Not Attend
Ridgedale Schools	Robert Britton	Attended	Attended
Ohio Health/Marion General Hospital	Keith Severns	Attended	Did Not Attend
Ohio Edison	Joe Jakubick	Attended	Attended
Ohio State Highway Patrol	Sgt. D Kinney, Lance Shearer	Attended	Attended
OSU Marion	Dave Claborn, Ron Turner	Attended	Did Not Attend
Red Cross	Peggy Reed	Attended	Did Not Attend
Scioto Conservancy District	Tom Ford, Clarence Greer, John Howard	Attended	Attended

**Met with Marion County EMA Director at a different time to review responsibilities, complete surveys, and provide feedback on planning process.*

Core Planning Committee members were invited to participate at the beginning of the planning process through a Kickoff Meeting announcement. Prior to each additional meeting, members of the Core Planning Committee were invited to participate via an email notification. Members of the public were encouraged to attend public meetings through press releases in the Marion Star, as well as through radio and social media announcements.

3.5 Meetings

3.5.1 Kickoff Meeting

For the purposes of this Plan, the Kickoff Meeting was carried out via email on February 22, 2019. Members of the Committee received a Kickoff Email that described the Marion County Local Hazard Mitigation Plan and the process by which it would be updated. Committee members received a Kickoff Announcement that outlined the following:

- Goal of the 2019 Marion County Local Hazard Mitigation Plan
- Who Is Involved in the Planning Process

- Hazard Mitigation Planning: Federal Requirements
- Hazard Mitigation Planning: Overview
- Hazard Mitigation Planning: Process and Schedule
- Hazard Mitigation Planning: Core Planning Committee Role
- Contact Information for Marion County EMA and Burton Planning Services

3.5.2 Core Planning Committee Meeting 1

The Core Planning Committee Meeting #1 was held at The Marion County Administration Building at 3:00 PM in the Prospect Room on March 13, 2019. The meeting started with an introduction of the meeting facilitator – Kimberly Burton, President of Burton Planning Services and Sarah McNamee, Director of Marion County EMA. Elvin Pinckney, Senior Environmental Specialist, served as meeting administrator for Burton Planning Services.

Ms. Burton presented a hazard mitigation overview including a definition and goals for hazard mitigation, types of hazards to consider, the requirements of a Hazard Mitigation Plan, funding opportunities, the benefits of planning, progress updates, and the role of the Core Planning Committee. The next meeting was scheduled for May 2019 and next steps were discussed.

Ms. Burton distributed and explained the hazard priorities and goals surveys to be filled out by the attendees. Participants were assisted by Kimberly Burton and Sarah McNamee, as needed, and local concerns and comments were discussed. The surveys were filled out by the attendees and turned in at the conclusion of the meeting.

Attendee total – 34 participants.

3.5.3 Public Meeting 1

The public meeting was held at The Marion County Administration Building at 5:30 PM in the Prospect Room on March 13, 2019. Participants were assisted by Kimberly Burton and Sarah McNamee in filling out the hazard priorities and goals surveys. Local concerns and comments were also discussed.

Attendee total – 10 participants.

3.5.4 Core Planning Committee Meeting 2

The Core Planning Committee Meeting #2 was held at The Marion County Administration Building at 2:30 PM in the Prospect Room on May 24, 2019. The meeting started with an introduction of the meeting facilitator – Anna van der Zwaag, Associate Planner with Burton Planning Services and Sarah McNamee, Director of Marion County EMA. Elvin Pinckney, Senior Environmental Specialist, served as meeting administrator for Burton Planning Services.

Ms. van der Zwaag presented a hazard mitigation overview including a definition and goals for hazard mitigation, the benefits of planning, progress updates, and the role of the Core Planning Committee. A summary of the data collected so far in the planning process, as well as the results of the first Core Planning Meeting was provided.

Ms. van der Zwaag distributed and explained the new mitigation action scoring matrix survey to the attendees. Local concerns and comments were discussed. The surveys were filled out by the attendees and turned in at the conclusion of the meeting.

Attendee total – 12 participants.

3.5.5 Public Meeting 2

The public meeting was held on May 24, 2019 at 5:30 PM in the Prospect Room at the Marion County Administration Building. The participant was assisted by Anna van der Zwaag and Sarah McNamee in filling out the new mitigation action scoring matrix surveys. Local concerns and comments were also discussed.

Attendee total – 1 participant

3.6 Public Comment Period

The 2019 Marion County Local Hazard Mitigation Plan was presented to the public online at https://burtonplanning.com/marion-co-hmp/ for review over the course of 15 days, from August 8, 2019 through August 23, 2019. Both the public and stakeholders were invited by email and social media to review the Final Draft Plan and provide comments via SurveyMonkey online. Some jurisdictions provided feedback directly to the Marion County EMA Director, while others completed the SurveyMonkey survey. In total, 24 responses were recorded through SurveyMonkey. These can be reviewed in **Appendix F**.

3.7 Planning Process

Stakeholder input was essential for determining the hazard prioritization, as well as which hazards were included or excluded from the Plan. Based on feedback from the Core Planning Committee, it was determined that Landslides and Mine Subsidence were not hazards of concern to Marion County and its communities. As such, these hazards were not included in the plan. Other hazards, such as coastal erosion and coastal flooding are not applicable to Marion County and have not been included in previous Hazard Mitigation Plans. More details about how survey feedback assisted in the determination of which hazards to exclude can be found in **Chapter 5, Hazard Mitigation**.

4 | Hazard Identification and Risk Assessment

4.1 Flooding

4.1.1 Description

FEMA describes a flood as "a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters [and] the unusual and rapid accumulation or runoff of surface waters from any source." Floods are typically riverine, coastal, or shallow. Flash floods are floods that occur quickly, even occurring without visible signs of precipitation. Urban flooding is a type of flood that can occur in areas of development that have a high level of impervious surfaces, such as concrete. The level of development and the level of stormwater management practices impact the severity of urban flooding. Common flood-related terms include:

- **100-Year Flood:** A flood that has a one percent chance to occur each year. The elevation of the water from the 100-year flood is called the Base Flood. Mitigation strategies should be based on the base flood elevation.
- **Floodplain:** An area that has the potential to flood from any source.
- **Floodway:** Sometimes referred to as a regulatory floodway. FEMA defines a floodway as "the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the Base Flood without cumulatively increasing the water surface elevation more than a designated height."
- **Flood fringe:** FEMA defines the flood fringe as "the area on either side of the floodway… This area is subject to inundation by the base flood but conveys little or no velocity flows."
- **Flash flood:** Flash floods are typically caused by heavy rainfall over a short period of time. These floods are particularly dangerous because they can occur in minutes and can sometimes occur even without rainfall, such as when an ice jam breaks or dissolves. Areas impacted by wildfires are particularly susceptible to flash floods.

4.1.2 Location

Flooding can occur throughout Marion County. Some floods are limited to the floodplain areas, but flash floods and urban floods can occur almost anywhere. The 100-year floodplain can be seen in **Figure 4.1.1: Flood Hazard Map**.

4.1.3 Extent

Marion County currently has 24 flood insurance maps. These were most recently updated in February 2010. Marion County has Special Purpose Flood Damage Reduction Regulations in effect. The purpose of these regulations include: (1) the protection of human life and health, (2) minimizing the expenditure of public money for flood control projects, (3) minimizing the need for rescue and relief efforts, (4) minimizing prolonged business interruptions, (5) minimizing the damage to public facilities and utilities, (6) ensuring that those who occupy flood hazard areas assume responsibility, (7) minimizing the impact of development on the natural and beneficial values of the floodplain, (8) preventing floodplain uses that are hazardous or environmentally incompatible, and (9) meeting the community participation requirements of the National Flood Insurance Program (NFIP).

Marion County and six communities within the County participate in the NFIP. These communities include the Village of Caledonia, the Village of Green Camp, the Village of LaRue, the Village of Morral, the Village of Prospect, and the Village of Waldo. The Village of New Bloomington does not participate in the NFIP because no residential properties are located within the 100- and 500-year floodplains. As such, there are no residential properties in the Village of New Bloomington that are eligible for flood insurance.

Figure 4.1.1: Flood Hazard Map

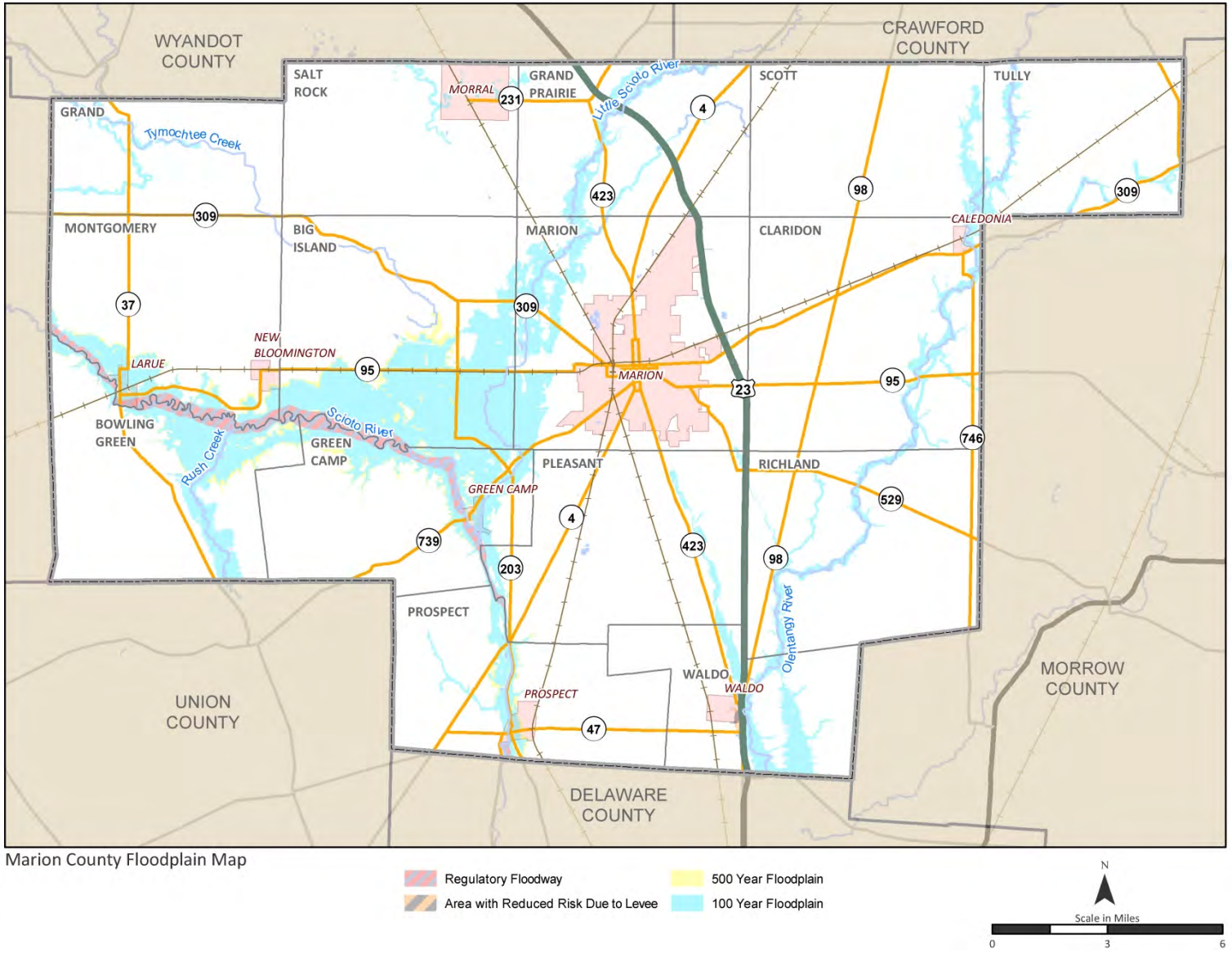


Table 4.1.1 shows the repetitive loss properties in Marion County, Ohio. FEMA defines a repetitive loss property as an insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. FEMA defines a severe repetitive loss property as a single family property that is covered under flood insurance by the NFIP and has incurred flood-related damage for which four or more separate claims payments have been paid under flood insurance coverage, with the amount of each claim payment exceeding $5,000 and with cumulative amount of such claims payments exceeding $20,000; or for which at least two separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property.

Table 4.1.1: Repetitive Loss Properties

Community Name	Occupancy	Zone*	Total Building Payment	Total Contents Payment	Losses	Total Paid	Average Pay
Severe Repetitive Loss Properties							
Marion County	OTHR-NONRES	X	$48,289	$9,732	2	$58,021	$29,010
Green Camp, Village of	SINGLE FMLY	AE	$47,304	$0	4	$47,304	$11,826
Repetitive Loss Properties							
Green Camp, Village of	SINGLE FMLY	EMG	$2,853	$1,905	2	$4,757	$2,379
Green Camp, Village of	SINGLE FMLY	A	$12,869	$0	2	$12,869	$6,434
La Rue, Village of	SINGLE FMLY	A04	$16,649	$0	2	$16,649	$8,325
La Rue, Village of	ASSMD CONDO	AE	$249,000	$4,682	2	$253,682	$126,841
La Rue, Village of	SINGLE FMLY	A04	$19,576	$0	3	$19,576	$6,525
La Rue, Village of	SINGLE FMLY	AE	$18,430	$0	2	$18,430	$9,215
La Rue, Village of	SINGLE FMLY	A04	$35,400	$0	2	$35,400	$17,700
La Rue, Village of	SINGLE FMLY	AE	$83,076	$0	2	$83,076	$41,538
La Rue, Village of	SINGLE FMLY	AE	$27,449	$0	2	$27,449	$13,725
La Rue, Village of	SINGLE FMLY	AE	$72,179	$0	2	$72,179	$36,090
La Rue, Village of	SINGLE FMLY	A04	$78,881	$0	3	$78,881	$26,294
La Rue, Village of	SINGLE FMLY	AE	$14,149	$4,336	2	$18,485	$9,242
La Rue, Village of	SINGLE FMLY	A04	$55,062	$12,681	2	$67,743	$33,872
La Rue, Village of	SINGLE FMLY	A04	$97,382	$0	3	$97,382	$32,461
La Rue, Village of	SINGLE FMLY	C	$70,370	$0	2	$70,370	$35,185

Community Name	Occupancy	Zone*	Total Building Payment	Total Contents Payment	Losses	Total Paid	Average Pay
La Rue, Village of	SINGLE FMLY	A	$104,800	$0	2	$104,800	$52,400
La Rue, Village of	SINGLE FMLY	AE	$139,266	$21,136	3	$160,402	$53,467
La Rue, Village of	SINGLE FMLY	AE	$142,497	$0	3	$142,497	$47,499
La Rue, Village of	OTHER RESID	AE	$119,000	$0	2	$119,000	$59,500
La Rue, Village of	OTHER RESID	AE	$119,000	$0	2	$119,000	$59,500
La Rue, Village of	OTHER RESID	AE	$119,000	$0	2	$119,000	$59,500
La Rue, Village of	OTHER RESID	AE	$119,000	$0	2	$119,000	$59,500
Marion County	SINGLE FMLY	A	$66,533	$0	2	$66,533	$33,266
Marion County	SINGLE FMLY	X	$24,234	$2,313	2	$26,547	$13,273
Marion County	SINGLE FMLY	A04	$21,275	$0	2	$21,275	$10,637
Marion County	SINGLE FMLY	A04	$15,811	$0	2	$15,811	$7,905
Marion County	SINGLE FMLY	A04	$52,096	$0	4	$52,096	$13,024
Marion County	SINGLE FMLY	X	$70,648	$25,000	2	$95,648	$47,824
Marion County	SINGLE FMLY	AE	$17,311	$0	2	$17,311	$8,655
Marion County	SINGLE FMLY	A04	$18,438	$0	2	$18,438	$9,219
Marion County	SINGLE FMLY	AE	$43,188	$5,993	2	$49,181	$24,591
Prospect, Village of	SINGLE FMLY	X	$9,104	$0	2	$9,104	$4,552
Prospect, Village of	SINGLE FMLY	A	$13,454	$50	4	$13,504	$3,376
Prospect, Village of	SINGLE FMLY	AE	$24,486	$0	3	$24,486	$8,162
Prospect, Village of	SINGLE FMLY	A04	$43,410	$0	5	$43,410	$8,682

**Zone Types:*

- *100-Year Floods: A=special flood hazard area (SFHA), no base flood elevation provided; A04=SFHA, base flood elevation provided; AE=SFHA, base flood elevation provided (newer designation)*
- *500-Year Floods: C=area of minimal flood hazard, X=area of minimal flood hazard (newer designation)*
- *EMG=Emergency Program (initial phase of participation in NFIP without flood hazard information)*

4.1.4 History

There have been 52 flood and flash flood events in Marion County from February 1996 to July 2019. These events caused $3.42 million in property damages and $115,000 in damages to crops. There were no reported deaths or injuries.

The following historic flooding events are selected to illustrate the most severe floods over the past ten years based on property damage. Additionally, the most recent flood in Marion County is included. There were no flood events that led to an emergency declaration or caused any deaths. Episode narratives are provided by the National Climatic Data Center (NCDC) at the National Oceanic and Atmospheric Administration (NOAA). For descriptions of all recorded flood events, see **Appendix A**.

Countywide Flooding, June-July 2019

During the development of this Plan, the County experienced flooding due to ongoing rain and severe storms. One resident in the Village of Prospect stated, "I've never seen anything like it." Another resident described how flood water drowned his garden of peppers, tomatoes, zucchini, and cucumbers (Source: 10tv). According to the Marion County Record, this flooding was also responsible for the destruction of crops after flood waters inundated hundreds of acres of farmland. Roads throughout the County, including some state and county routes, had to be closed due to high water. On Thursday, June 13, 2019, the Scioto River crested at 14.3 feet near the Village of Prospect, which is one of the highest recorded levels near the Village of Prospect ever recorded, according to the National Weather Service (Source: Marion Star). The Marion Star also recorded the following road closures as of June 17, 2019:

"Ohio 98 is closed between the Village of Waldo and Ohio 95, according to the Ohio Department of Transportation. Road closures remain at Ohio 203 between Ohio 4 and Ohio 739 and at Ohio 746 between Ohio 529 and Ohio 95.

The Marion County Sheriff's Office advised on its Twitter account on the morning of Wednesday, June 19, 2019 to avoid SR-98 between Bethlehem Road and Waldo Fulton Road, saying that the state route was impassable because of high water.

The following Marion County roads were closed as of 4:15 PM on Thursday, June 20, 2019 according to the Marion County Engineer's Office:

- *DeCliff Road between SR-95 and Agosta LaRue Road*
- *Clark Road between LaRue DeCliff Road and Clark Road*
- *Espyville Road between LaRue Green Camp Road and LaRue Prospect Road*
- *Essex Road between Ground Hog Pike and LaRue Green Camp Road*
- *Guthery Road between SR-37 and LaRue Green Camp Road."*

Flooding of the Village of LaRue on December 22, 2013

The Scioto River at the Village of LaRue experienced its worst flood in 50 years when it crested at a stage of 14.18 feet on December 22, 2013. This major flood surpassed the more recent flood, which occurred on February 28, 2011, by only 0.09 feet. The Scioto River flooded the outskirts of town before reaching the city limits. When the river rose out of its banks, it quickly filled up the low-lying town. The Kiwanis Village retirement community, an apartment complex for seniors, was inundated as much as two feet in some units and reached the roofs of cars left in the parking lot. One hundred people had to be evacuated. Access in and out of town was cut off by flood waters. The basin average rainfall was around three inches. According to Marion County EMA, snow had not yet melted by the time the rain had started. The Columbus Dispatch described the damage associated with this event (https://www.dispatch.com/article/20131224/NEWS/asdf).

Countywide Flooding on February 28, 2011
A strong area of low pressure moved northeast across Ohio on February 28, 2011. Heavy rain fell over northern Ohio in association with this low-pressure system. Heavy rain and rapid snow melt led to widespread flooding across Marion County. Rainfall totals across the County ranged from one to three inches on February 27, 2011 to February 28, 2011. Up to ten inches of heavy snow was on the ground at the onset of the rain. This snow rapidly melted as temperatures warmed into the 50s on February 28, 2011. Up to an additional inch of water equivalent rainfall was released from the melted snow. Several people had been rescued from stranded vehicles. Hundreds of homes in the County sustained damage, mainly from basement flooding. Many roads had to be closed because of the flooding. Officially, 2.78 inches of rain were measured at the Marion Municipal Airport. Rapid rises in area streams and rivers occurred with near record crests eventually reported at some river locations.

Countywide Flooding on January 1, 2005
Heavy rain and runoff from snowmelt caused extensive flooding in Marion County during the first half of January 2005. The worst of the flooding occurred along the Scioto River, with the villages of LaRue and Prospect especially hard hit. January 2005 was among the wettest of that month's history, with 7.08 inches of rain measured at the City of Marion and 7.69 inches at the Village of Prospect during the month of January 2005. In addition to this rain, extensive snowpack existed over Marion County at the beginning of the month. Temperatures in the 40s and 50s during January 1, 2005 to January 3, 2005 caused a rapid snowmelt and brought area streams and creeks to bank full just in time for a significant winter storm on January 5, 2005 to January 6, 2005. After a brief period of normalized weather, heavy rains fell on the area on January 11, 2005 to January 13, 2005, causing conditions to once again worsen.

At the Village of LaRue, the Scioto River went above the flood stage of 11 feet just after midnight on January 1, 2005. The river then remained in flood or just below flood through the middle of the month of January 2005 with crests of 12.7 feet on January 1, 2005 and 12.6 feet on January 6, 2005. Major flooding occurred at the Village of Prospect with the river going above the nine-foot flood stage late on January 1, 2005. The river remained in flood through January 18, 2005 with a peak crest of 14.17 feet on January 7, 2005. 20 to 30 homes were heavily damaged along Main Street in the Village of Prospect with many more damaged in the Village of LaRue. Several roads in Marion County had to be closed because of the flooding. Some pump failures caused by power outages from the ice storm of January 5, 2005 to January 6, 2005 led to many homes sustaining damage from basement flooding. Other homes and business in the County were affected by lowland or nuisance flooding.

4.1.5 Probability

Marion County has experienced 42 floods since February 1996, which averages to approximately two flood events annually. Annually, this amounts to over $125,217 in property damages and $3,260 in crop damages.

Marion County has also experienced ten flash floods since February 1996, or approximately one flash flood every two years. This amounts to approximately $23,478 in property damages and $1,740 in crop damages annually.

4.1.6 Vulnerability Assessment

Infrastructure Impact
Floods can impact roadways, including interstates and state routes by blocking them due to high water or by filling them with debris.

Population Impact
Flood models in Hazus indicate that 1,200 people would be displaced by floods at the 100-Year level, with less than 20 people needing long-term shelter.

Property Damage
Due to the potential for countywide flash flooding, all structures within the County may suffer damage from floods or flash floods. Buildings within the County have a total value of $665,397,380. All buildings within the County have the potential to be impacted by floods and flash floods. Flood events in Marion County from February 1996 to July 2019 have caused $3.42 million in property damages and $115,000 in damages to crops. Average annual property damage cost from all flood events is $148,700.

The U.S. Army Corps of Engineers (USACE) completed a more detailed analysis of the Scioto River to help Marion County identify high risk structures in the Scioto River floodplain (see **Figure 4.1.2**). The model used by the USACE is considered an improvement over the existing FEMA flood maps of the Scioto River. Marion County and the villages of Green Camp, LaRue, and Prospect have each passed a resolution recognizing the USACE mapping as the best available data. As of October 2019, the Marion County EMA verified that the USACE analysis had not been turned over to FEMA due to outstanding questions from the communities impacted, so they are currently using the FEMA flood maps (show in **Figure 4.1.1**).

Tables 4.1.2 and 4.1.3 summarize properties that fall within floodway or the 100-Year floodplain of the Scioto River. Properties fall either within the floodway or the flood fringe. The list of properties that fall within these areas has been provided to the County EMA and the appropriate jurisdictions for mitigation consideration, including where and how to develop these properties to avoid future flood damage.

Properties in **Tables 4.1.2 and 4.1.3** were selected if more than 50 percent of area of the property fell within the floodway or flood fringe. These selected properties were categorized as either located within the floodway or within the flood fringe – no property is listed in both areas. Property lines and values were received in February 2019.

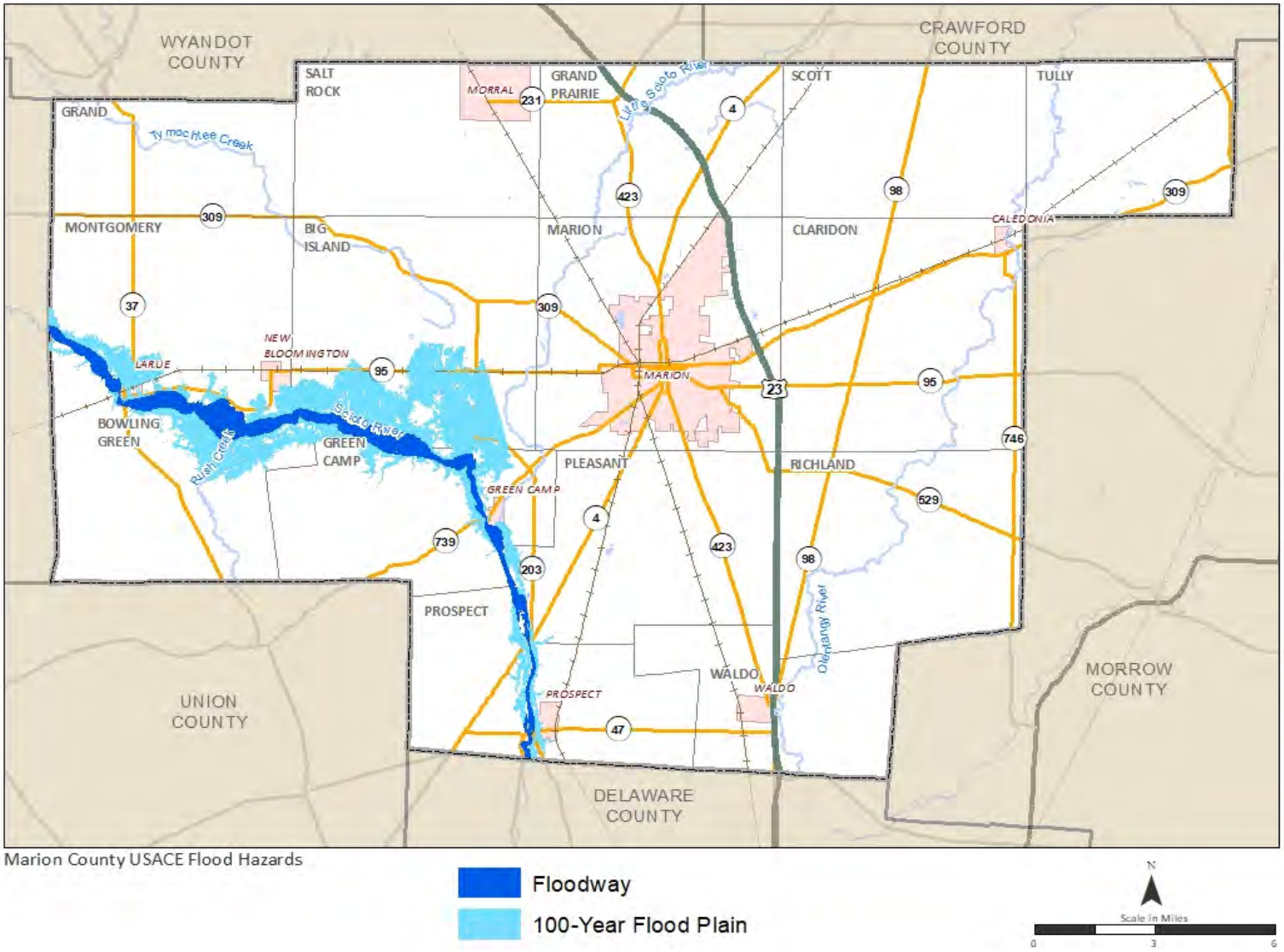
Table 4.1.2: Properties within Floodway (Scioto River)

	Count	Building	Land	Total
Residential	262	$4,459,440	$1,435,920	$5,895,360
Non-Residential	293	$2,294,300	$5,857,610	$8,151,910
Critical Facilities	42	$202,770	$482,630	$685,400
Totals	**597**	**$6,956,510**	**$7,776,160**	**$14,732,670**

Table 4.1.3: Properties within the Flood Fringe (Scioto River)

	Count	Building	Land	Total
Residential	630	$8,960,600	$2,762,440	$11,723,040
Non-Residential	295	$1,979,490	$4,119,140	$6,098,630
Critical Facilities	97	$1,527,880	$645,720	$2,173,600
Totals	**1,022**	**$12,467,970**	**$7,527,300**	**$19,995,270**

Figure 4.1.2: Scioto River Floodplain



Loss of Life
There are no reported deaths from any past floods. A future severe flood could lead to loss of life.

Economic Losses
Floods can halt economic activity, block roadways, and destroy agricultural crops. Contents in manufacturing, agriculture, high technology institutes, and medical institutes can also be destroyed. Crop losses are expected from a 100-year flood.

4.1.7 Land Use and Development Trends

Flash floods can occur anywhere and are especially likely in highly developed areas. Any development that has occurred since the previous plan and any new development has a chance to be impacted by flash flooding. Floods are typically limited to floodplains and flood prone areas. Development in floodplains should be regulated or limited.

4.2 Utility Failure

4.2.1 Description

Utility failure refers to the loss of electric power (blackouts), water, sewage, natural gas or other utilities. These are primarily caused by system overload or lack of updated infrastructure. Power failures are generally caused by natural events, such as severe storms, ice storms, tornadoes, and high winds. These power failures are common and cannot easily be predicted due to the random nature of storms; however, updates to infrastructure can reduce the among and frequency of these power outages.

4.2.2 Location

Depending on the cause, blackouts can be isolated or countywide. There are three electric providers in the County: American Electric Power, Ohio Edison, and Mid-Ohio Energy Cooperative. American Electric Power serves 3,452 customers in Marion County and Ohio Edison serves 21,676 customers in Marion County. Natural gas is provided by Columbia Gas of Ohio and Suburban Natural Gas Company. Columbia Gas of Ohio provides service to the majority of the County, while both Columbia and Suburban provide service to the City of Marion and the Village of Waldo. Utility failures can occur in any area where the utility is provided.

4.2.3 Extent

Utility failures due to damaged infrastructure have the potential to impact large areas of the County through the loss of utilities that provide necessary services for the population. Loss of electric or gas can affect household temperatures, which can lead to severe dehydration or possibility of loss of life if outdoor temperatures are extreme. Additionally, utility failure affecting the water service has the potential to lead to contamination of the water supply.

4.2.4 History

While numerous utility failures have occurred within Marion County in the form of power outages due to severe storms, severe winter weather, or other natural hazards; widespread utility failure has not been recorded in the County. Events resulting in power outages can be referenced in the Risk Assessment sections of the appropriate hazard.

4.2.5 Probability

As there are no previous indications that a widespread utility failure has occurred in Marion County, there is less than one percent chance of a widespread utility failure within the County. However, it is likely that utility failures in the form of power outages will occur throughout any given year due to severe storms, ice storms, and other natural hazards. Probability of these natural hazards can be found in their respective sections.

4.2.6 Vulnerability Assessment

Infrastructure Impact

In the event of a utility failure caused by downed power lines, roads may be closed. Utility infrastructure may also suffer long-term damage as a result of such an event.

Population Impact

Extensive utility failures can threaten the health and safety of the public. During extreme temperature events, the impacts on residents are heightened. Loss of utilities that provide air conditional or heat can create a safety hazard, especially for children and older populations. The County and/or communities should have a plan in place for how to notify and assist residents in case of utility failure.

Property Damage

Direct damage to property may result directly from downed power lines. Fires may also occur because of downed power lines.

Loss of Life

Loss of life from the loss of electricity can occur. Those who depend on electricity for necessary medical treatment are at risk. Critical facilities such as hospitals and nursing homes should be prepared in the event of a utility failure, as they manage sensitive populations that may be reliant on utilities. Downed power lines can also lead unsafe environments with live electric lines that have the potential to lead to loss of life.

Economic Losses

Blackouts are often caused by systems that are aging and deteriorating, and updates to these systems may require additional funds. Economic loss can occur because of reduced commercial activity. Goods that need electricity or other utilities for preservation may also be lost. If widespread blackouts occur, people may not be able to work, and wages or income may be lost as a result.

4.2.7 Land Use and Development Trends

Utility failure can impact any development. All development that has occurred since the previous plan and all development in the future can be impacted by utility failure.

4.3 Severe Winter Storms

4.3.1 Description

Winter storms are events that have snow, sleet, or freezing rain as their primary type of precipitation. While the precipitation itself is typically not dangerous, frozen roads and exposure to cold can cause death and injury.

A winter storm forms under the right combination of three causes.

- Below freezing temperatures in the clouds and near the ground, which are necessary to make snow or ice.
- Lift, which raises the moist air from the clouds and causes precipitation. Warm air colliding with cold air and being forced to rise over the cold is an example of lift.
- Moisture is needed to form clouds and precipitation. Air blowing across a body of water is a common source of moisture.

Winter storms are categorized by their type: blizzards, ice storms, lake effect storms, and snow squalls.

1. **Blizzards** are winter storms that are a combination of blowing snow and wind which lead to very low visibility. Heavy snowfalls and severe cold often accompany blizzards, but this is not required. Ground blizzards occur when strong winds pick up snow that has already fallen.
2. **Ice Storms** occur when at least a quarter inch of ice accumulates on exposed surfaces. Roads and sidewalks can become dangerously slick, and trees and powerlines can easily break under the weight of accumulated ice.
3. **Lake Effect Storms** are cold, dry air masses that move over the Great Lakes regions and drop the moisture as snow in areas near the Great Lakes.
4. **Snow Squalls** are brief, intense snow showers accompanied by strong winds. Accumulation may be significant.

4.3.2 Location

Winter storms are typically large events that will impact the entire County and have the potential to impact multiple counties.

4.3.3 Extent

The average annual snowfall in Marion County is 22nd annually within the State of Ohio. Snowfall typically occurs between November and April. The year 1978 had record setting snowfall, reaching 51.6 inches. The year 1998 had the lowest annual snowfall at 2.1 inches. The annual average for lowest temperature is 39.2 degrees Fahrenheit. The coldest month on average is January, which has an average low of 17.2 degrees Fahrenheit. The record low in Marion County occurred on January 20, 1994 when the temperature reached -23 degrees Fahrenheit.

4.3.4 History

At least 19 winter storms have occurred in Marion County from January 1999 to January 2019. Some of these winter storms were large enough to impact multiple areas in the State. Within Marion County, these storms caused $9,079,000 in property damages and two injuries. There were no reported deaths or crop damages.

The winter storms described below are the three most damaging storms to have occurred in Marion County over the past ten years based on property damage. The winter storm that caused two injuries is also described below. There have been no major disaster or emergency declarations for winter storms since 1978. For a description of all events, see **Appendix A**.

Countywide Winter Storm on December 17, 2016
An area of low pressure moved northeast across Ohio during the afternoon and evening hours of December 17, 2006, spreading rain across the area. As the low pressure moved out over Lake Erie during the evening, a cold front moved east across northern Ohio. Enough cold air filtered into north central Ohio behind the front to cause the rain to change to freezing rain. This change occurred mainly west of the I-71 corridor during the evening hours on December 17, 2016. A three- to five-hour period of freezing rain occurred through the northeast area of Marion County. The first report of freezing rain occurred around 8:00 PM and the last around 3:00 AM on December 18, 2016. During that time more than a quarter inch of freezing rain was reported in nine counties. Automated sensors at the Marion Municipal Airport reported over a half inch of freezing rain. Rainfall totals and ice accumulations quickly tapered off further north and east from the Marion Municipal Airport. Further west from the Marion Municipal Airport, the rain ended before changing to freezing rain. Little or no freezing rain was reported west of the US-23 corridor. A few accidents and some power outages were reported during the event.

Countywide Winter Storm on March 12, 2014
Mixed precipitation spread across the area early on the March 12, 2014 and then transitioned to snow from west to east. Much of the area also saw a period of freezing rain. The snow increased in intensity during the late morning hours with visibilities less than 1.5 miles. North to northeast winds increased as the low passed to the south of the area. Winds gusted to more than 40 MPH during the early afternoon hours. Winds continued to gust to more than 30 MPH through the evening hours. The strong winds combined with the snow to create significant blowing and drifting and treacherous driving conditions. Between 0.1 and 0.2 inches of ice accumulated along with three to five inches of snow were reported in Marion County. Schools across most of northern Ohio were closed on March 12, 2014. Dozens of traffic accidents and some power outages were reported.

An area of deepening low-pressure system moved up the Ohio River Valley on March 12, 2014. The low-pressure system shifted to the east coast during the evening hours. Precipitation associated with the low pressure spread across the area early on March 12, 2014 and then transitioned to snow from west to east beginning around daybreak. Much of the area also saw a period of freezing rain. Ice accumulations ranged from just a slight glaze near Lake Erie to nearly two tenths of an inch in the Findlay and Marion areas. The snow increased in intensity during the late morning hours with visibilities less than 1.5 miles through the late afternoon.

Countywide Winter Storm on February 1, 2011
A mixture of freezing rain and sleet fell on Marion County during the early morning hours of February 1, 2011 Up to a quarter inch of ice accumulation was reported by daybreak. A second round of freezing rain and drizzle began during the afternoon hours and continued into the early morning hours of the February 2, 2011. Some sleet mixed with the freezing rain at times. A few power outages resulted from the freezing rain early on the February 1, 2011. Power outages were more numerous on February 2, 2011. Wrap around snow behind the low-pressure area affected northern Ohio during the daylight hours of the February 2, 2011. Some of the snow was locally heavy with visibilities at times less than a quarter mile. Much of the area saw between one to three inches of snow. The snow quickly ended from west to east during the evening hours. Strong winds also accompanied the precipitation. Many schools were closed between February 1-3, 2011 because of residual thick ice on parking lots, sidewalks and secondary roads. This ice resulted from the

combination of two days of mixed freezing rain, sleet, and snow and was up to two inches thick in some areas. Removing the ice from sidewalks and driveways was nearly impossible.

Countywide Winter Storm on January 2, 1999
Snow changed to freezing rain and sleet, with a brief change to rain as temperatures rose slightly above freezing, and then back to snow. Temperatures dropped quickly into the teens causing the wet snow and ice to refreeze and creating significant ice on the ground, roads and sidewalks. Snow accumulations generally averaged six to eight inches with as much as ten inches in northwest Ohio. Two injuries were reported during this event.

4.3.5 Probability

There have been 19 reported winter storms from January 1999 to January 2019. This averages to 0.95 winter storms annually – or approximately one winter storm per year. Like other events, there are years with more than the average and years with no reported winter storms. Annualized, this results in nearly $454,000 of property damages each year.

4.3.6 Vulnerability Assessment

Infrastructure Impact
Winter storms can cause damage to overhead utilities. Wires in particular can collapse under the weight of accumulated snow and ice. Debris can block roadways or damage property as tree limbs can also collapse under the weight of accumulated snow and ice. Water pipes can be frozen under extreme low temperatures that may accompany severe winter storms.

Roads and sidewalks can be blocked by the accumulation of snow, but they can also be iced over.

Population Impact
All residents of Marion County are expected to be impacted by severe winter storms.

Property Damage
Property can be damaged by accumulated snow and ice, debris, and falling wires. Extreme low temperatures can also freeze the water in pipes which could cause them to explode. All buildings are in the County are exposed and vulnerable to winter storms.

As a result of the severe winter storms listed above, $9,079,000 in property damages were recorded. Because severe winter storms can impact all parts of the County, **Table 4.3.1** lists all structures within Marion County as having potential impacts from severe winter storms. Average annual property damage cost from severe winter storms is around $454,000.

Loss of Life
There are no reported deaths from the severe winter storms listed above. There are two injuries occurred during the January 2, 1999 storm. However, there may be indirect deaths that occur from winter storms. Likely causes of death are from iced over and dangerous roads which lead to vehicular accidents, hypothermia from prolonged exposure to cold, and heart attacks from heavy snow shoveling.

Economic Losses
Economic losses can occur from businesses shutting down for potentially long periods of time. Economic activity can be completely halted during winter storms, including transportation of goods.

Electricity outages may lead to spoiled goods. Since winter storms occur during the winter season, damages to crops are unlikely.

Table 4.3.1: Structure Vulnerability

	Count	Building	Land	Total
Residential	27,238	$121,460,230	$507,870,260	$629,330,490
Non-Residential	9,823	$242,687,590	$66,787,880	$305,475,470
Critical Facilities	1,258	$28,896,850	$296,991,390	$325,888,240
Total	38,319	$393,004,670	$867,649,530	$1,260,694,200

4.3.7 Land Use and Development Trends

Winter storms can occur anywhere. Any development that has occurred since that previous plan and any future development has the potential to be impacted by winter storms.

4.4 Tornadoes

4.4.1 Description

FEMA defines a tornado as 'a violently rotating column of air extending from a thunderstorm to the ground.' Tornadoes can generate wind speeds of greater than 250 MPH. Tornado paths can be as large as one mile wide and 50 miles long. Nationally, there is an average of 800 tornadoes reported annually across all 50 states.

In general, the midsection of the United States experiences a higher rate of tornadoes than other parts of the country because of the recurrent collision of moist, warm air moving north from the Gulf of Mexico with colder fronts moving east from the Rocky Mountains. Supercells, which form from rotating thunderstorms, are the most destructive variety of tornado.

Tornado Warnings are issued by the NWS office in Cleveland, Ohio when a tornado is indicated by the WSR-88D radar or sighted in person by spotters. The WSR-88D radar is an advanced Weather Surveillance Doppler Radar utilized by the NWS to generate a radar image. Once a warning has been issued, people in the warning area should seek shelter immediately. Warnings will include the location of the tornado, as well as what communities will be in its path. A tornado warning can be issued without a tornado watch, and they are typically issued for 30 minutes at a time. If the thunderstorm responsible for the formation of the tornado is also producing large volumes of rain, the tornado warning may be combined with a Flash Flood Warning. The NWS Office in Cleveland will follow up any Tornado Warnings with Severe Weather Statements to provide up to date information on the tornado and inform the public when the warning is no longer in effect. (Source: NWS).

4.4.2 Location

Tornadoes are a county-wide hazard in Marion County, potentially affecting all areas and jurisdictions.

4.4.3 Extent

Tornadoes are measured by damage scale for their winds, with greater damage equating greater wind speed. The original Fujita Tornado Damage Scale (F-scale) was developed in 1971, without much consideration to a structure's integrity or condition as it relates to the wind speed required to damage it. The Enhanced Fujita-scale (EF-Scale) took effect on February 1, 2007. This scale starts with the original F-scale's F0-F5 ratings and also classifies tornado damage across 28 different types of damage indicators. These indicators mostly involve building/structure type and are assessed at eight damage levels from 1-8. Therefore, construction types and their relative strengths and weaknesses are incorporated into the EF classification given to a particular tornado. The most intense damage within the tornado path will generally determine the EF scale given the tornado. **Table 4.4.1** lists the classifications under the EF- and F-scale. It should be noted that the wind speeds listed in this table are estimates based on damage rather than measurements.

There are no plans by National Oceanic Atmospheric Administration or the National Weather Service to re-evaluate the historical tornado data using the enhanced scale. Therefore, this Plan and subsequent plans will reference both scales until a complete switchover is deemed necessary.

Table 4.4.1 Fujita and Enhanced Fujita Scale Classifications
(Source: State of Ohio Enhanced Hazard Mitigation Plan)

Fujita Scale 3-Second Wind Gust (MPH)		Damage Levels	Enhanced Fujita Scale 3-Second Wind Gust (MPH)	
F0	45-78	**Light Damage**: Tree branches down.	EF-0	65-85
F1	79-117	**Moderate damage**: Roof damage.	EF-1	86-110
F2	118-161	**Considerable damage**: Houses damaged.	EF-2	111-135
F3	162-209	**Severe damage**: Buildings damaged.	EF-3	136-165
F4	210-261	**Devastating damage**: Structures leveled.	EF-4	166-200
F5	262-317	**Incredible damage**: Whole towns destroyed.	EF-5	Over 200

4.4.4 History

There have been 16 reported tornadoes in Marion County from August 1960 to July 2018. Tornadoes have caused at least $1.465 million in property damage and three injuries. There were no reported deaths or crop damages in Marion County. The three most damaging tornadoes, based on property damage, are described below. For all event descriptions, see **Appendix A**.

July 31, 2018

An EF0 tornado touched down in a corn field along Benzler Lust Road just to the east of Benzler Road. The tornado tracked northeast for just over a half mile and lifted as it approached Owens Road. A barn near the initial touchdown lost its roof and a tree was knocked down nearby. Some crop damage also occurred. A weak area of low pressure had moved north across Ohio late on July 31, 2018. Some scattered showers and a few thunderstorms developed in advance of the low. A brief tornado was reported over Marion County and a second tornado occurred in Lucas County. Damage from the Marion County tornado was minimal, but some homes were damaged in Lucas County.

November 10, 2002

A small tornado touched down in rural Marion County about five miles north of the City of Marion near the intersection of SR-4 and US-23. The tornado was on the ground for only a couple hundred feet and caused no damage other than downing several trees.

May 23, 2000
A tornado touched down near Lyons Road approximately four miles west of the Community of Martel. The observed damage path was approximately three miles in length and was oriented west to east. The width of the path varied between 100 and 200 yards. Five homes were damaged and two mobile homes destroyed. One of the mobile homes was found wrapped around a large tree.

4.4.5 Probability

There have been 16 reported tornadoes since August 1960. There is roughly one reported tornado every four years – or a 25 percent chance of a tornado each year.

4.4.6 Vulnerability Assessment

Infrastructure Impact
Above ground infrastructure can be damaged by high tornado winds. Debris caught in the high winds can also cause damage to buildings and infrastructure, including road closure. Above ground utility infrastructure can be damaged or destroyed, which can cause service outages.

Population Impact
Tornadoes are random in nature and have the potential to occur anywhere in the county. Everyone within the County should be prepared for a tornado. Residents in mobile home parks are particularly vulnerable and should have a plan in place.

Property Damage
There is $1,465,000 in property damage reported from the 16 events found in the NOAA database. Property damage amounts are spread across the events. There are two events with $0 in property damage: the tornadoes on July 12, 1989 and August 19, 1991. Average annual property damage cost is around $91,000.

Loss of Life
While there were no deaths reported in the 16 tornadoes in the NOAA database, there is still a potential for loss of life during or after a tornado.

Economic Losses
Tornadoes can cause major damage to structures and roads. Higher severity tornadoes have the potential to completely destroy structures. Debris also has the potential to cause damage to structures by breaking windows, damaging walls, or falling directly onto buildings and above-ground infrastructure.

Damages to utilities and roadways may also cause economic damage due to business closures, destruction of goods that require electricity, and halting economic activity.

Figure 4.4.1, below, simulates an extremely destructive, worst case scenario EF5 tornado and its impacts on Marion County assets and infrastructure. The worst-case scenario is simulated by running the EF5 tornado on a straight path through the most populated areas of the County. This theoretical scenario is performed to determine maximum potential damage within the County. **Table 4.4.2** categorizes the damages that would result from such a tornado.

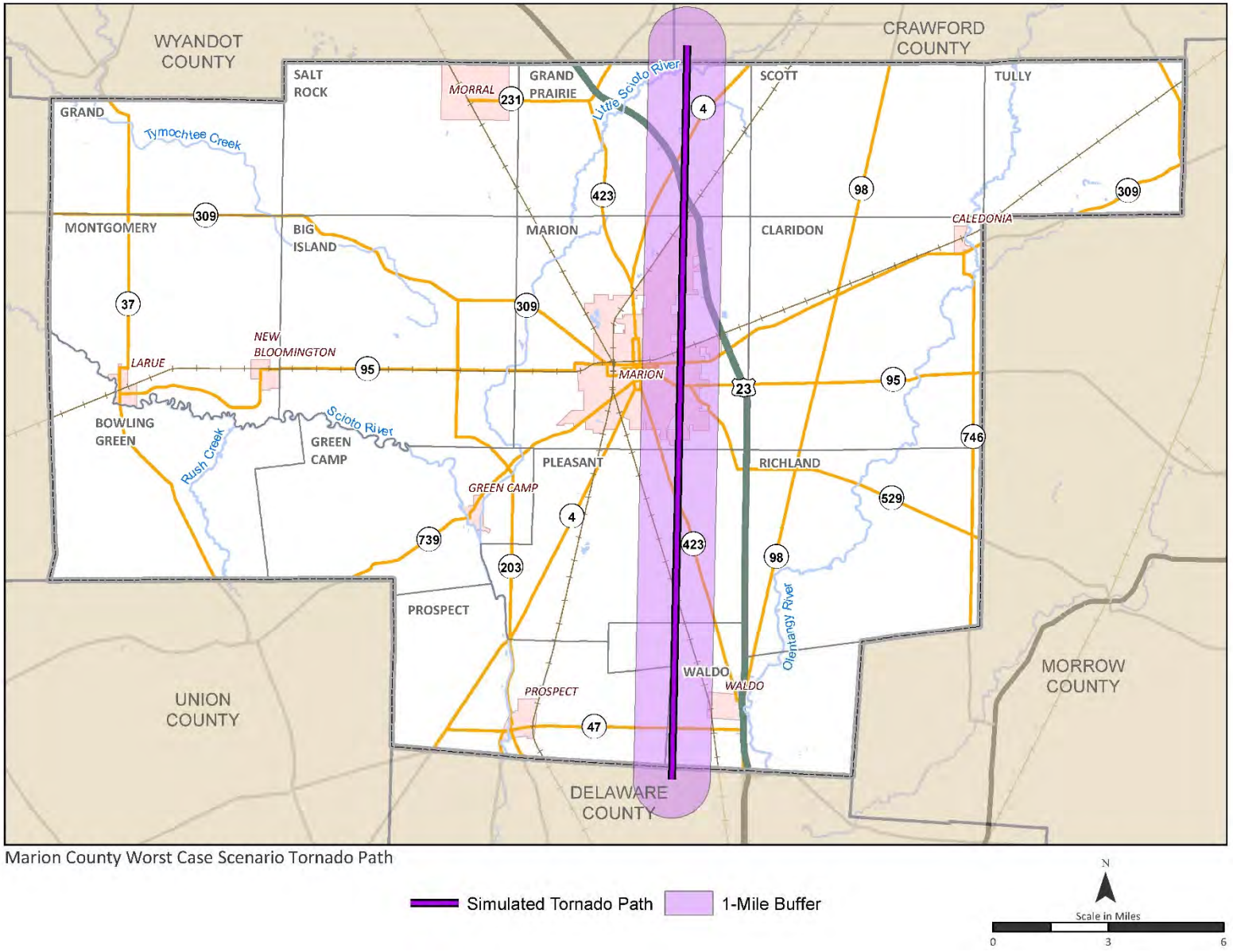
Table 4.4.2: Damages Associated with Worst-Case Scenario Tornado

	Count	Value of Land Impacted	Value of Buildings Impacted	Total Impacts
Residential	8,966	$46,266,850	$192,730,500	$238,997,350
Non-Residential	86	$1,508,070	$15,490,940	$13,982,870
Critical Facilities	10	$3,062,900	$34,752,070	$39,323,040
Total	**9,062**	**$50,837,820**	**$242,973,510**	**$292,303,260**

4.4.7 Land Use and Development Trends

Tornadoes can occur anywhere. Any development that has occurred since that previous plan and any future development has the potential to be impacted by tornadoes.

Figure 4.4.1: Worst-Case Scenario Tornado in Marion County



4.5 Hazardous Materials

4.5.1 Description

According to the Ohio Environmental Protection Agency, hazardous materials can be defined in different ways depending on the law or regulation administered by the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Department of Transportation (DOT), and the U.S. Nuclear Regulatory Commission (NRC).

- The Institute for Hazardous Materials Management defines hazardous materials as "any item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors."
- OSHA's definition includes any substance or chemical which is a health hazard or a physical hazard, including carcinogens, toxic agents, irritants, corrosives, and sensitizers, as well as agents that interact to be harmful to the human body, explosive, or flammable.
- The EPA's definition includes the OSHA definition. It adds any item or chemical which can cause harm to people, plants, or animals when released into the environment.
- The DOT defines hazardous materials as any item or chemical which, when being transported or moved in commerce, is a risk to public safety or the environment.

The Ohio EPA indicates that there are five categories in which materials can be hazardous, including acute, chronic, fire, reactive, or sudden release of pressure.

The NRC regulates materials that produce ionizing radiation, which includes by-product material and radioactive substances.

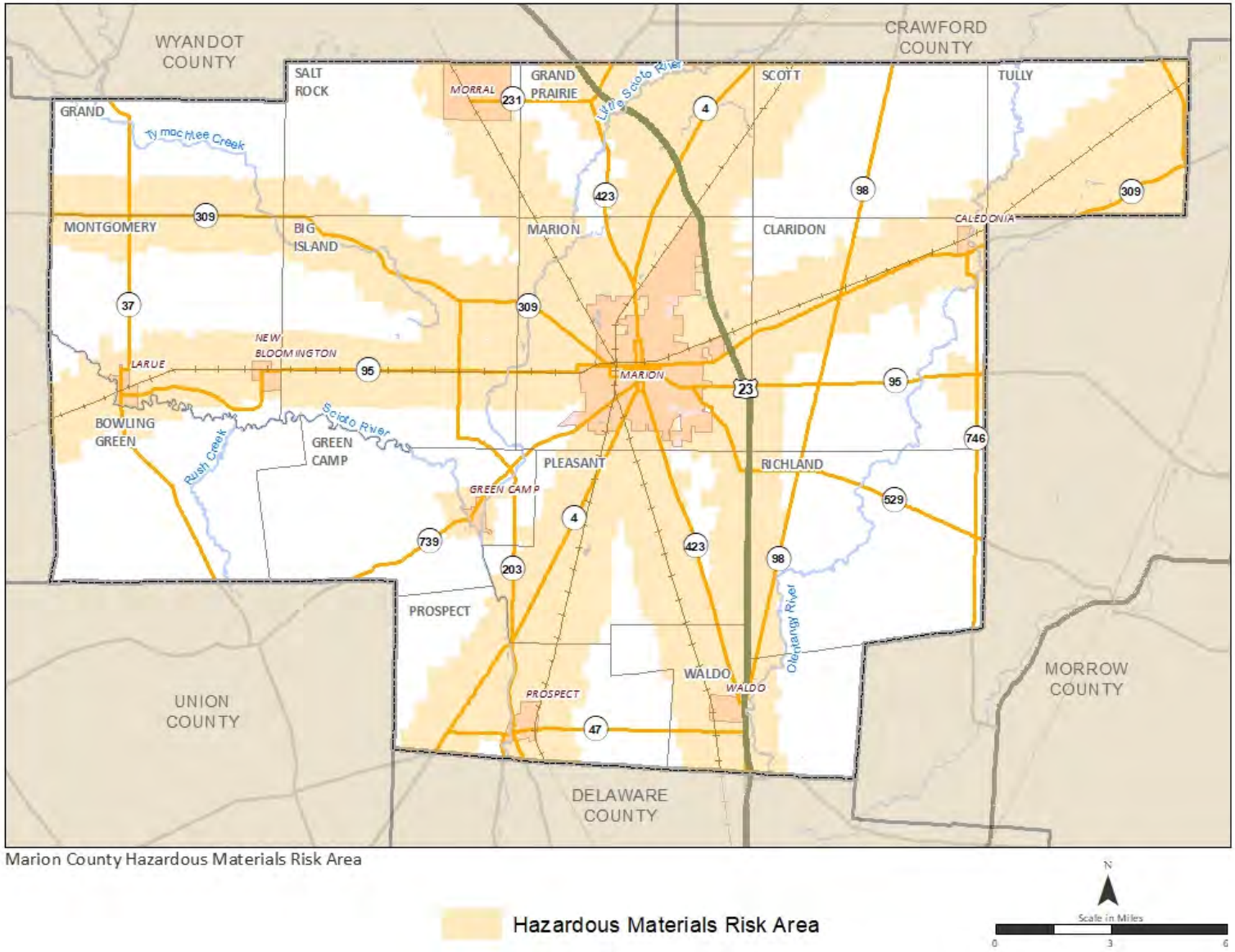
The Emergency Planning and Right to Know Act, or EPCRA, was passed as Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), which requires a facility that processes, uses or stores extremely hazardous substances or hazardous substances as classified by the OSHA hazard communication standard. This is also codified in the Ohio Revised Code (ORC) Chapter 3750 and the Ohio Administrative Code Chapter 3750.

4.5.2 Location

Hazardous material spills can occur wherever hazardous materials are stored and during shipment to these facilities. The surrounding areas can also be impacted by these spills. As of 2018, Marion County has 53 hazardous substance (HS) or extremely hazardous substance (EHS) facilities. The Marion County EMA has detailed information on each of these facilities. Hazardous materials-related events are most likely to occur on roadways used for commercial transportation and in any areas near HS or EHS facilities.

Figure 4.5.1 shows the areas which are at the highest risk of being impacted by hazardous materials spills. These areas were calculated by identifying normal shipping routes and active rail lines and places a one-mile buffer around these routes, as well as identifying hazardous materials storage facilities and placing a half-mile buffer around these facilities.

Figure 4.5.1: Hazardous Materials Risk Areas



4.5.3 Extent

The EPA keeps account for EHS facilities because they have a higher probability of spills due to the higher amounts of hazardous materials at their sites. Each potential hazardous material has varying levels of toxicity. The concentration of these materials should be measured in parts-per-million to determine whether they present a threat. Many chemicals are safe at low amounts and low concentrations but can become dangerous and even toxic at high amounts and concentrations. Additionally, some chemicals can be flammable and can become more volatile when exposed to oxygen. In ground spills, untreated chemical and waste spills can contaminate the soil and drinking water, creating toxic environmental conditions. Corrosive, flammable, or explosive chemicals can create infrastructure damage depending on the location, amount spilled, and the circumstances of the incident. In worst case scenarios, large spills can trigger evacuations of residents and close transportation routes used for hazardous materials transportation, which can also affect local residents.

4.5.4 History

Table 4.5.1 lists the hazardous materials spills and releases in Marion County on record with the Ohio EPA from May 2017 through July 2019 (Source: Ohio EPA).

Table 4.5.1: Hazardous Material Spills and Releases

Date	Spill Type	Location	Spill Size
2017-05-18	Fuel Gasoline (25% Ethanol Not E85)	Marion Twp	Small: 500 Gal/4000 Lbs
2017-06-12	Antifreeze Vehicle Cooling	Big Island Twp	Small: 500 Gal/4000 Lbs
2017-06-19	Fertilizer(S) Nos (Not Specified)	Morral	Small: 500 Gal/4000 Lbs
2017-08-01	Sewage Sludge / Biosolids	Marion Twp	Unknown Amount
2017-08-07	Material Brown	Grand Prairie Twp	Unknown Amount
2017-09-09	Boil Alert / Boil Advisory / Drinking Water Issue(S)	LaRue	No Spill
2018-07-22	Fish Kill	Montgomery Twp	Unknown Amount
2018-07-22	Manure Nos (Not Specified)	Montgomery Twp	Unknown Amount
2018-11-02	Sheen Rainbow / Hydrocarbon	Marion	Small: 500 Gal/4000 Lbs
2018-11-02	Fuel Diesel / Diesel Fuel (Vehicle On Or Off Road)	Marion	Small: 500 Gal/4000 Lbs
2018-11-05	Fuel Diesel / Diesel Fuel (Vehicle On Or Off Road)	Marion	Small: 500 Gal/4000 Lbs
2018-11-17	Fuel Diesel / Diesel Fuel (Vehicle On Or Off Road)	Waldo Twp	Small: 500 Gal/4000 Lbs
2019-05-29	Air Odor Chemical	Marion	Unknown Amount
2019-02-14	Sewage Human	Marion Twp	Unknown Amount
2019-02-19	Sewage Human	Marion Twp	Unknown Amount

4.5.5 Probability

Due to the random and unpredictable nature of hazardous materials accidents, specific probabilities of occurrence are not reported for this hazard. Due to their unpredictable nature, hazardous materials spills should be considered to have a somewhat likely chance of occurring.

4.5.6 Vulnerability Assessment

Infrastructure Impact

Roadways, waterways, and ground water may be impact by hazardous materials spills. Road closures may occur as a direct or indirect result of hazardous materials spills.

Population Impact

The local population may be directly exposed to hazardous materials. If a large spill occurs, some residents may need to be evacuated and given shelter elsewhere.

Property Damage

Depending on the chemical, property damage is likely. Properties near EHS facilities are likely to be damaged. The vulnerability and associated value of properties within the County are located in **Table 4.5.2**, below.

Loss of Life

While some hazardous materials can be toxic, loss of life from hazardous materials spills are unlikely, but not impossible.

Economic Losses

Economic losses can occur from the loss of hazardous materials that may be needed in manufacturing or for ot335her processes. Road closures may lead to slowed commerce, and businesses impacted by hazardous materials spills may suffer property damage, damage to goods, or be required to close. **Table 4.5.2** details the value of residential, non-residential, and critical facilities within the hazardous materials risk area identified in **Figure 4.5.1** on the previous page.

Table 4.5.2: Vulnerability of Land and Structures Within Hazardous Materials Risk Area

Structure Type	Count	Value of Land Impacted	Value of Buildings Impacted	Total Impacts
Residential	23,492	$94,836,650	$408,279,130	$503,115,780
Non-Residential	7,005	$101,925,170	$129,427,430	$231,352,600
Critical Facilities	1,149	$27,258,920	$294,091,900	$321,350,820
Total	31,646	$224,020,740	$831,798,460	$1,055,819,200

4.5.7 Land Use and Development Trends

Development that has occurred since the previous plan and any future development near hazardous materials storage facilities may be impacted by hazardous materials spills.

4.6 Windstorms

4.6.1 Description

Windstorms are wind events that can cause damage to trees and buildings. Damaging winds typically have speeds of at least 34 MPH, and can be either gusts of wind or long, sustained periods of strong winds. Gusts of winds can last for only a few minutes, while sustained windstorms can last for days.

Longer periods of windstorms can be caused by large, regional differences in atmospheric pressure or strong jet-stream winds. Intense winter storms can also long-lasting windstorms, since winter storms can have strong jet-stream winds.

While tornadoes, hurricanes, and tropical storms can cause wind damage, they are considered separate from windstorms and considered in separate hazard analyses.

4.6.2 Location

Windstorms are typically large events that will impact the entire County and have the potential to impact multiple counties.

4.6.3 Extent

Windstorms in Marion County have reached 92 MPH and have caused at least one death and three injuries. These windstorms can occur quickly and can impact any area within the county.

4.6.4 History

There have been at least 202 windstorm events in Marion County from July 1959 to February 2019. These events have caused at least $19.187 million in property damages, $1.215 million in damages to crops, six injuries, and one direct death. The three most damaging events over the last ten years, based on property damage, are described below. The windstorm that caused one death is also described below. For all event descriptions, see **Appendix A**.

Windstorm in Marion County on November 24, 2014
High winds of at least 60 MPH downed trees and limbs throughout Marion County. Some homes and buildings lost sections of roofing or siding. A tractor trailer was blown over on US-23 just south of the Marion and Wyandot County line. The driver of the truck was transported to the hospital with non-life-threatening injuries. Scattered power outages were reported.

Windstorm in Marion County on June 29, 2012
An intense line of thunderstorms or Derecho moved across Marion County during the afternoon of June 29, 2012 causing extensive damage. Winds were estimated to be as much as 80 MPH and 62 MPH wind gusts were measured by an automated sensor in the north of the County. Over 75 percent of residents lost power during this event. Power was not completely restored till July 5, 2012. Hundreds, if not thousands of trees were downed across the County along with many utility poles forcing the closure of dozens of roads and streets. Damage to homes and buildings was also extensive. Hundreds of homes and buildings lost roofing or siding with many other homes damaged by fallen trees. At least one semi-truck was overturned by the strong winds. Clean up costs were extensive. The clean-up was hampered by an ongoing heat wave with afternoon temperatures in the

upper 90s. Significant crop losses are also expected. Damage from this storm was comparable to the remnants of Hurricane Ike in September 2008.

Windstorm in the Village of LaRue on June 10, 2011
A supercell thunderstorm produced a significant downburst which damaged and destroyed several large grain storage silos in the area. A garage roof was blown off and shingles were blown off several structures. A large barn was blown off its foundation. Large tree limbs were downed as well as four power poles.

Windstorm in the City of Marion on August 9, 2007
A severe thunderstorm moved into the City of Marion around 4:10 PM. Numerous trees, large limbs, utility poles and power lines came down during the storm. Reports indicate that many trees fell onto homes, garages and cars throughout the City of Marion. One of the houses was damaged enough to be considered destroyed. Between 30 and 35 utility poles had to be replaced because of trees and large limbs falling onto them. One house had three trees fall onto it causing extensive damage. A house in Marion that was being remodeled sustained damage by trees. Three people working on the house quickly took shelter on a porch during the storm but were injured when a tree fell onto the roof of the porch and collapsed the roof. A 22-year-old woman was killed when a large tree limb fell onto the car while she was driving. A passenger in the vehicle survived with injuries. Additional support was called in to help clean up in the City of Marion. Electric companies and municipal agencies coordinated to help clean up debris. Estimated costs for clean-up in the City were approximately $91,000. A total of 369 loads of debris were cleaned up throughout the City.

4.6.5 Probability

There have been at least 202 reported windstorm events from July 1959 to February 2019. This averages out to approximately three windstorms per year.

4.6.6 Vulnerability Assessment

Infrastructure Impact
Windstorms, by definition, cause at least minor damage to trees, buildings, and property. Utility poles and overhead wires are likely to be impacted by direct wind or falling branches and tree limbs. Debris may also block roadways or damage cars.

Population Impact
All residents of Marion County have the potential to be impacted by windstorms.

Property Damage
Windstorms, by definition, cause at least minor damage to trees, buildings, and property. Building exteriors can be damaged by strong winds or roofs can be damaged or removed. Falling tree limbs can also cause damage to structures and properties.

Because Windstorms have the potential to impact the entire County, estimates of property damage to residential, non-residential, and critical facilities are provided for vulnerable structures within all of Marion County (**Table 4.6.1**). Annual property damage cost is around $95,000.

Loss of Life
There is one reported death and three reported injuries, all directly caused by windstorms. Likely causes include falling debris and falling electrical wires. Additionally, windstorms that have impacted Marion County have caused injuries in nearby counties.

Economic Losses
Economic losses can occur from halted economic activity, damage to electrical facilities, and road closures.

Table 4.6.1: Structure Vulnerability

	Count	Building	Land	Total
Residential	27,238	$121,460,230	$507,870,260	$629,330,490
Non-Residential	9,823	$242,687,590	$66,787,880	$305,475,470
Critical Facilities	1,258	$28,896,850	$296,991,390	$325,888,240
Total	38,319	$393,004,670	$867,649,530	$1,260,694,200

4.6.7 Land Use and Development Trends

Windstorms can occur anywhere. Any development that has occurred since that previous plan and any future development has the potential to be impacted by strong winds.

4.7 Hailstorms

4.7.1 Description

Hail occurs when precipitation is carried upwards into extremely cold areas of the atmospheres. The water freezes and forms balls of ice when can damage aircraft, structures, vehicles, and infrastructure. Hail can also be deadly to livestock and people. Hail can be detected using radar, with some radar technology being able to differentiate between hail, ice pellets, and rain.

There are three basic requirements that create hail:

1. Adequate updraft.
2. Sufficient supercooled water near the hailstone to enable growth.
3. A piece of ice, snow, or dust for the hailstone to grow upon.

4.7.2 Location

Hail has the potential to fall anywhere within Marion County.

4.7.3 Extent

Hail can range from pea sized, or 0.25 inches, to grapefruit sized, or 4.5 inches. Hail one inch or larger is considered severe. Most hailstorms have a mix of hail sizes, depending on the strength and consistency of a storm's updraft. Typically, only very large hail has a potential to harm people in the open.

4.7.4 History

There have been 84 reported unique hail events in Marion County from July 1957 to April 2019. Hail has caused at least $839,000 in property damage and $205,000 in crop damage. There were no reported injuries or deaths related to hail in Marion County.

The three most damaging events over the last ten years, based on property damage, are listed below. Some events occurred in multiple jurisdictions. For descriptions of all events, see **Appendix A**.

Hail in the Village of Waldo on June 12, 2013
Quarter sized hail was reported. A strong frontal system remained nearly stationary across the Upper Ohio Valley during the evening hours of June 12, 2013. Scattered showers and thunderstorms developed across northern Ohio early in the evening. The storms became more numerous as the evening progressed. Many of the storms became severe. Dozens of reports of large hail and damaging winds were reported. Scattered power outages resulted from these storms.

Hail in the Village of New Bloomington on June 12, 2013
Half dollar sized hail was reported. A strong frontal system remained nearly stationary across the Upper Ohio Valley during the evening hours of June 12, 2013. Scattered showers and thunderstorms developed across northern Ohio early in the evening. The storms became more numerous as the evening progressed. Many of the storms became severe. Dozens of reports of large hail and damaging winds were reported. Scattered power outages resulted from these storms.

Hail in the City of Marion on June 12, 2013
Half dollar to ping pong sized hail was observed. A strong frontal system remained nearly stationary across the Upper Ohio Valley during the evening hours of June 12, 2013. Scattered showers and thunderstorms developed across northern Ohio early in the evening. The storms became more numerous as the evening progressed. Many of the storms became severe. Dozens of reports of large hail and damaging winds were reported. Scattered power outages resulted from these storms.

Hail in the Village of Morral on November 14, 2011
Penny sized hail was observed. A warm front lifted north across northern Ohio during the afternoon and early evening hours of November 14, 2011. Showers and thunderstorms developed in response to this front. A few of the stronger thunderstorms became severe.

Hail in the Village of LaRue on November 14, 2011
Hail the size of golf balls was observed. Several vehicles were damaged by the hail. A warm front lifted north across northern Ohio during the afternoon and early evening hours of November 14, 2011. Showers and thunderstorms developed in response to this front. A few of the stronger thunderstorms became severe.

Hail in the Village of Waldo on June 17, 2011
A supercell thunderstorm produced quarter to ping pong ball size hail. A frontal boundary-oriented west-east across northern Ohio triggered showers and thunderstorms during the late afternoon hours on June 17, 2011. The activity lasted only a few hours and diminished by nightfall.

4.7.5 Probability

According to the National Climatic Data Center (NCDC), there have been 84 unique hail events reported in Marion County between July 1957 and April 2019. This averages out to 1.3 events every year. Some of these events were caused by the same storm or weather event, but hail fell over time in multiple areas. There are also years that have multiple events and years or stretches of years that have no reported events. As this data goes back to 1957, there may be missing data in the earlier years of the NCDC database.

4.7.6 Vulnerability Assessment

Infrastructure Impact
Hailstorms have the potential to impact above ground utility and communication lines. Hail is unlikely to cause significant damage to roadways or other transportation infrastructure on its own.

Population Impact
Hail sizes reported in Marion County are unlikely to cause any significant impacts to population.

Property Damage
The events listed above caused $839,000 in reported property damage. All buildings and properties within Marion County are potentially exposed to hailstorms. Average annual property damage cost is around $10,000.

Loss of Life
Only the largest hailstones are likely to cause loss of life. There are no reported deaths or injuries in the events listed above.

Economic Losses
Hail can cause damage to properties as well as to crops. In the events listed above, crops caused a reported $205,000 worth of damage to crops.

Table 4.7.1: Structure Vulnerability

	Count	Building	Land	Total
Residential	27,238	$121,460,230	$507,870,260	$629,330,490
Non-Residential	9,823	$242,687,590	$66,787,880	$305,475,470
Critical Facilities	1,258	$28,896,850	$296,991,390	$325,888,240
Total	38,319	$393,004,670	$867,649,530	$1,260,694,200

4.7.7 Land Use and Development Trends

Hailstorms can occur anywhere. Any development that has occurred since that previous plan and any future development has the potential to be impacted by hail.

4.8 Terrorism

4.8.1 Description

Terrorism is defined as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives" (28 CFR, Section 0.85). Tools used to conduct acts of terrorism include Weapons of Mass Destruction (WMD); biological, chemical, nuclear, and radiological weapons; arson; incendiary, explosives; armed attacks; industrial sabotage; intentional hazardous materials release; and cyberterrorism.

The Federal Bureau of Investigations (FBI) produces an annual terrorism report, which contains profiles and chronologies of terrorism incidents in the United States. Terrorism can be both International and Domestic, where International Terrorism is defined as acts "perpetrated by individuals and/or groups inspired by or associated with designated foreign terrorist organizations or nations (state-sponsored)" (Source: FBI). The second is Domestic Terrorism, defined as acts "perpetrated by individuals and/or groups inspired by or associated with primarily U.S.-based movements that espouse extremist ideologies of a political, religious, social, racial, or environmental nature" (Source: FBI).

Types of terrorism include Cyberterrorism, Agroterrorism, Terrorism (Biological), and Terrorism (Chemical). Stakeholders have also requested discussion on Active Aggressors as a hazard, and so an assessment of Active Aggressors has also been included in this section, as they have the potential to incite terror. These types of terrorism are defined below:

- **Cyberterrorism:** Cyberterrorism is an electronic attack using one computer system against another, and attacks can be directed towards computers, networks, or entire systems. A cyber-attack may last minutes to days. Homeland Security, the FBI, and the FCC DOJ are often involved in developing countermeasures that focus on reducing the threat, vulnerability, and likelihood of attack.
- **Agroterrorism:** Agroterrorism is a direct, generally covert contamination of food supplies or the introduction of pests and/or disease agents to crops and livestock. An agricultural-based terror attack can last days to months.
- **Biological Terrorism**: Biological terrorism includes use of bacteria, viruses, or toxins to incite terror. This mode of terrorism can last minutes to months.
- **Chemical Terrorism**: Chemical terrorism includes use of nerve agents, chocking agents, blood agents, or blister agents, to attack normal bodily functions of the nervous, respiratory, circulatory, and skin, respectively. Usually, an act of chemical-based terror lasts only minutes.
- **Active Aggressor:** An Active Aggressor is an armed individual or group of individuals that is intending to cause harm or inflict terror on a civilian population. An Active Aggressor (or group) may be armed with guns, knives, bombs, or any other weapon/implement that may be used to inflict harm.

4.8.2 Location

Terrorism events have generally been localized within a single jurisdiction. Coordinated events have occurred historically, greatly expanding the number of affected jurisdictions. Based on the nature of the event, several jurisdictions may respond to an incident.

4.8.3 Extent

The extent of each of these modes of terrorism includes:

- **Cyberterrorism**: Typically, the built environment is unaffected by a cyber-attack. Inadequate security can facilitate access to critical computer systems, allowing them to be used to conduct attacks.
- **Agroterrorism**: The extent of the effects varies by type of incident. Inadequate security can facilitate the adulteration of food and introduction of pests and disease agents to crops and livestock.
- **Biological Terrorism**: A biological attack could cause illness and even kill hundreds of thousands of people, overwhelm public health capabilities, and create significant economic, societal and political consequences. Public health infrastructure must be prepared to prevent illness and injury that would result from biological terrorism.
- **Chemical Terrorism**: Most chemical agents are capable of causing serious injuries or death, and their often rapid course of action means there is very little time to act when an act of chemical terrorism occurs. Public health infrastructure must be prepared to prevent illness and injury that would result from chemical terrorism.
- **Active Aggressor**: Active Aggressor incidents often occur in areas where a number of people gather regularly. This may be a place of employment, a neighborhood gathering area (church, recreational center, school, etc.), or other location.

Terrorist threats may also occur among school districts within the County. Threats can last several hours or event days and cause multiple problems such as disturbing a school's order, causing traffic jams, and inducing civil panic. Individuals, groups, and institutions should be aware of, and understand how to react to, such potential threats immediately and appropriately.

4.8.4 History

There have been no reported terrorism events in Marion County. Terrorist plots have been thwarted in Columbus, Dayton, Cincinnati, and Cleveland, among other locations. Mass shootings, such as a school shooting, is an example of an Active Aggressor situation. While there are no recorded school shooting or terrorism incidents in Marion County, local officials have determined that the risk of such an incident occurring in Marion County exists.

4.8.5 Probability

Because there have been no recorded terrorism events in Marion County, there is a less than one percent chance of occurrence.

4.8.6 Vulnerability Assessment

Infrastructure Impact

Above ground structures such as government buildings, churches, libraries, and schools, as well as below-ground infrastructure such as natural gas pipelines, are at risk for terrorism damage. Acts of cyberterrorism have the potential to target systems that may influence or control infrastructure.

Population Impact

The population of Marion County is likely to impacted should an act of terror occur. It is important that public health organizations are prepared to prevent illness and injury that may result from acts of terror.

Property Damage
Since terrorism acts can occur anywhere within the County, property damage is a possible outcome of such an event. Agroterrorism may result in damage to crops, and an active aggressor situation may result in minimal property damage.

Loss of Life
Acts of terror are likely to result in loss of life. It is important that public health and healthcare organizations are prepared to act quickly should an act of terror occur.

Economic Losses
Since the probability of terrorism happening in Marion County is very low, and there is less than a one percent chance of this type of hazard occurring in any given year, local terrorism-related economic losses are estimated at zero. However, terror attacks occurring in other locations have the potential to have economic impacts in Marion County. Transportation networks, such as air transportation, can be shut down as a result of terrorism, impeding profits and resulting in economic losses to organizations within the County. Any act of terror, nationwide, that results in a temporary freeze of goods or services has the potential to limit or suspend economic activity in Marion County, as well.

4.8.7 Land Use and Development Trends

Terrorism can occur anywhere. Non-residential land uses are more likely to be targeted for terror events or active shooters. New schools and government buildings should have active shooter plans in place.

4.9 Severe Storms

4.9.1 Description

Severe storm events may include severe thunderstorms, high wind, hail, and lightning. Tornadoes and flooding may be also be categorized as severe storm-related events, and due to the potential threat of these events, they are each discussed in separate risk assessments. While tropical storms and hurricanes are also forms of severe storms, Marion County does not have any record of such events affecting the County; therefore, the County has not deemed tropical storms and hurricanes to be a threat and these specific types of weather will not be addressed further.

According to the National Weather Service (NWS), a Severe Thunderstorm is a thunderstorm that produces a tornado, winds of at least 58 MPH, and/or hail at least one inch in diameter. A Severe Thunderstorm Watch is issued by the NWS if conditions are favorable for the development of severe thunderstorms. A Watch is usually in place for four to eight hours, during which time people should be prepared to move to safe place if threatening weather moves in.

A Severe Thunderstorm Warning is issued if either the WSR-88D radar indicates a severe thunderstorm or if a spotter reports a storm producing hail or winds meeting the criteria outlined in the definition of a severe thunderstorm. The WSR-88D radar is an advanced Weather Surveillance Doppler Radar utilized by the NWS to generate a radar image. The NWS recommends that people in the affected area seek safe shelter immediately, as severe thunderstorms have the potential to produce tornadoes with little to no advance warning. Lightning frequency is not a criterion for issuing a severe thunderstorm warning. The warnings are usually issued for one hour and can be issued without a Severe Thunderstorm Watch already in effect. The NWS Forecast Office in Cleveland, Ohio is responsible for issuing Severe Thunderstorm Watches and Warnings for Marion County.

Lightning is caused by a rapid discharge of electrical energy that has built up in the atmosphere between clouds, the air, or the ground. Lightning strikes can be either direct or indirect. A direct strike is when lightning strikes a building or a specific zone, which can result in fusion points melting holes of varying sizes at the point of impact of materials with high resistivity. An indirect lightning strike is when lightning causes power surges that disrupt electrical equipment.

Severe storms can also create strong winds – often called “straight-line” winds to differentiate thunderstorm winds from tornadic winds. These winds, which have the potential to cause damage, are caused by an outflow generated by a thunderstorm downdraft.

Hail is a type of frozen precipitation that occurs when thunderstorm updrafts carry raindrops upward into extremely cold atmospheric zones where they freeze before falling to the ground. The resulting hailstones can fall at speeds greater than 100 MPH and range in size from smaller than 0.50 inches (the size of a pea) to 4.5 inches (the size of a softball) (Source: NWS).

4.9.2 Location

Severe storms are a countywide hazard, meaning all of Marion County is susceptible to severe weather.

4.9.3 Extent

Severe storm events have the potential to create large-scale damage in Marion County. Specifically, lightning is responsible for approximately 50 deaths annually across the United States, as well as

hundreds of injuries (Source: NOAA). Winds have the potential to cause damage by bringing down tree limbs and generating widespread power outages. Both strong winds and hail can yield property damage. People living in mobile homes are especially at risk for injury and death due to strong winds. Even anchored mobile homes can be seriously damaged if winds gust over 80 MPH.

4.9.4 History

According to the National Oceanic and Atmospheric Administration (NOAA), there have been 172 days with thunderstorm wind events, 26 days with high wind events, three days with strong wind events, no lightning events, and 91 hail events recorded in Marion County from July 1957 to April 2019 resulting in nearly $20 million in property damages and $1.42 million in crop damages. Additionally, one death and six injuries were reported as a result of severe storms in Marion County. These events are summarized in **Table 4.9.1**, below. A complete list of severe storm events can be found in **Appendix A**.

Table 4.9.1: Severe Storm Events in Marion County since 1957

Severe Storm Event Type	Number of Events	Injuries	Deaths	Property Damages	Crop Damages
Thunderstorm Wind	172	4	1	$7,897,000	$15,000
High Wind	26	2	0	$11,115,000	$1,200,000
Strong Wind	3	0	0	$50,000	$0
Lightning	No events recorded.				
Hail	91	0	0	$839,000	$205,000
Total	**292**	**6**	**1**	**$19,901,000**	**$1,420,000**

Of these severe storm events, the Federal Emergency Management Agency (FEMA) does not have record of an event which resulted in an Emergency Declaration for Marion County.

4.9.5 Probability

According to the NOAA, there have been 292 severe storm events reported in Marion County between July 1957 and April 2019, with total losses reaching more than $21.3 million. This amounts to approximately four to five severe storm events annually with average annual combined property and crop damages of $343,887.

4.9.6 Vulnerability Assessment

Infrastructure Impact

Above-ground infrastructure is at risk for storm damage by wind and falling debris. For infrastructure, high winds and hail are the most damaging part of a severe storm. High winds can strip bark from trees and detach limbs. If large branches fall, they can damage buildings and supporting above-ground infrastructure. In the most severe storms with high winds, large trees can be uprooted and have the potential to fall on buildings, including houses, which can cause harm or death.

Utilities are at risk for damage by severe storms, as well. Electrical lines are spread throughout the County connecting homes, businesses, and other facilities. Severe storms are likely to down tree

limbs and generate other debris that can affect above-ground electrical lines, causing power outages. Downed power lines that are still live are extremely hazardous and can cause death by electrocution.

Population Impact
According to the American Community Survey's 2017 population estimates, the population of Marion County is approximately 65,483. Summer storms are random in nature and affect the entire area of the County. Everyone within the County should be prepared during a storm event. Populations residing in mobile home parks are particularly vulnerable and should seek out shelters.

Property Damage
Due to the non-site-specific nature of this hazard, **Table 4.9.2** lists all structures within Marion County as having potential impacts from severe storms. Average annual property damage cost is approximately $321,000.

Loss of Life
While loss of life is rare due to severe weather, it is a possibility. According to NOAA, severe storms, including Thunderstorm Wind, High Wind, Strong Wind, Lightning, and Hail, were responsible for one death and six injuries due to events that passed through Marion County since 1957.

Economic Losses
Severe storms usually cause minor damage to structures, such as blowing shingles off roofs, downed branches breaking windows or falling onto buildings and above-ground infrastructure. More severe damage may also result. Of the 292 severe storm events since 1957, 34 of the 172 Thunderstorm Wind events, 15 of the 27 High Wind events, one of the three Strong Wind events, and seven of the 91 hail events resulted in property damage of $20,000 or more. According to NOAA, the costliest storms include a high wind event on September 14, 2008 which caused $9.0 million in property damage and $1.2 million in crop damage, as well as a thunderstorm event on June 29, 2012, which caused $4.0 million in damages.

Table 4.9.2: Structure Vulnerability

	Count	Building	Land	Total
Residential	27,238	$121,460,230	$507,870,260	$629,330,490
Non-Residential	9,823	$242,687,590	$66,787,880	$305,475,470
Critical Facilities	1,258	$28,896,850	$296,991,390	$325,888,240
Total	38,319	$393,004,670	$867,649,530	$1,260,694,200

4.9.7 Land Use and Development Trends

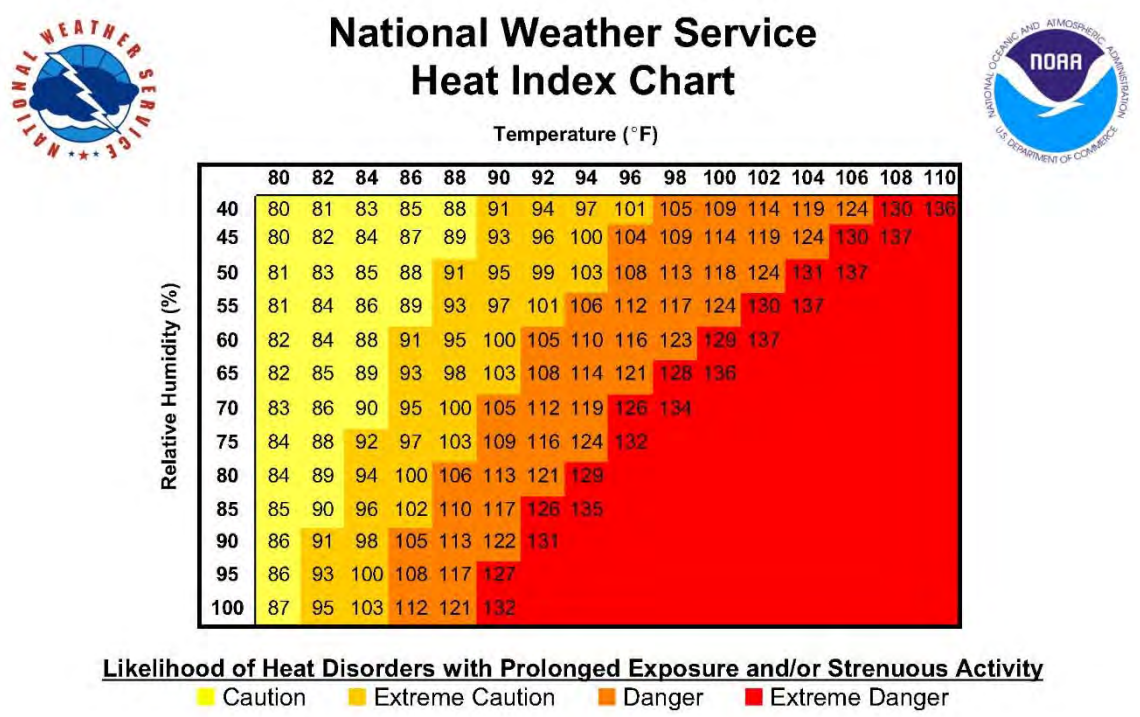
Severe storms can occur anywhere. Any development that has occurred since that previous plan and any future development has the potential to be impacted by severe storms.

4.10 Drought and Extreme Heat

4.10.1 Description

According to the States of New York, Washington, and California, temperatures that hover over ten degrees or more above the average high temperature for the region and last for several days are considered Extreme Heat. Humid conditions which add to the discomfort of high temperatures, occur when a high-pressure weather system traps hazy, moist air near the ground. Extreme heat may also contribute to the formation of a drought if moisture and precipitation are lacking. The National Weather Service's Heat Index Chart is provided in **Figure 4.10.1**, below.

Figure 4.10.1: Heat Index Chart (Source: NWS)



A drought is a shortage in atmospheric moisture or precipitation over an extended period of time. Droughts are common throughout all climatic zones and can range in length from a couple weeks to multiple years or decades in some areas. According to the National Oceanic and Atmospheric Administration (NOAA), there are three common types of drought: Meteorological, Agricultural, and Hydrological.

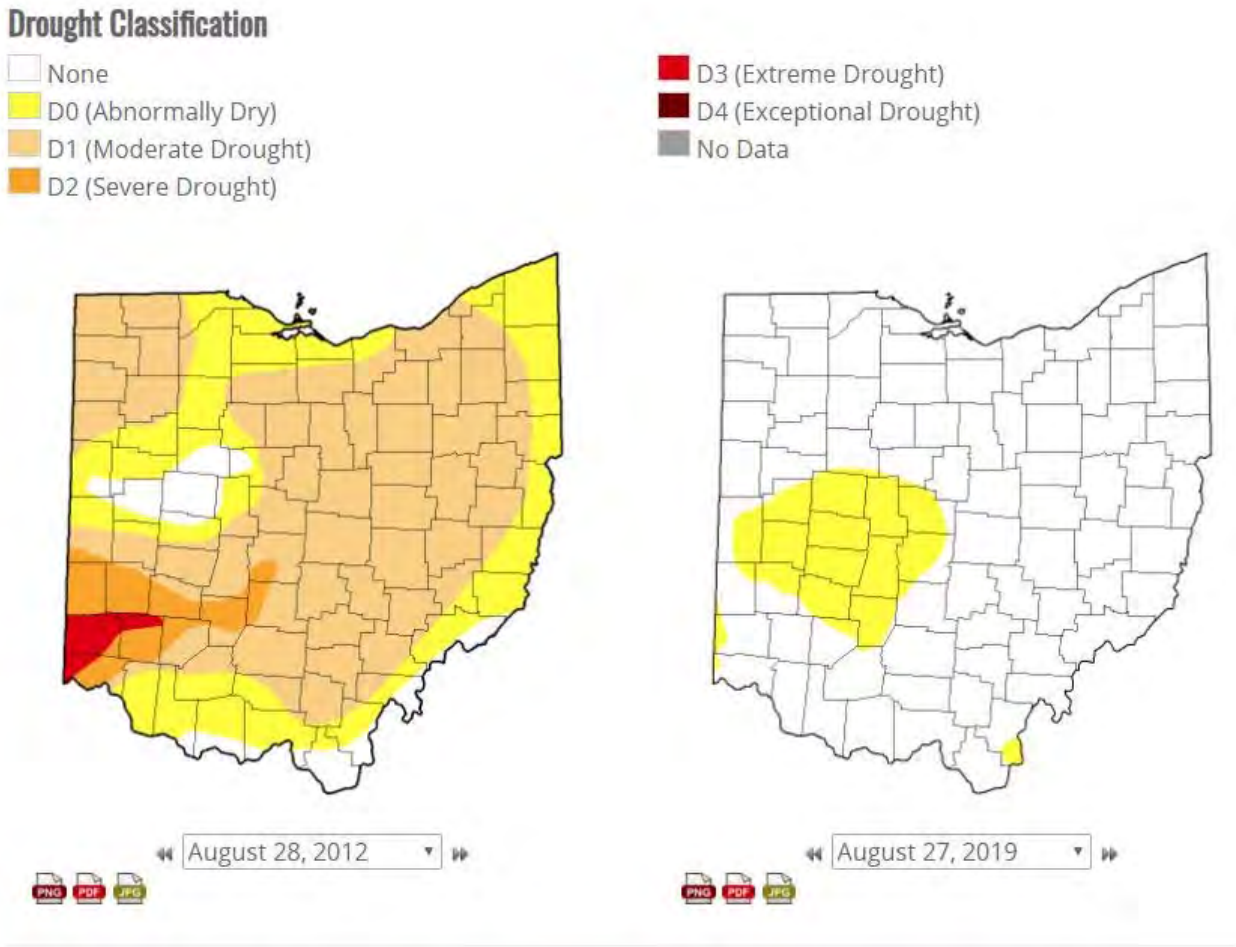
Meteorological drought severity is calculated by the amount of the rainfall deficit (compared to annual averages) and the length of the dry period. Agricultural drought is based on the effects to agriculture by factors such as rainfall and soil water deficits, or diminished groundwater/reservoir levels needed for irrigation. Hydrological drought is based on the effects of rainfall shortages on the water supply, such as stream flow, reservoir and lake levels, and ground water table decline.

4.10.2 Location

Drought and extreme heat is a countywide hazard that can affect all locations and jurisdictions in Marion County. More specifically, this hazard typically occurs at a regional scale. Droughts most

commonly occur in Ohio from spring through autumn; however, they may occur at any time throughout the year. **Figure 4.10.2** depicts the Drought Monitor for the State of Ohio for August 28, 2012 compared to August 27, 2019, as well as the statistics comparison for the percent area of the State that were experiencing the associated drought conditions. The Summer of 2012 was one of the worst recorded droughts on record for Marion County and is described in more detail below.

Figure 4.10.2: Drought Monitor for the State of Ohio, 2012 and 2019



Statistics Comparison

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	DSCI
2012-08-28	6.61	93.39	65.23	7.57	1.64	0.00	168
2019-08-27	86.74	13.26	0.00	0.00	0.00	0.00	13
Change	80.13	-80.13	-65.23	-7.57	-1.64	0.00	-155

**The Statistics Comparison in Figure 4.10.2 is calculated as a percent area in those drought conditions.*

4.10.3 Extent

Due to the widespread nature of extreme heat events, all structures, croplands, and infrastructure may experience impacts. All residents of the County may also be impacted, especially at-risk populations that are more susceptible. The elderly and infants are the most vulnerable populations for extreme heat. The most common symptoms caused by extreme heat, according to the Centers for Disease Control (CDC), include:

- **Heat Cramps**: Muscle spasms, often in the abdomen, arms, or calves, caused by a large loss of salt and water in the body. Heat cramps can occur from prolonged exposure to extreme heat combined with dehydration, and they commonly happen while participating in strenuous outdoor activities such as physical labor or sports.
- **Heat Exhaustion**: Severe illness requiring emergency medical treatment. It can occur from exposure to extreme heat over an extended period of time (usually several days), especially when combined with dehydration. Heat stroke is the most serious medical condition caused by extreme heat, requiring emergency treatment. Heat stroke (or hyperthermia) occurs when the body can no longer regulate its temperature, and its temperature rises rapidly—up to 106°F or higher.
- **Heat Stroke**: Usually occurs as a progression from other heat-related illnesses, such as heat cramps or heat exhaustion. It can also strike suddenly without prior symptoms, however, and it can result in death without immediate medical attention. Extreme heat is especially dangerous because people might not recognize their symptoms as signs of a more serious condition. For example, symptoms like sweating or fatigue may just appear to be normal reactions to a hot day. People may be in more danger if they experience symptoms that alter their decision-making, limit their ability to care for themselves, or make them more prone to accidents. If untreated, heat-related illnesses can worsen and eventually lead to death. Heat can also contribute to premature death from health impacts other than those listed above. This is because extreme heat can worsen chronic conditions such as cardiovascular disease, respiratory disease, and diabetes.

Due to the regional nature of droughts, effects may be noticed throughout the County in the urbanized and rural areas. All jurisdictions with the County may be affected in a single drought event. In Marion County, droughts are often linked to prolonged periods of above average temperatures and little to no precipitation.

Initial effects of drought can be noticed within a short period, as soils may dry out and plants may wither and die. When drought conditions persist over several weeks, months, or years, effects may be more pronounced with reductions in water levels of wells, lakes, reservoirs, streams, and rivers. Water supply issues for agriculture, commercial/industrial activities, and private consumption may arise if drought conditions persist over a long term.

The extent of the drought is determined by the Palmer Drought Severity Index (PDSI). In this way, the Index can be utilized as a tool to help define disaster areas and indicate the availability of irrigation water supplies, reservoir levels, range conditions, amount of stock water, and potential for forest fires. The PDSI depicts prolonged (in months or years) abnormal dryness or wetness and is slow to respond, changing little from week to week. It also reflects long-term moisture runoff, recharge, and deep percolation, as well as evapotranspiration.

The PDSI is a standardized index with values typically falling between -4.00 and +4.00, although extreme conditions can be greater in value (**Table 4.10.1**). Negative values indicate drought conditions while positive values represent wet spell conditions. Values around zero represent near normal conditions.

Table 4.10.1: Palmer Drought Severity Index Classifications

Palmer 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 to -2.99	Moderate Drought
-3.0 to -3.99	Severe Drought
-4.0 or less	Extreme Drought

4.10.4 History

There have been at least seven reported droughts in Marion County since April 1988, many of which were reported monthly for droughts that were ongoing throughout the dry months. There are no injuries, deaths, or property damages related to these droughts; however, at least $6 million in crop damages have been reported. The following historic drought and extreme heat events have been recorded in Marion County. Episode narratives, if available, were provided by the NCDC.

Summer 2012

Widespread drought occurred throughout the lower 48 states, including Ohio. The Secretary of Agriculture made a disaster declaration from Drought and Excessive Heat, which provided Small Business Administration Economic Injury Disaster loans to Ohio. No injuries, deaths, property, or crop damages were reported as a result of this drought. **Figure 4.10.3**, on the following page, displays the PDI of July 2012 for the continental United States.

September 1, 1999

Drought conditions continued across most of northern Ohio during September. Widespread heavy rain occurred on the August 29, 1999 but did little to help crop conditions. For the month, only 1.63 inches of rain fell in the City of Mansfield making it the 9th driest September on record. Of the 1.63 inches, 1.14 inches fell on the August 29, 1999. Even with an inch of rain, both the City of Toledo and the City of Cleveland finished with below two inches of rain for the month. Losses from reduced crop yields are estimated at $200 million for northern Ohio alone.

August 1, 1999

Drought conditions persisted across northern Ohio as rainfall totals for the month were below normal at most locations. Only 1.40 inches of rain fell in the City of Toledo during August with only 1.80 inches measured in Cleveland. Both of these totals are roughly half the monthly normal. The City of Mansfield finished the month 1.98 inches below normal making it the 6th driest August on record. Water use

restrictions were instituted in many areas. The drought also greatly impacted agricultural interests. Crop yields in northern Ohio will be reduced by an average of 30 percent this growing season.

July 1, 1999
Drought conditions across northern Ohio eased as thunderstorm rains became more widespread. None the less, very dry soil conditions persisted in a few areas that missed the brunt of the thunderstorm activity. Some communities instituted water use restrictions and crop yields will likely be reduced because of the lack of adequate rainfall. Losses due to the drought were unknown.

June 1, 1999
Little rain occurred from late May through much of June. Only 1.19 inches of rainfall fell at Akron-Canton during the month making it the fifth driest June on record. Similarly, 1.66 inches of rain fell at the City of Mansfield also making it the fifth driest June on record. Scattered rains late in June brought hope for farmers but it is likely that crop yields will be reduced even with adequate rain the remainder of the season. Losses due to the drought were unknown. Several communities instituted water use restrictions.

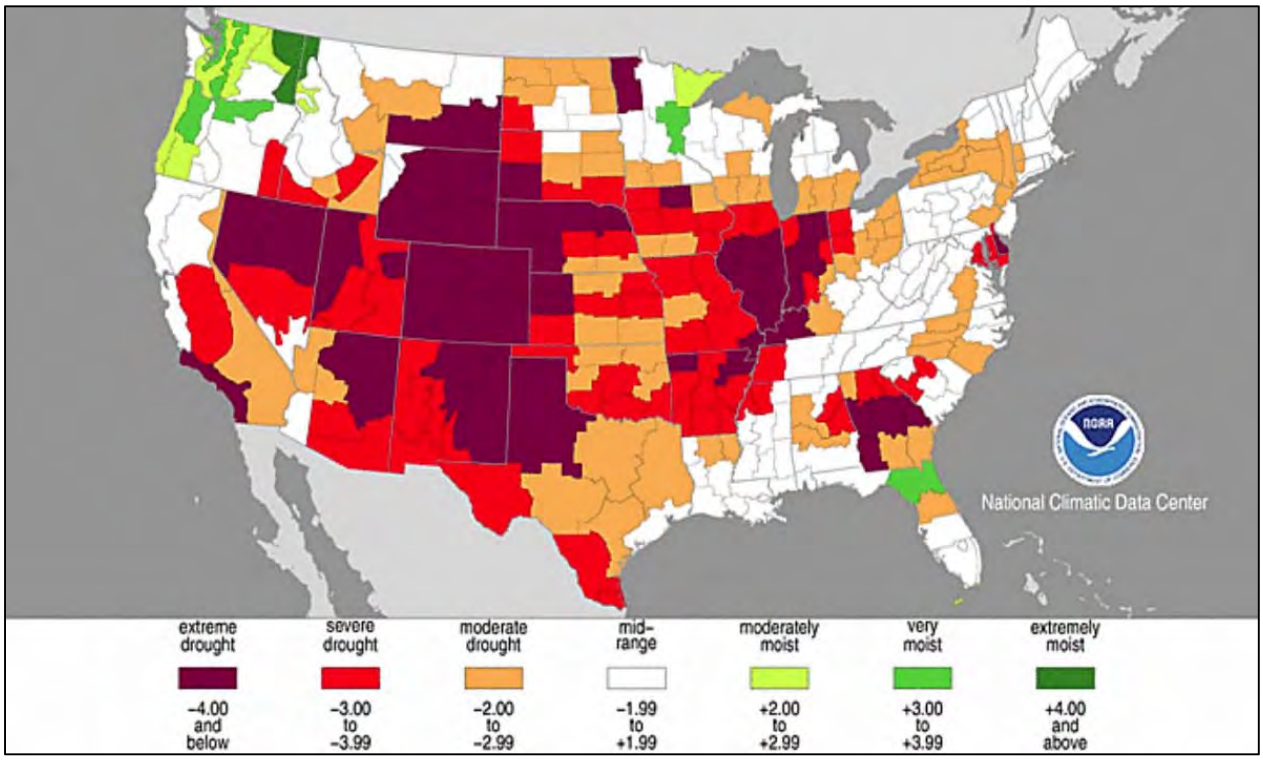
August 1, 1996
Dry weather persisted throughout the month across northern Ohio. Rainfall averaged from a few tenths of an inch in north central and northwest Ohio to one to two inches in extreme northeast Ohio. August rainfall normally averages between three and four inches. Rainfall totals were 0.76 inches at Toledo Airport and 0.71 inches at Cleveland Airport, which rank among the five driest Augusts on record. Crops that normally mature during August were affected by the dry weather and crop losses were predicted at ten to thirty percent. The actual dollar amount of crop loss was unknown.

April – June 1988
A severe drought impacted nearly half of the United States in 1988. A dry spell began in early to mid-April, ten days before the onset of the drought, which lasted until early to mid-June. The drought caused as much as $60 billion in damages across the Country. Marion County was impacted during this drought, as was the rest of Ohio.

4.10.5 Probability

Marion County has experienced seven droughts from April 1988 to Summer 2012, along with excessive heat. The potential exists for the County to experience droughts in the future. Seasons of drought and extreme heat have the potential to occur during any particular year when necessary conditions are met.

Figure 4.10.3: Palmer Drought Severity Index for the United States in July of 2012



4.10.6 Vulnerability Assessment

Based on current climate reports:

- Drought projections suggest that some regions of the U.S. will become drier and that most will have more extreme variations in precipitation.
- Even if current drought patterns remained unchanged, warmer temperatures will amplify drought effects.
- Drought and warmer temperatures may increase risks of large-scale insect outbreaks and wildfires.
- Drought and warmer temperature may accelerate tree and shrub death, changing habitats and ecosystems in favor of drought-tolerant species.
- Forest-based products and values – such as timber, water, habitat and recreation opportunities – may be negatively impacted.
- Forest and rangeland managers can mitigate some of these impacts and build resiliency in forests through appropriate management actions.

Drought does not have a significant impact on infrastructure or structures. The greatest impacts of drought are on agricultural interests, as crops may fail and livestock may not have sufficient water resources. Economic losses are the greatest threat from droughts to Marion County. According to the 2012 Census of Agriculture developed by the United States Department of Agriculture (USDA), top crop items based on acreage for Marion County include soybeans, corn, and winter wheat. Commodity Loss Statistics for these crops are included in **Table 4.10.2** and compare a non-drought year (2011) with the production and harvest of crops in a drought year (2012).

Based on data from the USDA, Marion County's soybean and winter wheat yields decreased by 4.13 percent and 6.4 percent, respectively, while the County's corn yield increased by 5.8 percent. Additionally, the total number of bushels per acre harvested decreased for both soybeans and corn, while the number of bushels per acre harvested increased for winter wheat.

4.10.7 Land Use and Development Trends

Drought is most likely to impact agriculture land uses and land uses that house or serve vulnerable populations, such as schools, daycares, hospitals, and nursing homes.

Table 4.10.2: Commodity Loss Statistics between 2011 and 2012 (Source: USDA)

Commodity	Units	Non-Drought Year 2011 (acres)	Drought Year 2012 (acres)	Change	Amount
Soybeans-planted	Acres	104,000	99,700	Down	-4,300
Soybeans-harvested	Acres	104,000	99,700	Down	-4,300
Yield	%	100	100	Down	-4.13
Soybeans-production	Bushels	5,249,000	4,590,000	Down	-659,000
Yield	Bushels/acre harvested	50.5	46.0	Down	-4.5
Corn, planted	acres	57,000	71,000	Up	14,000
Corn, grain-harvested	acres	51,700	68,500	Up	16,800
Yield	%	90.7	96.5	Up	5.8
Corn, grain-production	Bushels	8,800,000	8,888,000	Up	88,000
Yield	Bushels/acre harvested	170.2	129.8	Down	-40.4
Winter Wheat, planted	acres	11,900	5,700	Down	-6,200
Winter Wheat - harvested	acres	11,700	5,240	Down	-6,460
Yield	%	98.3	91.9	Down	-6.4
Winter Wheat - production	Bushels	727,000	348,000	Down	-379,000
Yield	Bushels/acre harvested	62.1	66.4	Up	4.3

4.11 Invasive Species

4.11.1 Description

Harmful Species are species that have potential negative impacts on the environment and economy of Marion County. Harmful species are both native and invasive. The National Oceanic and Atmospheric Administration (NOAA) defines an invasive species as "an organism that causes ecological or economic harm in a new environment and is not native." Harmful species are species that are native to a region, but that also cause significant ecological, public health, or economic harm. Their growth is often encouraged through human activity.

4.11.2 Location

Invasive species have the potential to impact any location within the County.

4.11.3 Extent

According to the Ohio Administrative Code 901:5-30-01 *Invasive plant species*, there are 38 invasive plant species in Ohio (**Table 4.11.1**). These plants cannot be sold, distributed, or imported.

Table 4.11.1: Invasive Plant Species in Ohio

Scientific Name	Common Name
Ailanthus altissima	Tree-of-heaven
Alliaria petiolata	Garlic mustard
Berberis vulgaris	Common barberry
Butomus umbellatus	Flowering rush
Celastrus orbiculatus	Oriental bittersweet
Centaurea stoebe ssp. Micranthos	Spotted knapweed
Dipsacus fullonum	Common teasel
Dipsacus laciniatus	Cutleaf teasel
Egeria densa Brazillian	Elodea
Elaegnus angustifolia	Russian olive
Elaegnus umbellate	Autumn olive
Epilobium hirsutum	Hairy willow herb
Frangula alnus	Glossy buckthorn
Heracleum mantegazzianum	Giant hogweed
Hesperis matronlis	Dame's rocket

Scientific Name	Common Name
Hydrilla verticillata	Hydrilla
Hydrocharis morsus-ranae	European frog-bit
Lonicera japonica	Japanese honeysuckle
Lonicera maackii	Amur honeysuckle
Lonicera morrowii	Morrow's honeysuckle
Lonicera tatarica	Tatarian honeysuckle
Lythrum salicaria	Purple loosestrife
Lythrum virgatum	European wand loosestrife
Microstegium vimineum	Japanese stiltgrass
Myriophyllum aquaticum	Parrotfeather
Myriophyllum spicatum	Eurasian water-milfoil
NyMPHoides peltata	Yellow floating heart
Phragmites australis	Common reed
Potamogeton crispus	Curley-leaved pondweed
Pueraria montana var. lobate	Kudzu
Pyrus calleryana	Callery pear
Ranunculus ficaria	Fig buttercup / Lesser celandine
Rhamnus cathartica	European buckthorn
Rosa multiflora	Multiflora rose
Trapa natans	Water chestnut
Typha angustifolia	Narrow-leaved cattail
Typha x glauca	Hybrid cattail
Vincetoxicum nigrum	Black dog-strangling vine / Black swallowwort

There are currently four invasive species that have the potential to impact Marion County:

The **Emerald Ash Borer (EAB)** targets ash trees. This insect was first found in Ohio in 2003 and has been found in every county. Since the EAB has been found in every county, there are no quarantines in effect with Ohio's borders. Ohio is still listed in the Federal quarantine boundary.

The **Hemlock Woolly Adelgid** was first discovered in Meigs County, but it has been observed in the eastern region of Ohio. As its name suggests, the Hemlock Woolly Adelgid impacts hemlock trees by stealing nutrients as the base of the tree's needles. Early infestations can be spotted when white, woolly sacs appear near the base of the needles. At a forest level, a thinning hemlock canopy could be caused by the Adelgid. All Hemlock Woolly Adelgids are female and reproduce asexually. Every year, one generation is born in the spring and one in the winter. Feeding and egg laying typically occur during the Autumn season, and hibernation or dormancy occurs during the growing season.

The **Gypsy Moth** has been migrating into Ohio from Pennsylvania and Michigan. In the caterpillar stage the Gypsy Moth targets over 300 different trees and shrubs. A healthy tree will typically die within two years of a Gypsy Moth infestation. Gypsy Moth eggs are laid during July and overwinter until late April to mid-May. An egg mass can contain up to 600 eggs. Before feeding, the larvae are dispersed by the wind to other trees or areas. The Gypsy Moth can lead to heavy defoliation and can make trees more susceptible to other invasive or harmful species. Preferred host plants include alder, aspen, gray birch, white birch, hawthorn, larch, linden, mountain ash, oaks, Lombardy poplar, willows, and witch-hazel. Trees that are susceptible to older larvae only include beech, red cedar, chestnut, hemlock, plum, pine, and Colorado blue spruce.

The **Walnut Twig Beetle** transmits the thousand cankers disease, a fungus that attacks black walnut trees. Butler County is currently under quarantine to limit the spread of the Walnut Twig Beetle throughout Ohio.

4.11.4 History

There are no known impacts of invasive species particular to Marion County. However, it is possible that any of the species listed above (except the Asian Longhorned Beetle) have at one point been in Marion County.

4.11.5 Probability

Since there are many invasive species throughout Ohio, it is probable that Marion County will experience some of the invasive species listed above.

4.11.6 Vulnerability Assessment

Infrastructure Impact
There are no likely impacts to public roadways or utilities. Public trees may be destroyed or impacted by various invasive species.

Population Impact
There are no likely impacts on the local population.

Property Damage
Property damage, in the form of reduced values from impacts on landscaping, is likely.

Loss of Life
Loss of life due to the effects of invasive species is unlikely.

Economic Losses

Economic impacts can vary greatly depending on the target and of the invasive species and their impacts on those targets. If a large number of trees are severely damaged or killed by various invasive species, there may be indirect economic losses. Examples include increased heating and cooling costs, reduced property value, and reduction in viable lumber for construction.

4.11.7 Land Use and Development Trends

There are no likely impacts on development and land use due to invasive species.

4.12 Wildfire

4.12.1 Description

A wildfire is a fire in an area of combustible vegetation that occurs in the countryside or rural area. The Ohio Department of Natural Resources (ODNR) identifies Ohio's wildfire seasons as occurring primarily in the spring (March, April and May) before vegetation has "greened-up" and the fall (October and November) when leaf drop occurs. During these times and especially when weather conditions are warm, windy and with low humidity, cured vegetation is particularly susceptible to burning. Fuel (vegetation, woody debris), weather (wind, temperature, humidity) and topography (hills and valleys) can combine to present an extreme danger to unwary civilians and firefighters in the path of a wildfire. Each year an average of 1,000 wildfires burn 4,000 to 6,000 acres of forest and grassland within Ohio's forest fire protection district, which corresponds mostly to the state's unglaciated hill country.

4.12.2 Location

According to the State of Ohio Enhanced Hazard Mitigation Plan, Marion County has not been identified as a county within the Ohio Department of Natural Resources (ODNR) Division of Forestry's Wildfire Protection Area. Additionally, no communities within Marion County have been classified as a community at risk of wildfire, according to the ODNR Division of Forestry. Based on the State of Ohio Wildfire Hazard Assessment, all townships and jurisdictions within Marion County are at a low risk of Wildfire (**Figure 4.12.1**).

4.12.3 Extent

Several factors can contribute to the escalation of risk of wildfires, including the prevalence of forests and agricultural lands and their close proximity to homes, residences, and structures, as well as the distance between fire and EMS services. In these cases, presence of fire near structures causes fire departments to shift focus away from fire suppression and towards structure protection.

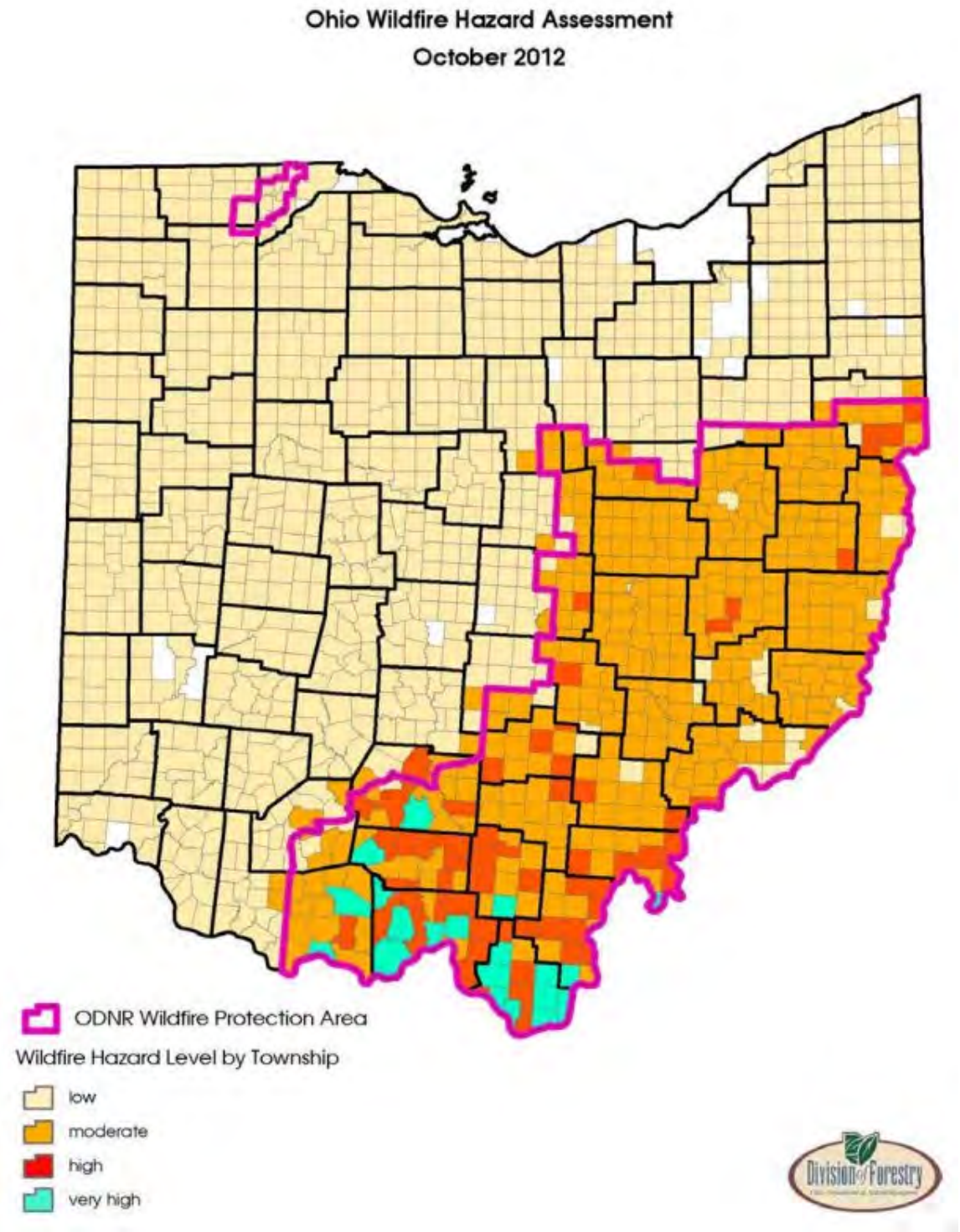
4.12.4 History

According to the Ohio EMA, Marion County has experienced at least 59 wildfire events from January 2007 to December 2017. These fires have burned a total of 473 acres of land, with each event burning 8.02 acres on average. Of these fires, 46 burned less than 10 acres of land, while 13 burned between then and 99.99 acres of land. No fires burned more than 100 acres of land.

4.12.5 Probability

The Ohio EMA predicts an estimated five wildfire events in Marion County each year. This is calculated based on the number of historic fire events between January 2007 and December 2017. Additionally, the *State of Ohio Enhanced Hazard Mitigation Plan* indicates that based on historic events there is a 100 percent probability that a wildfire will occur within any county in any given year.

Figure 4.12.1: ODNR Division of Forestry Wildfire Risk Level by Township



4.12.6 Vulnerability Assessment

Infrastructure Impact

As there were no recorded events in Marion County's history, it is currently estimated that the County will not have any damage to infrastructure as a result of Wildfires.

Population Impact

There is low risk of wildfire in Marion County. Accordingly, there is low risk of impact to the population. If wildfire would occur within the County, the population could be impacted by loss of homes and crops.

Property Damage

As there were no recorded wildfire events in Marion County's history, it is currently estimated that the County has not had any damage to infrastructure as a result of wildfires. Occasionally, in the event of wildfire event, fire engines belonging to local fire departments are damaged while suppressing wildfires. Wildfire suppression has resulted in a great amount of personal property being saved by fire departments.

Due to the non-site-specific nature of this hazard, **Table 4.12.1** lists all structures within Marion County as having potential impacts from Wildfires. It also provides values for two worst-case scenarios valued at one percent damage and five percent damage.

Loss of Life

Marion County has no recorded wildfire events resulting in loss of life. Because no wildfire events have occurred in the County, it is unlikely that loss of life will result from wildfire; however, with any wildfire event, there is potential for loss of life. Advanced evacuation warnings can reduce the likelihood of death as a result of wildfire.

Economic Losses

As there were no recorded events in Marion County's history, it is currently estimated that the County has not had any damage to infrastructure as a result of wildfires. However, wildfire has the potential to damage agricultural crops and tree plantations, which can result in economic losses. Potential economic losses and damages associated with Marion County structures and potential worst-case scenarios are recorded in **Table 4.12.1**, below.

Table 4.12.1: Structure Vulnerability

	Count	Building	Land	Total
Residential	27,238	$121,460,230	$507,870,260	$629,330,490
Non-Residential	9,823	$242,687,590	$66,787,880	$305,475,470
Critical Facilities	1,258	$28,896,850	$296,991,390	$325,888,240
Total	38,319	$393,004,670	$867,649,530	$1,260,694,200

4.12.7 Land Use and Development Trends

As there are no current at-risk communities for wildfire, there are no likely impacts on development and land use.

4.13 Earthquakes

4.13.1 Description

An earthquake is a sudden movement of the Earth's crust caused by the abrupt rupture and rebound of accumulated stress along geologic faults. These movements vary in length and may last from a few seconds to several minutes.

The seismicity, or seismic activity, of an area refers to the frequency, type and size of earthquakes experienced over a period of time. Earthquakes are measured using observations from seismometers. The moment magnitude scale, developed in the 1970s, is the most common scale on which earthquakes larger than approximately 5.0 are reported for the entire world. The more numerous earthquakes smaller than magnitude 5.0, reported by national seismological observatories, are measured mostly on the local magnitude scale; also referred to as the Richter scale. These two scales are numerically similar over their range of validity. Magnitude 3.0 or lower earthquakes are mostly almost imperceptible or weak, while magnitude 7.0 and over earthquakes can potentially cause serious damage over larger areas. Damage from an earthquake also depends on the earthquake's depth in the earth's crust. The shallower an earthquake's epicenter, the more damage to structures it will cause, if all other factors are equal.

An earthquake can also be measured by its intensity. The Modified Mercalli Intensity Scale (MMI) ranges in value in roman numeral I to XII (**Table 4.13.1**).

Major earthquakes are low probability, high consequence events. Most major earthquakes in the U.S. have occurred in California and other western states. There have been recorded earthquakes throughout the U.S., and the Ohio River Valley has experienced earthquakes exceeding the 3.0 magnitude within the last 25 years.

4.13.2 Location

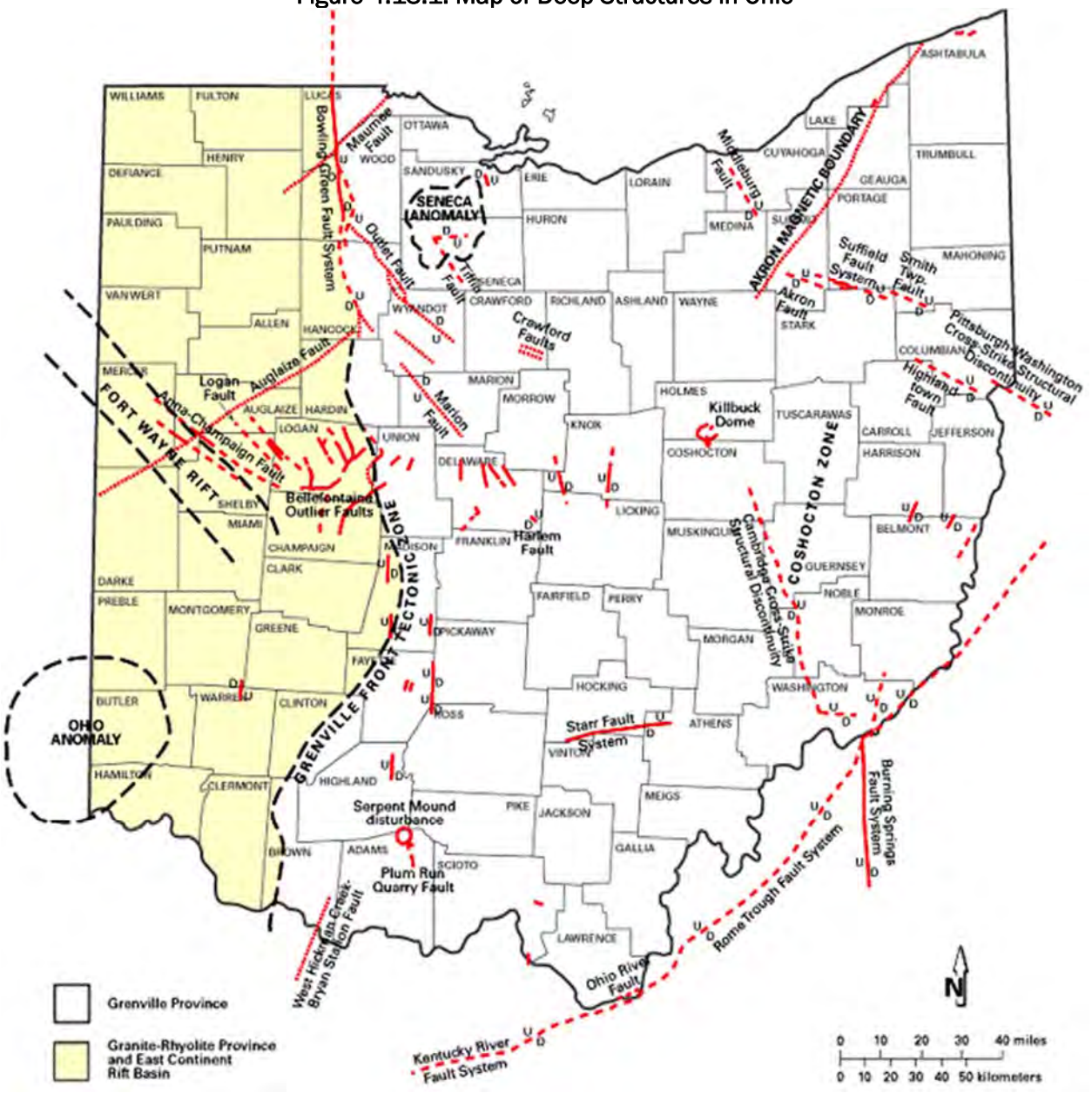
Earthquakes are countywide hazards and can affect all areas and jurisdictions within Marion County. According to the Ohio Department of Natural Resources (ODNR), Ohio is located on the periphery of the New Madrid Seismic Zone, an area in and around Missouri that was the site of the largest earthquake sequence to occur in the country. Additionally, Marion County is located east of the Anna Seismic Zone, the location of the largest earthquake in Ohio, as well as numerous smaller earthquakes since.

Furthermore, the Ohio Seismic Network's map of Deep Structures in Ohio (**Figure 4.13.1**) indicates that Marion County contains one Faultline, the Marion Fault, which transects the western half of the County.

Table 4.13.1: Modified Mercalli Intensity Scale (Source: ODNR)

Modified Mercalli Intensity Scale		Magnitude
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 awaken; 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

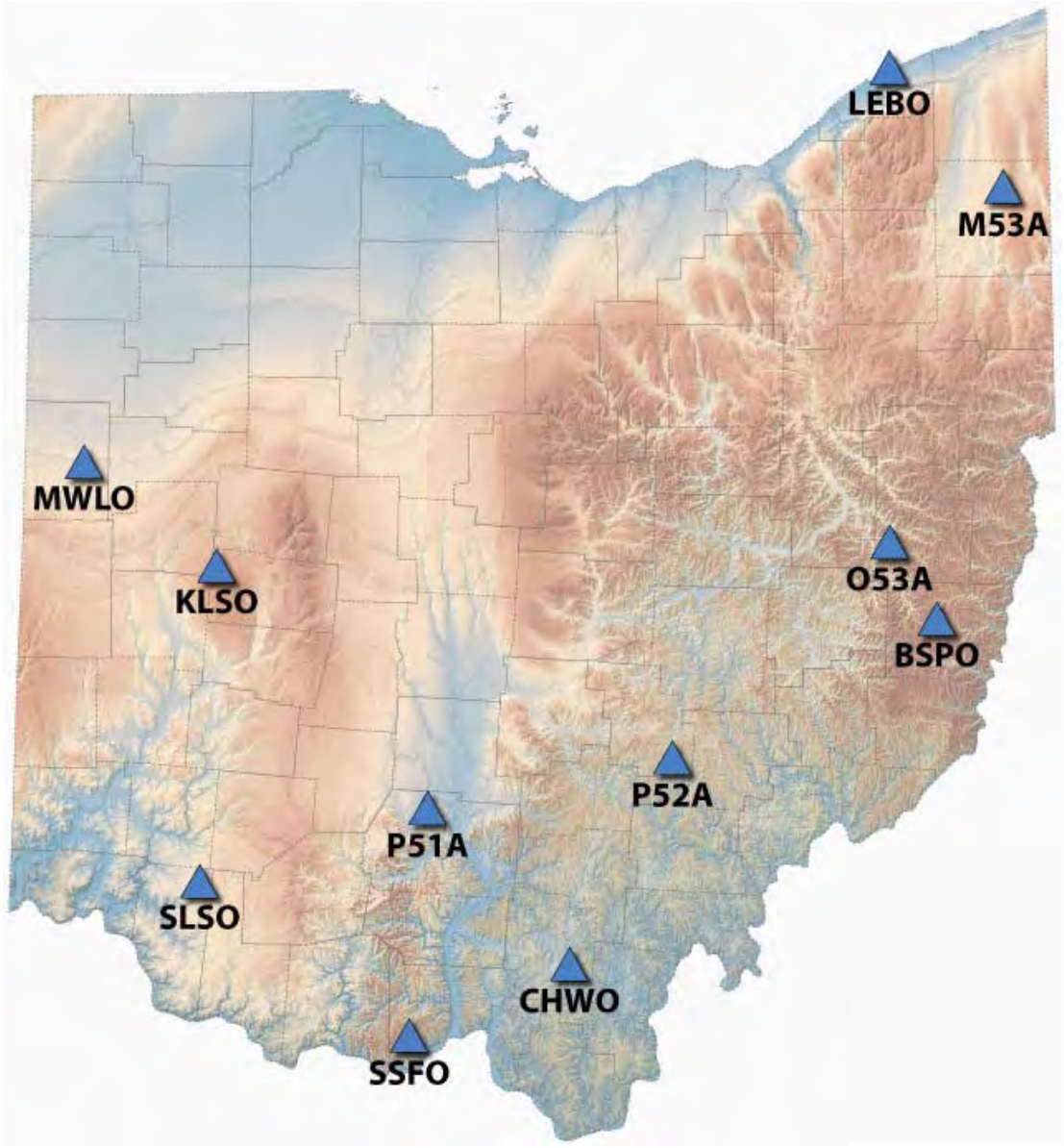
Figure 4.13.1: Map of Deep Structures in Ohio



4.13.3 Extent

Earthquakes post a risk to life and property, depending on the severity. To monitor earthquakes, the State of Ohio has deployed several seismometers to record any earthquakes (**Figure 4.13.2**). The Kiser Lake State Park Ohio (KLSO) and Mercer Wildlife Area Ohio (MWLO) seismometers are located in the closest proximity to Marion County. Both seismometers are situated in close proximity to the Anna Seismic Zone and were developed to provide the Ohio Seismic Network with the capability to detect and locate any earthquakes in the region. They also provide a better understanding of the tectonic network of the area's underlying rocks.

Figure 4.13.2: Location of Seismometers in Ohio (Source: ODNR)



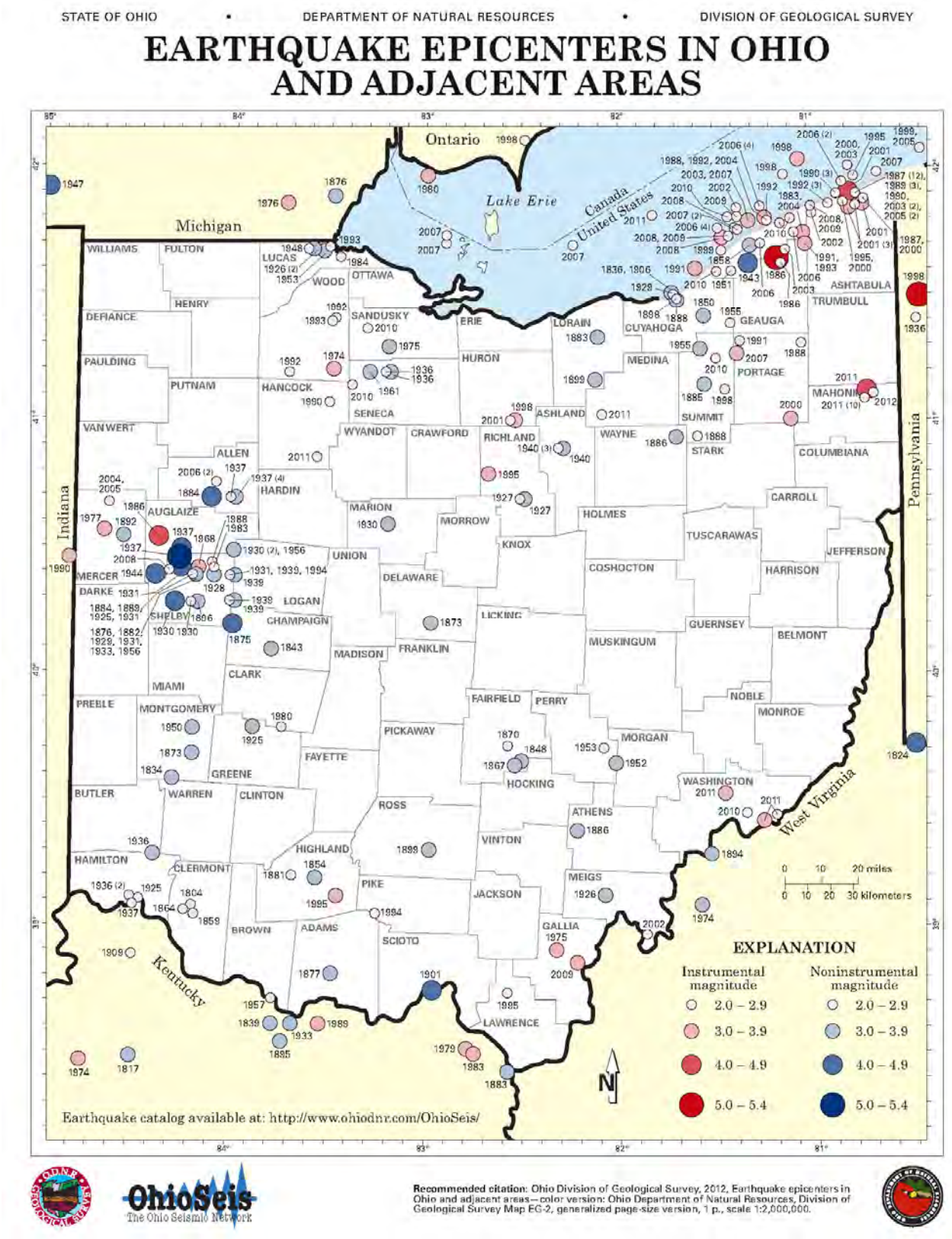
4.13.4 History

The State of Ohio has experienced more than 120 earthquakes between 1776 and 2019. Fourteen of these earthquakes have caused minor to moderate damage. The largest historic earthquake in Ohio was centered in Shelby County in 1937. This event, estimated to have had a magnitude of 5.4 on the Richter scale, caused considerable damage in Anna and several other western Ohio communities, where at least 40 earthquakes have been felt since 1875.

July 11, 1930

According to the ODNR, Marion County was the epicenter of one earthquake on July 11, 1930 at 12:15 AM (**Figure 4.13.3**). The earthquake measured a magnitude of 3.1 and a Modified Mercalli Intensity of IV.

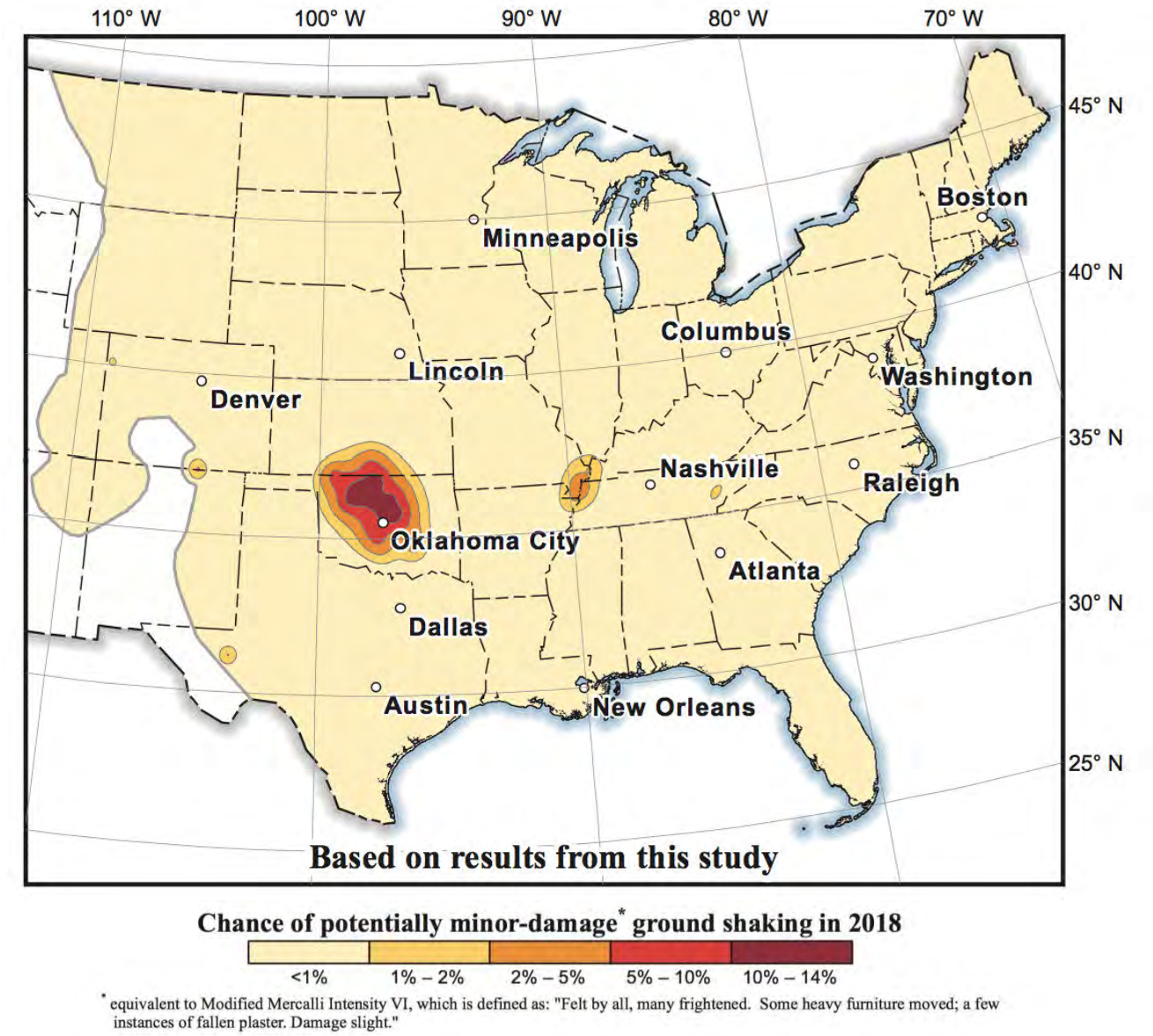
Figure 4.13.3: Earthquake Epicenters in Ohio (Source: ODNR)



4.13.5 Probability

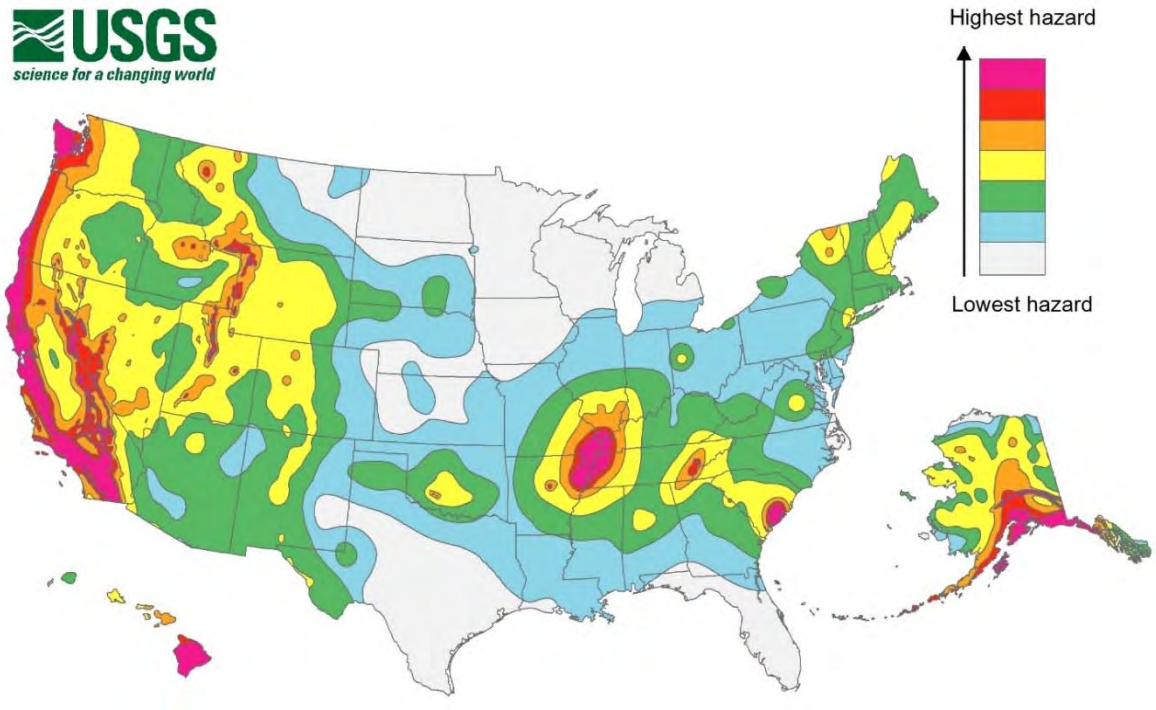
The USGS has both long-term and short-term probabilistic seismic hazard forecasts. In the 2018 one-year probabilistic seismic hazard forecast, the USGS estimates that there is a less than one percent chance of potentially minor-damage ground shaking in 2018 for Marion County (**Figure 4.13.4**).

Figure 4.13.4: Chance of Potentially minor-damage ground shaking in 2018 (Source: USGS)



The USGS also determined the long-term hazard of earthquakes for the United States (**Figure 4.13.5**). The measurement used in this estimation is based on the chance of ground shaking – peak ground acceleration – as a percentage of the natural force of gravity over time. This map identifies that most of Marion County and surrounding areas in Ohio have the second to lowest hazard ranking for the nation. There are some communities west of Marion County that would have an increased probability of earthquakes, most likely due to their proximity to the Anna Seismic Zone.

Figure 4.13.5: Probability of Earthquakes in the United States (Source: USGS)



4.13.6 Vulnerability Assessment

Past incidents of earthquakes have not resulted in any recorded infrastructure or population impacts, property damage, economic losses, or loss of life, although each of these are possibilities if an earthquake would occur. Damages are most often limited to poorly built structures. Because earthquakes are a countywide hazard, it has the potential to impact all property and critical facilities in the County.

Due to the non-site-specific nature of this hazard, **Table 4.13.2** lists all structures within Marion County as having potential impacts from earthquakes.

Table 4.13.2: Structure Vulnerability

	Count	Building	Land	Total
Residential	27,238	$121,460,230	$507,870,260	$629,330,490
Non-Residential	9,823	$242,687,590	$66,787,880	$305,475,470
Critical Facilities	1,258	$28,896,850	$296,991,390	$325,888,240
Total	38,319	$393,004,670	$867,649,530	$1,260,694,200

4.13.7 Land Use and Development Trends

As an earthquake is unlikely, there are no likely impacts on development and land use. However, to mitigate any potential damage that may result from an earthquake in the future, structures should be built to absorb the impact from earthquakes as best as possible.

4.14 Dam Failure

4.14.1 Description

FEMA defines a dam as "any artificial barrier of at least a minimum size, including appurtenant works, that impounds or diverts water or liquid-borne solids on a temporary or long-term basis." Dam failure occurs when that impounded water is suddenly released in an uncontrollable manner. A dam/levee failure can result in the uncontrolled release of floodwaters downstream of a facility. Water released from the dam during failure will always flow downhill, and the resulting flood wave can cause significant damage to buildings and infrastructure downstream. The unexpected nature of the flood wave also increases the likelihood of loss of life in the impacted area due to reduced warning times.

Dams can fail for one or a combination of the following reasons:

- Overtopping caused by floods that exceed the capacity of the dam
- Structural failure of materials used in dam construction
- Movement and/or failure of the foundation supporting the dam
- Settle and cracking of concrete or embankment dams
- Inadequate maintenance and upkeep
- Deliberate acts of sabotage

According to Ohio Administrative Code Rule 1501:21-13-01 (2010), dams are classified as either Class I-IV dams based on the following criteria:

- Class I: Dams having a total storage volume greater than 5,000 acre-feet or a height of greater than 60 feet.
- Class II: Dams having a total storage volume greater than 500 acre-feet or a height of greater than 40 feet.
- Class III: Dams having a total storage volume greater than 50 acre-feet or a height of greater than 25 feet.
- Class IV: Dams having a total storage volume of 50 acre-feet or less and a height of 25 feet or less.

4.14.2 Location

Dam locations can be seen in **Figure 4.14.1**. Dam locations and properties are also listed in **Table 4.14.1.**

Figure 4.14.1: Locations of Dams in Marion County, Ohio

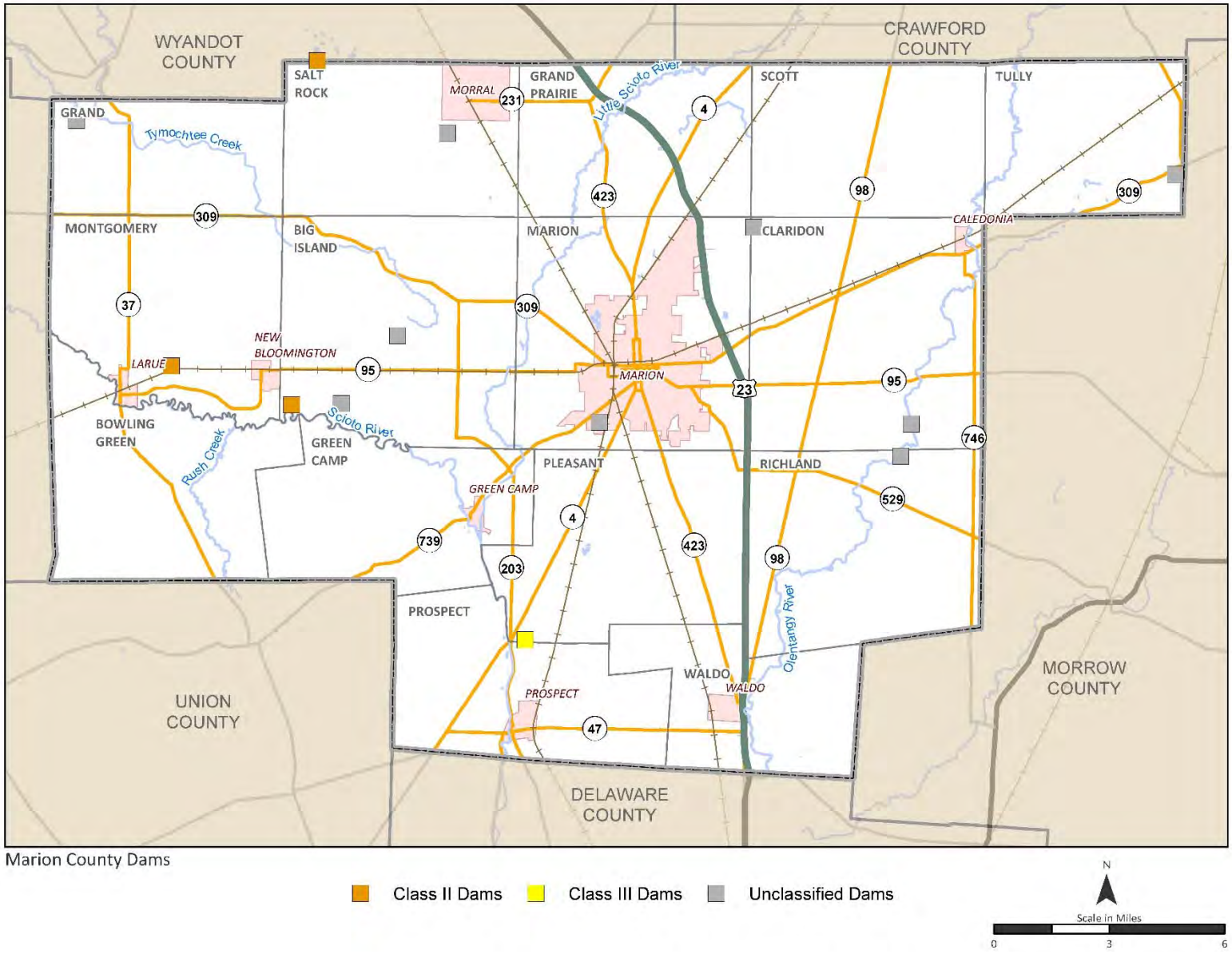


Table 4.14.1: Dams in Marion County, Ohio

Class	Name	Owner	Impoundment	Length	Height	Pool Area (Acres)	Volume (Acres/ Feet)	EAP (as of 9/26/19)
II	LaRue Wastewater Treatment Lagoon	Village of LaRue	Upground	2950	10	8.7	53.5	No
II	Big Island Wetland Dam	ODNR Division of Wildlife	Dam and dike	2600	9	115.5	616.4	No
II	Killdeer Wildlife Pond 27 Southwest Cell	ODNR Division of Wildlife	Upground	13000	9.1	214	1280	No
III	Swaney Levee	Robert Swaney	Levee	160	5.3	Null	Null	No
Other	Unknown	Null	Dam and spillway	Null	Null	2	Null	No
Other	Big Island Wildlife Area Upground	ODNR Division of Wildlife	Upground	17200	5.6	382	Null	No
Other	Hickory Grove Lake Campground Dam	Barry L & Sharon B Ferrin	Dam and spillway	1075	13.8	6	39.1	No
Other	Malo Lake Dam	Walter Malo	Dam and spillway	Null	10	3	Null	No
Other	Marion Lake Dam	City of Marion	Dam and spillway	Null	10	5	Null	No
Other	Unknown	Null	Upground	Null	10	2	Null	No
Other	Tozzer Lake Dam	Jack Tozzer	Dam and spillway	Null	15	5	Null	No
Other	Unknown	Null	Dam and spillway	Null	Null	3	Null	No
Other	Impoundment #1	ODNR Division of Mineral Resources Management	Null	Null	8	Null	Null	No

4.14.3 Extent

As previously mentioned, Class I dams have a total storage volume greater than 5,000 acre-feet or a height of greater than 60 feet. Sudden failures of Class I dams would increase the probability that one of the following conditions would result:

- Loss of human life
- Structural collapse of at least one residence or one commercial or industrial business

Sudden failures of Class II dams would result in at least one of the following conditions:

- 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, or publicly owned structures. At the request of the dam owner, the chief may exempt dams from the criterion of this paragraph if the dam owner owns the potentially affected property.
- Flooding of high-value property. At the request of the dam owner, the chief may exempt dams from the criterion of this paragraph if the dam owner owns the potentially affected property.
- Damage or disruption to major roads including but not limited to interstate and state highways, and the only access to residential or other critical areas such as hospitals, nursing homes, or correction facilities as determined by the chief.
- Damage or disruption to railroads or public utilities.
- Damage to downstream class I, II, or II 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. At the request of the dam owner, the chief may exempt dams from the criterion of this paragraph if the dam owner owns the potentials affected property.

Sudden failures of Class III dams would result in at least one of the following conditions:

- Property losses including but not limited to rural buildings not otherwise described the Ohio Administrative Cod Rule 1501:21-12-01 (2010), and class IV dams and levees not otherwise listed as high-value properties in this rule. At the request of the dam owner, the chief may exempt dams from the criterion of this paragraph if the dam owner owns the potentially affected property.
- Damage or disruption to local roads including but not limited to roads not otherwise listed as major roads.

Sudden failures of class IV dams would result in property losses restricted mainly to the dam and rural lands, and the loss of human life is not probable.

4.14.4 History

There are no reported dam failures in Marion County.

4.14.5 Probability

As there are no reported dam failures in Marion County, future dam failures are unlikely, but not impossible.

4.14.6 Vulnerability Assessment

Infrastructure Impact

There are no Class I dams in Marion County. Class II dams could flood roadways, including local roads. Utility infrastructure may also be negatively impacted by Class II dam failures, including wastewater treatment plants and the local water supply.

Population Impact

The local population could be impacted by loss of utilities, including the local water supply. Health hazards may also be released into the flood waters during a dam failure which may cause indirect harm to the local population.

Property Damage

Class II dam failure has the potential to damage high value properties. Residential, commercial, and industrial properties may be damaged, as well as publicly owned properties. Properties that are owned by the dam owner may be exempt from the property damage calculation.

Loss of Life

Loss of life is unlikely in a Class II dam failure, which is the highest class of dam in Marion County. While loss of life is unlikely, it is not impossible.

Economic Losses

Economic losses can include damages from flooding crops, damaged goods, and the flooding of vital roadways.

EAP's have been completed for some of the Class II dams; however, the data is subjected to agreements where it cannot be published publicly. The Ohio Department of Natural Resources holds record of these EAP's.

4.14.7 Land Use and Development Trends

Development that has occurred in areas that will flood after a dam failure should be prepared for rapid flooding. Land use plans can limit development in these areas.

5 | Hazard Mitigation

5.1 Hazard Mitigation Strategy

Each potential hazard, including natural, geological, and man-made hazards, were rated by members of the Core Planning Committee, which included representatives from each jurisdiction in Marion County. Each potential hazard was rated on a scale of zero to five, with zero indicating the hazard should not be studied and five indicating the most significant threat to the representative's community. **Table 5.1** displays the average of the representatives' ratings as a Priority Score for each hazard. The hazard that scored the highest (Flooding, 4.231), was given a Hazard Rank of one. The mitigation goals follow the ranking of hazards as established by the representatives of the participating jurisdictions.

Table 5.1: Hazard Priorities

Hazard	Priority Score	Hazard Rank
Flooding	4.231	1
Utility Failure	4.026	2
Severe Winter Storms	3.808	3
Tornadoes	3.718*	4
Hazardous Materials	3.718*	5
Windstorms	3.513	6
Hailstorms	2.679	7
Terrorism	2.615	8
Severe Storms	2.359	9
Drought and Extreme Heat	2.244	10
Invasive Species	1.923	11
Wildfire	1.410	12
Earthquakes	1.051	13
Dam Failure	0.846	14
Mine Subsidence	0.372	Not Assessed
Landslides	0.321	Not Assessed

**After the Hazard Priority Survey was completed by the Core Planning Committee, the Priority Score for Tornadoes and Hazardous Materials was tied at 3.718. The Marion County EMA Director selected Tornadoes as Hazard Rank 4 and Hazardous Materials as Hazard Rank 5 due to the severity of recent weather, as well as the existence of a detailed Marion County Hazardous Materials Plan.*

Since Mine Subsidence and Landslides had a Priority Score closer to zero than to one, those hazards were not assessed. Dam Failure had a priority score closer to one and was included in the 2014 Mitigation Plan for Natural Disasters; as such, it was included in this Plan. Six new hazards were added to the Marion County Local Hazard Mitigation Plan since the 2014 Plan. These include Utility

Failure, Hazardous Materials, Terrorism, Severe Storms, Invasive Species, and Wildfire. Severe Storms also considered any risk posed by hurricanes or tropical storms.

Mitigation projects will only be implemented if the benefits outweigh the associated cost of the proposed project. The Core Planning Committee, in coordination with the Marion County EMA, performed a general assessment of each action that would require FEMA funding as part of the planning process. A detailed cost-benefit analysis of each mitigation action will be required during the project planning phase in order to determine the economic feasibility of each action. Projects will also be evaluated for social and environmental impact-related feasibility, as well as technical feasibility and any other criteria that evaluate project effectiveness. This evaluation of each project will be performed during the pre-application phase of a grant request. Project implementation will be subject to the availability of FEMA grants and other funding sources, as well as local resources.

Projects that are determined to be infeasible during this review process will be re-evaluated by members of the Core Planning Committee for re-scheduling or deletion.

5.2 Hazard Mitigation Goals

Developing achievable goals forms the foundation for all mitigation actions and activities that will aid Marion County in attaining the overall mission of the Core Planning Committee. As such, the Core Planning Committee assessed the goals of the 2014 Mitigation Plan for Natural Disasters and had the opportunity to develop new goals for the 2019 Marion County Local Hazard Mitigation Plan. Goals were reviewed and established based upon their relationship to the potential adverse impact upon the community.

The goals of the 2019 Marion County Local Hazard Mitigation Plan are as follows:

1. Enhance public information and educational programs for both pre-disaster and post-disaster situations.
2. Strengthen existing partnerships among all public (especially adjoining County EMA Offices) and private sectors within and outside Marion County.
3. Integrate, as necessary, mitigation components within the existing Marion County plans whose provisions are influenced by the mitigation of natural disasters.
4. Identify and pursue opportunities for funding of mitigation projects.
5. Solidify mitigation initiatives directed toward critical facilities (schools, medical facilities, emergency services, etc.).
6. Upgrade emergency notification systems throughout Marion County.
7. Strengthen jurisdictional collaboration within Marion County.

All respondent surveys are available for review in **Appendix F: Meeting Documentation**.

5.3 Hazard Mitigation Action Priority

The seven goals listed above, as well as the hazards assessed for this Plan, informed the development of actions that the County and participating jurisdictions can take to mitigate the impacts of each of the hazards. Members of the Core Planning Committee completed a Previous Mitigation Action Status survey, which indicated the status of mitigation actions included in the 2014 Mitigation Plan for Natural Disasters. This survey asked representatives to indicate whether the mitigation action from the previous plan was completed, deleted, deferred, unchanged, or ongoing. It also asked the representative if the action should be included in the Updated Plan.

Once all mitigation actions from the previous plan were reviewed and their status indicated, all mitigation actions for the 2019 Marion County Local Hazard Mitigation Plan were reviewed and rated on a scale of one to five by members of the Core Planning Committee based on the several criteria, including whether the action was cost-effective, technically feasible, environmentally sound, needed immediately, and the action's total risk reduction.

All of the surveys collected were tabulated to develop a single raw score for each individual mitigation action. These scores are indicated on the Hazard Mitigation Action Priority Table on the following pages. Overall, the score was determined by two factors:

1. The rankings of the hazard, as determined by the Hazard Priority Survey (Table 5.1, above).
2. The ratings received from the Core Planning Committee and the public on each of the mitigation actions.

The raw scores were then ranked, and each mitigation action was assigned a number (1-101) to indicate the priority of that specific action, according to the survey responses.

Hazard Mitigation Action priorities are organized by hazard (**Table 5.2**) and by community (**Table 5.3**). The information used to develop the priorities can be found in the Matrix Scoring Spreadsheet, which is located in **Appendix B**. **Appendix B** also includes the status of all mitigation actions developed and included in the 2014 Mitigation Plan for Natural Disasters in a separate table. This table includes comments from the jurisdictions responsible for each action. The completed surveys that were used to make this table can be found in **Appendix F**.

It should be noted that some of the mitigation actions in **Table 5.2 (and 5.3)** have a Lead Agency listed as "All Jurisdictions." This designation indicates that a mitigation action applies to all of the local jurisdictions in Marion County, including the County. Also of note, for some of the mitigation actions, the local jurisdictions should be able to implement them without coordinating with other communities; however, inter-jurisdictional coordination, especially on similar hazards, is encouraged.

Table 5.2: Hazard Mitigation Action Priorities Table, by Hazard (listed in order of priority)

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
All Hazards								
1	Expand the understanding of existing partnerships to include knowledge of Marion County Mitigation planning; increasing the potentials for cooperative mitigation initiatives.	City of Marion	1516.00	24	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing
2	Update as necessary the Marion County Comprehensive Land Use Plan, county and village flood plain regulations, city, village, and township zoning plans.	Grand Prairie Twp, Marion Twp, City of Marion, Village of Green Camp, Village of LaRue, Village of Prospect, Village of Waldo	1519.88	15	Marion County RPC	Existing budget	7/1/19-12/31/24	Ongoing, as necessary
3	Adequate funding sources must continually be identified and solicited, and monies successfully obtained, in order to fully achieve the intended purpose of natural disaster mitigation within Marion County.	City of Marion	1520.00	14	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing, continuous process (never 100% complete)
4	Improve natural disaster mitigation impacting Marion County critical facilities, as necessary.	City of Marion	1514.00	25	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing, as necessary
5	Install fuel-powered electrical generator(s) and electrical disconnect box at the Marion City Sewage Plant.	City of Marion	1523.75	4	Mayor/ Administrator of City of Marion	To be identified through existing budget or grants	7/1/19-12/31/24	Unchanged; No Funding ($1.7 million)

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
6	Disseminate updated natural disaster mitigation educational materials to citizens residing within Marion County. In addition, schedule presentations with various local service clubs, township trustees' quarterly meetings, county commissioners' meetings, fire chiefs, and local law enforcement.	Village of Caledonia, Village of Green Camp, Village of Morral, Village of New Bloomington, Village of Prospect, Village of Waldo	1519.00	20	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing; 10% complete
7	Develop/update back-up power generation capabilities at critical government facilities, especially at water treatment facilities (e.g. temporary storm safe locations, community EOCs).	Marion County, Pleasant Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of Waldo	1519.76	17	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
8	Develop/update Continuity of Operations Plans.	Marion County, Pleasant Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of Morral, Village of New Bloomington, Village of Prospect, Village of Waldo	1521.31	8	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/21	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
9	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of Morral, Village of Waldo	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	7/1/19-12/31/24	New
10	Develop or update Emergency Operation Plans.	Marion County, Bowling Green Twp, Pleasant Twp, Salt Rock Twp, City of Marion, Village of Morral, Village of Waldo	1520.39	13	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
11	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	Marion County, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of Morral, Village of New Bloomington, Village of Prospect, Village of Waldo	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
12	Continue fire code, building code, zoning, and floodplain management enforcement activities.	Marion County, Pleasant Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of Morral, Village of Prospect, Village of Waldo	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
13	Prepare public buildings to act as warming/cooling stations or emergency shelters in case of any hazard.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Caledonia	1519.10	19	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
14	Develop additional partnerships to have places of worship serve as additional shelters.	Marion County, Salt Rock Twp, City of Marion, Village of Green Camp, Village of Morral, Village of Waldo	1518.53	21	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
15	Purchase weather radios for New Bloomington.	Village of New Bloomington	1520.50	12	Mayor/ Administrator of Village of New Bloomington	To be identified through existing budget or grants	7/1/19-12/31/24	New
16	Possible safe room for residents.	Village of New Bloomington	1520.75	11	Mayor/ Administrator of Village of New Bloomington	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
17	Install back-up power generator at municipal airport.	City of Marion	1521.25	9	Mayor/ Administrator of City of Marion	To be identified through existing budget or grants	7/1/19-12/31/24	New
18	Update wastewater system.	Village of Morral	1522.67	6	Mayor/ Administrator of Village of Morral	To be identified through existing budget or grants	7/1/19-12/31/24	New
19	Storm drain maintenance.	Village of Morral	1524.67	2	Mayor/ Administrator of Village of Morral	To be identified through existing budget or grants	7/1/19-12/31/24	New
20	Culvert replacement on East side of South Marion St.	Village of Waldo	1521.00	10	Mayor/ Administrator of Village of Waldo	To be identified through existing budget or grants	7/1/19-12/31/24	New
21	Weather Radios for residents in rural areas.	Salt Rock Twp	1524.00	3	Administrator of Salt Rock Township	To be identified through existing budget or grants	7/1/19-12/31/24	New
22	Develop and adopt County Building Codes.	Marion County	1523.00	5	Marion County RPC	To be identified through existing budget or grants	7/1/19-12/31/24	New
23	Repair Davis Ditch in LaRue.	Marion County	1525.00	1	Mayor/ Administrator of Village of LaRue	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
24	Evacuation Routing in the Village of LaRue.	Village of LaRue	1517.67	23	Mayor/ Administrator of Village of LaRue	To be identified through existing budget or grants	7/1/19-12/31/24	New
25	Backup power generation for LaRue village services.	Village of LaRue	1522.00	7	Mayor/ Administrator of Village of LaRue	To be identified through existing budget or grants	7/1/19-12/31/24	New
26	Modify the current County and impacted Flood Plain Regulations to require propane fuel cylinders (home heating type) in flood hazard areas to be securely anchored.	Village of Caledonia, Village of LaRue, Village of Prospect	1419.25	33	Floodplain manager, RPC	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing
Flooding								
27	Mitigate, as necessary, all flood-prone structures within Marion County through methods such as acquisition, demolition, and retrofitting.	Village of Green Camp, Village of LaRue, Village of Prospect	1420.50	31	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing; 40% Complete
28	Mitigate, as necessary, flooding within the village of Prospect which is detrimental to existing residential, commercial, and industrial structures and limits commercial and industrial growth and expansion within the Village.	Village of Prospect	1418.00	38	Mayor/ Administrator of Village of Prospect	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing; as necessary
29	Mitigate, as necessary, flooding within the village of LaRue which is detrimental to existing residential, commercial, and industrial structures and limits commercial and industrial growth and expansion within the Village.	Marion County, Village of LaRue	1419.33	32	Mayor/ Administrator of Village of LaRue	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing; 40% Complete

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
30	Work with townships that have flood hazard areas to modify their zoning resolutions to prohibit the development of residential, commercial, or industrial structures in flood hazard areas.	Claridon Twp, Grand Prairie Twp	1417.83	39	Floodplain manager, RPC	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing; as necessary
31	Improve storm water management system.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of LaRue, Village of Morral, Village of New Bloomington, Village of Prospect, Village of Waldo	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	7/1/19-12/31/24	New
32	Identify and study poor draining areas to control flooding.	Marion County, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of New Bloomington, Village of Waldo	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	7/1/19-12/31/24	New
33	Repair or replace ditching, culverts, and bridges to control flooding.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of LaRue, Village of Morral, Village of Waldo	1419.20	34	Marion County Engineer	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
34	Identify and study riverbank stabilization opportunities.	Marion County, Salt Rock Twp, City of Marion	1413.00	47	Marion County Engineer	To be identified through existing budget or grants	7/1/19-12/31/24	New
35	Continue to provide mitigation option guidance to property owners of flood-prone structures, such as acquisition, relocation, elevation, non-residential dry flood proofing, and non-residential wet flood proofing.	Marion County, Salt Rock Twp, City of Marion, Village of LaRue	1415.52	44	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
36	Encourage residents in flood-prone areas to purchase flood insurance.	Marion County, Salt Rock Twp, Village of Green Camp, Village of LaRue, Village of Prospect	1416.93	43	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
37	Create or modify building codes to encourage water proofing structures.	Marion County, Salt Rock Twp, City of Marion	1414.65	46	Marion County RPC	To be identified through existing budget or grants	7/1/19-12/31/24	New
38	Adopt policies to reduce stormwater runoff.	Marion County, Salt Rock Twp, City of Marion, Village of Caledonia	1417.33	41	Marion County Engineer; Marion County RPC	To be identified through existing budget or grants	7/1/19-12/31/24	New
39	Participate in the Community Rating System (awards communities who exceed NFIP requirements).	Marion County, Salt Rock Twp, City of Marion	1414.83	45	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
40	Mitigate repetitive flooding locations.	Marion County	1421.50	30	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
41	Bio retention in Prospect.	Marion County	1424.75	27	Mayor/ Administrator of Village of Prospect; Marion County RPC	To be identified through existing budget or grants	7/1/19-12/31/24	New
42	Storm sewers project in Caledonia.	Village of Caledonia	1423.00	28	Mayor/ Administrator of Village of Caledonia	To be identified through existing budget or grants	7/1/19-12/31/24	New
43	Retarding basins in LaRue.	Village of LaRue	1417.00	42	Mayor/ Administrator of Village of LaRue, Scioto Conservancy District	To be identified through existing budget or grants	7/1/19-12/31/24	New
44	Extend earth dam with drainage modification in LaRue.	Village of LaRue	1422.00	29	Mayor/ Administrator of Village of LaRue	To be identified through existing budget or grants	7/1/19-12/31/24	New
45	Storm drainage system repair/replacement in LaRue.	Village of LaRue	1418.33	36	Mayor/ Administrator of Village of LaRue	To be identified through existing budget or grants	7/1/19-12/31/24	New
46	Conduct a flood mitigation feasibility study in LaRue.	Village of LaRue	1418.67	35	Mayor/ Administrator of Village of LaRue, Scioto Conservancy District	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
47	Conduct flood mitigation feasibility study in LaRue, Prospect, and Green Camp.	Scioto Conservancy District	1425.00	26	Scioto Conservancy District	To be identified through existing budget or grants	7/1/19-12/31/24	New
Utility Failure								
48	Continue tree trimming in right of ways along utility lines.	Marion County, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of Morral, Village of Prospect, Village of Waldo	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	7/1/19-12/31/24	New
49	Consider burying utility lines outside of flood plains in all new sub-divisions.	Marion County, Salt Rock Twp, City of Marion	1311.56	55	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
50	Promote partnerships between utility companies to reduce the cost of higher-grade wires and burying lines.	Marion County, Salt Rock Twp, City of Marion	1312.22	54	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
51	Generators for all Marion County Sanitary Engineering Department Pump Stations.	Marion County	1324.00	49	Marion County Sanitary Engineer	To be identified through existing budget or grants	7/1/19-12/31/24	New
52	SCADA System for Sewer District 7.	Marion County	1322.00	51	Marion County Sanitary Engineer	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
53	Inflow and Infiltration reduction program for Sewer District 7.	Marion County	1323.00	50	Marion County Sanitary Engineer	To be identified through existing budget or grants	7/1/19-12/31/24	New
54	Update the water treatment plant.	Village of New Bloomington	1319.00	53	Mayor/ Administrator of Village of New Bloomington	To be identified through existing budget or grants	7/1/19-12/31/24	New
55	Upgrade to new generator (natural gas) for fire stations.	Salt Rock Twp	1325.00	48	Marion County EMA; Marion County Fire Department	To be identified through existing budget or grants	7/1/19-12/31/24	New
Severe Winter Storms								
56	Provide public education on winter weather safety.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Green Camp, Village of Waldo	1217.43	56	Marion Public Health, Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
Tornadoes and Windstorms								
57	Promote the Ohio Safe Room Rebate Program for the construction and installation of residential safe rooms.	Marion County, Bowling Green Twp, Pleasant Twp, Salt Rock Twp, City of Marion, Village of Green Camp, Village of Morral, Village of Prospect, Village of Waldo	1116.06	61	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
58	Install new tornado sirens with battery backup.	Grand Prairie Twp, Marion Twp, Montgomery Twp	1116.67	60	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	Unchanged; Grand Prairie does not have in their township
59	Implement a countywide one-,two-, and three-family dwelling unit building code.	Marion County	1115.75	63	Marion County RPC	To be identified through existing budget or grants	7/1/19-12/31/24	Deferred; Much opposition
60	Until such time as a countywide building code is implemented, work with township and village zoning officials to require mobile/manufactured homes on individual lots to be tied down to their foundations.	Marion County	1116.00	62	Marion County RPC	To be identified through existing budget or grants	7/1/19-12/31/24	Ongoing; unsure of percent complete
61	Promote commercial safe rooms for high occupancy uses, such as bars and restaurants.	Marion County, Salt Rock Twp, City of Marion	1112.00	65	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
62	Consider community tornado shelters for mobile/manufactured home parks and Marion County Fairgrounds.	Marion County	1120.00	57	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
63	Install or update tornado sirens in New Bloomington.	Village of New Bloomington	1118.00	58	Mayor/ Administrator of Village of New Bloomington	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
64	Identify tornado safe locations for residents to seek shelter during tornadoes/high wind events.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of New Bloomington	1117.19	59	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
65	Promote wind and tornado resistant construction practices.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion	1115.69	64	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
Hazardous Materials								
66	Develop a Wellhead Protection Plan.	Marion County, Salt Rock Twp, City of Marion, Village of Green Camp	1017.60	69	Marion Public Health	To be identified through existing budget or grants	7/1/19-12/31/24	New
67	Organize an annual drill to prepare for a disaster involving hazardous materials for emergency service personnel.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Green Camp, Village of Prospect	1018.88	66	Marion County EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
68	Report what hazardous materials are being handled on-site and amounts according to regulation.	Marion County, Salt Rock Twp, City of Marion, Village of Green Camp, Village of LaRue, Village of Waldo	1018.85	67	Marion County LEPC; Ohio EPA	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
69	Complete a commodity flow study to identify types and volume of hazardous materials transported via river, pipeline, truck, rail, and plane.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Green Camp, Village of Waldo	1017.64	68	Marion County EMA; Marion County RPC (coordinate with neighboring Counties)	To be identified through existing budget or grants	7/1/19-12/31/21	New
Hailstorms								
70	Promote the installation of hail resistant siding.	Marion County, Salt Rock Twp, City of Marion	813.00	70	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
71	Encourage property owners to reinforce vulnerable parts of roofs.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion	812.71	71	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	7/1/19-12/31/24	New
Terrorism								
72	Encourage critical infrastructure to implement protective measures at their facilities.	Marion County, Salt Rock Twp, City of Marion, Village of Caledonia, Village of LaRue, Village of Morral, Village of Waldo	718.00	75	Marion County Sheriff's Office	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
73	Coordinate with emergency services to ensure the safety of large public gathering events.	Marion County, Bowling Green Twp, Pleasant Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of Prospect, Village of Waldo	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	7/1/19-12/31/24	New
74	Continue to provide guidance to schools, churches, government agencies, health care facilities, and other critical facilities on improving protection, preparedness, response, and recovery activities to an active aggressor threat.	Marion County, Bowling Green Twp, Pleasant Twp, Salt Rock Twp, City of Marion, Village of Waldo	718.67	73	Marion County Sheriff's Office, LEPC, and EMA	To be identified through existing budget or grants	7/1/19-12/31/24	New
75	Provide free active shooter training or promote free and low cost third-party active shooter training.	Marion County, Salt Rock Twp, City of Marion, Village of Green Camp, Village of Waldo,	719.82	72	Marion County Sheriff's Office	To be identified through existing budget or grants	7/1/19-12/31/24	New
76	Seal water wells.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Green Camp, Village of Morral	713.49	77	Marion County Engineer; Marion Public Health	To be identified through existing budget or grants	7/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
77	Install temporary bollards or fences during high-occupancy outdoor events.	Marion County, Salt Rock Twp, City of Marion, Village of Green Camp	712.92	78	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
78	Host gap analysis and training for critical infrastructure.	Marion County	717.00	76	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
Severe Storms								
79	Inform residents of the various ways to receive weather alerts.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp, Village of LaRue, Village of Morral, Village of New Bloomington, Village of Waldo	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
80	Create a Standard Operating Guideline for the timely clearing of roads from debris caused by severe storms.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Green Camp, Village of LaRue, Village of Waldo	619.91	80	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
81	Install a lightning warning system.	Marion County, Salt Rock Twp, City of Marion	612.38	82	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
82	Install lightning rods on public buildings.	Marion County, Salt Rock Twp, City of Marion	614.56	81	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
Drought and Extreme Heat								
83	Provide guidance and resources for vulnerable populations during extreme temperature events, such as transportation to cooling shelters.	Marion County, Salt Rock Twp, City of Marion, Village of Caledonia, Village of Green Camp	517.85	84	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
84	Provide guidance and resources on utility assistance programs.	Marion County, Salt Rock Twp, Village of New Bloomington, Village of Prospect	518.20	83	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
85	Encourage farmers to deepen wells where possible.	Marion County, Salt Rock Twp,	512.60	89	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
86	Encourage farmers to connect watering systems to deep wells.	Marion County, Salt Rock Twp	512.40	90	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
87	Develop a plan to limit water usage during extreme and prolonged droughts.	Marion County, Bowling Green Twp, Salt Rock Twp	516.00	85	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
88	Install water saving equipment in public buildings.	Marion County, Salt Rock Twp, City of Marion	514.63	87	Marion County Engineer; Mayor/ Administrator of City of Marion	To be identified through existing budget or grants	11/1/19-12/31/24	New
89	Retrofit water supply and storage systems.	Marion County, Salt Rock Twp	515.33	86	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
90	Utilize xeriscaping on public property to reduce water consumption.	Marion County, Salt Rock Twp	513.40	88	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
Invasive Species								
91	Implement an invasive species education program that covers associated hazards, identification, behavior, and quarantine procedures.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of LaRue	417.55	92	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
92	Share information with the public that explains the importance of not importing or exporting firewood.	Marion County, Bowling Green Twp, Salt Rock Twp, City of Marion, Village of Green Camp, Village of LaRue, Village of Morral	418.83	91	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
Wildfire								
93	Promote public education on smoking hazards and recreational fire risks.	Marion County, Bowling Green Twp, Salt Rock Twp, Village of Caledonia	318.50	94	Marion Public Health; Fire Departments	To be identified through existing budget or grants	11/1/19-12/31/24	New
94	Provide public education on extreme fire danger and red flag warnings, including what it means and what actions to take when it is issued.	Marion County, Bowling Green Twp, Salt Rock Twp	317.00	95	Marion County EMA, Fire Departments	To be identified through existing budget or grants	11/1/19-12/31/24	New
95	Develop a wildfire response plan with all fire departments.	Marion County, Bowling Green Twp, Salt Rock Twp, Village of Green Camp, Village of Morral, Village of Waldo	319.78	93	Marion County EMA; Fire Departments	To be identified through existing budget or grants	11/1/19-12/31/24	New
Earthquakes								
96	Use community outreach activities to foster an awareness of earthquake mitigation activities in homes, schools, and businesses.	Marion County, Salt Rock Twp, City of Marion	214.50	96	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
Dam Failure								
97	Coordinate with ODNR to implement Dam Safety Program.	Marion County, Salt Rock Twp	115.00	97	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
98	Ensure dam owners develop/update their dam safety plan.	Marion County, Salt Rock Twp	114.20	100	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Mitigation Action	Community	Action Score	Action Priority	Lead Agency	Funding Source	Start/ End	Status
99	Ensure dam owners are prepared to respond should their dam fail.	Marion County, Salt Rock Twp	114.40	99	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
100	Model dam failure to identify at-risk areas.	Marion County, Salt Rock Twp	113.80	101	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
101	Work with local communities to create a dam failure response plan.	Marion County, Salt Rock Twp	114.80	98	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New

Table 5.3: Hazard Mitigation Action Priorities Table, by Jurisdiction

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
Marion County / County-Wide								
Mitigation Actions 1-6 are not County-Wide actions; therefore, they are not included here.								
7	All Hazards	Develop/update back-up power generation capabilities at critical government facilities, especially at water treatment facilities (e.g. temporary storm safe locations, community EOCs).	1519.76	17	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
9	All Hazards	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
10	All Hazards	Develop or update Emergency Operation Plans.	1520.39	13	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
13	All Hazards	Prepare public buildings to act as warming/cooling stations or emergency shelters in case of any hazard.	1519.10	19	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
14	All Hazards	Develop additional partnerships to have places of worship serve as additional shelters.	1518.53	21	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
22	All Hazards	Develop and adopt County Building Codes	1523.00	5	Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	New
23	All Hazards	Repair Davis Ditch in LaRue	1525.00	1	Mayor/ Administrator of the Village of LaRue	To be identified through existing budget or grants	11/1/19-12/31/24	New
29	Flooding	Mitigate, as necessary, flooding within the village of LaRue which is detrimental to existing residential, commercial, and industrial structures and limits commercial and industrial growth and expansion within the Village.	1419.33	32	Marion County EMA; Mayor/ Administrator of the Village of LaRue	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 40% Complete

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
32	Flooding	Identify and study poor draining areas to control flooding.	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
33	Flooding	Repair or replace ditching, culverts, and bridges to control flooding.	1419.20	34	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
34	Flooding	Identify and study riverbank stabilization opportunities.	1413.00	47	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
35	Flooding	Continue to provide mitigation option guidance to property owners of Repetitive Loss and Severely Repetitive Loss Structures, such as acquisition, relocation, elevation, non-residential dry flood proofing, and non-residential wet flood proofing.	1415.52	44	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
36	Flooding	Encourage residents in flood prone areas to purchase flood insurance.	1416.93	43	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
37	Flooding	Create or modify building codes to encourage water proofing structures.	1414.65	46	Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	New
38	Flooding	Adopt policies to reduce stormwater runoff.	1417.33	41	Marion County Engineer; Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	New
39	Flooding	Participate in the Community Rating System (awards communities who exceed NFIP requirements).	1414.83	45	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
40	Flooding	Mitigate repetitive flooding locations	1421.50	30	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
41	Flooding	Bio retention in Prospect	1424.75	27	Village of Prospect; Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	New
48	Utility Failure	Continue tree trimming in right of ways along utility lines.	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
49	Utility Failure	Consider burying utility lines outside of flood plains in all new sub-divisions.	1311.56	55	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
50	Utility Failure	Promote partnerships between utility companies to reduce the cost of higher-grade wires and burying lines.	1312.22	54	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
51	Utility Failure	Generators for all Marion County Sanitary Engineering Department Pump Stations	1324.00	49	Marion County Sanitary Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
52	Utility Failure	SCADA System for Sewer District 7	1322.00	51	Marion County Sanitary Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
53	Utility Failure	Inflow and Infiltration reduction program for Sewer District 7	1323.00	50	Marion County Sanitary Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
56	Severe Winter Storms	Provide public education on winter weather safety.	1217.43	56	Marion Public Health, Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
57	Tornadoes and Windstorms	Promote the Ohio Safe Room Rebate Program for the construction and installation of residential safe rooms.	1116.06	61	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
59	Tornadoes and Windstorms	Implement a countywide one-, two-, and three-family dwelling unit building code	1115.75	63	Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	Deferred; Much opposition
60	Tornadoes and Windstorms	Until such time as a countywide building code is implemented, work with township and village zoning officials to require mobile/manufactured homes on individual lots to be tied down to their foundations.	1116.00	62	Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; unsure of percent complete
61	Tornadoes and Windstorms	Promote commercial safe rooms for high occupancy uses, such as bars and restaurants.	1112.00	65	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
62	Tornadoes and Windstorms	Consider community tornado shelters for mobile/manufactured home parks and Marion County Fairgrounds	1120.00	57	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
64	Tornadoes and Windstorms	Identify tornado safe locations for residents to seek shelter during tornadoes/high wind events.	1117.19	59	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
65	Tornadoes and Windstorms	Promote wind and tornado resistant construction practices.	1115.69	64	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
66	Hazardous Materials	Develop a Wellhead Protection Plan.	1017.60	69	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
67	Hazardous Materials	Organize an annual drill to prepare for a disaster involving hazardous materials for emergency service personnel.	1018.88	66	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
68	Hazardous Materials	Report what hazardous materials are being handled on-site and amounts according to regulation.	1018.85	67	Marion County LEPC; Ohio EPA	To be identified through existing budget or grants	11/1/19-12/31/24	New
69	Hazardous Materials	Complete a commodity flow study to identify types and volume of hazardous materials transported via river, pipeline, truck, rail, and plane.	1017.64	68	Marion County EMA; Marion County RPC (coordinate with neighboring Counties)	To be identified through existing budget or grants	11/1/19-12/31/21	New
70	Hailstorms	Promote the installation of hail resistant siding.	813.00	70	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
71	Hailstorms	Encourage property owners to reinforce vulnerable parts of roofs.	812.71	71	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
72	Terrorism	Encourage critical infrastructure to implement protective measures at their facilities.	718.00	75	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
73	Terrorism	Coordinate with emergency services to ensure the safety of large public gathering events.	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
74	Terrorism	Continue to provide guidance to schools, churches, government agencies, health care facilities, and other critical facilities on improving protection, preparedness, response, and recovery activities to an active aggressor threat.	718.67	73	Marion County Sheriff's Office, LEPC, and EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
75	Terrorism	Provide free active shooter training or promote free and low cost third-party active shooter training.	719.82	72	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
76	Terrorism	Seal water wells.	713.49	77	Marion County Engineer; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
77	Terrorism	Install temporary ballards or fences during high-occupancy outdoor events.	712.92	78	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
78	Terrorism	Host gap analysis and training for critical infrastructure.	717.00	76	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
80	Severe Storms	Create a Standard Operating Guideline for the timely clearing of roads from debris caused by severe storms.	619.91	80	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
81	Severe Storms	Install a lightning warning system.	612.38	82	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
82	Severe Storms	Install lightning rods on public buildings.	614.56	81	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
83	Drought and Extreme Heat	Provide guidance and resources for vulnerable populations during extreme temperature events, such as transportation to cooling shelters.	517.85	84	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
84	Drought and Extreme Heat	Provide guidance and resources on utility assistance programs.	518.20	83	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
85	Drought and Extreme Heat	Encourage farmers to deepen wells where possible.	512.60	89	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
86	Drought and Extreme Heat	Encourage farmers to connect watering systems to deep wells.	512.40	90	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
87	Drought and Extreme Heat	Develop a plan to limit water usage during extreme and prolonged droughts.	516.00	85	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
88	Drought and Extreme Heat	Install water saving equipment in public buildings.	514.63	87	Marion County Engineer; City of Marion	To be identified through existing budget or grants	11/1/19-12/31/24	New
89	Drought and Extreme Heat	Retrofit water supply and storage systems.	515.33	86	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
90	Drought and Extreme Heat	Utilize xeriscaping on public property to reduce water consumption.	513.40	88	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
91	Invasive Species	Implement an invasive species education program that covers associated hazards, identification, behavior, and quarantine procedures.	417.55	92	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
92	Invasive Species	Share information with the public that explains the importance of not importing or exporting firewood.	418.83	91	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
93	Wildfire	Promote public education on smoking hazards and recreational fire risks.	318.50	94	Marion Public Health; Fire Departments of jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
94	Wildfire	Provide public education on extreme fire danger and red flag warnings, including what it means and what actions to take when it is issued.	317.00	95	Marion County EMA, Fire Departments of jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
95	Wildfire	Develop a wildfire response plan with all fire departments.	319.78	93	Marion County EMA; Fire Departments of jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
96	Earthquakes	Use community outreach activities to foster an awareness of earthquake mitigation activities in homes, schools, and businesses.	214.50	96	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
97	Dam Failure	Coordinate with ODNR to implement Dam Safety Program.	115.00	97	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
98	Dam Failure	Ensure dam owners develop/update their dam safety plan.	114.20	100	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
99	Dam Failure	Ensure dam owners are prepared to respond should their dam fail.	114.40	99	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
100	Dam Failure	Model dam failure to identify at-risk areas.	113.80	101	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
101	Dam Failure	Work with local communities to create a dam failure response plan.	114.80	98	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
City of Marion								
1	All Hazards	Expand the understanding of existing partnerships to include knowledge of Marion County Mitigation planning; increasing the potentials for cooperative mitigation initiatives.	1516.00	24	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
2	All Hazards	Update as necessary the Marion County Comprehensive Land Use Plan, county and village flood plain regulations, city, village, and township zoning plans.	1519.88	15	Marion County RPC	Existing budget	11/1/19-12/31/24	Ongoing, as necessary
3	All Hazards	Adequate funding sources must continually be identified and solicited, and monies successfully obtained, in order to fully achieve the intended purpose of natural disaster mitigation within Marion County.	1520.00	14	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing, continuous process (never 100% complete)
4	All Hazards	Improve natural disaster mitigation impacting Marion County critical facilities, as necessary.	1514.00	25	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing, as necessary
5	All Hazards	Install fuel-powered electrical generator(s) and electrical disconnect box at the Marion City Sewage Plant.	1523.75	4	Mayor/ Administrator of the City of Marion	To be identified through existing budget or grants	11/1/19-12/31/24	Unchanged -No Funding ($1.7 million)

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
7	All Hazards	Develop/update back-up power generation capabilities at critical government facilities, especially at water treatment facilities (e.g. temporary storm safe locations, community EOCs).	1519.76	17	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
9	All Hazards	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
10	All Hazards	Develop or update Emergency Operation Plans.	1520.39	13	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
13	All Hazards	Prepare public buildings to act as warming/cooling stations or emergency shelters in case of any hazard.	1519.10	19	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
14	All Hazards	Develop additional partnerships to have places of worship serve as additional shelters.	1518.53	21	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
17	All Hazards	Install back-up power generator at municipal airport.	1521.25	9	City of Marion	To be identified through existing budget or grants	11/1/19-12/31/24	New
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
32	Flooding	Identify and study poor draining areas to control flooding.	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
33	Flooding	Repair or replace ditching, culverts, and bridges to control flooding.	1419.20	34	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
34	Flooding	Identify and study riverbank stabilization opportunities.	1413.00	47	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
35	Flooding	Continue to provide mitigation option guidance to property owners of Repetitive Loss and Severely Repetitive Loss Structures, such as acquisition, relocation, elevation, non-residential dry flood proofing, and non-residential wet flood proofing.	1415.52	44	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
37	Flooding	Create or modify building codes to encourage water proofing structures.	1414.65	46	Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	New
38	Flooding	Adopt policies to reduce stormwater runoff.	1417.33	41	Marion County Engineer; Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	New
39	Flooding	Participate in the Community Rating System (awards communities who exceed NFIP requirements).	1414.83	45	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
48	Utility Failure	Continue tree trimming in right of ways along utility lines.	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
49	Utility Failure	Consider burying utility lines outside of flood plains in all new sub-divisions.	1311.56	55	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
50	Utility Failure	Promote partnerships between utility companies to reduce the cost of higher-grade wires and burying lines.	1312.22	54	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
56	Severe Winter Storms	Provide public education on winter weather safety.	1217.43	56	Marion Public Health, Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
57	Tornadoes and Windstorms	Promote the Ohio Safe Room Rebate Program for the construction and installation of residential safe rooms.	1116.06	61	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
61	Tornadoes and Windstorms	Promote commercial safe rooms for high occupancy uses, such as bars and restaurants.	1112.00	65	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
64	Tornadoes and Windstorms	Identify tornado safe locations for residents to seek shelter during tornadoes/high wind events.	1117.19	59	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
65	Tornadoes and Windstorms	Promote wind and tornado resistant construction practices.	1115.69	64	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
66	Hazardous Materials	Develop a Wellhead Protection Plan.	1017.60	69	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
67	Hazardous Materials	Organize an annual drill to prepare for a disaster involving hazardous materials for emergency service personnel.	1018.88	66	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
68	Hazardous Materials	Report what hazardous materials are being handled on-site and amounts according to regulation.	1018.85	67	Marion County LEPC; Ohio EPA	To be identified through existing budget or grants	11/1/19-12/31/24	New
69	Hazardous Materials	Complete a commodity flow study to identify types and volume of hazardous materials transported via river, pipeline, truck, rail, and plane.	1017.64	68	Marion County EMA; Marion County RPC (coordinate with neighboring Counties)	To be identified through existing budget or grants	11/1/19-12/31/21	New
70	Hailstorms	Promote the installation of hail resistant siding.	813.00	70	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
71	Hailstorms	Encourage property owners to reinforce vulnerable parts of roofs.	812.71	71	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
72	Terrorism	Encourage critical infrastructure to implement protective measures at their facilities.	718.00	75	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
73	Terrorism	Coordinate with emergency services to ensure the safety of large public gathering events.	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
74	Terrorism	Continue to provide guidance to schools, churches, government agencies, health care facilities, and other critical facilities on improving protection, preparedness, response, and recovery activities to an active aggressor threat.	718.67	73	Marion County Sheriff's Office, LEPC, and EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
75	Terrorism	Provide free active shooter training or promote free and low cost third-party active shooter training.	719.82	72	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
76	Terrorism	Seal water wells.	713.49	77	Marion County Engineer; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
77	Terrorism	Install temporary ballards or fences during high-occupancy outdoor events.	712.92	78	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
80	Severe Storms	Create a Standard Operating Guideline for the timely clearing of roads from debris caused by severe storms.	619.91	80	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
81	Severe Storms	Install a lightning warning system.	612.38	82	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
82	Severe Storms	Install lightning rods on public buildings.	614.56	81	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
83	Drought and Extreme Heat	Provide guidance and resources for vulnerable populations during extreme temperature events, such as transportation to cooling shelters.	517.85	84	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
88	Drought and Extreme Heat	Install water saving equipment in public buildings.	514.63	87	Marion County Engineer; City of Marion	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
91	Invasive Species	Implement an invasive species education program that covers associated hazards, identification, behavior, and quarantine procedures.	417.55	92	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
92	Invasive Species	Share information with the public that explains the importance of not importing or exporting firewood.	418.83	91	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
96	Earthquakes	Use community outreach activities to foster an awareness of earthquake mitigation activities in homes, schools, and businesses.	214.50	96	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
Village of Caledonia								
6	All Hazards	Disseminate updated natural disaster mitigation educational materials to citizens residing within Marion County. In addition, schedule presentations with various local service clubs, township trustees' quarterly meetings, county commissioners' meetings, fire chiefs, and local law enforcement.	1519.00	20	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 10% complete

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
7	All Hazards	Develop/update back-up power generation capabilities at critical government facilities, especially at water treatment facilities (e.g. temporary storm safe locations, community EOCs).	1519.76	17	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
9	All Hazards	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
13	All Hazards	Prepare public buildings to act as warming/cooling stations or emergency shelters in case of any hazard.	1519.10	19	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
26	Flooding	Modify the current County and impacted Flood Plain Regulations to require propane fuel cylinders (home heating type) in flood hazard areas to be securely anchored.	1419.25	33	Floodplain manager, RPC	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
32	Flooding	Identify and study poor draining areas to control flooding.	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
38	Flooding	Adopt policies to reduce stormwater runoff.	1417.33	41	Marion County Engineer; Marion County RPC	To be identified through existing budget or grants	11/1/19-12/31/24	New
42	Flooding	Storm sewers project in Caledonia	1423.00	28	Mayor/ Administrator of the Village of Caledonia	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
48	Utility Failure	Continue tree trimming in right of ways along utility lines.	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	11/1/19-12/31/24	New
64	Tornadoes and Windstorms	Identify tornado safe locations for residents to seek shelter during tornadoes/high wind events.	1117.19	59	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
72	Terrorism	Encourage critical infrastructure to implement protective measures at their facilities.	718.00	75	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
73	Terrorism	Coordinate with emergency services to ensure the safety of large public gathering events.	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
83	Drought and Extreme Heat	Provide guidance and resources for vulnerable populations during extreme temperature events, such as transportation to cooling shelters.	517.85	84	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
93	Wildfire	Promote public education on smoking hazards and recreational fire risks.	318.50	94	Marion Public Health; Fire Departments	To be identified through existing budget or grants	11/1/19-12/31/24	New
Village of Green Camp								
2	All Hazards	Update as necessary the Marion County Comprehensive Land Use Plan, county and village flood plain regulations, city, village, and township zoning plans.	1519.88	15	Marion County RPC	Existing budget	11/1/19-12/31/24	Ongoing, as necessary
6	All Hazards	Disseminate updated natural disaster mitigation educational materials to citizens residing within Marion County. In addition, schedule presentations with various local service clubs, township trustees' quarterly meetings, county commissioners' meetings, fire chiefs, and local law enforcement.	1519.00	20	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 10% complete

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
7	All Hazards	Develop/update back-up power generation capabilities at critical government facilities, especially at water treatment facilities (e.g. temporary storm safe locations, community EOCs).	1519.76	17	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
9	All Hazards	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
14	All Hazards	Develop additional partnerships to have places of worship serve as additional shelters.	1518.53	21	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
27	Flooding	Mitigate, as necessary, all repetitive loss structures within Marion County	1420.50	31	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 40% Complete
32	Flooding	Identify and study poor draining areas to control flooding.	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
36	Flooding	Encourage residents in flood prone areas to purchase flood insurance.	1416.93	43	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
48	Utility Failure	Continue tree trimming in right of ways along utility lines.	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	11/1/19-12/31/24	New
56	Severe Winter Storms	Provide public education on winter weather safety.	1217.43	56	Marion Public Health, Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
57	Tornadoes and Windstorms	Promote the Ohio Safe Room Rebate Program for the construction and installation of residential safe rooms.	1116.06	61	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
64	Tornadoes and Windstorms	Identify tornado safe locations for residents to seek shelter during tornadoes/high wind events.	1117.19	59	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
66	Hazardous Materials	Develop a Wellhead Protection Plan.	1017.60	69	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
67	Hazardous Materials	Organize an annual drill to prepare for a disaster involving hazardous materials for emergency service personnel.	1018.88	66	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
68	Hazardous Materials	Report what hazardous materials are being handled on-site and amounts according to regulation.	1018.85	67	Marion County LEPC; Ohio EPA	To be identified through existing budget or grants	11/1/19-12/31/24	New
69	Hazardous Materials	Complete a commodity flow study to identify types and volume of hazardous materials transported via river, pipeline, truck, rail, and plane.	1017.64	68	Marion County EMA; Marion County RPC (coordinate with neighboring Counties)	To be identified through existing budget or grants	11/1/19-12/31/21	New
73	Terrorism	Coordinate with emergency services to ensure the safety of large public gathering events.	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
75	Terrorism	Provide free active shooter training or promote free and low cost third-party active shooter training.	719.82	72	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
76	Terrorism	Seal water wells.	713.49	77	Marion County Engineer; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
77	Terrorism	Install temporary ballards or fences during high-occupancy outdoor events.	712.92	78	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
80	Severe Storms	Create a Standard Operating Guideline for the timely clearing of roads from debris caused by severe storms.	619.91	80	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
83	Drought and Extreme Heat	Provide guidance and resources for vulnerable populations during extreme temperature events, such as transportation to cooling shelters.	517.85	84	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
92	Invasive Species	Share information with the public that explains the importance of not importing or exporting firewood.	418.83	91	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
95	Wildfire	Develop a wildfire response plan with all fire departments.	319.78	93	Marion County EMA; Fire Departments	To be identified through existing budget or grants	11/1/19-12/31/24	New
Village of LaRue								
2	All Hazards	Update as necessary the Marion County Comprehensive Land Use Plan, county and village flood plain regulations, city, village, and township zoning plans.	1519.88	15	Marion County RPC	Existing budget	11/1/19-12/31/24	Ongoing, as necessary
7	All Hazards	Develop/update back-up power generation capabilities at critical government facilities, especially at water treatment facilities (e.g. temporary storm safe locations, community EOCs).	1519.76	17	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
9	All Hazards	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
24	All Hazards	Evacuation Routing in the Village of LaRue	1517.67	23	Mayor/ Administrator of the Village of LaRue	To be identified through existing budget or grants	11/1/19-12/31/24	New
25	All Hazards	Backup power generation for LaRue village services	1522.00	7	Mayor/ Administrator of the Village of LaRue	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
26	Flooding	Modify the current County and impacted Flood Plain Regulations to require propane fuel cylinders (home heating type) in flood hazard areas to be securely anchored.	1419.25	33	Floodplain manager, RPC	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing
27	Flooding	Mitigate, as necessary, all repetitive loss structures within Marion County	1420.50	31	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 40% Complete
29	Flooding	Mitigate, as necessary, flooding within the village of LaRue which is detrimental to existing residential, commercial, and industrial structures and limits commercial and industrial growth and expansion within the Village.	1419.33	32	Mayor/ Administrator of the Village of LaRue	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 40% Complete
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
32	Flooding	Identify and study poor draining areas to control flooding.	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
33	Flooding	Repair or replace ditching, culverts, and bridges to control flooding.	1419.20	34	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
35	Flooding	Continue to provide mitigation option guidance to property owners of Repetitive Loss and Severely Repetitive Loss Structures, such as acquisition, relocation, elevation, non-residential dry flood proofing, and non-residential wet flood proofing.	1415.52	44	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
36	Flooding	Encourage residents in flood prone areas to purchase flood insurance.	1416.93	43	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
43	Flooding	Retarding basins in LaRue	1417.00	42	Village of LaRue, Scioto Conservancy District	To be identified through existing budget or grants	11/1/19-12/31/24	New
44	Flooding	Extend earth dam with drainage modification in LaRue	1422.00	29	Mayor/ Administrator of the Village of LaRue	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
45	Flooding	Storm drainage system repair/ replacement in LaRue	1418.33	36	Mayor/ Administrator of the Village of LaRue	To be identified through existing budget or grants	11/1/19-12/31/24	New
46	Flooding	Conduct a flood mitigation feasibility study in LaRue	1418.67	35	Village of LaRue, Scioto Conservancy District	To be identified through existing budget or grants	11/1/19-12/31/24	New
68	Hazardous Materials	Report what hazardous materials are being handled on-site and amounts according to regulation.	1018.85	67	Marion County LEPC; Ohio EPA	To be identified through existing budget or grants	11/1/19-12/31/24	New
72	Terrorism	Encourage critical infrastructure to implement protective measures at their facilities.	718.00	75	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
73	Terrorism	Coordinate with emergency services to ensure the safety of large public gathering events.	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
80	Severe Storms	Create a Standard Operating Guideline for the timely clearing of roads from debris caused by severe storms.	619.91	80	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
91	Invasive Species	Implement an invasive species education program that covers associated hazards, identification, behavior, and quarantine procedures.	417.55	92	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
92	Invasive Species	Share information with the public that explains the importance of not importing or exporting firewood.	418.83	91	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
Village of Morral								
6	All Hazards	Disseminate updated natural disaster mitigation educational materials to citizens residing within Marion County. In addition, schedule presentations with various local service clubs, township trustees' quarterly meetings, county commissioners' meetings, fire chiefs, and local law enforcement.	1519.00	20	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 10% complete

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
9	All Hazards	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
10	All Hazards	Develop or update Emergency Operation Plans.	1520.39	13	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
14	All Hazards	Develop additional partnerships to have places of worship serve as additional shelters.	1518.53	21	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
18	All Hazards	Update wastewater system	1522.67	6	Village of Morral	To be identified through existing budget or grants	11/1/19-12/31/24	New
19	All Hazards	Storm drain maintenance	1524.67	2	Village of Morral	To be identified through existing budget or grants	11/1/19-12/31/24	New
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
33	Flooding	Repair or replace ditching, culverts, and bridges to control flooding.	1419.20	34	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
48	Utility Failure	Continue tree trimming in right of ways along utility lines.	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	11/1/19-12/31/24	New
57	Tornadoes and Windstorms	Promote the Ohio Safe Room Rebate Program for the construction and installation of residential safe rooms.	1116.06	61	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
72	Terrorism	Encourage critical infrastructure to implement protective measures at their facilities.	718.00	75	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
76	Terrorism	Seal water wells.	713.49	77	Marion County Engineer; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
92	Invasive Species	Share information with the public that explains the importance of not importing or exporting firewood.	418.83	91	Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
95	Wildfire	Develop a wildfire response plan with all fire departments.	319.78	93	Marion County EMA; Fire Departments	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
Village of New Bloomington								
6	All Hazards	Disseminate updated natural disaster mitigation educational materials to citizens residing within Marion County. In addition, schedule presentations with various local service clubs, township trustees' quarterly meetings, county commissioners' meetings, fire chiefs, and local law enforcement.	1519.00	20	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 10% complete
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
15	All Hazards	Purchase weather radios for New Bloomington	1520.50	12	Mayor/ Administrator of the Village of New Bloomington	To be identified through existing budget or grants	11/1/19-12/31/24	New
16	All Hazards	Possible safe room for residents	1520.75	11	Mayor/ Administrator of the Village of New Bloomington	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
32	Flooding	Identify and study poor draining areas to control flooding.	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
54	Utility Failure	Update the water treatment plant	1319.00	53	Mayor/ Administrator of the Village of New Bloomington	To be identified through existing budget or grants	11/1/19-12/31/24	New
63	Tornadoes and Windstorms	Install or update tornado sirens in New Bloomington	1118.00	58	Mayor/ Administrator of the Village of New Bloomington	To be identified through existing budget or grants	11/1/19-12/31/24	New
64	Tornadoes and Windstorms	Identify tornado safe locations for residents to seek shelter during tornadoes/high wind events.	1117.19	59	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
84	Drought and Extreme Heat	Provide guidance and resources on utility assistance programs.	518.20	83	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
Village of Prospect								
2	All Hazards	Update as necessary the Marion County Comprehensive Land Use Plan, county and village flood plain regulations, city, village, and township zoning plans.	1519.88	15	Marion County RPC	Existing budget	11/1/19-12/31/24	Ongoing, as necessary
6	All Hazards	Disseminate updated natural disaster mitigation educational materials to citizens residing within Marion County. In addition, schedule presentations with various local service clubs, township trustees' quarterly meetings, county commissioners' meetings, fire chiefs, and local law enforcement.	1519.00	20	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 10% complete
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
26	Flooding	Modify the current County and impacted Flood Plain Regulations to require propane fuel cylinders (home heating type) in flood hazard areas to be securely anchored.	1419.25	33	Floodplain manager, RPC	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing
27	Flooding	Mitigate, as necessary, all repetitive loss structures within Marion County	1420.50	31	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 40% complete
28	Flooding	Mitigate, as necessary, flooding within the village of Prospect which is detrimental to existing residential, commercial, and industrial structures and limits commercial and industrial growth and expansion within the Village.	1418.00	38	Mayor/ Administrator of the Village of Prospect	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; as necessary
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
36	Flooding	Encourage residents in flood prone areas to purchase flood insurance.	1416.93	43	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
48	Utility Failure	Continue tree trimming in right of ways along utility lines.	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	11/1/19-12/31/24	New
57	Tornadoes and Windstorms	Promote the Ohio Safe Room Rebate Program for the construction and installation of residential safe rooms.	1116.06	61	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
67	Hazardous Materials	Organize an annual drill to prepare for a disaster involving hazardous materials for emergency service personnel.	1018.88	66	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
73	Terrorism	Coordinate with emergency services to ensure the safety of large public gathering events.	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
84	Drought and Extreme Heat	Provide guidance and resources on utility assistance programs.	518.20	83	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
Village of Waldo								
2	All Hazards	Update as necessary the Marion County Comprehensive Land Use Plan, county and village flood plain regulations, city, village, and township zoning plans.	1519.88	15	Marion County RPC	Existing budget	11/1/19-12/31/24	Ongoing, as necessary
6	All Hazards	Disseminate updated natural disaster mitigation educational materials to citizens residing within Marion County. In addition, schedule presentations with various local service clubs, township trustees' quarterly meetings, county commissioners' meetings, fire chiefs, and local law enforcement.	1519.00	20	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	Ongoing; 10% complete
7	All Hazards	Develop/update back-up power generation capabilities at critical government facilities, especially at water treatment facilities (e.g. temporary storm safe locations, community EOCs).	1519.76	17	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
8	All Hazards	Develop/update Continuity of Operations Plans.	1521.31	8	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/21	New
9	All Hazards	Provide public education and outreach on disaster preparedness including websites, newsletters, social media, Preparedness Month events, etc.	1519.76	16	Marion County EMA; Marion Public Health	To be identified through existing budget or grants	11/1/19-12/31/24	New
10	All Hazards	Develop or update Emergency Operation Plans.	1520.39	13	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
11	All Hazards	Maintain an all-hazard outdoor warning siren system, including repairing, replacing, and upgrading.	1518.42	22	Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
12	All Hazards	Continue fire code, building code, zoning, and floodplain management enforcement activities.	1519.29	18	Marion County RPC; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New
14	All Hazards	Develop additional partnerships to have places of worship serve as additional shelters.	1518.53	21	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
20	All Hazards	Culvert replacement on East side of South Marion St.	1521.00	10	Mayor/ Administrator of the Village of Waldo	To be identified through existing budget or grants	11/1/19-12/31/24	New
31	Flooding	Improve storm water management system.	1418.21	37	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
32	Flooding	Identify and study poor draining areas to control flooding.	1417.76	40	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
33	Flooding	Repair or replace ditching, culverts, and bridges to control flooding.	1419.20	34	Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
48	Utility Failure	Continue tree trimming in right of ways along utility lines.	1319.80	52	Marion County Engineer; Mayors/ Administrators of All Jurisdictions	Existing budget	11/1/19-12/31/24	New
56	Severe Winter Storms	Provide public education on winter weather safety.	1217.43	56	Marion Public Health, Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
57	Tornadoes and Windstorms	Promote the Ohio Safe Room Rebate Program for the construction and installation of residential safe rooms.	1116.06	61	Marion County EMA; Mayors/ Administrators of All Jurisdictions	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
68	Hazardous Materials	Report what hazardous materials are being handled on-site and amounts according to regulation.	1018.85	67	Marion County LEPC; Ohio EPA	To be identified through existing budget or grants	11/1/19-12/31/24	New
69	Hazardous Materials	Complete a commodity flow study to identify types and volume of hazardous materials transported via river, pipeline, truck, rail, and plane.	1017.64	68	Marion County EMA; Marion County RPC (coordinate with neighboring Counties)	To be identified through existing budget or grants	11/1/19-12/31/21	New
72	Terrorism	Encourage critical infrastructure to implement protective measures at their facilities.	718.00	75	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
73	Terrorism	Coordinate with emergency services to ensure the safety of large public gathering events.	718.40	74	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
74	Terrorism	Continue to provide guidance to schools, churches, government agencies, health care facilities, and other critical facilities on improving protection, preparedness, response, and recovery activities to an active aggressor threat.	718.67	73	Marion County Sheriff's Office, LEPC, and EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New

#	Hazard	Mitigation Action	Action Score	Action Priority	Lead Agency	Funding Source	Start/End	Status
75	Terrorism	Provide free active shooter training or promote free and low cost third-party active shooter training.	719.82	72	Marion County Sheriff's Office	To be identified through existing budget or grants	11/1/19-12/31/24	New
79	Severe Storms	Inform residents of the various ways to receive weather alerts.	620.94	79	Marion County EMA	To be identified through existing budget or grants	11/1/19-12/31/24	New
80	Severe Storms	Create a Standard Operating Guideline for the timely clearing of roads from debris caused by severe storms.	619.91	80	Marion County EMA; Marion County Engineer	To be identified through existing budget or grants	11/1/19-12/31/24	New
95	Wildfire	Develop a wildfire response plan with all fire departments.	319.78	93	Marion County EMA; Fire Departments	To be identified through existing budget or grants	11/1/19-12/31/24	New

6 | Schedule and Maintenance

6.1 Participation Overview

The Marion County Hazard Mitigation Plan will be adopted by all jurisdictions in Marion County, including the County, all townships, and the City of Marion and all villages. After the jurisdictions have adopted the plan, their signed resolutions or ordinances will be added to the plan as an Appendix.

6.2 Continued Public Involvement

The public will continue to be able to provide feedback on the Plan, as the Plan will be available through the Marion County EMA and Ohio EMA websites. The Marion County EMA will provide access to the plan to all County, municipality, and township offices, and will make the Plan available in hardcopy and electronic format to the public as appropriate. The Marion County EMA Director will post notices of any meetings for updating and evaluating the Plan, using the usual methods for posting meeting announcements in the County to invite the public to participate. All meetings will be open to the general public. The Marion County EMA will publicly announce the mitigation action items that are slated for development in the current year, as well as any updates to the Plan as part of the annual review process.

6.3 Plan Integration & Annual Review

Local government plays a major role in the execution and implementation of mitigation strategies. This happens in large part during the daily operations that guide the development of various communities in the County. As such, each community will be responsible for understanding which items they are accountable for implementing. The Core Planning Committee will meet annually in order to monitor and evaluate the Marion County Local Hazard Mitigation Plan. During the annual meeting a status update will be provided for each mitigation action by the responsible agency.

All participating jurisdictions will be encouraged to attend this yearly plan update meeting. The meeting will be held so that it coincides with the budget process so that future funding sources can be determined and set aside for actions slated for that particular year. This meeting will also be available to the public.

6.4 Updating the Plan

The Plan must be updated within five years and re-adopted by the County and all participating jurisdictions in order to maintain compliance with federal regulations and ensure eligibility for certain federal mitigation grant funds. The Marion County EMA will identify any necessary modifications to the Plan, including changes in mitigation goals and actions that should be incorporated into the next update. The Marion County EMA Director and the County Commissioners will initiate the process of updating the plan in accordance with federal guidelines in sufficient time to meet state and federal deadlines.