

2020

Geauga County Natural Hazards Mitigation Plan



The Geauga County Hazard Mitigation Plan was created to protect the health, safety, and economic interests of Geauga County residents and businesses by reducing the impacts of natural hazards through mitigation planning, awareness, and implementation. The plan serves as the foundation for hazard mitigation activities and actions within Geauga County.

Executive Summary

Geauga County is subject to natural hazards that threaten life and health and have caused extensive property damage. To better understand these natural hazards and their impacts on people and property and to identify ways to reduce those impacts, Geauga County's Department of Emergency Services undertook this countywide Mitigation Plan. This Mitigation Plan was developed under the guidance of the Terrorism, Planning and Mitigation Group of individuals from communities and agencies throughout Geauga County.

The Geauga County Hazard Mitigation Plan was created to protect the health, safety, and economic interests of Geauga County residents and businesses by reducing the impacts of natural hazards through mitigation planning, awareness, and implementation. The plan serves as the foundation for hazard mitigation activities and actions within Geauga County. Implementation of recommendations will reduce loss of life, destruction of property, and economic losses due to natural hazards. The plan provides a path towards continuous, proactive, and reduction of vulnerability to hazards which result in repetitive and oftentimes severe social, economic and physical damage. The ideal end state is full integration of hazard mitigation concepts into day-to-day governmental and business functions and management practices.

This plan employs a broad perspective in examining multi-hazard mitigation activities and opportunities in Geauga County. Emphasis is placed on hazards which have resulted in threats to the public health, safety and welfare, as well as the social, economic and physical fabric of the community. The plan addresses such hazards as winter and ice storms, summer storms, floods, tornadoes, wildfires, dams and dam safety, droughts and earthquakes. Each hazard is analyzed from a historical perspective, evaluated for potential risk, and considered for possible mitigate action. The plan also lays out the legal basis for planning and the tools to be used for its implementation.

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1.0 Introduction

1.1 Introduction

The Geauga County Hazard Mitigation Plan is a multi-jurisdictional plan that details natural hazards that threatens Geauga County and its municipalities. The plan fulfills the requirements set forth by the Mitigation Act of 2000 (DMA 2000). This Act requires counties to formulate a hazard mitigation plan in order to be eligible for mitigation funds made available by the Federal Emergency Management Agency (FEMA).

1.2 Purpose

The Geauga County Hazard Mitigation Plan was created to protect the health, safety, and economic interests of residents by reducing the impacts of natural hazards through hazard mitigation planning, awareness, and implementation. Hazard mitigation is any action taken to permanently eliminate or reduce long-term risk to human life and property from natural hazards. It is an essential element of emergency management along with preparedness, response and recovery. This plan serves as the foundation for hazard mitigation activities within the community. Implementation of the plan's recommendations will reduce injuries, loss of life, and destruction of property due to natural hazards. The plan provides a path toward continuous, proactive, and reduction of vulnerability to the most frequent hazards which result in repetitive and often sever social, economic and physical damage. The ideal end state is total integration of hazard mitigation activities, programs, capabilities and actions into normal, day-to-day governmental functions and management practices.

1.3 Participating Communities

Gauga County has six incorporated areas within its borders. All six incorporated communities chose to participate in this planning effort. Appendix A contains the list of participants from each community as well as letters sent to communities.

The process to create the Mitigation Plan started with the team members for the planning process, a group of decision makers and implementers. In order to lead the planning efforts effectively and on a countywide basis, other representatives were added. Representatives from the jurisdictions participated in meetings and also contributed to the plan through correspondences, email, teleconferences and other meetings in-person. The planning team included individuals from the following departments and agencies:

- City of Chardon;
- Geauga County Department of Emergency Services;
- Geauga County Local Emergency Planning Committee;
- Geauga Public Health;
- Chardon Police Department;
- Geauga County Sheriff's Office;
- Hambden Township Fire Department;
- Geauga County Building Department;
- Village of Middlefield;
- Middlefield Police Department;
- Hunting Valley;
- Village of Burton;
- Village of Aquilla;
- Village of South Russell;
- Ohio Emergency Management Agency;
- American Red Cross;
- Geauga County GIS Department (Auditor);
- Geauga County Planning Commission

2.0 Community Information

2.1 County Profile

Geauga County is located in northeast Ohio approximately 35 miles east of the city of Cleveland. The Ohio counties of Lake, Cuyahoga, Summit, Portage, Trumbull and Ashtabula form the border of Geauga County. The County is comprised of 404.1 square miles in land area.

Chardon City, which is the County Seat, forms the County's largest incorporated area, with 5,171 residents, according to the 2017 Census Population Estimates. Villages in the County, in order of descending population, include South Russell, Middlefield, Burton, Hunting Valley and Aquilla. Hunting Valley is located in both Cuyahoga and Geauga counties, with most of the residents being in Cuyahoga County.

There are 16 townships within Geauga County. Townships, in order of descending population include Bainbridge, Chester, Munson, Auburn, Newbury, Russell, Hambden, Chardon, Middlefield, Burton, Parkman, Huntsburg, Claridon, Troy, Thompson, and Montville. See Map B-1, Political Boundaries, in Appendix B for the political boundaries within the County.

2.2 Geography

According to the 2010 census, the county has a total area of 408.29 square miles (1,057.5 km²), of which 400.16 square miles (1,036.4 km²) (or 98.01%) is land and 8.13 square miles (21.1 km²) (or 1.99%) is water.

Geauga County receives the most precipitation of any county in northern Ohio, with most of the county receiving over 42 inches annually in an average year, and some parts exceeding 44 inches.

2.3 Transportation

U.S. highways

- U.S. Route 6 Grand Army of the Republic Highway honoring American Civil War Veterans
- U.S. Route 322
- U.S. Route 422

State highways

- State Route 44
- State Route 86
- State Route 87

- State Route 88
- State Route 166
- State Route 168
- State Route 306
- State Route 528
- State Route 608
- State Route 700

Public Transportation

The mostly rural nature of Geauga County limits the feasibility of a fixed-route transit system. Instead, Geauga County Transit offers a demand-responsive door-to-door transit system within the County with some out-of-county service.

Airports

Gauga County is home to one public airport located at 15421 Old State Road, Middlefield, Ohio 44062.

2.4 Economy

Several Census and other statistics help describe the County’s population and labor force. In terms of educational attainment, the 2013-2017 American Community Survey Estimates found that of the 63,761 persons aged 25 and over, 6,190 (10.3%) have no high school diploma, 16,237 (25.5%) had obtained a high school diploma, 12,007 (18.8%) had some college but no degree, 5,129 (8.0%) had an Associate’s degree, 15,660 (24.6%) had a college degree and 8,538 (13.4%) had a Master’s degree or higher.

Unemployment in Geauga County has decreased in the last year, with the 2017 unemployment rate of 3.5%.

Table 1.1, below lists the Civilian Labor Force in Geauga County from 2013- 2017 and Table 1.2, lists the Employment and Wages by Sector for 2016.

Table 1.1: Civilian Labor Force

	2013	2014	2015	2016	2017
Total labor force	48,900	49,100	48,700	48,700	48,800
Employed	46,100	46,600	46,700	46,600	46,500
Unemployed	2,800	2,500	2,000	2,200	2,300
Unemployment Rate	5.7	5.0	4.2	4.4	4.8

Table 1.2: Employment and Wages by Sector

Industrial Sector	Number of establishments	Average employment	Total Wages	Average Weekly Wages
Private Sector	2,818	30,407	\$1,218,900,281	\$771
Good-producing	642	9,664	\$484,937,768	\$965
Natural Resources and Mining	36	326	\$11,926,275	\$703
Construction	413	2,171	\$108,300,344	\$959
Manufacturing	193	7,167	\$364,711,149	\$979
Service-Providing	2,176	20,743	\$733,962,513	\$680
Trade, Transportation and Utilities	589	7,072	\$270,640,579	\$736
Information	34	119	\$6,072,443	\$983
Financial Services	225	866	\$49,475,205	\$1,099
Professional and Business Services	616	3,289	\$144,029,120	\$842
Education and Health Services	277	5,036	\$179,763,144	\$686
Leisure and Hospitality	203	2,975	\$43,587,067	\$282
Other Services	228	1,381	\$40,221,615	\$560
Federal Government		100	\$5,211,644	\$1,000
State Government		250	\$12,013,507	\$926
Local Government		3,530	\$147,333,504	\$803

Source: ODOD Ohio County Profiles

2.5 Utilities

Electricity

 Illuminating Company and Ohio Edison

Water

 Burton Village, City of Chardon, Middlefield Village, Geauga County Water

Resources (these are the municipal water systems, however a majority of the county relies on privately owned water wells)

Sewer

Burton Village, City of Chardon, Middlefield Village, Geauga County Water Resources (these are the municipal sewer systems, however a majority of the county relies on privately owned septic systems)

Natural Gas

Brainard Gas Corporation, Dominion East Ohio Gas, Columbia Gas of Ohio, Inc., Orwell Natural Gas, Knox Energy Cooperative Association, Inc., Ohio Rural Natural Gas Cooperative and there are 592 gas and oil wells that have been reported to Geauga County Department of Emergency Services

Telecommunications

Windstream Western Reserve, AT&T, and Charter Communications provide VoIP (Voice-over-IP) telephone service throughout Geauga County.

Internet

Windstream, Western Reserve, AT&T, and Charter Communications provide internet services throughout Geauga County.

2.6 Social and Economic Characteristics

According to 2017 American Community Survey 5-Year Estimates, Geauga County has a total population of 93,895. Of that, approximately 79,993 or 85.2% of the population live within the unincorporated areas of the County, while only 13,902 people or 14.8% live in the City of Chardon or in Villages. The County’s median age is 44, which is older than the State’s median age of 39.

In 2017, the percent of the population in Geauga County that completed high school or better 90.3% is slightly higher than the State average of 89.8% and the national average of 87.3%. The table below shows the basic demographic profile for the County.

Table 1.3: Geauga County Demographic Profile

Total Population	93,895
Male	46,220
Female	47,675
Total Housing Units	36,921
Percent high school graduate or better	90.3%
Percent Bachelor’s degree or higher	38.0%
Median Household Income	\$77,104
Per Capita Income	\$39,513
Families Below Poverty Level	4.3%
Unemployment Rate	3.5%

2.7 Geauga County Information

Table 1.4: Geauga County Information

Community	Planning Commission	Comprehensive Plans	Floodplain Regulations	Building Codes (1)	Zoning ordinances	Capital Budget (2)	Public Works Budget
Geauga County	Yes	Yes	Yes	Yes	Yes	None	Limited in-kind wages only
City of Chardon	Yes	Yes	No	Yes	Yes	None	Limited in-kind wages only
Village of Aquilla	No	Yes	No	Yes	Yes	None	Limited in-kind wages only
Village of Burton	Yes	Yes	No	Yes	Yes	None	Limited in-kind wages only
Village of Hunting Valley		Yes	No	Yes	Yes	None	Limited in-kind wages only
Village of Middlefield	Yes	Yes	No	Yes	Yes	None	Limited in-kind wages only
Village of South Russell	Yes	Yes	No	Yes	Yes	None	Limited in-kind wages only

1. All jurisdictions within the state now follow the State Building Code. (Ohio Administrative Code 4101:1)
2. Budget that would allow the jurisdiction to devote financial resources towards hazard mitigation activities.

2.8 County Development

Much of the information measuring development was derived from Ohio County Profiles from the Ohio Development Services Agency (ODSA), Office of Policy, Research and Strategic Planning. The current posture of Geauga County can be found using the 2017 county profile.

Table 1.5 Demographic Rates

Demographic information 2014, 2017

Demographic Rates Gauga County, Ohio	2014		2017	
	Number	Rate	Number	Rate
Births / Rate per 1,000 women aged 15-50	1,060	54	1,216	65
Teen births / Rate per 1,000 females 15-19	20	6	18	5
Deaths / rate per 100,000 population	762	812	881	936.6
Marriages / rate per 100,000 population	428	4.5	432	4.6
Divorces / rate per 100,000 population	220	2.3	227	2.4

Source: ODSA Ohio County Profiles: Geauga County, 2014; ODSA Ohio County Profiles: Geauga County, 2017; 2013-2017 American Community Survey 5-Year Estimates

Table 1.6 Ratio of Income to Poverty Level

Family income below the poverty level increased by less than .1% since 2014.

Population for whom poverty status is determined	2014		2017	
	Number (92,702)	Percent (100%)	Number (93,201)	Percent (100%)
Below 50% of poverty level	3,051	3.3	2,284	2.5
50% to 99% of poverty level	4,669	5.0	4,115	4.4
100% to 149% of poverty level	6,783	7.3	6,566	7.0
150% to 199% of poverty level	7,282	7.9	6,693	7.2
200% or more of poverty level	70,917	76.5	73,543	78.9

Source: ODSA Ohio County Profiles: Geauga County, 2014; ODSA Ohio County Profiles: Geauga County, 2017

Table 1.7 Geographic Mobility

People moving out of the county increased from 3.0% to 4.6%:

Population aged 1 year and older	Number (92,556)	Percent (100%)	Number (93,024)	Percent (100%)
Same house as previous year	86,944	93.9	85,666	92.1%
Different house same county	2,784	3.0	3,121	3.4%
Different county, same state	1,981	2.1	3,126	3.4%
Different state	579	0.6	819	0.9%
Abroad	268	0.3	292	0.3%

Source: ODSA Ohio County Profiles: Geauga County, 2014; ODSA Ohio County Profiles: Geauga County, 2017

Table 1.8 Housing Units

The total number of housing units increased by 266 structures. Renter occupied units increased by 420 units and vacancy decreased by 30 units.

	Number (36,497)	Percent (100%)	Number (36,733)	Percent (100%)
Total housing units				
Occupied housing units	34,624	94.9	34,890	95.0
Owner occupied	29,960	86.5	29,890	85.4%
Renter occupied	4,664	13.5	5,084	14.6%
Vacant housing units	1,873	5.1	1,843	5.0%

Source: ODSA Ohio County Profiles: Geauga County, 2014; ODSA Ohio County Profiles: Geauga County, 2017

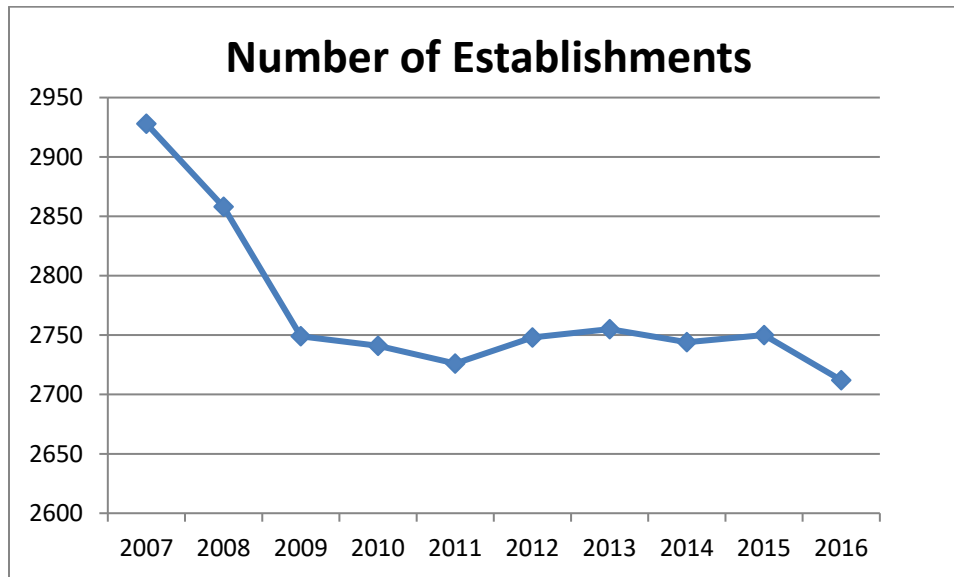
Land Use and Cover

There has been no change in land use and land cover between 2011 and the present.

Establishments

There was a sharp decline in the number of establishments between 2007 and 2011, and activity has been relatively stagnant since then, besides a dip in 2016. The number of paid employees has slowly improved since 2013. Trends throughout the state have reflected similar activity.

Table 1.9 Establishments and Paid Employees

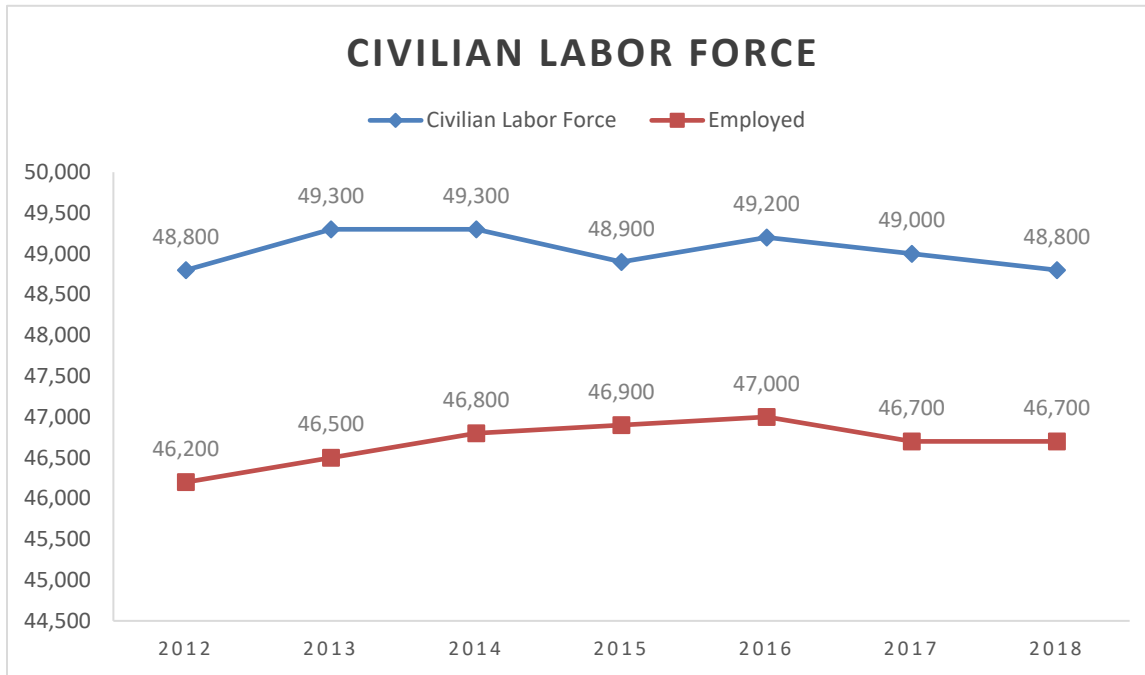


Source: Geography Area Series: County Business Patterns by Employment Size Class

Labor Force and Unemployment

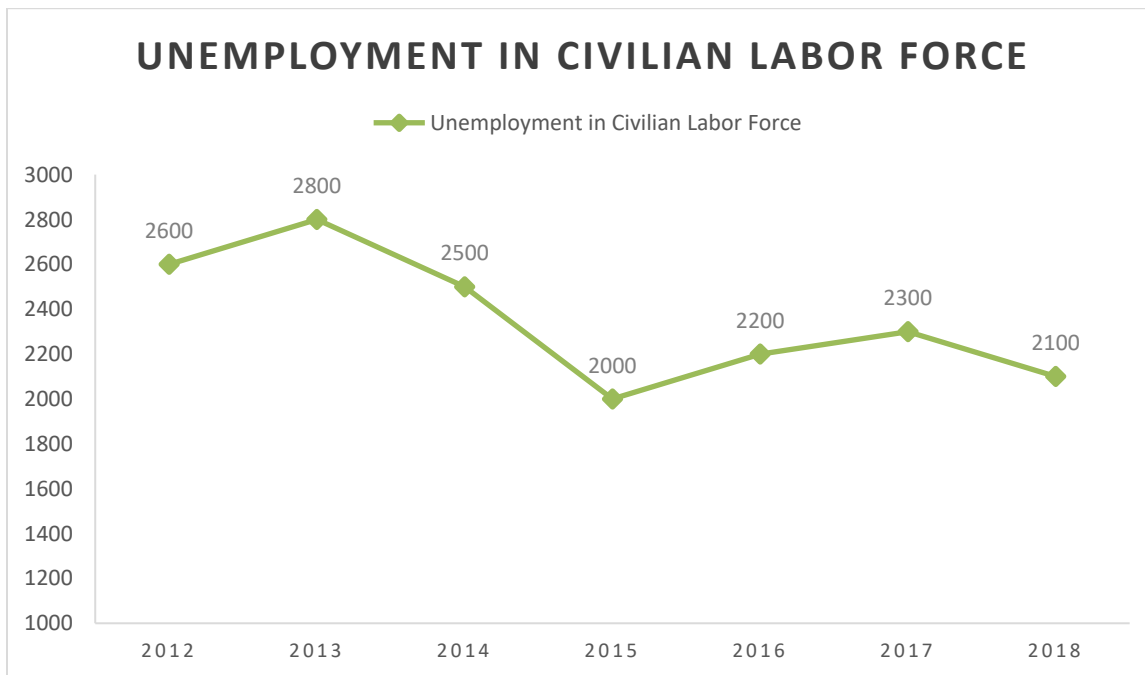
Between 2008 and 2010, economic collapse caused incredible job losses throughout the nation as well as locally in Geauga County. Since 2013, job recovery has been slow, but steady. Currently, as of February 2019, Geauga County's unemployment rate of 4.4% is slightly below the State average, which is 4.6%.

Table 2.0 Civilian Labor Force Estimates:



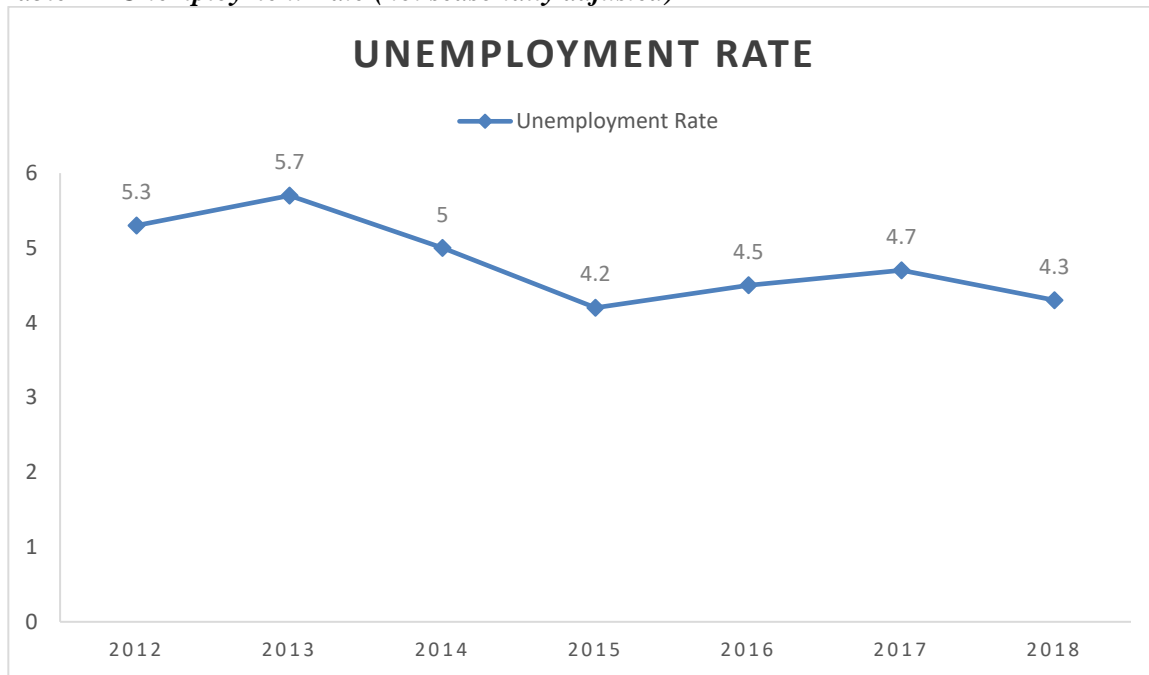
Source: Ohio Labor Market Information, Civilian Labor Force Estimates Annual Averages 2012-2018 not seasonally adjusted, March 2019: <http://ohiolmi.com/laus/laus.htm>

Table 2.1 Unemployment in Civilian Labor Force



Source: Ohio Labor Market Information, Civilian Labor Force Estimates Annual Averages 2012-2018 not seasonally adjusted, March 2019: <http://ohiolmi.com/laus/laus.htm>

Table 22 Unemployment Rate (not seasonally adjusted)



Source: Ohio Labor Market Information, Civilian Labor Force Estimates Annual Averages 2012-2018 not seasonally adjusted, March 2019: <http://ohiolmi.com/laus/laus.htm>

Current and Future Land Use

A well-designed economic and community development plan will help the County and its communities establish widely accepted economic development priorities, reduce sprawl, avoid duplication of costly infrastructure, and foster retention of local identity. There is a need for an approach to development that will build on the strengths of the County and its communities maximize the use of existing infrastructure and coordinate with local and regional development strategies.

A county-wide effort should be directed towards job creation, retention and expansion. Planning for development requires flexibility to be effective as markets and technology change. While each community has unique challenges and opportunities, land-use strategies can guide an integrated approach by all sectors to promote economic vitality in partnership with their neighbors.

Areas of Concern

Appropriate Areas

The County should identify sufficient land, with proper zoning, available infrastructure and access to suitable transportation systems for successful economic development projects.

Sewer & Water Infrastructure Capacity

Existing sewer capacity is stressed by current growth in some areas. Lack of a regional water district hampers efforts to bring central water service to various parts of the County. The development of a regional master water and sewer plan showing specific tributary area relationships to the existing trunk lines and indicating the capacity for each one is strongly recommended.

Telecommunication Services

The County is served by different incumbent local telephone exchange providers, and difference in local service has created an uneven provision of telecommunication services. The County and its communities should work with the telecommunication providers to develop countywide full spectrum communication services. The availability of adequate internet streaming services has remained a challenge in the Eastern, more rural townships.

Urban Sprawl

Sprawl, is not as obviously apparent in Geauga County as it is in some neighboring counties, new retail, residential and industrial development in the 1990s has created concerns within the county regarding sprawl. Through the many participation sessions, citizens do not want unchecked development.

The County should encourage, through local zoning, higher density development in those areas already zoned for development. The County should discourage rezoning of vacant land without planned or available infrastructure and other services to support development.

Issues and Challenges

Land use regulation is tremendously important both in promoting growth and in managing it. The County's focus to promote positive growth and avoid sprawl are as follows:

- **Residential Development**

Quality and design of residential development strongly influences community identity. Encourage communities to tailor their local regulations to achieve the best design. Encourage townships to adopt regulations within their Zoning Resolutions, to encourage and promote cluster type residential development where appropriate to preserve rural character, open space, and/or significant areas.

- **Commercial Development**

The development of corridor plans for the former Geauga Lake Campground in Bainbridge Township, the Middlefield Township State Route 87 (Kinsman Road) expansion, and the Troy Township commercial/industrial zoning district has begun. Other areas that might benefit from corridor planning would be the other major routes in the county, and township areas immediately adjacent to cities and

villages, such as Auburn Corners at U.S. Route 422. Identification of funding for implementation of corridor plans should be an integral part of the planning process.

Existing vacant commercial and industrial space needs to be brought back into productive use if it contributes to blight and the appearance of depressed areas. Communities need to incorporate alternative uses in zoning texts to revitalize existing vacant commercial (retail) structures.

- **Industrial Development**

Encourage continued development of industrial parks where adequate infrastructure exists or extension is practical. Seek to leverage state and federal assistance and incentives which encourage efforts to redevelop vacant, underutilized “brownfield” sites.

- **Infrastructure**

For purposes of comprehensive land use planning, infrastructure is defined as potable water treatment and distribution, sanitary and storm sewers, wastewater treatment, telecommunications, natural gas and electricity distribution, and transportation.

Current residential growth is placing demands for potable water in central and southern portions of the County. Adequate wastewater treatment capacities and sewer line collection systems are challenged. To minimize public costs and efficiently use resources, new development should occur in areas where adequate capacity exists or can be reasonably extended. Attention needs to be given to areas of the county that are presently under-served by utilities.

Development Goals

Local and County plans and policies should contain these physical and development tenets to encourage development activities in suitable areas:

- Economic development planning should be promoted. Studies may be undertaken to identify economic patterns, which may be of benefit to local communities and businesses. Information should be shared to review trends, development needs, and coordinate projects.
- County economic development strategies should identify opportunities and manufacturing sectors that its economies can fill. Future economic stability may be achieved through diversification of industry clusters that can capitalize on local advantages to serve local, national and international markets.
- Develop actions and policies that encourage public and private investment in technologies that support the ability of local enterprises to succeed, improve community life, and enhance and improve access to information.

- Continue publicly-supported economic development programs, investments, and incentives have proven their long-term benefits and impacts on the County as a whole. These programs have attracted committed, diversified industries that provide employment choices for county residents. Employment expands the individual's opportunities for property ownership, improvement, and consumption. The tax incentive programs have attracted industrial property investment, and increased the county's long-term property tax base.
- Projects should be consistent with local economic development objectives as set forth in land use or economic development plans.
- Economic development incentives and tools should continue to be used to promote appropriate growth, industrial diversification, encourage small business, and nurture emergent technologies.

3.0 Planning Process

3.1 Plan Adoption

Following Federal approval, Geauga County and its participating jurisdictions will formally adopt this plan by Resolution or Ordinance.

3.2 Participation

The planning team is the original planning unit for this project. All planning team members are involved for the entire planning process. They are the decision makers and implementers. The purpose of the planning team is to provide information to the various entities of Geauga County that have a stake, either directly or indirectly, in the Mitigation Plan.

Additionally, adjacent counties were invited to participate in the planning process. Invitations were sent to: Lake County EMA, Ashtabula County EMA, Trumbull County EMA, Portage County EMA, Cuyahoga County EMA and Summit County EMA announcing the Plan update and inviting representatives to attend and participate in the planning process. However, no representatives from any of these counties participated.

Other interested parties invited to participate include: Interested parties from the business and commerce sector that were invited to participate include: Great Lake Cheese Company, Masco Corp/KraftMaid Cabinetry Inc., Tarkett/Johnsonite Inc., University Hospital System, the American Red Cross, and Wal-Mart Stores Inc. Various representatives participated in the planning process.

Please see Appendix A for complete list of participants.

3.3 Planning Process

Meeting 1: Plan Review “Kick-Off” Meeting (1/16/2019)

During the kick-off meeting, the planning team members were provided an overview of the purpose of mitigation and the goals surrounding the overall Mitigation Plan. A review of the current Geauga County Mitigation Plan was provided including details regarding the seven current sections within in the plan.

A discussion was given on the expected changes to have within the revision of the plan, including the combination of sections. The planning process was discussed and the group was brought up to date on actions that had already taken place, such as outreach. The group discussed moving forward with additional meetings and established a timeline on the meetings.

Please see Appendix C for Meeting 1 minutes.

Meeting 2: Hazards Meeting (2/20/2019)

During the second mitigation meeting, all participants began by completing their own hazard analysis, and then the group compared and compiled them together into a new list, assessing the hazards of the county.

In addition, participants reviewed the hazards within the county that had previously been determined, and considered new ones. The Probability, Impact, Community Preparedness was considered for each hazard.

The group reviewed the hazards and risks section of the revised plan. This section provides information in regards to the definition of the hazard, location the hazard may affect the county, the extent of possible damage, previous occurrences of the hazard within the county, the probability of the hazard affecting the county and the overall vulnerability assessment.

Further research was completed with the State of Ohio Fire Marshall's Office, National Weather Service, and other appropriate agencies to assist with the data to analyze hazards within Geauga County.

Please see Appendix C for Meeting 2 minutes.

Meeting 3: Goals Meeting (3/27/2019)

Like all meetings, the third meeting began with a recap of the previous meeting and the overall plan process status.

Also, the group reviewed the goals listed in the previous plan to determine if they were to still relevant. The group determined that the goals would remain, however there would be an additional goal added for wildfires.

A hazard matrix was previously created. It too was assessed and reviewed to reflect the current plan. The criteria used to create the matrix included: cost effective; technically feasible; environmentally sound; socially equitable; funding available; innovative idea; reactionary alternative; and preventative alternative.

Please see Appendix C for Meeting 3 minutes.

Meeting 4: Draft Review Meeting (4/17/2019)

The final meeting with the Planning Group was a digital meeting, acting over an email chain. The plan draft was sent to all participants, and replies were gathered and shared related to corrections and suggestions of changes. Some examples of suggested changes included updating the county health department's new name, correcting changes in utility company names, and correcting typos such as "Sherriff's Department" to "Sherriff's Office". During the draft review, members of the planning team assessed the plan's format, accuracy, charts, graphs, and overall usefulness as a working document for the county.

Please see Appendix C for Meeting 4 minutes.

Meeting 5: Final Public Review Meeting (6/26/2019)

Public input was necessary to gauge the opinion of the community and build support for the Mitigation Plan. A public meeting was held in June 26, 2019 to make the plan draft and the planning team available to the general public. This meeting gave the public an opportunity to comment on the plan. This meeting was also used to address comments and questions concerning the Draft Mitigation Plan. Ample time for public comment was provided, which is documented and incorporated into the Mitigation Plan. Besides this specifically allotted and advertised time for public review and input, the public was invited to every meeting prior, as well as participated through the online hazards survey.

Please see Appendix C for Meeting 5 minutes.

3.4 Public Outreach and Other Stakeholder Involvement

Since public participation was crucial for implementation of the review of the mitigation plan, a public notice was posted at local Geauga Library branches: Bainbridge Library, Geauga West Library, Chardon Library, Middlefield Library, Newbury Library Station and Thompson Library Station. The plan was made available at the local Department of Emergency Services office and the Geauga County Department of Emergency Services website. In addition, an article was printed in the Geauga County Maple Leaf (See Appendix D) in regards to the beginning of the review and the opportunity for the public to be a part of the process. All meeting dates, agendas, minutes and plan updates were posted on the Geauga County Department of Emergency Services Website (See

Appendix D). In addition, presentations were given to local groups such as the local horseman's council for added community outreach.

The formal public notification process as defined in the Federal Code occurred prior to approval and/or adoption of the plan. A press release informing residents of status of the mitigation process, the locations the plan was posted for review, as well as the public meeting date was published in the local media. The public was notified of their opportunity to review and comment on the draft plan before and during each review period and invited to attend every meeting (See Appendix D). Comments were to be forwarded to the Geauga County Department of Emergency Services for inclusion in the final plan. The Draft Mitigation Plan was submitted appropriately to the OEMA and FEMA for review and approval.

3.5 Integration with Existing Plans

Existing plans that were consulted upon drafting of the Geauga County Hazard Mitigation Plan include:

- **Geauga County Mitigation Plan (2015)**

This plan was consulted to assist with the problem identification, goals and action plan component of the Plan update.

- **Geauga County Emergency Operations Plan (2018)**

This plan was consulted to assist with the hazard identification component of the Plan update.

- **Ohio Enhanced Mitigation Plan (2012)**

This plan was consulted to assist with background information, data, hazard identification, and reference information.

- **Geauga County and Local Floodplain Regulations (2009)**

3.6 Finalization Process

Upon incorporation of all comments into the Draft Mitigation Plan, the Final Mitigation Plan will be prepared and submitted to Geauga County in hard copy and digital form.

Each incorporated jurisdiction, as well as any township choosing to adopt this Mitigation Plan, will also receive a digital copy of the plan.

Each community that participates in this planning effort will be responsible for administering the various aspects of the Mitigation Plan including implementation within their particular community. It is the intention of Geauga County and the participating jurisdictions to formally adopt this plan by passing a Resolution or Ordinance.

Implementation of the Mitigation Plan is crucial. The planning team must strategize effectively to put the Mitigation Plan into action. Geauga County must follow up to translate the goals and objectives developed during the planning process, into action steps. It is recommended that a monitoring program be included in the Mitigation Plan.

3.7 NFIP Compliance Activities

Beginning in fiscal Year 2006, Geauga County underwent the floodplain map modernization process. Preliminary maps were released on September 13, 2007 and an Open House was conducted on January 28, 2008 for jurisdictions, government representatives and the general public to review the updated maps. The period for which appeals or comments could be submitted was from February 19 – March 20, 2008. The letter of final determination was issued on December 16, 2008. The updated maps are scheduled to become effective on June 16, 2009 with Geauga County formally adopting these maps by way of Resolution.

Under the Geauga County Floodplain Management Regulations, the County and jurisdictions have appointed a Floodplain Administrator. The duties of this office are to maintain and enforce these Regulations. Also as part of their regular tasks, Floodplain Administrators monitor the floodplains on a routine basis as well as provide community assistance to structure owners. This may include items such as encouraging that flood insurance is kept up to date.

4.0 Identification of Hazards and Risks

4.1 Hazard Analysis

The hazard analysis will identify those natural hazards that have affected and will continue to potentially affect Geauga County and its municipalities. There are five components of the hazard analysis: hazard identification, profile of a hazard event (extent and location), history and vulnerability analysis.

4.2 Hazard Identification

The research compiled during the initial hazard assessment was provided to the planning team for their review and assessment. The team evaluated all the hazards being considered and ranked them based on the number of historic events and cumulative damage that has occurred. The planning team reviewed the hazard vulnerability analysis during a planning meeting, and chose the top hazards for further study. The following list shows the planning team's ranking of hazards with number one being the hazard of the most concern:

1. Winter Storms (Snow, Ice, Extreme Cold)
2. Severe Storms (High Wind, Lightning, Rain, and Hail)
3. Power Outages
4. Tornadoes
5. Floods (Flash, 25yr, 100yr)
6. Earthquakes
7. Dam Failures
8. Disease (Epidemic)
9. Droughts and Extreme Heat
10. Wildfires

4.3 Winter Storms (Snow, Ice, Extreme Cold)

A winter storm is an event in which the varieties of precipitation are formed that only occur at low temperatures, such as snow or sleet, or a rainstorm where ground temperatures are low enough to allow ice to form (i.e. freezing rain).

4.3.1 *Location*

Winter and Ice Storms are countywide hazards and can affect all areas and jurisdictions.

4.3.2 *Extent*

Winter Storms are typically measured by amounts of precipitation (i.e. snowfall, freezing rain and ice) and associated with winds and extreme cold temperatures. Snowfall in excess of 6-inches is typically considered disruptive. Massive snowstorms with heavy winds and other conditions are known as blizzards. Heavy showers of freezing rain and ice are one of the most dangerous types of winter storms, as little as 0.04 inches of freezing rain can paralyze a region making driving extremely hazardous, downing trees and damaging utility lines.

4.3.3 *Previous Occurrences*

Geauga County is located within the “snow belt” region of northeast Ohio. The County is located near the northern edge of the Appalachian Plateau in close proximity to Lake Erie. Moisture laden winds crossing the lake are forced to rise as they reach the Geauga County uplands and as a result, significant snow falls during the winter, typically over 100 inches annually. NOAA divides the winter events that have occurred in Geauga County into various categories, namely: Cold/Wind Chill, Extreme Cold/Wind Chill, Heavy Snow, Ice Storm, Lake Effect Snow, Winter Storm, and Winter Weather. Historically, from 1/1950-1/2019, there are 159 events recorded in this manner. These have totaled an estimated \$25,298,000 in property damages. Overwhelmingly, the events are categorized as Heavy Snow, Lake Effect Snow, or Winter Storms. Looking at the recent events only, those since 2008, there have been 64 of these winter events. These have totaled an estimated \$14,195,000 in property damages. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation*.

State of Emergency Declared April 3, 2005

As temperatures changed, snow began heavier on the morning of April 3, 2005 and winds were running from 20 to upwards of 50 miles per hour causing

extreme blowing and drifting. This was most evident in the mid to eastern portion of the county where Hambden, Thompson, Montville, Huntsburg and Claridon townships were hardest hit. Because of the higher temperatures snow was quite heavy causing the snapping of trees and the bringing down many power lines. At the height of the storm, there were over 150,000 people in the entire affected area without power.

There were many issues with people trying to travel. There were approximately twenty separate accidents. Another issue was there were no county phones operational in dispatch center. A care center was established by the American Red Cross at the Montville Recreation Center.

Due to higher temperatures and the threat of flooding within the county the State of Emergency remained until April 7, 2005.

Record Snow Storm, March 4-9, 2008 (EM-3286)

During the early morning hours of March 4th, low pressure was located over the lower Mississippi Valley. Precipitation began spreading into the area during the early morning hours of the 4th. Most locations across the area had surface temperatures at or just below freezing. In contrast, air aloft over the region was above freezing causing precipitation to be mainly in the form of freezing rain. Temperatures through the day did not rise significantly. The freezing rain tapered off in some locations in northern Ohio during the early afternoon. Across far northeast Ohio surface temperatures rose a little above freezing allowing for a period of just rain during the afternoon hours. As the late afternoon hours approached, freezing rain picked up again and areas seeing just rain saw a changeover back to freezing rain. Around sunset the freezing rain began to quickly freeze on roadways and in a short period of time, numerous accidents were reported. Also during the evening, the freezing rain was actually moderate to heavy at times as trained spotters reported thunder throughout northern Ohio. As the evening progressed, colder air aloft built over the area allowing for freezing rain to turn to sleet and back over to snow late on the 4th and into the overnight hours into the 5th.

A mixture of sleet and snow began in Geauga County before daybreak on March 4th. This mixture changed to freezing rain by midday and then continued into the early morning hours of March 5th. Conditions quickly deteriorated after sunset as surface temperatures dropped off a few degrees. Over a quarter inch of ice accumulation was reported on roads and sidewalks by early evening. By the time the freezing rain changed to light snow during the early morning hours of the 5th, between one half and three quarters of an inch of ice had accumulated on parts of the county. Thunder and lightning were reported between 7 and 9 pm. The snow tapered to flurries during the morning hours of the 5th after an inch or

two of accumulation. Scattered power outages occurred across the county as a result of the freezing rain. Some electric customers in the county were without power for as much as three days. Extensive tree damage was reported in the county as well. Many accidents were reported during this event. Property damage was estimated at \$2,000,000.

Later, snow began to fall during the morning hours of the 7th and continued for the next day and a half. Snow tapered off a bit during the evening hours of the 7th, but picked up again overnight and continued moderate to heavy at times through much of the day on the 8th. Gusty winds around 30 mph at times caused considerable blowing and drifting of snow which made some roads across the area nearly impassable. Numerous accidents and stranded vehicles were reported across the area. Storm totals reported from trained spotters throughout the county include 23.0 inches in Thompson, 18.0 inches in Chardon, 17.0 inches in Burton, and 15.3 inches in Middlefield. Property damage was estimated at \$1,000,000. As a result of this entire event, Geauga County received \$196,506.79 in public assistance funds.

First Quarter Snow Storms, January-March 2014

January

An area of strong low pressure moved east across the Great Lakes on January 25th. A cold front trailing this low pressure system swept east across northern Ohio during the morning hours. Snow developed ahead of this front during the early morning and then intensified around daybreak as the front moved through. Southwest winds gusted to as much as 35 mph ahead of the front. Northwest winds developed behind the frontal passage and by midday, the snow had transitioned to lake effect snow showers. The snow showers intensified just before the evening commute causing near blizzard conditions at times. Visibilities were less than a quarter mile for most of the late afternoon and early evening hours. Snowfall rates of 1 to 2 inches per hour crippled the Cleveland Metropolitan area and made for a rough evening commute. The snow lessened around 7 pm and tapered to flurries shortly after that. In Geauga County, a peak total of 12.5 inches was reported Thompson with 11.1 inches at Chagrin Falls and 8.0 inches at Burton. In addition, the gusty winds caused considerable blowing and drifting. Dozens of accidents were reported across the area and commute times were two to three times normal.

February

A low pressure system developed near the gulf coast on February 4th and tracked northeast through the Tennessee and Ohio Valleys to near Pittsburgh by the morning of February 5th. As this system tracked northeast, it brought heavy

snow to northern Ohio. The heaviest snow occurred in an arc extending from Findlay to Toledo and then eastward along the Lake Erie shoreline with accumulations of 6 to 11 inches. Accumulations in Geauga County ranged from 6 to 9 inches. Temperatures were in the mid-20s during the snowstorm and northeast winds shifted to the northwest by the afternoon of the 5th with speeds increasing to 15 to 20 mph with gusts to 25 mph. The snow tapered off from west to east during the afternoon of the 5th.

A fast moving area of low pressure raced east across the lower Great Lakes during the evening hours of February 17th and the morning hours of the 18th. Snow associated with this low began over Northeast Ohio during the evening of the 17th. The snow quickly intensified and then continued through the early morning hours of the 18th. The snow was heavy at times with visibilities less than a quarter mile and accumulations of an inch or more per hour. The snow quickly tapered off from west to east beginning around daybreak on the 18th and by mid-morning had ended across the entire area. Southwest winds gusted to as much as 35 mph during the first half of the event. Winds became westerly and slowly diminished as the surface low passed just to the north. Considerable blowing and drifting was reported causing difficult road conditions. The morning commute was very slow and most of the schools in Northeast Ohio closed on the 18th. Snowfall totals from Lorain County eastward across the Cleveland and Akron Metropolitan areas to Trumbull County ranged from 6 to 8 inches. The peak total reported in the county was 8.6 inches at South Russell.

March

Mixed precipitation spread across the area early on the 12th 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 one half mile. 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 very treacherous driving conditions. Snowfall totals of 6 to 8 inches were reported along with a glaze of ice in many areas. Schools across most of northern Ohio were closed on the 12th and the evening commute was very difficult. Dozens of accidents and some power outages were reported.

4.3.4 Probability

NOAA has recorded 159 historical occurrences of winter weather storm conditions, specifically 64 events since 2008. This shows a historical trend of 2.3 serious winter events each year that average \$159,106 in property damages per event. Since 2008, the trend has been 6.4 serious winter events per year that

average \$224,140 in property damages per event. Even though the increase in both event frequency and damages per event in recent years is much higher than the historical records, a 200% and 41% increase respectively; this is in large part due to better record keeping by NOAA. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation*. Based on this historical information, it can be reasonably concluded that there is a 100% probability that Geauga County will experience winter weather storms each year.

4.3.5 *Vulnerability Assessment*

Since Geauga County is located within the “snow belt” and is highly susceptible to winter storms, which encompass snow, ice and extremely cold temperatures. Because the area receives a significant amount of snowfall, all of the structures erected in the County are susceptible to damage if not designed to the proper snow loading parameters. Snow and ice mostly affect humans and animals. It also affects the freedom of movement throughout the county and the northeast Ohio region. Therefore, winter storms are countywide and the entire County population is susceptible and should be prepared.

Snow, ice and extreme cold temperatures will always be a natural hazard that has potential to cause significant property and crop damage within Geauga County. Because the number of winter events affecting Geauga County is large, the potential for death and injury is high. As the population of the County continues to grow, as forecasted by the 2010 Census, there is more potential for loss of life and/or injury. In addition, the economic losses a community suffers during a winter storm event, which can leave behind three to five feet of snow, can be high.

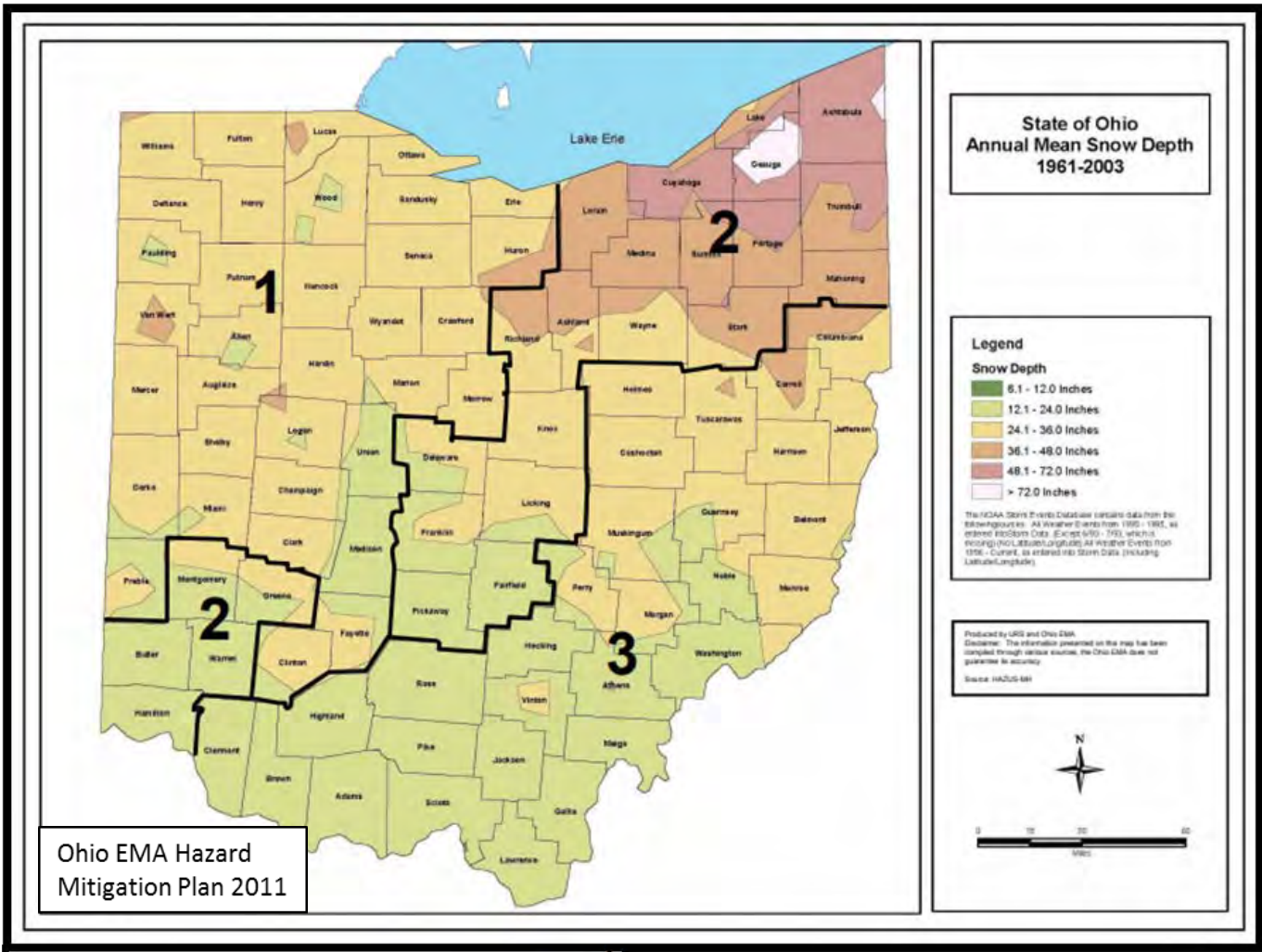
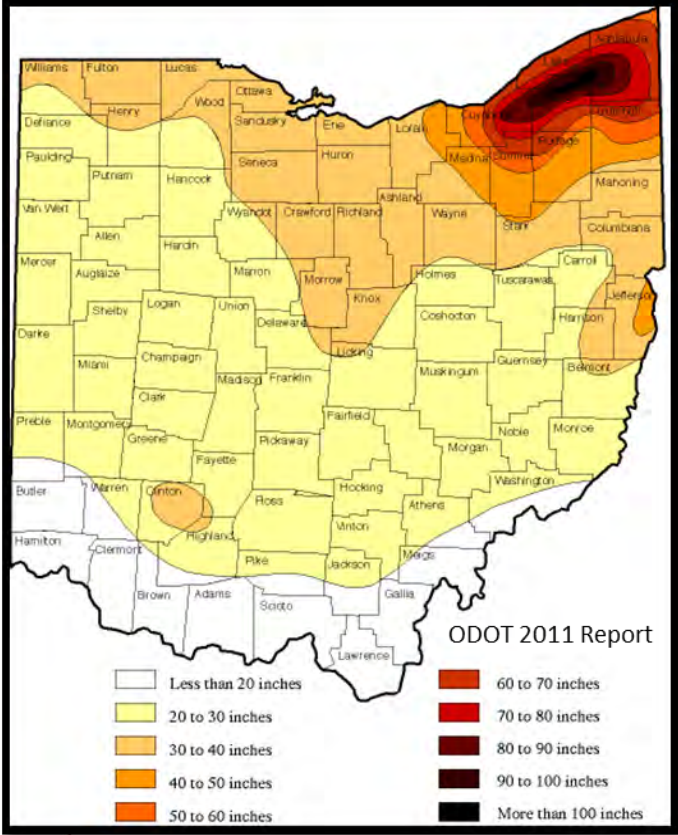


Figure 1 (Above) *State of Ohio Annual Snow Depth 1961-2003* from the Ohio EMA hazard Mitigation Plan 2011.

Figure 2 (Left) *Ohio Annual Snowfall* from ODOT Snow and Ice Practices 2011.



4.4 Severe Storms (High Wind, Lightning, Rain, and Hail)

A severe storm is a form of turbulent weather characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder. Storms are usually accompanied by strong winds, heavy rain and sometimes snow, sleet, hail, or no precipitation at all. Those that cause hail to fall are called hailstorms.

Strong or severe thunderstorms may rotate and can generally form and develop in any particular geographic location, perhaps most frequently within areas located at mid-latitude when warm moist air collides with cooler air. Thunderstorms are responsible for the development and formation of many severe weather phenomena. Thunderstorms, and the phenomena that occur along with them, pose great hazards to populations and landscapes. Damage that results from thunderstorms is mainly inflicted by downburst winds, large hailstones, and flash flooding caused by heavy precipitation. Stronger thunderstorm cells are capable of producing tornadoes and waterspouts.

4.4.1 *Location*

Severe Storms are countywide hazards and can affect all areas and jurisdictions.

4.4.2 *Extent*

Severe storms are generally measured in terms of wind speeds, rainfall amounts or hail stone size and often occur simultaneously or in quick succession. A severe thunderstorm is generally determined by the storm being strong enough to inflict wind or hail damage. A storm is considered severe if wind speeds reach 58 mph and/or produce hail that is 1-inch in diameter or greater. Another key ingredient that defines a thunderstorm is lightning. A storm is considered severe if funnel clouds and/or tornadoes are produced. Rainfall rates greater than 2-inches per hour are also used to indicate severe storms.

4.4.3 *Previous Occurrences*

NOAA divides the severe storm events that have occurred in Geauga County into various categories, namely: Hail, Heavy Rain, High Wind, Lightning, Strong Wind, and Thunderstorm Wind. Historically, from 1/1950-2/2019, there are 336 events recorded in this manner. These have totaled an estimated \$15,394,000 in property damages, and \$149,480 in crop damages. Overwhelmingly, the events are categorized as Hail, High Wind, and Thunderstorm Wind. Looking at the recent events only, those from 2008 to present, there have been 91 of these severe storm events. These have totaled an estimated \$3,370,000 in property damages, and no recorded crop damages. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service*

Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation.

Countywide Thunderstorm on October 28, 2006

An area of low pressure developed along the Gulf Coast and tracked northeast through the Tennessee and Ohio Valleys through the 27th. This area of low pressure quickly intensified through the day on the 28th as it continued tracking into western New York State. Several severe thunderstorms developed during the afternoon and evening hours of the 28th, and the strong intensification of the low brought about high winds across northeast Ohio and northwest Pennsylvania. The winds diminished during the overnight hours into the 29th as the area of low pressure moved into Quebec and away from the region. Numerous trees and utility poles were reported down across the southern portion of the county.

Countywide Thunderstorm on August 20, 2009

A strong area of low pressure tracked eastward across the northern Great Lakes during the afternoon and evening of the 20th. Scattered showers and thunderstorms developed ahead of the cold front and tracked eastward across the area. Many of the thunderstorms became severe in the very warm and humid air mass in place across the region. The thunderstorms diminished during the evening hours. Trees and utility lines were reported down throughout the county.

Countywide Thunderstorm on November 17, 2013

A strong cold front moved across northern Ohio during the evening hours of November 17th. A line of strong to severe thunderstorms developed in advance of this front causing significant damage in some areas. At least three tornadoes touched down in Wood County. The strongest of the three, an EF2, crossed into Lucas County. A fourth tornado occurred in Ottawa County. All of the tornadoes downed trees and damaged homes and buildings. Strong non thunderstorm winds also occurred behind the cold front through the evening hours. Thunderstorm winds downed several trees in Chardon Township. State Route 87 was blocked by some of the fallen trees.

4.4.4 Probability

NOAA has recorded 336 historical occurrences of severe storm conditions, specifically 96 events since 2008. This shows a historical trend of 4.87 severe storm events each year that average \$45,815 in property damages, and \$445 in crop damages per event. Since 2008, the trend has been 9.1 severe storm events per year that average \$37,032 in property damages per event. Even though the increase in event frequency per event in recent years is much higher than the

historical records, an 88% increase; this is in part due to better record keeping by NOAA. There is a decrease of 24% in the average damages per event. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation*. Based on this historical information, it can be reasonably concluded that there is a 100% probability that Geauga County will experience severe storms each year.

4.4.5 Vulnerability Assessment

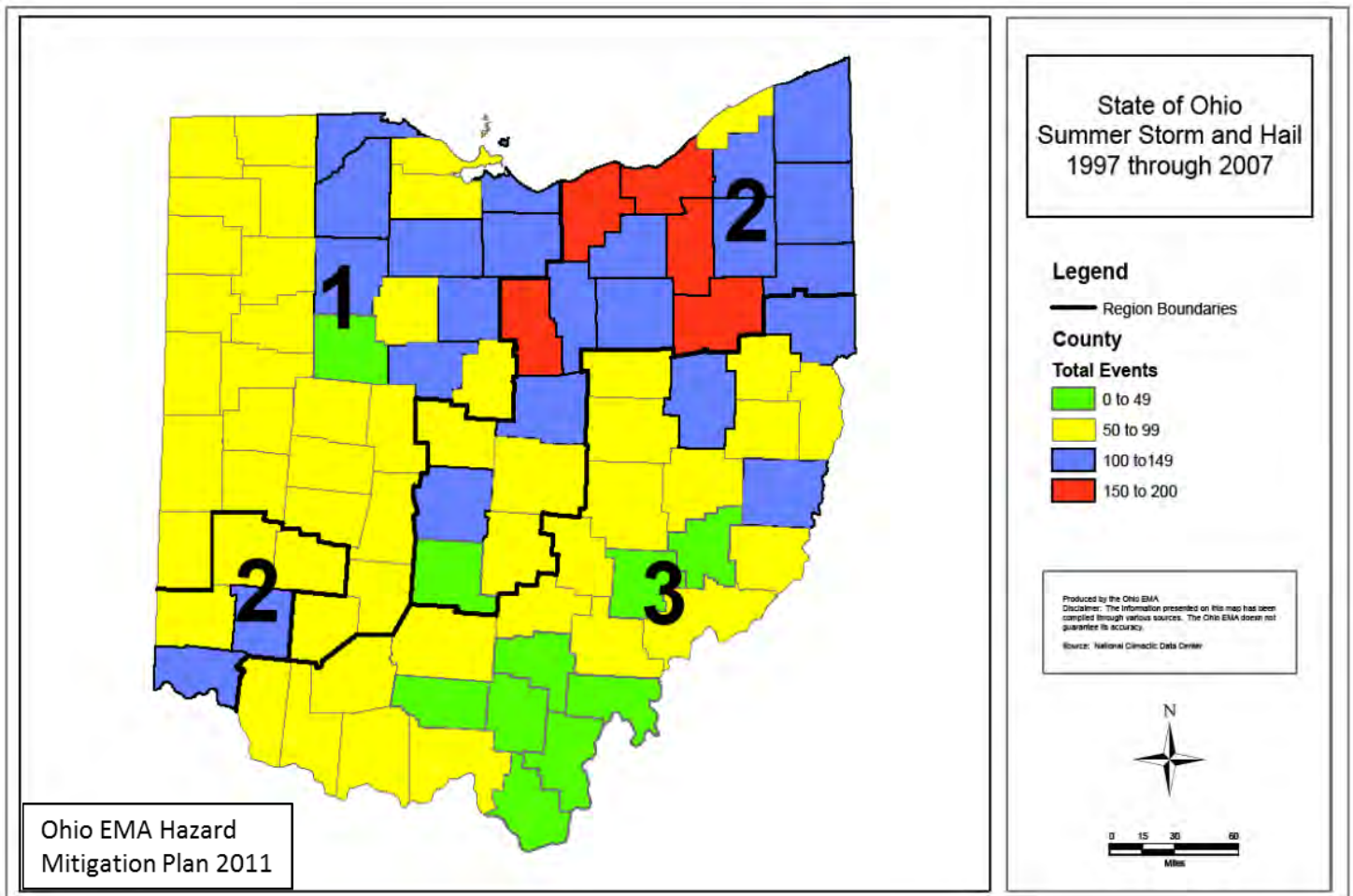
Since severe storms are random in nature, the impact on the County's infrastructure is not limited to a certain area as might be expected with a geographically fixed hazard such as river flooding. Homes and businesses all throughout the County are susceptible to severe storms. Winds, for example, can cause severe damage to mobile home parks and campgrounds if units are not properly secured to permanent structures.

The entire County population is susceptible and should be prepared for a severe storm. The populations located in mobile home parks and camp grounds should take particular care to seek adequate shelter with approaching severe weather. Because the number of severe storms affecting Geauga County is high, the potential for death and injury is high. As the population of the County continues to grow, as forecasted by the 2010 Census, there is more potential for loss of life and/or injury.

<i>Table 1: Estimated Vulnerability Assessment for Summer Storms</i>		
Estimated Vulnerability Assessment (2019 USD)		
Structure Type	Structures at Risk	Damage in Dollars
Residential	436	\$10,150,095
Non-Residential	123	\$14,319,990
Critical Facilities	21	\$4,419,122
Total	580	\$28,889,208

Table 1 (Above) *Estimated Vulnerability Assessment for Summer Storms*

Figure 3 (Below) *State of Ohio Summer Storm and Hail 1997 through 2007* from the Ohio EMA hazard Mitigation Plan 2011.



4.5 Power Outages

A Power Outage is an unexpected interruption in the supply of electrical service to a specific area. Outages can be caused by any number of incidents, such as car crashes, lightning, high winds and winter storms. The duration of a Power Outage could be short-term or long-term, depending on many complicating factors such as weather conditions, extent of damage, and available crew. Outages are particularly hazardous during times where there is little or no sunlight, and during times of extreme temperatures or weather conditions. In addition, outages can be life threatening to citizens in Geauga County who use electricity-dependent medical devices. Such devices may be used or purchased and include: ventilator, BiPAP, internal feeding, IV infusion pump, suction pump, at-home dialysis, electric wheelchair and electric bed equipment; oxygen concentrators; and an implanted cardiac device

4.5.1 Location

Power Outages are countywide hazards and can affect all areas and jurisdictions.

4.5.2 Extent

There are two electrical service providers to Geauga County. The primary provider is First Energy, who provides service for 39,311 customers. The second provider is Frontier Power, who provides service for an additional 242 customers. Outages can be caused by any number of incidents, such as car crashes, lightning, high winds and winter storms. Power Outages may be considered hazardous to the Geauga County population as whole based on complicating criteria. Some factors that are considered is the location of the outages, the number of customers affected, the time of day of the outage, the weather conditions, and the expected duration of the outage. Outage severity is considered with the need for possible warming/cooling centers for daytime use, or even overnight sheltering.

4.5.3 Previous Occurrences

Power Outage from March 1st-4th, 2018

On the evening of March 1st Geauga County sustained a winter storm causing approximately 4,400 residences or businesses lost electrical service. There was severe rain, which quickly transitioned into snow in the evening. The accumulation of several inches of snow and icy conditions caused the power restoration process to be delayed for a few days. Two community warming centers were opened.

Power Outage from February 24th-26th, 2019

Geauga County again sustained another winter storm, bringing a line of showers and winds exceeding 65mph, causing roughly 4,800 residences and businesses experienced the outage. Notably, nursing homes and mobile home parks lost power. A community warming center was opened in the county, and then transitioned into an overnight shelter.

4.5.4 Probability

There is always a possibility for a power outage. Since there are outages and interruptions in electrical service every year, and multiple times a year, the probability would be 100%. However, the severity of the outage is the issue, not the occurrence or quantity of outages themselves. While a few customers may have an outage at any given day, due to a car accident or fallen tree, it is less frequent that hundreds or thousands of customers lose power in a single instance, though there does appear to be multiple occurrences of that severity each year. Statistically, the most hazardous months for power outages would be that of June, July, and August across the United States. This seems to coincide with severe storms and wind events, but events could happen at any time. One final consideration related to the frequency of outages is that the grid is becoming increasingly old and worn. Across the country from 2000-2014, the number of outages due to grid failures doubled every five years. Without significant improvements to the grid, it should be expected to have increased and continued grid failures in the future.

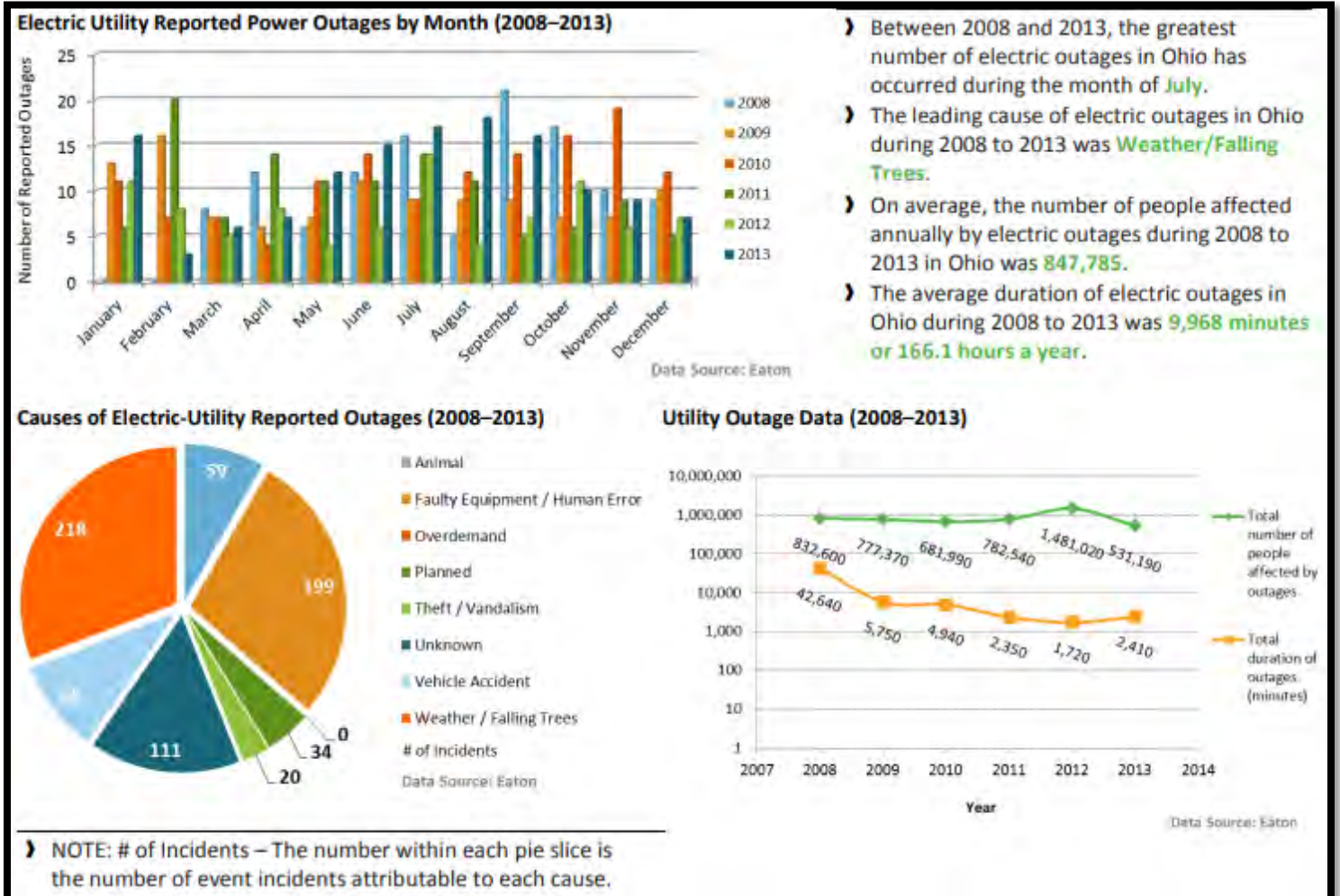
4.5.5 Vulnerability Assessment

Power Outages are random and sporadic and vary greatly in extent and duration. Homes and businesses all throughout the County are vulnerable to power outages. The entire population of the county is susceptible and should be prepared for an outage. Though power outages are frequent, they do not cause much harm on their own. Typically, outages that last for less than two hours are not emergency situations. Widespread and long lasting outages, combined with hazardous weather conditions, are the combination that could lead to potential injury or death in vulnerable populations. All citizens should be aware of the dangers of a power outage, and should be aware of their unique needs that are created when an outage happens, and where to seek help to temporarily fill those gaps. The residences and businesses in the southern communities of the county (Bainbridge, Auburn, Parkman and Troy) have experienced the most significant outages in recent storms.

Table 2: Geauga County electrical-dependent medical device population (other regions unknown)		
State/Region	Electricity Dependent Beneficiaries	% Dependent per region
Geauga	711	4.1
Middlefield	103	6.36
Chardon	223	4.38
Chesterland	103	4.00
Bainbridge	122	3.51

Table 2 (Above) Geauga County electrical-dependent medical device population from *Health and Human Services' emPOWER Initiative-November 2018 Update*

Figure 4 (Below) Power Outage Data for Ohio, *Department of Energy (DOE), Office of Electricity Delivery &*



4.6 Tornadoes

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long. While tornadoes are relatively short lived in duration, they are intensely focused, making them one of the most destructive natural hazards. Tornadoes are measured based on the Fujita Damage Scale, which was developed by Theodore Fujita to relate the speed of winds associated with tornadoes to the damage they cause. The currently used, Enhanced Fujita Scale can be found below (Figure 5).

4.6.1 *Location*

Tornadoes are a county-wide hazard that can affect all areas and jurisdictions.

4.6.2 *Extent*

Ohio is located in Zone IV, according to the FEMA Wind Zones Map, which is the highest category for wind zones in the United States. Wind speed can reach up to 250 mph during extreme conditions in this zone. High wind events are one of the most common types of hazards in Geauga County and affect all areas of the County. To be classified as a “high wind event”, winds must be in excess of 52 mph. Wind storms in Geauga County have been known to cause moderate property damage but no loss of life has occurred as a result of severe winds.

Ohio is located on the eastern edge of what is commonly known as “tornado Alley”. Geauga County is located in a Zone IV wind zone and as such, tornadoes have been identified as a hazard in Geauga County. This wind zone places Geauga County in a category that could experience devastating tornadoes with wind speeds up to 250 mph, which indicates that significant damage will be sustained to structures with solid foundations.

4.6.3 *Previous Occurrences*

NOAA divides tornadoes and high wind events that have occurred in Geauga County into separate categories, namely: High Wind and Tornado. Because High Winds generally are a product of Severe Storms, as included above, those events will not be included, and this report will focus solely on tornado events.

Historically, from 1/1950-2/2019, there are 12 tornado events recorded. These have totaled an estimated \$2,352,500 in property damages. There have been no deaths, and only 4 injuries associated with tornado activity. Looking at the recent events only, those since 2008, there have been 3 tornado events. These events have resulted in an estimated \$500,000 in property damages. For further details on the NWS recordkeeping process, history, and definitions please refer to the

August 24, 2011

The first confirmed tornado in Geauga County since 1996 occurred on 8/24/2011 west of Chesterland. An EF1 tornado touched down west of Chesterland just to the north of the intersection of U.S. Route 322 and Caves Road. The tornado then traveled east southeast through Chesterland and finally lifted north of the intersection of Sperry and Cedar Roads. The damage path was nearly three miles in length and up to 50 yards in width. Dozens of trees were downed along the damage path. Some homes and businesses in Chesterland sustained roof and siding damage. Many windows were also blown out. This tornado caused approximately \$300,000 in damages; there were nine additional tornadoes prior to 2011.

May 28, 1995

The May 1995 Tornado Outbreak Sequence was a series of tornado events that occurred from May 6 through May 27, 1995. Thirteen deaths occurred due to the outbreak. Nearly 300 tornadoes (six ranked up to F4) occurred during this period from the Central US through the Southeast and into the Mid-Atlantic. Within Geauga County a F2 tornado touched down on May 28, 1995 in Middlefield, Ohio. The F2 tornado caused \$500,000 to \$5 million dollars in damages and had no fatalities.

July 12, 1992

The 28 tornadoes that occurred in Ohio on Sunday, July 12, 1992, went into the record books as the most recorded in a single day. Fortunately, summer tornadoes tend to be weaker than spring storms and none of the 44 tornadoes during July 1992 were violent. This contributed to the absence of fatalities and only 36 injuries from the record number of tornadoes. The Tornado History Project website indicates that a F1 tornado hit Geauga County causing an estimated \$5-\$50,000 in damages.

4.6.4 Probability

NOAA has recorded 12 historical occurrences of tornadoes, specifically 3 events since 2008. This shows a historical trend of 0.18 tornados each year that average \$196,041 in property damages per event. Since 2008, the trend has been 0.3 serious tornado events per year that average \$166,667 in property damages per event. Even though the increase in event frequency recent years is much higher than the historical records, a 67% increase, this is in part due to better record

keeping by NOAA. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation*. The estimated damage per event has decreased by 18% compared to the historical average, which could be a reflection to better building standards and location affected by the tornado. Based on this information, it can be reasonably concluded that there is a 100% probability that Geauga County will experience severe storms each year. Based on this historical information, it can be reasonably concluded that there is an 18% probability that Geauga County will experience a tornado event each year, but the ten year trend would provide a probability of 30%.

4.6.5 Vulnerability Assessment

Since tornadoes are random in nature, no one area of the County is more susceptible to infrastructure damage than another area. As would be the nature of a tornado, the location of the tornado will largely impact the location of the damage. Since the occurrence of tornadoes is low, the effect on the infrastructure will also be low with only a few houses or businesses needing repairs. The overall population impact within the County is relatively low. Several homes may need repair, but typically homeowners will have insurance to cover these expenses and will not suffer any long term financial hardship. The populations located in mobile home parks and campgrounds should take particular care to seek adequate permanent shelter with approaching severe weather.

With the exception of the 1995 tornado that struck the Village of Middlefield, the County has not suffered significant property damage due to tornadoes. Therefore, there is a low impact relative to property damage. Because the number of tornadoes that have affected Geauga County is small, the potential for death and injury is low. As the population of the County continues to grow, as forecasted by the 2010 Census, there is more potential for loss of life and/or injury. However, the frequency of tornadoes in the County is such that even with a growing population, the potential for death or injury will still be relatively low.

Due to the infrequency of tornado events in Geauga County, the overall impact on the economy is very low.

Fujita Scale		Examples of Possible Damage	Enhanced Fujita Scale	
F Number	3-Second Gust (mph)		EF Number	3-Second Gust (mph)
0	45-78	Light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.	0	65-85
1	79-117	Moderate damage. Surface peeled off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads.	1	86-110
2	118-161	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.	2	111-135
3	162-209	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.	3	136-165
4	210-261	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	4	166-200
5	262-317	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100-yards; trees debarked; incredible phenomena will occur.	5	Over 200

Source: <http://www.spc.noaa.gov/faq/tornado/ef-scale.html>

Figure 5 (Left)
Examples of Possible Damage, Fujita Scale, and Enhanced Fujita Scale from the Ohio EMA hazard Mitigation

Probability of Future Tornado Events							
Year	F0	F1	F2	F3	F4	F5	Total
2013	20	14	3	0	0	0	37
2014	16	4	0	1	0	0	21
2015	5	2	0	0	0	0	7
2016	14	7	3	0	0	0	24
2017	13	11	2	0	0	0	26
Total	385	459	209	63	33	9	1158

Table 2.3.b - Source - NOAA Storm Database

Table 3: Estimated Vulnerability Assessment (2019 USD)		
Structure Type	Structures at Risk	Damage in Dollars
Residential	1252	\$29,515,362
Non-Residential	288	\$41,592,192
Critical Facilities	69	\$3,980,102
Total	1609	\$75,087,657

Figure 6 (Above)
Number Tornadoes in Ohio from the Ohio EMA hazard Mitigation Plan 2019. Table displays last five years and totals since 1951.

Table 3 (Left)
Estimated Vulnerability Assessment



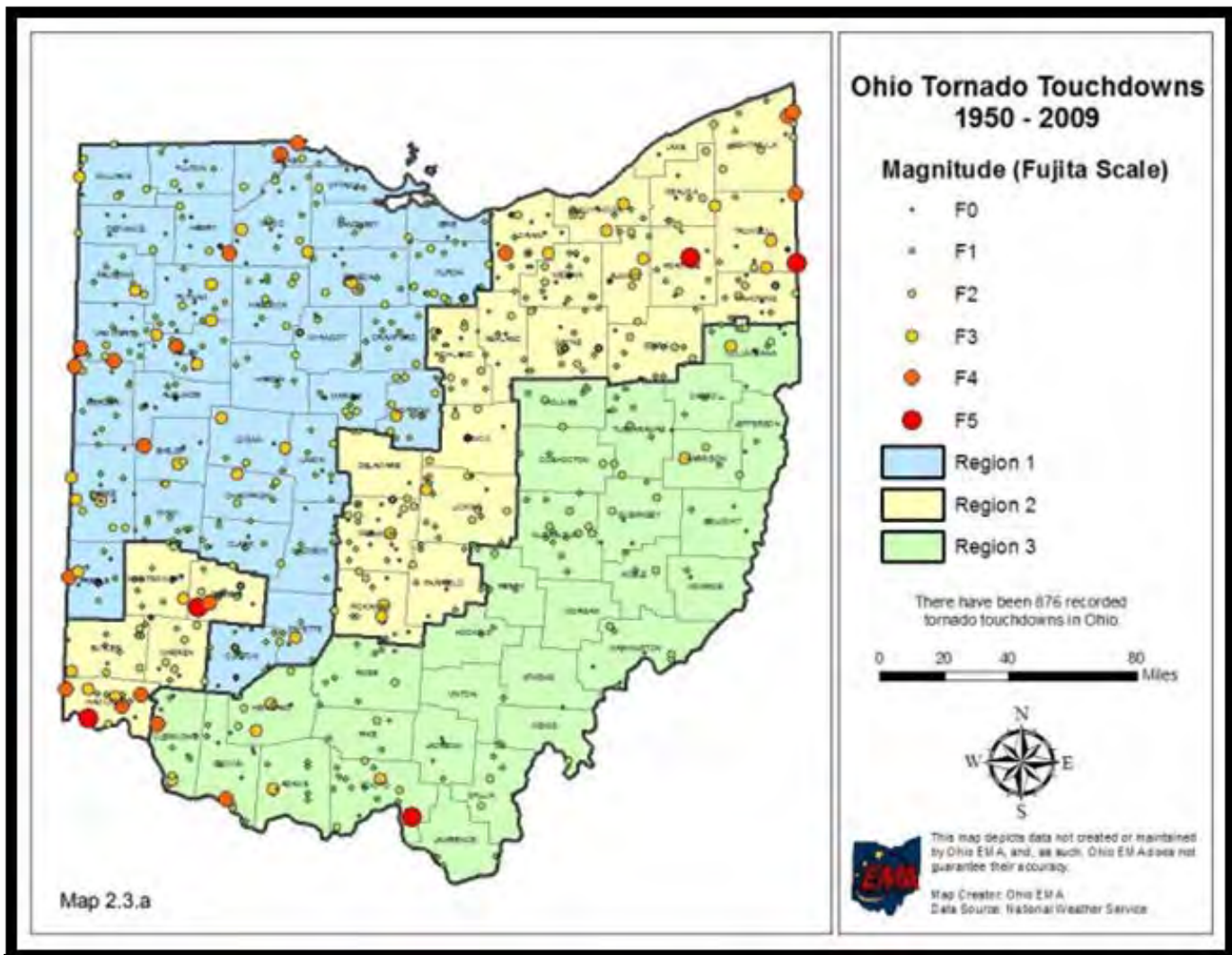
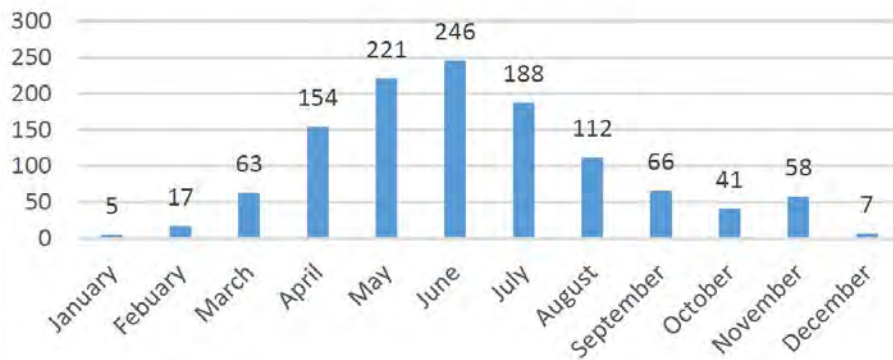


Table 2.3.c - Frequency of Ohio Tornadoes by Month, 1950 - 2017



Graph 2.3.a – Source NOAA Storm Database

Figure 7 (Above) *Ohio Tornado Touchdowns 1950-2009* from the Ohio EMA hazard Mitigation Plan 2011.

Figure 8 (Left) *Frequency of Ohio Tornadoes by Month, 1950-2017* from the Ohio Hazard Mitigation Plan 2019.

4.7 Floods (Flash, 25yr, 100yr)

A flood is an overflow of water that submerges land which is normally dry. Flooding may occur as an overflow of water from water bodies, such as a river or lake, in which the water overtops or breaks levees, resulting in some of that water escaping its usual boundaries, or it may occur due to an accumulation of rainwater on saturated ground in an aerial flood. While the size of a lake or other body of water will vary with seasonal changes in precipitation and snow melt, these changes in size are unlikely to be considered significant unless they flood property or drown domestic animals.

Floods can also occur in rivers when the flow rate exceeds the capacity of the river channel, particularly at bends or meanders in the waterway. Floods often cause damage to homes and businesses if they are in the natural flood plains of rivers. While river flood damage can be eliminated by moving away from rivers and other bodies of water, people have traditionally lived and worked by rivers because the land is usually flat and fertile and because rivers provide easy travel and access to commerce and industry

Some floods develop slowly, while others such as flash floods can develop in just a few minutes and without visible signs of rain. Additionally, floods can be local, impacting a neighborhood or community, or very large, affective entire river basins.

4.7.1 *Location*

Within in Geauga County there are four major watersheds; the Chagrin River Basin, the Cuyahoga River Basin, the Grand River Basin, and the Mahoning river Basin. Geauga County itself, is located mostly within the Lake Erie Watershed. This means that all of the water that flows in our streams and rivers will eventually flow into Lake Erie. The only exception to this is the Mhoning River Basin. The Mahoning River flows south, into the Ohio River.

4.7.2 *Extent*

A one-hundred year flood is a flood event that has a 1% probability of occurring in any given year. The 100-year flood is also referred to as having a return period of 100-years. The 100-year flood is generally expressed as a flow rate. Based on the expected 100-year flood flow rate in a given creek, river or surface water system, the flood water level can be mapped as an area of inundation. The resulting floodplain map is referred to as the 100-year floodplain, which may figure very importantly in building permits, environmental regulations, and flood insurance.

4.7.3 *Previous Occurrences*

NOAA divides the flooding events that have occurred in Geauga County into various categories, namely: Flash Flood and Flood. Historically, from 1/1950-2/2019, there are 27 events recorded in this manner. These have totaled an estimated \$11,421,000 in property damages, and \$35,000 in crop damages. Overwhelmingly, the events are categorized as Flash Flooding. Looking at the recent events only, those since 2008, there have been 7 of these flooding events. These have totaled an estimated \$4,910,000 in property damages, and \$10,000 in crop damages. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation*.

Presidential Declaration (DR-1656) Declared July 28, 2006

Meteorologists determined that the flooding that took place in Lake, Geauga and Ashtabula was a result of a 100-year storm. Among the buildings affected was Ledgemont High School, which sustained \$52,000 worth of damages. Due to flooding there was no real way in or out of Thompson Township. Moseley Road Bridge between Clay Street and Leroy Township had buckled like an accordion, a portion of Dewey Road was underwater and a culvert on Clay Street had been badly damaged. All other roads were impassable due to flood waters. Several residents placed calls for assistance due to rising waters on their property. In all \$1.2 million dollars of damaged was recorded for Thompson Township within Geauga County. As a result of this event, Geauga County received \$440,666.82 in public assistance funds.

Countywide Flooding August 30, 2005

The remnants of Hurricane Katrina dumped locally heavy rains on portions of Northeast Ohio. The rain began during the morning hours of the 30th and tapered off after daybreak on the 31st. Rainfall totals during this period were generally 2 to 4 inches with locally heavier amounts. Much of this rain fell during the evening hours of the 30th. In Geauga County, Russell experienced high rain totals of 3.53 inches. Widespread lowland and urban flooding was reported throughout Northeast Ohio. Numerous streams and rivers left their banks forcing the closure of several roads. Geauga County estimated property damage at \$75,000.

Countywide Flooding January 1, 2005

Heavy rain and runoff from snowmelt caused widespread flooding throughout Northeast Ohio during the first half of January. January 2005 was among the

wettest January's ever. At Cleveland, 5.92 inches of precipitation was recorded making it the 3rd wettest January ever. Geauga County reported 7.47 inches at Chardon. In addition to this rain, extensive snowpack existed over Northeast Ohio at the beginning of the month. Temperatures in the upper 40s and 50s the first three days of the month caused a rapid snowmelt and brought area streams and creeks to bank full just in time for a significant winter storm on the 5th and 6th. Then, just as things began to return to normal, heavy rains fell on the area on the 11th, 12th and 13th causing conditions to once again worsen. Geauga County estimated property damage at \$250,000.

4.7.4 Probability

NOAA has recorded 27 historical occurrences of flooding, specifically 7 events since 2008. This shows a historical trend of 0.40 flood events each year that average \$423,000 in property damages, and \$1.296 in crop damages per event. Since 2008, the trend has been 0.70 flooding events per year that average \$701,429 in property damages, and \$1,429 in crop damages per event. Even though the increase in both event frequency and damages per event in recent years is much higher than the historical records, a 75% and 66% increase respectively; this could be in part due to better record keeping by NOAA. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation*. Based on this historical information, it can be reasonably concluded that there is a 40% probability that Geauga County will experience a flood event each year, but the ten year trend would provide a probability of 70%.

4.7.5 Vulnerability Assessment

Methodology: Hazard US – Multi Hazard (HAZUS-MH) flood vulnerability assessment with a level 2 analysis done by the U.S. Army Corps of Engineers, in 2015 USD. See table 4 and 5 below.

NFIP Compliance and Floodplain Regulation

Mapping: The County underwent the floodplain map modernization process with FEMA and the Ohio Department of Natural Resources. This process began with a scoping meeting on September 6, 2006 with preliminary maps released on September 17, 2007 and an Open House conducted on January 28, 2008. The appeals and comment period was open on February 19, 2008 and closed on March 20, 2008. The Letter of Final Determination was issued on December 16, 2008. New floodplain maps were adopted by the county and became effective on June 16, 2009.

Floodplain Regulation: The Geauga County Building Department keeps the county's Special Purpose Flood Damage Reduction Regulations. This regulation appoints a county Floodplain Administrator and specifies this position's duties and responsibilities. Some of the duties include, but are limited to routine monitoring of the floodplain, enforcing regulations and providing community assistance such as encouragement for owners to maintain flood insurance.

Repetitive Loss Properties: According to Federal databases, there are a total of 5 residential properties with 33 losses totaling \$837,200.18 and 0 non-residential properties. One residential property in unincorporated Geauga County is a Severe Repetitive Loss (SRL) property.

<i>Table 4: 25-Year Return Period Scenario (2015 USD)</i>		
Building Losses	Content Losses	Inventory Losses
\$7,420,417.86	\$6,935,977.74	\$4,118,146.43

<i>Table 5: 100-Year Return Period Scenario (2015 USD)</i>		
Building Losses	Content Losses	Inventory Losses
\$9,189,506.70	\$8,816,607.97	\$5,141,046.80

Table 4 (Above) 25-Year Flood Vulnerability Analysis by the Army Corps of Engineers

Table 5 (Above) 100-Year Flood Vulnerability Analysis by the Army Corps of Engineers

Figure 9 (Right) The four river watersheds in Geauga County: Grand (gold), Cuyahoga (red), Chagrin (green), Mahoning (dark green).

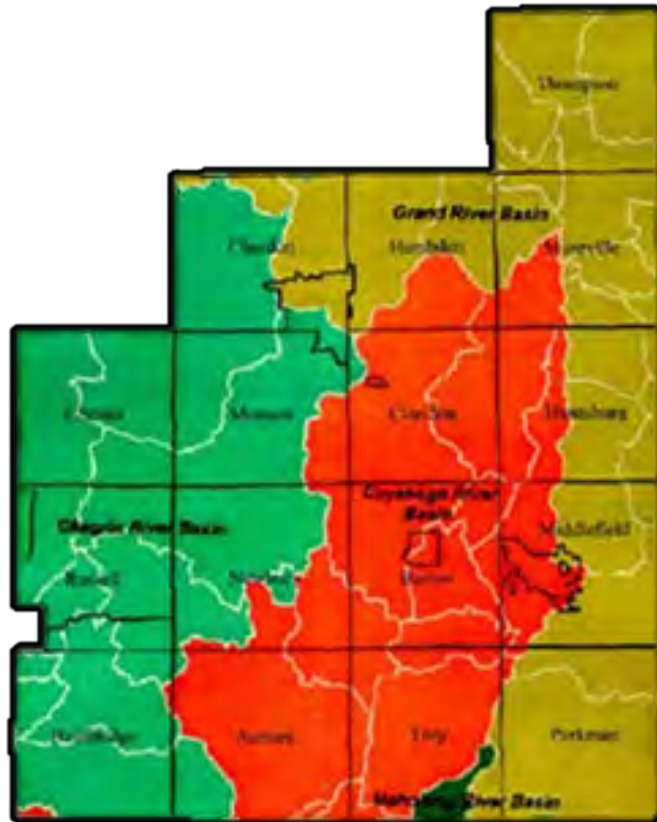


Table 6: Repetitive Loss Properties						
Community	Number	Type	Number of Losses	Building Payments	Contents Payments	Total Payments
Geauga County	4	Residential	31	\$656,921.62	\$143,300.59	\$800,222.21
	0	Non-Residential	0	N/A	N/A	N/A
Village of South Russell	1	Residential	2	\$23,784.02	\$13,193.95	\$36,977.97
		Non-Residential	0	N/A	N/A	N/A
County and Jurisdictional Totals	5	Residential	33	\$680,705.64	\$156,494.54	\$837,200.18
	0	Non-Residential	0	\$0.00	\$0.00	\$0.00
There is one Severe Repetitive Loss (SRL) property in Unincorporated Geauga County						

Table 6 (Above) *Repetitive Loss Properties*

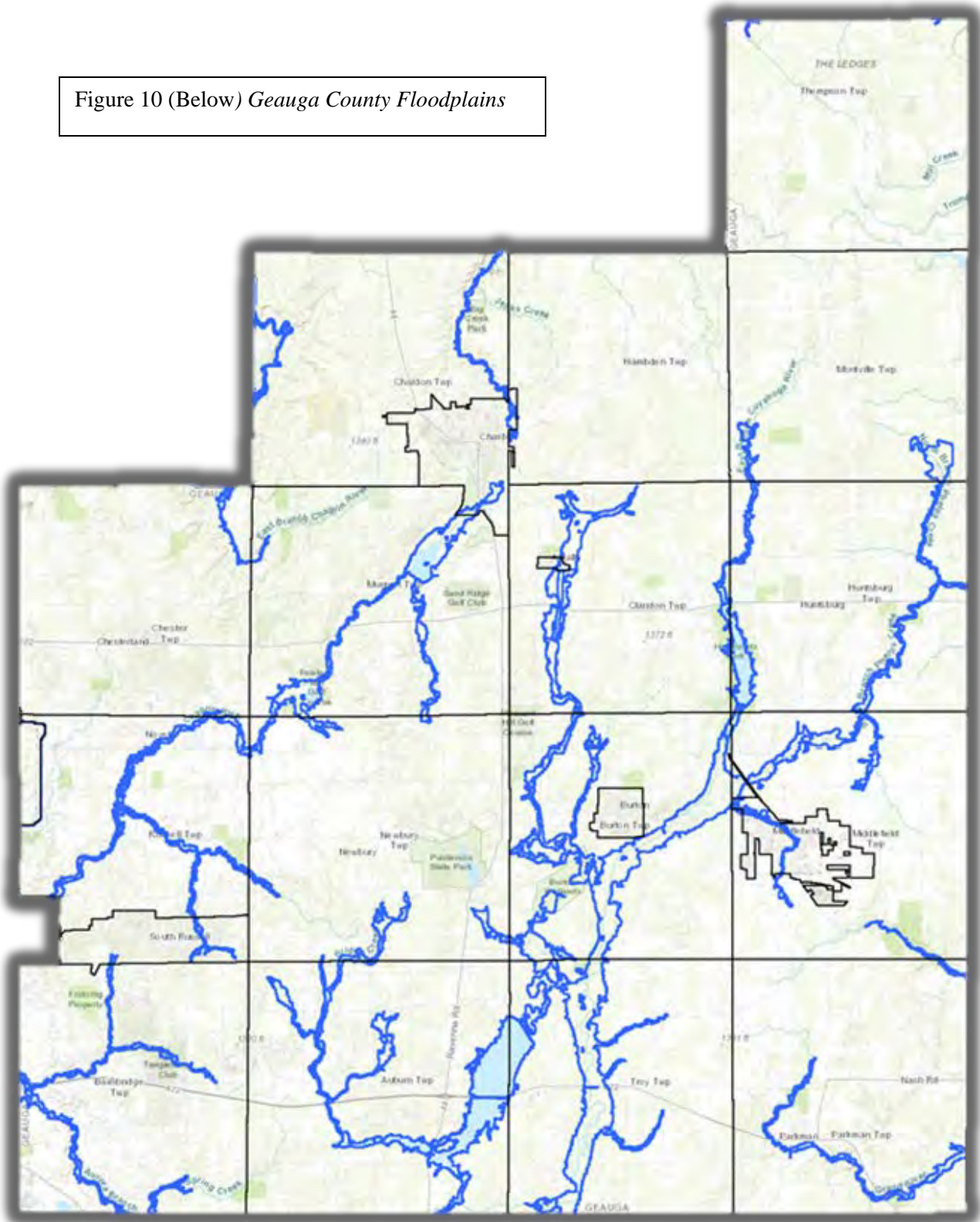
Table 7: Participation in the National Flood Program					
CID	Name	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg Emer Date
390190	Geauga County	12/9/1977	11/14/1988	6/16/2009	11/4/1988
390191	City of Chardon	1/9/1974	1/4/1985	6/16/09 (M)	1/4/1985
390739	Village of Aquilla	4/18/1974	12/7/1984	6/16/09(M)	12/7/1984
390192	Village of Middlefield	3/22/1974	9/30/1988	6/16/2009	9/30/1988
390740	Village of South Russell	7/11/1975	6/16/2009	6/16/2009	6/16/2009
Note: (M) – No elevation Determined. All zones A, C, and X					

Table 8: Sanctioned Community in NFIP					
CID	Name	Init FHBM	Init FIRM	Curr map Date	Sanction date
390594	Village of Hunting Valley	11/30/74	1/05/78	12/03/10	02/23/78 suspended
390693	Village of Burton		6/16/2009	6/16/2009	6/16/2010

Table 7 (Above) *Participation in National Flood Insurance program*

Table 8 (Above) *Sanctioned Community in NFIP*

Figure 10 (Below) *Geauga County Floodplains*



4.8 Earthquakes

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

Earthquakes are one of nature's most damaging hazards and are more widespread than is often realized. The area of greatest seismic activity in the United States is along the Pacific Coast in the States of California and Alaska; however, as many as 40 states can be characterized as having a moderate earthquake risk. Although most people do not think of Ohio as an earthquake-prone state, at least 170 earthquakes with epicenters in Ohio have been felt since 1776, with at least 10 occurring in southeastern Ohio.

4.8.1 *Location*

Earthquakes are a county-wide hazard that can affect all areas and jurisdictions.

4.8.2 *Extent*

Earthquake intensity is typically measured based on the Modified Mercalli Intensity (MMI) Scale, (see Figure 9 below). According to the USGS, Geauga County is classified as an MMI IV, which means that in the event of an earthquake, it will be felt indoors by many; outdoors by a few; at night, some individuals might awaken; dishes, windows and doors may be distributed; and standing autos will rock. Areas rated as MMI IV are not likely to experience structural damage or loss of life during an earthquake event.

A lack of noticeable earthquake activity in Geauga County can be partly attributed to the Peak Ground Acceleration (PGA). PGA is defined as how much the ground shakes during a seismic event. PGA is partly determined by what soils and bedrock are present in the area. In Geauga County, the PGA is relatively low, being on the border area of 2 to 3. According to the Ohio Department of Natural Resources Ohio Seismic Network, this is interpreted as having the possibility of 2 to 3 percent of gravity's acceleration listed as 2g. These numbers are denoted as 0.02 and 0.03 respectively. As noted by the Ohio Seismic Network, when the peak acceleration nears 0.2g, you would feel the earthquake noticeably indoors, especially on upper floors of buildings, but not always recognized as earthquake; standing autos may rock slightly; vibrations like a passing truck. While acceleration nearing 0.3g, during the day, felt indoors by many, outdoors by few; at night, some awakened; dishes, windows, doors

disturbed; walls make creaking sound; sensation like heavy truck hitting building; standing autos rock noticeably.

4.8.3 Previous Occurrences

Historically, earthquake activity has been isolated and virtually non-existent in Geauga County. According to the ODNR Epicenters in Ohio Map (Figure 10 below), a 2.8 magnitude earthquake was reported in Hambden in 1988, a 2.0 magnitude earthquake was reported in Thompson in 1991, a, and a 2.0 magnitude earthquake was reported in Thompson in 2018.

Earthquake event June 30, 2003

At 3.21 p.m., a seismic event occurred near Painesville, Ohio. The event measured 3.4 on the Richter scale. The Department of Natural Resources Geologic Survey, Seismic Monitoring Center reports that a seismic event of 3.4 is considered minor, and that there were felt reports in Ashtabula and Lake Counties. An Unusual Event was reported at the Perry Nuclear Power Plant.

Earthquake event on September 25, 1998

An earthquake was reported 10 miles north of Sharon PA at approximately 1545 to 1600 hrs. on September 25, 1998. The earthquake measured 5.2 on the Richter scale. No reported emergency system problems and no damage were reported in Geauga County.

Earthquake event on January 31, 1986 - 4:46 p.m. - Magnitude: 5.0

This historic earthquake caused minor property damage in several towns in northeast Ohio and northwest Pennsylvania; 17 people were injured in the epicentral area.

Most of the damage to houses and commercial buildings occurred in Ashtabula, Geauga, Lake, Trumbull, and Wood Counties in Ohio and Crawford and Erie Counties in Pennsylvania. It mainly included fallen ceilings and plaster; cracked chimneys, foundations, and brick walls; and broken windows and underground pipes. Changes in the flow of water were observed in more than a dozen wells in Lake and Geauga Counties, east of Cleveland. The changes included variations (starting, stopping) in the flow of water and sediment deposits in water. In Leroy Township, a small pond was formed from the flow of a new artesian well. Another artesian well suddenly began feeding water to an old water trough.

Over the next 2 months, 13 aftershocks of magnitude 0.5 to 2.4 were recorded on the area, and 13 more aftershocks of about magnitude 1.0 were detected through April 15, 1987. The main earthquake was felt over a large area of the Eastern United States, covering all or parts of eight States (Illinois, Indiana, Kentucky, Michigan, New York, Ohio, Pennsylvania, West Virginia) and Ontario, Canada. It also was reported by people on the top floors of multistory buildings in Delaware, Maryland, New Jersey, Virginia, and Wisconsin, as well as Washington, D.C.

4.8.4 Probability

There have been 8 earthquakes have been reported in the area in the last 71 years. Based on this historical information, it can be reasonably concluded that there is an 11.27% probability that Geauga County will experience an earthquake event each year.

4.8.5 Vulnerability Assessment

Loss estimates were calculated by HAZUS MH (2018) based on a 5 magnitude earthquake, with the City of Chardon as the epicenter.

Building Damages

HAZUS MH estimates that about 5,405 building will be at least moderately damaged. There are an estimated 308 buildings that will be damaged beyond repair. Table 9 below summarizes the expected building damage by occupancy.

Fire and Debris Generation

Fires often occur after an earthquake. HAZUS MH estimates that there will be 0 ignitions that would burn about 0 sq. miles or 0% of the total land area for the County. The model estimates that fires would displace approximately 0 people.

HAZUS also estimates the amount of debris that would be generated by an earthquake. The model estimates that a total of 216 million tons of debris will be generated, requiring approximately 8,640 truckloads (at 25 tons/truck) for removal.

Shelter Requirements and Casualties

HAZUS estimates that the number of households expected to be displaced in the event of an earthquake and the number of displaced people that will require accommodation in temporary public shelters. The model estimates a total of 292

households, of which 156 will seek temporary accommodations in public shelters.

HAZUS estimates the number of people that will be injured or killed by an earthquake. Casualties are broken down into 4 severity categories, as follows:

*Severity Level 1 –injuries that will require medical attention but hospitalization is not required.

*Severity Level 2 – injuries will require hospitalization but are not considered life-threatening

*Severity Level 3 – injuries will require hospitalization and can become life-threatening if not treated promptly

*Severity Level 4 – victims are killed by earthquake.

Casualty estimates are given for 3 times of day: 2 AM, 2 PM and 5PM. These times represent periods of day that different sectors of the community are at their peak occupancy loads. The 2 AM estimate considers the residential occupancy of the community, the 2 PM estimates considers the educational, commercial and industrial sectors and the 5 PM represents the peak commute time. Table 10 below, summarizes the estimated total casualties for an earthquake event in Geauga County, which represents the worst case scenario.

Economic and Building Related Losses

HAZUS MH estimates that the total economic loss for the County due to an earthquake is \$1,246.09 million dollars. This includes building and lifetime related losses based on regional inventory.

HAZUS MH also estimates building losses based on direct building loss and business interruption. Table 11 below summarizes these losses. (Millions of dollars)

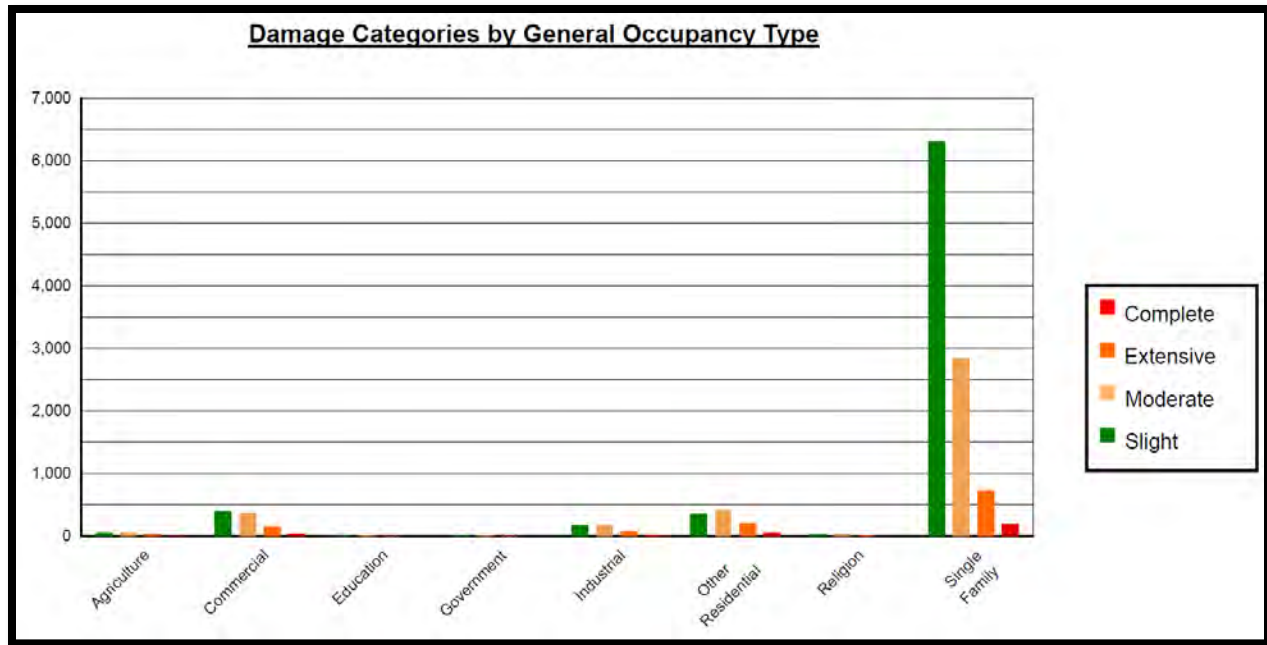


Table 10: HAZUS MH estimates

	Level 1	Level 2	Level 3	Level 4
Total (2am)	153	32	4	8
Total (2pm)	236	53	7	13
Total (5pm)	163	37	6	9

Table 9 (Above) *Estimated Building Damage by Occupancy*

Table 10 (Left) *Estimated Total Casualties*

Table 11 (Below) *Estimated Economic Loss*

Table 11: HAZUS MH estimate

	Income Losses	Capital Stock Losses	Total
Total (millions)	133.9993	815.66	949.6593

Richter Magnitude Scale (M)	Modified Mercalli Intensity Scale (MMI)	Magnitude/Intensity felt near an earthquake epicenter
1.0- 1.9	I	An M=1 is roughly equivalent to a quarry blast and can be generated by non-earthquake related events (such as a rock fall). Earthquakes of this intensity are generally not felt.
2.0-2.9	II	Felt by only a few people at rest, especially on the upper floors of buildings.
3.0-3.9	III	Felt noticeably by people indoors or on upper floors of buildings, but may not be recognized as an earthquake (similar to shaking by a passing truck, typically very short in duration).
4.0-4.9	IV-V	Felt noticeably by people both indoors and outdoors. Will wake some sleeping people. Walls will make cracking noises, and dishes, doors, and windows will rattle or move. Motor vehicles will rock noticeably. MMI=5 will cause unstable objects to fall or overturn; pendulum clocks may stop.
5	VI-VII	An M=5 earthquake is roughly equivalent to the force of a 10 kiloton nuclear blast (like Hiroshima). Earthquakes of this magnitude are felt by practically everyone. Damage is negligible in well-constructed buildings. Plaster may crack and fall; some chimneys may be broken.
6	VII-IX	Damage negligible in well-designed buildings. Slight to great damage to buildings and infrastructure of poor design.
7	VIII and higher	Well designed buildings may experience some damage. Building and bridges may shift off their foundations or partially collapse.
8	X and higher	Wooden building may be destroyed. Few masonry structures remain standing. Bridges destroyed; rail lines are bent.
9	XII	Damage total. The ground is distorted. Objects are thrown into the air.

Figure 11 (Above) *Richter and Modified Mercalli Intensity Scales*

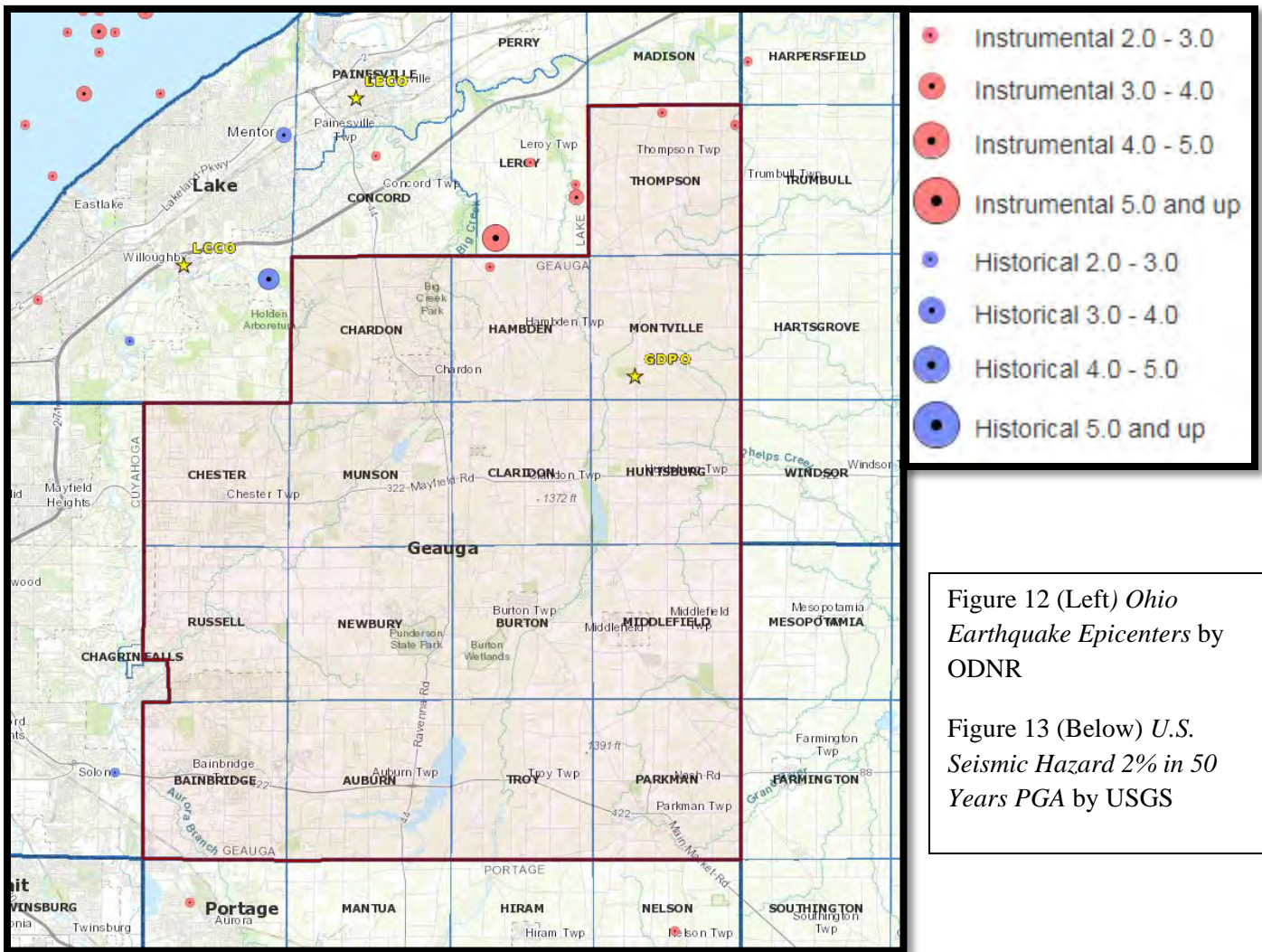
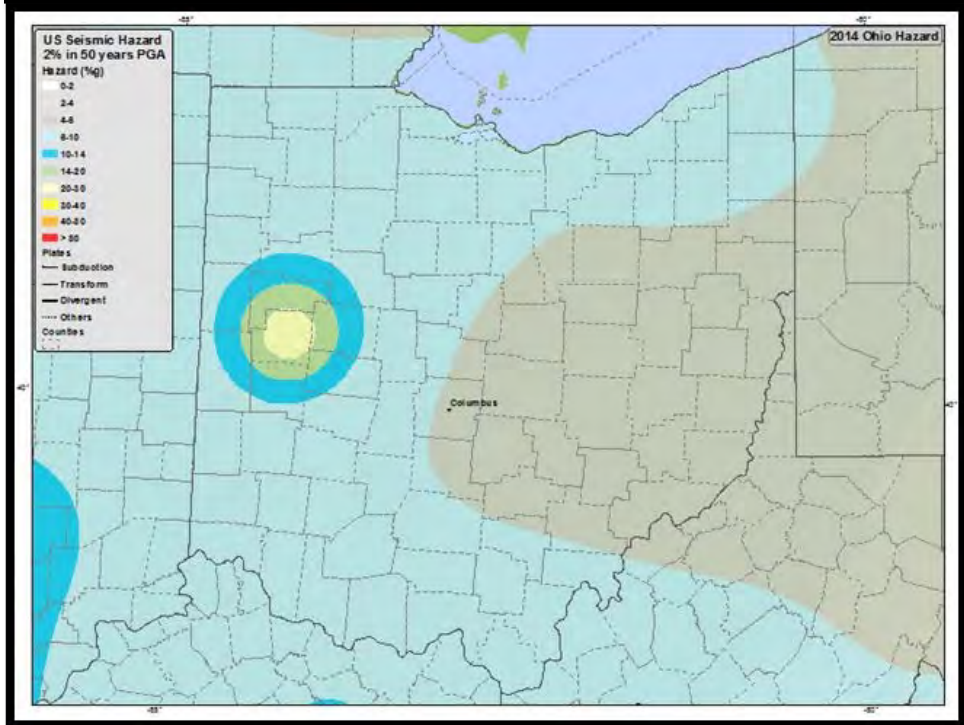


Figure 12 (Left) *Ohio Earthquake Epicenters by ODNR*

Figure 13 (Below) *U.S. Seismic Hazard 2% in 50 Years PGA by USGS*



4.9 Dam Failure

Dams are man-made structures designed to obstruct or restrain waters that may cause flooding downstream. These structures are generally made with concrete or earthen material. The failure of these dams, although a man-made structure, would result in a natural event of flooding. A dam failure occurs when the barrier constructed across a waterway fails or otherwise does not obstruct or retain the flow of water, which can rapidly result in a large area of completely inundated land. Dams are classified by two conditions, height and storage. Dams are classified as Class 1 thru 4 based on the combination of height and storage. Class 1 dams provide the highest potential for significant loss of life and structural damage to high value properties, including, residential, industrial and public utilities in the event of failure. According to the Ohio Department of Natural Resources (ODNR), Class 1 dams are identified as “*dams having a total storage volume greater than five thousand acre-feet or a height of greater than sixty feet shall be placed in class 1. A dam shall be placed in class 1 when sudden failure of the dam would result in one of the following conditions: (a) Probable loss of human life and (b) Structural collapse of at least one residence or one commercial or industrial business.*”

4.9.1 Location

According to ODNR, Geauga County has 123 dams within its boundaries. The number of dams and their classifications are as follows:

Class I – (9) Class II – (10) Class III – (12) Class IV – (24)

In addition, Geauga County has 7 abandoned dams, two unclassified dams and 58 exempt dams, which have been determined by the ODNR’s Chief of the Division of Water to not constitute a hazard to life, health or property in the event of a failure. (See Figure 12 below).

4.9.2 Extent

According to Ohio Administrative Code Rule 1501:21-13-01, dams are classified as follows:

Class I: Dams having a total storage volume greater than five thousand acre-feet or a height of greater than sixty feet shall be placed in class I. A dam shall be placed in class I when sudden failure of the dam would result in one of the following conditions.

- (a) Probable loss of human life.

(b) Structural collapse of at least one residence or one commercial or industrial business.

Class II: Dams having a total storage volume greater than five hundred acre-feet or a height of greater than forty feet shall be placed in class II. A dam shall be placed in class II when sudden failure of the dam would result in at least one of the following conditions, but loss of human life is not probable.

(a) Disruption of a public water supply or wastewater treatment facility, release of health hazardous industrial or commercial waste, or other health hazards.

(b) Flooding of residential, commercial, industrial, or publicly owned structures.

(c) Flooding of high-value property.

(d) 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 correctional facilities as determined by the chief.

(e) Damage or disruption to railroads or public utilities.

(f) Damage to downstream class I, II or III dams or levees, or other dams or levees of high value. Damage to dams or levees can include, but is not limited to, overtopping of the structure.

Class III: Dams having a total storage volume greater than fifty acre-feet or a height of greater than twenty-five feet shall be placed in class III. A dam shall be placed in class III when sudden failure of the dam would result in at least one of the following conditions, but loss of human life is not probable.

(a) Property losses including but not limited to rural buildings not otherwise described in paragraph (A) of this rule, and class IV dams and levees not otherwise listed as high-value property in paragraph (A) of 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.

(b) Damage or disruption to local roads including but not limited to roads not otherwise listed as major roads in paragraph (A) of this rule.

Class IV: Dams which are twenty-five feet or less in height and have a total storage volume of fifty acre-feet or less may be placed in class IV. When sudden failure of the dam would result in property losses restricted mainly to the dam and rural lands, and loss of human life is not probable, the dam may be placed in class IV. Class IV dams are exempt from the permit requirements of section 1521.06 of the Revised Code pursuant to paragraph (C) of rule 1501:21-19-01 of the Administrative Code

(See Table 11 Below for a list of Class I and II dams)

4.9.3 Previous Occurrences

There are no documented dam failures in Geauga County. However, according to the Stanford University National Performance of Dams Program, there have been three incidents (See Table 12 below).

4.9.4 Probability

Based on historical information and the current assessment of each dam structure, there is a less than 1 percent chance in any given year of a dam failure occurring in the County.

4.9.5 Vulnerability Assessment

Gauga County has 9 dams that if there was a failure there would probably be a loss of life. There are 10 dams within the boundaries of Geauga County that if a failure occurred there would be potential health hazard, flooding and water damage to homes, businesses, and state and interstate highways. In addition, Geauga County has 12 dams that if failure occurred there would be low damage to non-residential structures and local roads. Geauga County also has 24 dams that if there was a failure there would be almost no damage with only losses restricted to the dam itself.

Table 12 : Class I and II Dams within Geauga County		
Location	Name	Approved EAP
Class I Dam		
Huntsburg	East Branch Reservoir Dam	Approved
Chardon	Loecy Pond Dam	Not Approved
Auburn	Bridge Creek Dam	Approved
Bainbridge	Lake-in-the-Woods Dam	Not Approved
Bainbridge	Lake Lucerne Dam	Not Approved
Bainbridge	Tanglewood Lake Dam	Not Approved
Chester	Shadow Hill Lake Dam	Not Approved
Montville	Mont-Mere Lake Dam	Approved
Parkman	Schloss Pond Dam	Not Approved
Class II Dam		
Russell	Lake Louise Dam	Not Approved
Parkman	Shangi-La Ski Club Lake Dam	Not Approved
Burton	Giel Lake Dam	Not Approved
Parkman	Brown Lake Dam	Approved
Burton	Harvey Lake Dam	Not Approved
Munson	Fowlers Mill Golf Course Upground	Not Approved
Russell	Hidden Lakes Dam	Not Approved
Russell	Bellwood Lake Dam	Not Approved
Hambden	Kittredge Arboretum Lake Dam	Not Approved
Montville	Bella Luna Lake Dam No. 1	Not Approved

Table 13: Stanford University National Performance of Dams for Geauga County			
Date	Structure	NID Number	Incident
8/22/1995	Schloss Pond Dam	OH01005	Inadequate spillway capacity
8/12/1999	Cardinal Lake Dam	OH01000	Inadequate spillway capacity
8/22/2000	Silver Lake Dam	OH01628	Deterioration

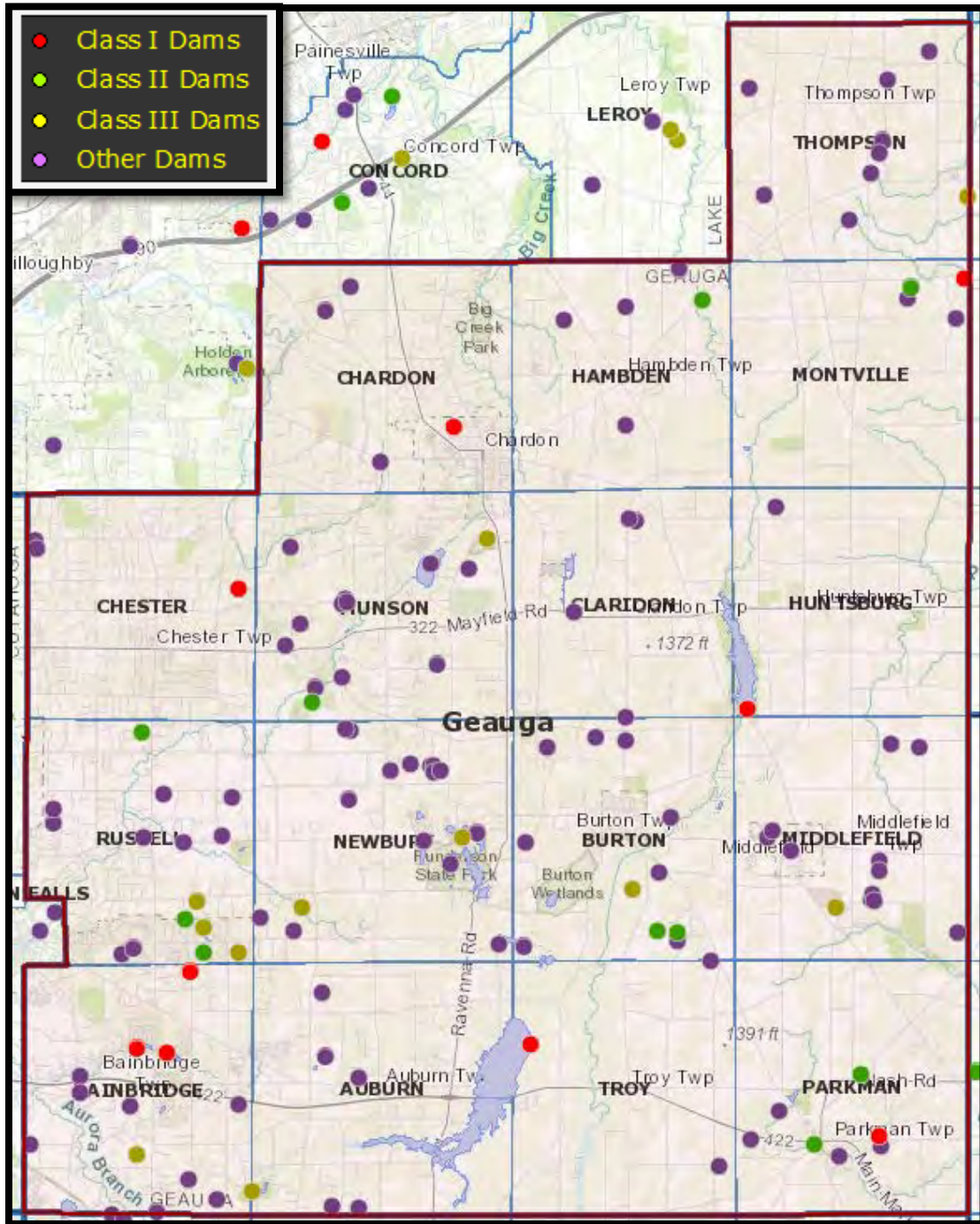
Table 12 (Above) *Class I and II Dams within Geauga County*

Table 13 (Left) *Stanford University national Performance of Dams for Geauga County*

Table 14: Estimated Vulnerability Assessment (2019 USD)		
Structure Type	Structures at Risk	Damage in Dollars
Residential	876	\$30,145,876
Non-Residential	553	\$52,992,895
Critical Facilities	133	\$18,195,999
Total	1562	\$101,334,771

Table 14 (Left)
Estimated Vulnerability Assessment

Figure 14 (Below)
Dams in Geauga County by ODNR



4.10 Disease Epidemic

An Epidemic is an outbreak of a disease that spreads quickly over a large population at one time, disproportionately to what quantity or frequency of occurrences of the disease might be expected in the region. A disease can be spread by contaminated food and water (Polio, Cholera), animals (Typhus, Malaria, Yellow Fever, Bubonic Plague), or by humans (AIDS, Smallpox, Influenza, Tuberculosis, Ebola, Measles, Mumps, Pneumonia). If the disease epidemic spreads to other regions around the world, the status is then elevated to a pandemic.

4.10.1 Location

A Disease Epidemic is a county-wide hazard that could affect all areas and jurisdictions.

4.10.2 Extent

Some diseases are not as common today as they have been historically. Some diseases are only common regionally in certain parts of the world. However, with modern forms of transportation, any part of the world could be at risk for a disease epidemic, even Geauga County.

4.10.3 Previous Occurrences

Historically, per Geauga Public Health, there have not been any disease epidemics in the county. This is not to say that there have not been cases of infectious diseases, such as influenza, but there have been no unexpected or unnatural occurrences of an outbreak in a short period of time in our region that would rise to the level of concern of an epidemic. However, there are occasionally rising cases of concern in the country that Geauga Public Health, as well as the Geauga County Department of Emergency Services, carefully monitors when cases arise, such as the “Swine Flu” H1N1 in 2009, the Ebola scare from 2014-2016 and the present rise in cases of Measles, a disease once declared eliminated in the U.S. in 2000.

4.10.4 Probability

There is always a possibility of a disease outbreak, no matter your location. However, considering the infrequency and the low vulnerability, it can be reasonably concluded that there is between a 3% to 7% probability of a disease epidemic impacting Geauga County in any given year

4.10.5 Vulnerability Assessment

There are three effects that can increase the vulnerability of an individual to a disease: exposure, susceptibility, and access to care. Exposure risks can include working, living in a more urbanized area, living in close proximity to other individuals (apartments, large families), difficulty in taking off of work or working remotely when needed, difficulty in avoiding public transportation, difficulty in having children avoid densely populated areas (schools, daycare). Susceptibility risks include chronic conditions like heart disease, high blood pressure, cancer, diabetes, asthma, lung disease, and a weakened immune system. Finally, Access to Care risks includes having no regular healthcare provider, no health insurance, no vaccinations, and lack of medical awareness and poor hygiene practice.

Population density, transient population, and international access are good measures to consider when considering Geauga's vulnerability as a whole. First, Geauga County has a low population density compared to its neighbors, at only 233 people per square mile. Neighboring counties: Lake (1,011), Cuyahoga (2,800), Trumbull (340), Portage (331), Ashtabula (145), Summit (1,313). Further, there are no international or regional airports in the county. Nearby major airports include: Akron-Canton Regional, Akron-Fulton, Burke Lakefront, Cleveland Hopkins International, Cuyahoga County, Willoughby Lost National Municipal, and Youngstown-Warren Regional. Geauga County Middlefield Airport is the only public airport in the county.

Besides major airports, major roadways are a good measure of population mobility and access. There are no interstate routes in Geauga County. Interstate Route 90 is just to the north, I-271 is to the west, and I-80 is to the south of the county. The largest roads in the county would be State Route 44, U.S. Route 422, and U.S. Route 322. Geauga County also has a small transient population due to only one college branch, and no major attractions or events that draw crowds like one would expect from a larger urban area such as Cleveland. The combination of population density, national and international access, small transient population, and rural resilience all decrease the risk of spreading a disease, giving Geauga County a low vulnerability to a disease epidemic.

Figure 15 (Below) *Decline in vaccine-preventable disease morbidity in the United States during the 20th century* from the CDC's Manual for the Surveillance of Vaccine-Preventable Diseases

Disease	Baseline 20th century annual morbidity	2014 reported cases	% Decrease
Smallpox	48,164*	0	100
Diphtheria	175,885†	1	>99
Pertussis	147,271‡	32971	>77
Tetanus	1,314§	25	>98
Poliomyelitis (paralytic)	16,316¶	0	100
Measles	503,282#	667	>99
Mumps	152,209**	1223	>99
Rubella	47,745††	6	>99
Congenital rubella	823 (estimated)‡‡	1	>99
<i>Haemophilus influenzae</i> type b	20,000 (estimated)§§	306 (serotype b or unknown serotype, age <5 years)	>98

* Average annual number of cases during 1900-1904.

† Average annual number of reported cases during 1920-1922, 3 years before vaccine development.

‡ Average annual number of reported cases during 1922-1925, 4 years before vaccine development.

§ Estimated number of cases based on reported number of deaths during 1922-1926 assuming a case-fatality rate of 90%.

¶ Average annual number of reported cases during 1951-1954, 4 years before vaccine licensure.

Average annual number of reported cases during 1958-1962, 5 years before vaccine licensure.

** Number of reported cases in 1968, the first year reporting began and the first year after vaccine licensure.

†† Average annual number of reported cases during 1966-1968, 3 years before vaccine licensure.

‡‡ Estimated number of cases based on seroprevalence data in the population and on the risk that women infected during a childbearing year would have a fetus with congenital rubella syndrome.

§§ Estimated number of cases from population-based surveillance studies before vaccine licensure in 1985.

4.11 Droughts and Extreme Heat

Drought occurs when there is below-average precipitation over an extended period of time, affecting hydrological and agricultural concerns. Meteorological drought is the departure of precipitation from normal causes two other drought types that negatively affect areas. Hydrological drought occurs when a below average amount of precipitation affects the water table, potentially affecting drinking water supply. Agricultural drought occurs when there is not enough soil moisture to support crop growth or good pasture conditions.

Extreme heat is defined as temperatures which hover 10 degrees or more above the average high for a region and lasts several weeks. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a dome of high atmospheric pressure traps hazy, damp air near the ground. Excessively dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation.

Extended widespread droughts and extreme heat conditions are fairly infrequent; however, brief local events are common and can be severe.

4.11.1 Location

Droughts conditions can affect all areas and jurisdictions of the County.

4.11.2 Extent

Geauga County's large agricultural sector is extremely susceptible to drought and could potentially suffer significant economic losses. According to the Drought Severity Index, Figure 15, as of January 2014, Geauga County's precipitation levels indicate extremely moist conditions on the short term index which measures the geographical pattern of moisture anomalies for the last 12 months.

4.11.3 Previous Occurrences

NOAA divides drought events that have occurred in Geauga County into various categories, namely: Excessive Heat and Drought. Historically, from 1/1950-2/2019, there are 5 events recorded in this manner. These have totaled an estimated \$2,000,000 in crop damages. The crop damages all came from one large drought that took place in 1999. Overwhelmingly, the events are categorized as Droughts. Looking at the recent events only, those since 2008, there have been 0 drought events. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service*

Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation.

2012 North American Drought

The 2012-2013 North American Drought is an expansion of the 2010-2012 United States droughts which began in the spring of 2012, when the lack of snow in the United States caused very little melt water to absorb into the soil. The drought includes most of the US and included Ohio. Among many counties, Geauga County was designated with moderate drought conditions by mid-June. It has been equaled to similar effects as droughts in the 1930s and 1950s but it has not yet been in place as long. However, the drought has inflicted, and is expected the 1988-1989 North American Drought, which is the most recent comparable drought.

On July 30, 2012, the Governor of Ohio sent a memorandum to the USDA Ohio State Executive Director requesting primary county natural disaster designations for eligible counties due to agricultural losses caused by drought and additional disasters during the 2012 crop year. The USDA reviewed the Loss Assessment Reports and determined that there were sufficient production losses in 85 counties to warrant a Secretarial disaster designation. On September 5, 2012, Geauga County was one of those designated counties.

4.11.4 Probability

NOAA has recorded 5 historical occurrences of droughts, specifically 0 events since 2008. This shows a historical trend of 0.07 drought events each year that average \$400,000 in crop damages per event. For further details on the NWS recordkeeping process, history, and definitions please refer to the *National Weather Service Instruction 10-1605 March 23, 2016 Operations and Services Performance, NWSPD 10-16 Storm data Preparation*. Based on this historical information, it can be reasonably concluded that there is a 07% probability that Geauga County will experience a drought event each year.

4.11.5 Vulnerability Assessment

Gauga County has a low risk of incurring damage from droughts and extreme heat. Due to the non-site specific nature of this hazard, the best way to deal with preparing for future events is to consider historical occurrences. Because droughts are a non-site specific hazard, the effects of a drought should be evaluated countywide. There are no documented critical facilities that are considered at-risk as it relates to droughts. By itself, a drought does not damage developed property. However, over a long period of time, certain soils can expand and contract resulting in some structural damage to buildings. A small

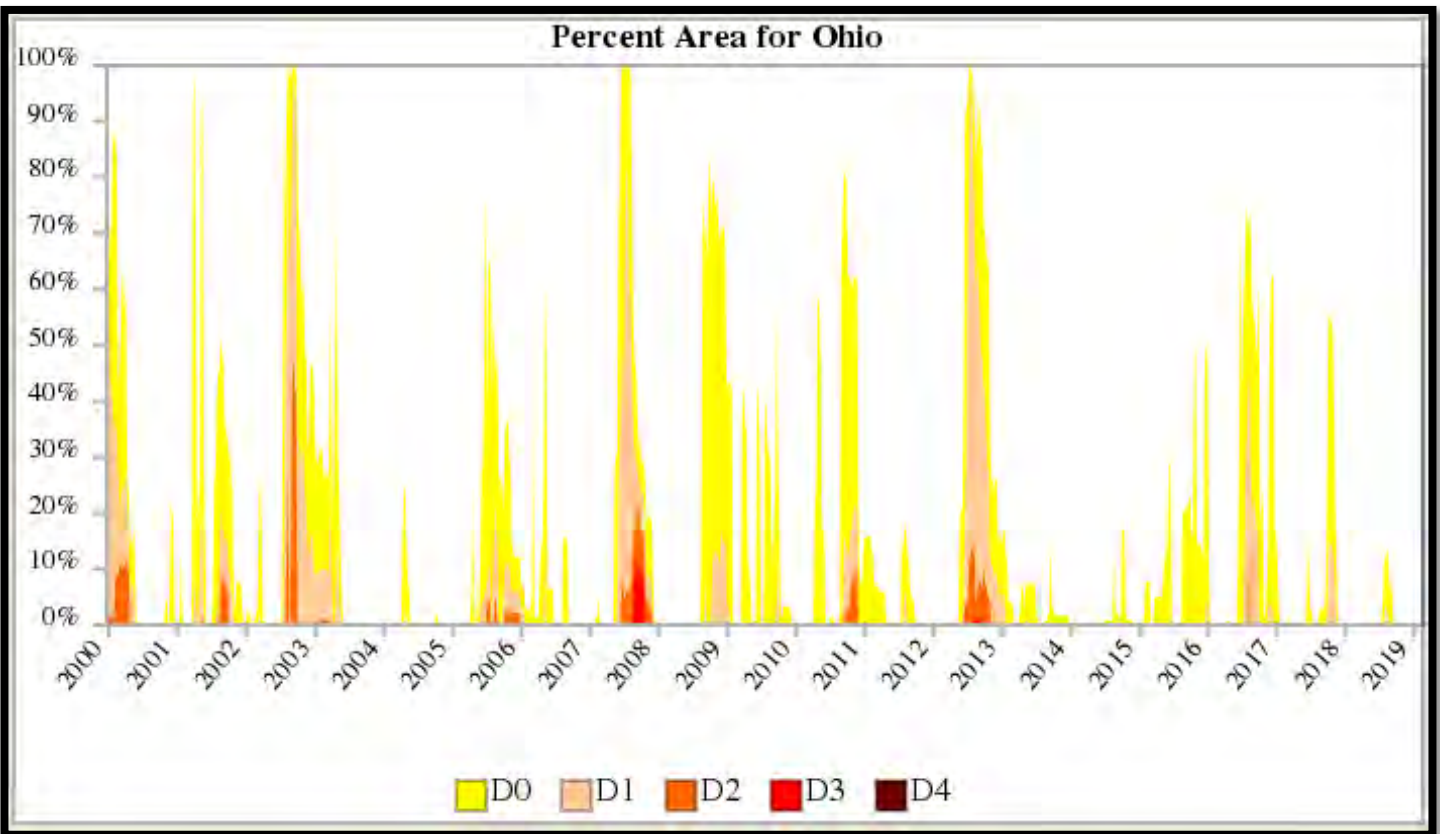
percentage of buildings in areas with such soils suffer minor damage during their “useful lives.” Therefore, the overall impact on the County’s infrastructure will be very low.


Since droughts are non-site specific, the entire County population could be affected by the hot, dry conditions. The overall impact that droughts have on the Geauga County population is very low based on the number of events recorded by the National Climatic Data Center. However, the County’s residents, especially the sensitive populations, should still be aware of the dangers of extreme heat, such as heat exhaustion and heat stroke.

With the exception of the 1999 drought, the County has not suffered significant property or crop damage due to extreme heat and drought conditions. Therefore, based on the number of occurrences, there is a low impact relative to property damage.


As the population of the County continues to grow, as forecasted by the 2010 census, there is more potential for loss of life and/or injury. However, the frequency of drought conditions in the County is such that even with a growing population, the potential for death or injury will still be relatively low.

Due to the infrequency of drought events in Geauga County, the overall impact on the economy is low. However, when droughts do occur, the economic losses would be countywide hitting the farming community the hardest.




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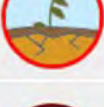
D0 - Abnormally Dry

 - Short-term dryness slowing planting, growth of crops
 - Some lingering water deficits
 - Pastures or crops not fully recovered
- 


D1 - Moderate Drought

 - Some damage to crops, pastures
 - Some water shortages developing
 - Voluntary water-use restrictions requested
- 

D2 - Severe Drought

 - Crop or pasture loss likely
 - Water shortages common
 - Water restrictions imposed
- 

D3 - Extreme Drought

 - Major crop/pasture losses
 - Widespread water shortages or restrictions
- 

D4 - Exceptional Drought

 - Exceptional and widespread crop/pasture losses
 - Shortages of water creating water emergencies

Figure 16 (Above) *Dry and Drought Conditions Percentage of Area for Ohio* by National Integrated Drought Information System

4.12 Wildfires

A wildfire is an uncontrolled fire in an area of combustible vegetation that occurs in the countryside or a wilderness area. Other names such as brush fire, bushfire, forest fire, desert fire, grass fire, hill fire, peat fire, and vegetation fire may be used to describe the same phenomenon depending on the type of vegetation being burned. A wildfire differs from other fires by its extensive size, the speed at which it can spread out from its original source, its potential to change direction unexpectedly, and its ability to jump gaps such as roads, rivers and fire breaks. Wildfires are characterized in terms of the cause of ignition, their physical properties such as speed of propagation, the combustible material present, and the effect of weather on the fire.

4.12.1. Location

Geauga County contains a great deal of forestland, with several recreational campsites and other attractions in designated areas such as Punderson State Park and Geauga County Park District. Wildfires can take place at any place throughout the county where fires could break out in an outdoor area.

4.12.2. Extent

The wild land-urban interface can be defined as the zone where structures and other human developments meet or intermingle with undeveloped lands. Topography plays a major role in how fast a wildfire spreads. Steep slopes are the greatest topographical influence on fire behavior. As the steepness of a slope increases, fires spread more quickly. A fire will spread twice as fast on a 30% slope than it will on level ground. This fast speed is due to the fact that a fire starting at the bottom of a slope has a longer upslope run with more available fuel in its path.

Heavily wooded or forested areas cover approximately 13% of Geauga County's total land base. When the conditions are right, these areas can become vulnerable to wildfires. In the last few decades, the nature and scope of Geauga County's wildfire hazard has changed dramatically due to the increase in the development of homes and businesses in and around forested areas.

4.12.3. Previous Occurrences

The State Fire Marshal for Ohio reported a total of 413 wildfires in Geauga County between 2013-2018. In total, those fires caused \$30,657 in damages. Most fires recorded in this manner are small in area and damages.

Wildfire Incident on 4/9/2013:

A tall tree on fire that apparently was struck by lightning. No injuries or major damage occurred.

Wildfire Incident on 6/30/2012:

A mulch fire around a tree on Treelawn in front of St Anselm church. There were no injuries and no major damage occurred.

4.12.4. Probability

There have been 413 wildfires reported since 2013-2018. This gives a historical trend of 68.8 fires per year, causing an average of \$74 damage per fire. Though many fires are small and do not cause much damage, there is a 100% chance of a wildfire event taking place in Geauga County every year, based on this historical information.

4.12.5. Vulnerability Assessment

Gauga County has a diverse land use from residential, commercial, agricultural, parks to privately owned wooded open spaces. This diversity poses a wildfire threat to homes, barn, commercial structures agriculture crop lands, parks and open space. Those residents living near the 13% of heavily wooded or forested areas within Geauga County are more susceptible to impacts of a wildfire. There has been no recorded information in regards to loss of life within Geauga County for a wildfire. The economic losses a community could suffer from a major wildfire could be high depending on where the fire takes place within the County. However, due to the infrequency of the fires within the County the overall impact on the economy is low.

Table 15: Estimated Vulnerability Assessment (2019 USD)		
Structure Type	Structures at Risk	Damage in Dollars
Residential	136	\$4,057,082
Non-Residential	124	\$11,849,185
Critical Facilities	13	\$431,790
Total	274	\$16,338,058

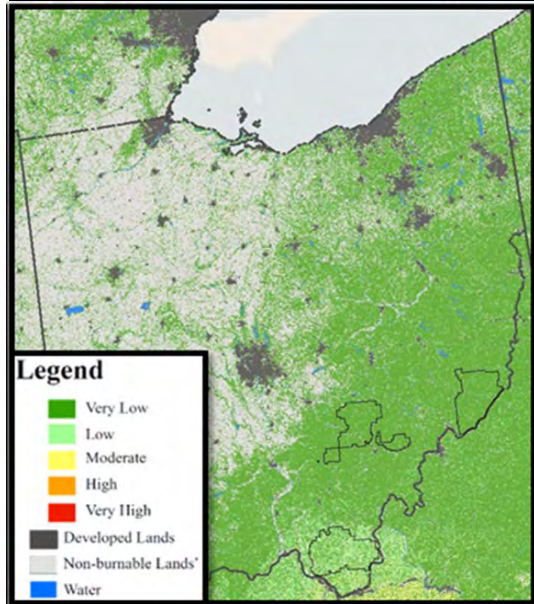
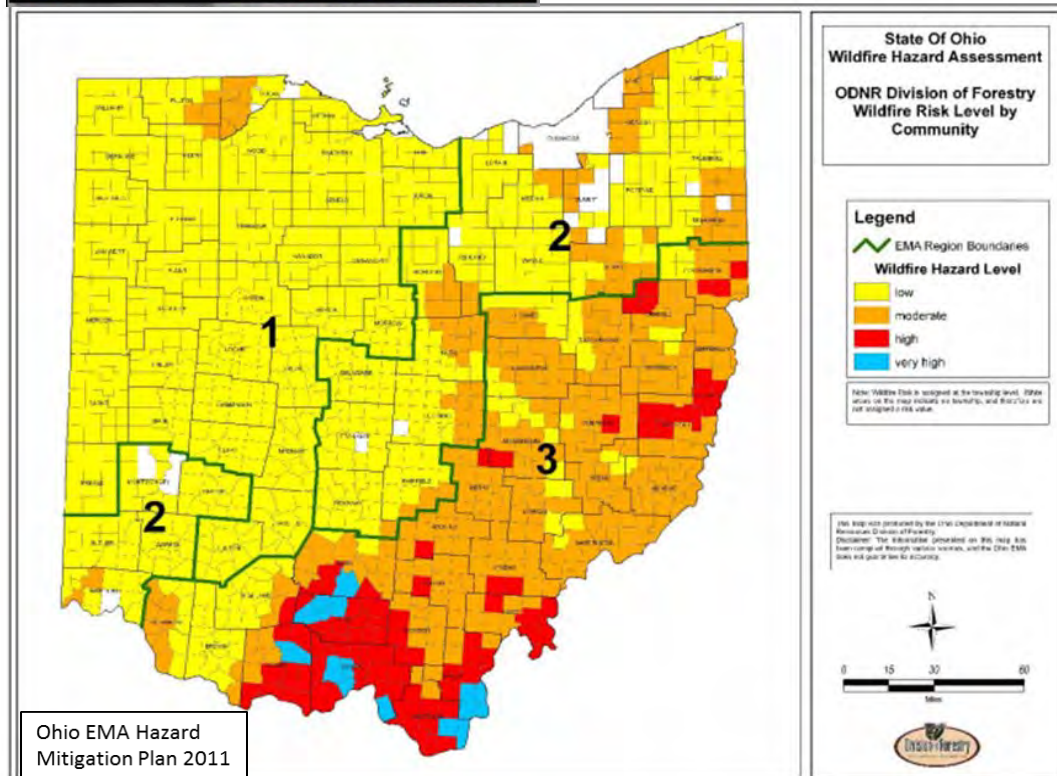


Table 15 (Above) *Estimated Vulnerability Assessment*

Figure 17 (Left) *Wildfire hazard potential by the USDA.*

Figure 18 (Below) *State of Ohio Wildfire hazard Assessment, from the Ohio EMA hazard Mitigation Plan 2011.*



5.0 Local Hazard Mitigation Goals

5.1 Goals

Goals were needed for this planning effort to guide the review of the possible mitigation measures. The recommended actions of this plan are consistent with what is appropriate for Geauga County. Mitigation goals reflected community priorities and should be consistent with other plans for the county.

5.1.1 Winter Storms (*Snow, Ice, Extreme Cold*)

Overall Goal: To educate the County's citizens to increase awareness of the dangers associated with winter storms, to reduce property damage caused by severe weather and to expedite the clean-up process through coordination and equipment acquisition.

5.1.2 Severe Storms (*High Wind, Lightning, Hail, Rain*)

Overall Goal: To educate the County's citizens to increase awareness of the dangers associated with heat and severe storms that occur in the warmer months, to provide adequate shelters where citizens can seek safety from severe weather, to improve the warning system and radio communications throughout the County and to expedite the clean-up process through coordination and equipment acquisition.

5.1.3 Power Outages

Overall Goal: To educate the County's citizens to increase awareness of the frequency, cause, and dangers associated with power outages, to reduce damage to life or property caused by extended outages, and to guide citizens in finding reliable and accurate information during outages in order to make appropriate decisions.

5.1.4 Tornadoes

Overall Goal: To reduce the risk of injury and fatalities during an event by providing shelters and permanent structures where citizens can seek safety, reduce potential damage through preplanning and to increase citizen awareness of the hazards of tornadoes.

5.1.5 Floods (Flash, 100 yr., 25 yr.)

Overall Goal: To save lives and property and reduce damage, to establish administrative controls for construction and to educate citizens on flood insurance and to increase citizens' awareness of the hazards associated with flooding

5.1.6 Earthquakes

Overall Goal: To increase awareness of the hazards of an earthquake event, to maintain operations of critical facilities and emergency services and to establish administrative controls that address earthquakes during construction

5.1.7 Dams and Dam Safety

Overall Goal: To re-evaluate the number and classification of dams in the county, to evaluate administrative controls for regulating and maintaining new and existing dams and to develop better coordination and communication efforts between the State and Geauga County.

5.1.8 Disease (Epidemic)

Overall Goal: To increase awareness of the hazards of a disease epidemic event, to maintain operations of critical facilities and emergency services, and to establish administrative controls that address measures to preserve public health during a medical crisis.

5.1.9 Droughts and Extreme Heat

Overall Goal: To install more equipment to aid in supplying water during a drought event, to establish administrative controls to limit potential property damage, to provide for potential alternate water supply through preplanning and to educate the general public of the hazards associated with drought and extreme temperatures.

5.1.10 Wildfires

Overall Goal: To educate the County's citizens and to increase the awareness of wildfire causes in an effort to lessen the risks of wildfire to communities across Geauga County.

5.2 Completed/Deleted Activities

The Planning Team revised the previous Mitigation Plan (2015). This included removing activities that actions have taken place to complete the items. In addition, the group felt some of the items needed to be deleted due to the Project not being feasible or beneficial to the County and its residents.

Completed/Deleted Activities			
Hazard	Activity	Status	Comments
Winter Storm	There is new technology available for responding to the removal needs and salt placement to save time and costs. Evaluate the need for software/sensor-based program for snow removal/salt placement, etc.	Complete	ODOT and County Completed
Severe Storm	There is a great need to outreach to sensitive populations on the need to prepare for summer storms and the potential for extended black outs. Conduct public outreach to sensitive populations (i.e. seniors).	Deleted	Goal will be tied into the newly added "Power Outage" hazard, and thus will be redundant if left here as well.
Severe Storm	There is a direct need for back-up generators (critical facilities). To function during and after summer storm events. Seek funding for back-up generators for all defined critical facilities within Geauga County.	Deleted	Goal will be tied into the newly added "Power Outage" hazard, and thus will be redundant if left here as well.
Severe Storm	One of the most efficient ways to get warnings out to residents is by weather radios. Seek funding for weather alert radios (public/private).	Deleted	Deemed redundant considering other goals, as well as unnecessary with current technology that is available to the population.
Tornado	Geauga County has several existing sirens for outdoor warning however they are not connected and are required to be turned on by each community individually. Seek funding for a countywide interoperable siren system.	Deleted	The planning team determined that this upgrade would not be beneficial due to the current ability for the sirens to be activated remotely,

			as well as their current function.
Tornado	Coordinate with private entities on innovative public safety measures (safe rooms).	Deleted	It was determined by the planning team that this goal was not applicable to the purpose of these planning goals, and it would be redundant with other goals in place.
Drought	During drought events in Geauga County water supply is limited drastically, especially to the agricultural community. There is a desire to seek funding for back-up water sources (i.e. water buffaloes).	Deleted	The planning team considered this goal to be unnecessary due to the infrequency of drought events, as well as the numerous mutual aid options in surrounding communities and that the state offers.

5.3 Action Plan for Hazards

In developing the list of mitigation activities, the Planning Team prioritized activities based on economic and technical feasibility. The group reviewed the activities from the previous planned and determined what items were completed, those that needed deleted and any items that may needed to be added or revised. Once this was completed, the group reviewed the remaining activities and prioritized them.

There were two informally established categories of mitigation initiatives that were reviewed by the committee, general activities and mitigation projects. Those activities considered to be general in nature were generated by the Planning Team itself and were approved through the consensus of the Group.

Cost effectiveness is required to be addressed as part of the planning process for all proposed mitigation projects. Consideration of the availability of not only local funds, but also on the potential availability of outside sources of funds (State, federal and other grants) must be included.

The following is a summary of the mitigation strategy for Geauga County. A listing of the prioritized actions can be found in Appendix E.

Hazard: Winter Storms (Snow, Ice, Extreme Cold)

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, Geauga County Engineer's Department, Geauga County GIS Department, Mitigation Focus Group, County Fire Departments also includes City of Chardon, Villages of South Russell, Middlefield, Burton, Hunting Valley and Aquilla.

Timeline: January 1, 2020 – December 31, 2025

Priority Activity 1: Every winter there is a problem with uninformed residents utilizing improper or old heating sources such as kerosene heaters. Another hazard is safe use and handling of white gas. Conduct outreach to residences on the use of improper heat sources. Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 2: Every winter there is a problem with uninformed residents utilizing improper or old heating sources such as kerosene heaters. Conduct outreach to residences on the use of improper heat sources. Responsible implementing agencies and positions Geauga County DES/EMA, Director and local fire departments, Fire Chief.

Priority Activity 3: Provide an alternate power source, such as back-up generators, for those sensitive populations and critical facilities that must have continuous power to preserve and protect human health. Responsible implementing agencies and positions Geauga County DES/EMA, Director and Mitigation Focus Group, Chair.

Priority Activity 4: Geauga County has a comprehensive Spillman System. Evaluate need (seek funding) for data information sharing (network infrastructure) to help with coordinated damage assessments, and continued technological updates. Responsible implementing agency and position Geauga County DES/EMA, Director.

Hazard: Severe Storms (High Wind, Lightning, Hail, Rain)

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga county Sheriff's Office, also includes City of Chardon, Villages of South Russell, Middlefield, Burton, Hunting Valley and Aquilla and the Mitigation Focus Group,

Timeline: January 1, 2020 – December 31, 2025

Priority Activity 1: There is a need to better define and establish a shelter network throughout Geauga County. Seek funding for shelter network (public/private). Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 2: Continue to distribute outreach/pamphlets on preparedness activities as it relates to storms. Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 3: Geauga County has a large agricultural component. Coordinate with the agricultural community on disaster preparedness. Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 4: There have been several locations identified as critical locations to be used in the time of an event. These locations may need to have backup generators and currently do not have the proper hook up for the generator. Seek funding to assist with getting the proper hook up for generators at these locations. Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 5: Look into and seek funding for residential storm-shelters. Also, identify and develop a method for appropriate distribution and allocation of any potentially received funds. Responsible implementing agency and position Geauga County DES/EMA, Director.

Hazard: Power Outages

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, Geauga County Engineer's Department, Geauga County GIS Department, Mitigation Focus Group, County Fire Departments also includes City of Chardon, Villages of South Russell, Middlefield, Burton, Hunting Valley and Aquilla.

Timeline: January 1, 2020 – December 31, 2025

Priority Activity 1: Develop a list of Critical Infrastructure throughout the county. Identify their backup power needs and capabilities, as well as coordinating the list with the electric utility company for repair priority. Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 2: Educate the public on the safe use of generators Responsible implementing agencies and positions Geauga County DES/EMA, Director.

Priority Activity 3: Identify which Gas Stations, Stores, and other fuel sources throughout the county have backup generators. Responsible implementing agencies and positions Geauga County DES/EMA, Director and the Geauga County Soil and Water Conservation District, Board

Hazard: Tornado

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, also includes City of Chardon, Villages of South Russell, Middlefield, Burton, Hunting Valley and Aquilla and Geauga County School Districts.

Timeline: January 1, 2020 – December 31, 2025

Priority Activity 1: Knowing that sirens are for outdoor notification only the Planning Team would like to seek funding for NOAA weather alert radios to reach out to residents that are within their homes. Also, there should be outreach and awareness conducted regarding low cost and free technology available that relays reliable weather and warning information, such as phone apps. Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 2: Evaluate the need for storm shelters in existing schools and new schools. Potentially seek funding for storm shelters within critical facilities. Responsible implementing agencies and positions Geauga County DES/EMA, Director and the Geauga School Districts, Superintendents.

Priority Activity 3: Seek funding for multi-use storm shelters within public parks and campgrounds (multi-use possibility). Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 4: Evaluate the need (seek funding) for the establishment of storm shelter networks within mobile home parks. Possible funding available through Community Development Block Grant Program. Responsible implementing agency and position Geauga County DES/EMA, Director.

Hazard: Flooding (Flash, 100yr., 25 yr.)

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, Geauga

County Building Department, and Geauga County Soil and Water Conservation District.

Timeline: January 1, 2020 – December 31, 2025

Priority Activity 1: Insurance agents need education on the requirements of purchasing flood insurance. Insurance agents are misinforming residents on the requirements of flood insurance. Outreach to insurance agents. Responsible implementing agency and position Geauga County DES/EMA, Director.

Priority Activity 2: The Chagrin River Watershed Partners boundaries are within Geauga County and there have been several communities within Geauga County that have adopted riparian buffer overlays. Hazardous areas should be identified and communities should be made aware of these hazards and potential remedies. Responsible implementing agencies and positions Geauga County DES/EMA, Director and the Geauga County Soil and Water Conservation District, Board.

Priority Activity 3: Identify and repetitive loss properties within Geauga County Responsible implementing agencies and positions Geauga County DES/EMA, Director, Geauga County Building Department, and the Geauga County Soil and Water Conservation District, Board.

Priority Activity 4: Look into and consider the process and possibilities involved in the acquisition, demolition, and/or retrofit of flood-prone properties. Responsible implementing agencies and positions Geauga County DES/EMA, Director, Geauga County Building Department, and the Geauga County Soil and Water Conservation District, Board.

Hazard: Earthquake

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, also includes City of Chardon, Villages of South Russell, Middlefield, Burton, Hunting Valley and Aquilla.

Timeframe: January 1, 2020 – December 31, 2025

Priority Activity 1: Most residents in Geauga County are unaware that earthquakes are not typically covered on their homeowners insurance and that insurance coverage is cost-effective. Considering that the Northeast quadrant of Ohio has been the most active area as it relates to earthquakes outreach to residents on the benefits of insurance is something the Core Group wanted to

support. Responsible implementing agencies and positions Geauga County DES/EMA, Director and the Mitigation Focus Group, Chair.

Hazard: Dam Failure and Dam Safety

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, and the State of Ohio Department of Natural Resource (ODNR)

Timeframe: January 1, 2020 – December 31, 2025

Priority Activity 1: Dam Safety for the Core Group is a significant issue, especially since there are so many unknowns. The Core Group would like to evaluate the use of mitigation dollars to help dam owners in the County. Responsible implementing agencies and positions Geauga County DES/EMA, Director and the State of Ohio: ODNR

Priority Activity 2: Seek to obtain/maintain EAP's and inundation data for all Class I and II dams in Geauga County. Responsible implementing agencies and positions Geauga County DES/EMA, Director and the State of Ohio: ODNR

Priority Activity 3: Seek to rehabilitate or mitigate all high hazard potential dams in Geauga County. Responsible implementing agencies and positions Geauga County DES/EMA, Director and the State of Ohio: ODNR

Hazard: Disease (Epidemic)

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, Geauga Public Health, and the State of Ohio Department of Natural Resource (ODNR)

Timeframe: January 1, 2020 – December 31, 2025

Priority Activity 1: Continue to educate and distribute outreach/pamphlets on preparedness activities as it relates to disease epidemics. Responsible implementing agencies and position Geauga County Public Health and DES/EMA, Director.

Hazard: Drought and Extreme Heat

Lead: Geauga County Department of Emergency Services, Geauga County Sheriff's Office, and the Mitigation Focus Group

Timeframe: January 1, 2020 – December 31, 2025

Priority Activity 1: There are numerous businesses in Geauga County that are dependent on water. The Core Group feels it's necessary to create a comprehensive list of businesses dependent on water to help elevate the potential problems with a long-term drought. Responsible implementing agency and position Geauga County DES/EMA, Director.

Hazard: Wildfires

Lead: Geauga County Department of Emergency Services/Emergency Management Agency (DES/EMA), Geauga County Sheriff's Office, also includes City of Chardon, Villages of South Russell, Middlefield, Burton, Hunting Valley and Aquilla and the Mitigation Focus Group

Timeframe: January 1, 2020 – December 31, 2025

Priority Activity 1: Create Outreach program in regards to wildfire prevention Responsible implementing agencies and positions Geauga County DES/EMA, Director and State of Ohio, Fire Marshal.

During the extent of the five-year implementation period of the Mitigation Plan, there may be other proposed mitigation activities that the Planning Team will need to consider. Proposals for additions or modifications to the Action Plan section may result from conditions noted during a particular task(s) performed in conjunction with a specific mitigation activity. Modifications or additions may also be prompted by public responses as a part of their ongoing opportunities to participate in the mitigation planning and implementation process. The Planning Team will evaluate proposed modifications to the Action Plan section and determine their viability for inclusion in the Plan. Incorporation of any additions or changes to the Plan is also discussed in the Plan Maintenance Section.

6.0 Plan Maintenance Process

6.1 Plan Monitoring, Evaluation and Update Process

The planning period for Geauga County Mitigation Plan is five years. This planning cycle is consistent with FEMA requirements. The Geauga County Department of Emergency Services is solely responsible for the maintenance of the Hazard Mitigation Plan. The Geauga County Department of Emergency Services will facilitate a planning evaluation meeting with members of the Planning Group as needed, especially during periods following a disaster event, but at least annually. The Director will be responsible for contacting group members and organizing the evaluation meeting. The meeting will be announced by invitation and advertised in advance by newspaper, postings and other media. The Group, at a minimum will consist of the following:

- Geauga County Department of Emergency Services
- Geauga County Sheriff's Office
- Hambden Fire Department
- Russell Fire Department
- Chardon Fire Department
- Munson Fire Department
- Chester Police Department
- Geauga County Department of Water Resources
- Geauga Public Health
- Burton Township Trustees
- City of Chardon
- Geauga County Commissioners

The Group will utilize these meetings to evaluate the Hazard Mitigation Plan and how disasters affected their respective jurisdictions during the period. Prior to the annual meeting, the committee members shall review their mitigation sections for any needed changes. Local group member representatives shall keep a log of natural disasters in their jurisdiction, including financial loss information, if available, to discuss at the annual meeting. After the meeting, the jurisdictions will adopt any changes made to the Plan.

The Geauga County Department of Emergency Services will regularly stay in contact with each jurisdiction in order to address preparation and education issues regarding hazard events within the County and its municipalities. Each lead agency for the mitigation activities will be responsible for compiling data and presenting this information at that the annual review meeting. The Planning team will then be

responsible for then determining the status of each mitigation activity and whether they are worth continuing throughout the county.

The Planning committee led by the director will also be responsible for updating the Hazard Mitigation Plan before the five-year planning cycle expires. The Planning Group will be responsible for developing a funding source, procurement of services and preparation of the scope of work for future plans, if necessary.

6.2 Plan Incorporation

The Planning Team, which has representations from each jurisdiction and county office, will incorporate appropriate elements of the Hazard Mitigation Plan as any local planning mechanisms are developed or updated, and as a result of the planning process. (Reference Sections 2.7 and 3.5)

6.3 Continued Public Involvement

Since public participation is crucial in the completion and update of the mitigation plan, the current plan will be posted at the local Department of Emergency Services office and the Geauga County Department of Emergency Services website.

Any future Planning Group meetings will be advertised to the public by local media and public postings. The public is encouraged to attend and participate in any Plan updates.

In addition, all meeting dates, agendas, minutes and plan updates will be on the Geauga County Department of Emergency Services Website. Additional community outreach will be completed throughout the five year cycle to involve residents within the planning efforts. This outreach will include presentations, seminars and the attendance at various events and promotion of mitigation activities throughout the conference.

Appendix A

List of Attendees and Invitation Letters

The Geauga County Natural Hazards Mitigation Plan was created with the help of various agencies and leaders within the community. This appendix provides detail on letters that were sent out prior to the start of the review of the plan and sign in sheets of those that assisted with the plan.



Host Agency: Geauga County EMA

Geauga County
 Hazard Mitigation Plan
 Kick-Off Meeting
 January 16, 2019

Page 1 of 2

Date: 01 / 16 / 2019
 Month Day Year

	First Name	Last Name	Initials	Organization/Agency	Contact Information Email Address
01	THOMAS	VENEL	PT	GEAUGA EMA	tvenel@co.geauga.oh.us
02	Austin	Rice	MR	Geauga EMA	aarice@co.geauga.oh.us
03	Joseph	Tucholski	JAT	MIDDLEFIELD PD	Jtucholski@middlefieldpolice.com
04	TERRY	VONICKA	TV	Police POLICE	TERRY.VONICKA@geauga.oh.us
05	MICHAEL	CANNON	MC	HUNTING VALLEY PD	CHIEF@HUNTINGVALLEY.NET
06	Rich	Snigelshy	RS	Burton	Rsnigelshy@Villageofburton.org
07	Liam	Nayen	LJ	Ohio EMA	Lknygen@edps.ohio.gov
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Host Agency: Gauga County EMA

**Gaugua County
Hazard Mitigation Plan
Kick-Off Meeting
January 16, 2019**

Page 2 of 2

Date: 01 / 16 / 2019
Month Day Year

First Name	Last Name	Initials	Organization/Agency	Contact Information Email Address
01 Leslie	McCoy	LM	Village of Middlefield	lgambosi@middlefieldohio.com
02 SCOTT	NIEMIS	SN	(Haddon Police	SNIEHNS@CITHADON.NJ
03 David	Sage	DS	Gaugua County Health District	dsage@gaugua-county-health.org
04 Michael	Mihalasin	MM	Gaugua County EMS Dept	mihalasin@gaugua-county.org
05 Thomas	Roman	TR	CCSG	tnroman@co.gaugua.nj.us
06 Kate	Starn	RS	Cherokee	tshepard@cherokee.nc
07 Ryan	Pstrom	PR	GCDS	
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Geauga County
 Hazard Mitigation Plan
 Hazards Meeting
 February 20, 2019

Host Agency: Geauga County EMA

Page _____ of _____
 Date: 02 / 20 / 2019
 Month Day Year

	First Name	Last Name	Initials	Organization/Agency	Contact Information Email Address
01	Austin	Rice	MR	Geary Co. Eng	Aric@co.geauga.oh.us
02	Whiteland	Rick	RL	American Red Cross EM	richard.whiteland@redcross.org
03	Roger	Reardon	RD	ECDES	
04	Raty	Perene	RP	Hurtus Utilities PJ	HURTSR07@hurtusutilities.net
05	Brandon	Savage	BS	Middlefield Police	bsavage@mddcfcidpolice.com
06	Michelle	Michalowski	MM	Geauga County Bldg. Dept	mmichalowski@co.geauga.oh.us
07	Rich	Smigelski	RS	Burton Village	rsmigelski@villageofburton.org
08	Barb	Shugart	BS	City of Chardon	BShugart@chardon.oh.us
09	Tom	Ronan	TR	GCSSO	tronan@co.starva.oh.us
10	Dave	Sage	DS	GEHD	dsage@geaugacountyhealth.org
11	Scott	NIEHUS	WSN	CHARDON POLICE	SNIEHUS@CHARDON.OH.US
12	David	LOOMIS	DL	GCSSO	dloomis@co.geauga.oh.us
13	Judy	BERNSTEIN	JB	OES	jobernst@co.geauga.oh.us
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Geauga County
 Hazard Mitigation Plan
GOALS
 MARCH 21

Page 1 of 1

Date: 03 / 27 / 2019
 Month Day Year

Host Agency: Geauga County EMA

First Name	Last Name	Initials	Organization/Agency	Contact Information Email Address
Austin	Rice	AR	Geauga EMA	Austin@co.geauga.oh.us
Shirley	Lehmann	SL	Mount. Here Lake Assoc. Inc.	montmherelakeassoc@msi.com
Rick	John Thomas	RJ	APC	rick@wh.thomasredcross.org
Ross	Ross	WR	DESS	
MIKE THOMAS	MICHAEL S WEND	MW	Geauga Building Dept GCEMA	michael@co.geauga.oh.us twend@co.geauga.oh.us
SCOTT	NETHUS	SN	Chardon Police	snethus@chardon.oh.us
SCOTT	HILDEBRAND	SH	LEAUA 50	
RICK	SPISSELSKI	RS	Burton PD	rsmisselski@villageofburton.org
Janey	Sharp	JS	City of Chardon	jssharp@chardon.oh.us
Janey	DRASNA	JDR	DESS	judy-oberstar@co.geauga.oh.us



Host Agency: Geauga County EMA

**Geauga County
Hazard Mitigation Plan
Public Review Meeting
June 26, 2019**

Page 1 of 1

Date: 06 / 26 / 2019
Month Day Year

First Name	Last Name	Initials	Organization/Agency	Contact Information Email Address
01	Austin	AK	Geys DES	AKic@co.geauga.oh.us
02	Tom	TBR	Geauga S.O.	9-1-1
03	Scott	SC	11	9-1-1
04	THOMAS	TBS	Geauga DES	tivenol@co.geauga.oh.us
05	Scott	WSM	Armedon	SMITH@armedon.ce
06	Rich	RS	Barton	rsmiselski@villegoofbarton.org
07	Rachel	RR	Charles	RRhughes@charles
08	Ryan	RR	DES	RR
09	Rick	WR	ARC	richard.whitelord@redcross.org
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GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Thursday, November 29, 2018

Trumbull County EMA
640 North River Rd., Suite B,
Warren, Ohio 44047

Dear Representative

The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. The current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

Please consider this correspondence our notification to adjacent counties that Geauga County is actively engaged in the update process.

A meeting has been scheduled for Wednesday, January 16, 2019 at 10:00 a.m. at the Geauga County Department of Emergency Services located at 12518 Merritt Road, Chardon, Ohio 44024. Luan K. Nguyen, State Mitigation Planner, from the Ohio Emergency Management Agency will provide a presentation on mitigation planning at the kick off meeting.

A current copy of the Geauga County Countywide All Natural Hazard Mitigation Plan is located on the Geauga County Department of Emergency Services website. If you wish to review the plan, please follow the link below <http://www.co.geauga.oh.us/Departments/DES/Plans>.

Please contact me, if you are interested in attending this meeting and/or would like to participate in our plan update.

Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Ashtabula County Cuyahoga County Portage County
Lake County Trumbull County



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Thursday, November 29, 2018

Portage County EMA
8240 Infirmary Rd,
Ravenna, OH 44266

Dear Representative

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Please contact me, if you are interested in attending this meeting and/or would like to participate in our plan update.

Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Ashtabula County Cuyahoga County Portage County
Lake County Trumbull County



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Thursday, November 29, 2018

Cuyahoga County EMA
9300 Quincy Ave,
Cleveland, OH 44106

Dear Representative

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Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Ashtabula County Cuyahoga County Portage County
Lake County Trumbull County



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Thursday, November 29, 2018

Ashtabula County EMA
25 W. Jefferson St.
Jefferson, Ohio 44047

Dear Representative

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Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Ashtabula County Cuyahoga County Portage County
Lake County Trumbull County



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Thursday, November 29, 2018

Lake County EMA
8505 Garfield Road,
Mentor, Ohio 44060

Dear Representative

The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. The current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Ashtabula County Cuyahoga County Portage County
Lake County Trumbull County



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Tarkett/ Johnsonite Inc.
16035 Industrial Parkway
P.O. BOX 880
44062 Middlefield, OH

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

Please consider this correspondence our notification to all communities that Geauga County is actively engaged in the update process. Should you want to review the current version of our County's Hazard Mitigation Plan, it is posted on our website: <http://www.co.geauga.oh.us/Departments/DES/Plans>. Upon review, please feel free to forward and additional input or questions you may have.

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Please contact me, if you have any questions, comments or would like to participate in the update process.

Sincerely,

Roger M. Peterson
Gauga County
Department of Emergency Services

Cc: Great Lakes Cheese Company Masco Corp/KraftMaid Cabinetry Inc Tarkett/Johnsonite Inc
University Hospital Health System Wal-Mart Stores Inc



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Masco Corp/ Kraftmaid Cabinetry Inc.
15535 S State Ave,
Middlefield, OH 44062

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Please contact me, if you have any questions, comments or would like to participate in the update process.

Sincerely,

Roger M. Peterson
Gauga County
Department of Emergency Services

Cc: Great Lakes Cheese Company Masco Corp/KraftMaid Cabinetry Inc Tarkett/Johnsonite Inc
University Hospital Health System Wal-Mart Stores Inc



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Great Lakes Cheese Company
17825 Great Lakes Pkwy,
Hiram, OH 44234

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Please contact me, if you have any questions, comments or would like to participate in the update process.

Sincerely,

Roger M. Peterson
Gauga County
Department of Emergency Services

Cc: Great Lakes Cheese Company Masco Corp/KraftMaid Cabinetry Inc Tarkett/Johnsonite Inc
University Hospital Health System Wal-Mart Stores Inc



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

UH Geauga Medical Center
13207 Ravenna Road
Chardon, OH 44024

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Please contact me, if you have any questions, comments or would like to participate in the update process.

Sincerely,

Roger M. Peterson
Gauga County
Department of Emergency Services

Cc: Great Lakes Cheese Company Masco Corp/KraftMaid Cabinetry Inc Tarkett/Johnsonite Inc
University Hospital Health System Wal-Mart Stores Inc



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Middlefield Supercenter
15050 S, Springdale Ave,
Middlefield, OH 44062

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Please contact me, if you have any questions, comments or would like to participate in the update process.

Sincerely,

Roger M. Peterson
Gauga County
Department of Emergency Services

Cc: Great Lakes Cheese Company Masco Corp/KraftMaid Cabinetry Inc Tarkett/Johnsonite Inc
University Hospital Health System Wal-Mart Stores Inc



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Chardon Supercenter
223 Meadowlands Dr.,
Chardon, OH 44024

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Please contact me, if you have any questions, comments or would like to participate in the update process.

Sincerely,

Roger M. Peterson
Gauga County
Department of Emergency Services

Cc: Great Lakes Cheese Company Masco Corp/KraftMaid Cabinetry Inc Tarkett/Johnsonite Inc
University Hospital Health System Wal-Mart Stores Inc



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

South Russell Village
5205 Chillicothe Road
South Russell, Ohio 44022

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

Each incorporated community within Geauga County represented in the plan must participate in its update. Community participation in the update process not only enhances the plan's development, but it is also required by FEMA. Should you want to review the current version of our County's Hazard Mitigation Plan, it is posted on our website: <https://www.co.geauga.oh.us/Departments/DES/Plans>. Upon review, please feel free to forward and additional input or questions you may have. Once, the Plan's update is complete and it is approved by FEMA, each jurisdiction will need to formally re-adopt the updated document. Additional information will be provided regarding this adoption at a future time.

The hazard mitigation plan update will focus on: reengaging the public and reviewing/revising the risk assessments, the goals, and the action plan. A meeting has been scheduled for Wednesday, January 16, 2019 at 10:00 a.m. at the Geauga County Department of Emergency Services. Representatives from the State of Ohio will be present to assist with guidance on how to update this Plan. The Department of Emergency Services will complete updates and documentation needed.

Please contact me to confirm your community's attendance at this meeting.

Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Aquilla Chardon Middlefield
 Burton Hunting Valley South Russell



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Village of Middlefield
14860 N. State Ave.
Middlefield OH, 44062

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

Each incorporated community within Geauga County represented in the plan must participate in its update. Community participation in the update process not only enhances the plan's development, but it also required by FEMA. Should you want to review the current version of our County's Hazard Mitigation Plan, it is posted on our website: <https://www.co.geauga.oh.us/Departments/DES/Plans>. Upon review, please feel free to forward and additional input or questions you may have. Once, the Plan's update is complete and it is approved by FEMA, each jurisdiction will need to formally re-adopt the updated document. Additional information will be provided regarding this adoption at a future time.

The hazard mitigation plan update will focus on: reengaging the public and reviewing/revising the risk assessments, the goals, and the action plan. A meeting has been scheduled for Wednesday, January 16, 2019 at 10:00 a.m. at the Geauga County Department of Emergency Services. Representatives from the State of Ohio will be present to assist with guidance on how to update this Plan. The Department of Emergency Services will complete updates and documentation needed.

Please contact me to confirm your community's attendance at this meeting.

Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Aquilla Chardon Middlefield
Burton Hunting Valley South Russell



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Huntington Valley Village
38251 Fairmount Blvd.
Hunting Valley, OH 44022

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Aquilla Chardon Middlefield
 Burton Hunting Valley South Russell



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

City of Chardon
111 Water St.
Chardon, OH 44024

Dear Representative

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Sincerely,

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Gauga County
Department of Emergency Services

Cc: Aquilla Chardon Middlefield
 Burton Hunting Valley South Russell



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Village of Burton
14588 West Park Street
P.O. Box 408
Burton Village, OH 44021

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Please contact me to confirm your community's attendance at this meeting.

Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Aquilla Chardon Middlefield
 Burton Hunting Valley South Russell



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Village of Aquilla
P.O. Box 1127, Chardon, OH 44024

Dear Representative

Per Section 201.6 44CFR, The Disaster Mitigation Act of 2000 (DMA) requires all approved local hazard mitigation plans to be updated every five years. Accordingly, the current Geauga County Countywide All Natural Hazard Mitigation Plan will need to be updated and ultimately approved by FEMA by the end of 2019.

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Please contact me to confirm your community's attendance at this meeting.

Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Aquilla Chardon Middlefield
Burton Hunting Valley South Russell



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Geauga County Health District
470 Center St. Building #8
Chardon, OH 44024

Dear Representative

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Please contact me, if you will be able to attend this meeting.

Sincerely,

Roger M. Peterson, Director
Geauga County
Department of Emergency Services

Cc: Geauga County Sheriff's Office Geauga County Police Chief's Association
Geauga County Township Association Geauga County Health District
Geauga County Fire Chief's Association Geauga County Board of Commissioners



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Geauga County Township Association

Dear Representative

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Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Geauga County Sheriff's Office Geauga County Police Chief's Association
Gauga County Township Association Geauga County Health District
Gauga County Fire Chief's Association Geauga County Board of Commissioners



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Geauga County Board of Commissioners
470 Center St # 4,
Chardon, OH 44024

Dear Representative

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Roger M. Peterson, Director
Geauga County
Department of Emergency Services

Cc: Geauga County Sheriff's Office Geauga County Police Chief's Association
Geauga County Township Association Geauga County Health District
Geauga County Fire Chief's Association Geauga County Board of Commissioners



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Geauga County Fire Chief's Association

Dear Representative

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Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Geauga County Sheriff's Office Geauga County Police Chief's Association
Gauga County Township Association Geauga County Health District
Gauga County Fire Chief's Association Geauga County Board of Commissioners



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Geauga County Police Chief's Association

Dear Representative

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Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Geauga County Sheriff's Office Geauga County Police Chief's Association
Gauga County Township Association Geauga County Health District
Gauga County Fire Chief's Association Geauga County Board of Commissioners



GEAUGA COUNTY BOARD OF COMMISSIONERS

Walter (Skip) Claypool Timothy C. Lennon Ralph Spidalieri

DEPARTMENT OF EMERGENCY SERVICES
12518 Merritt Road, Chardon, Ohio 44024

Tuesday, November 29, 2018

Geauga County Sheriff's Office
12450 Merritt Road,
Chardon, Ohio 44024

Dear Representative

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Please contact me, if you will be able to attend this meeting.

Sincerely,

Roger M. Peterson, Director
Gauga County
Department of Emergency Services

Cc: Geauga County Sheriff's Office Geauga County Police Chief's Association
Gauga County Township Association Geauga County Health District
Gauga County Fire Chief's Association Geauga County Board of Commissioners

Appendix B

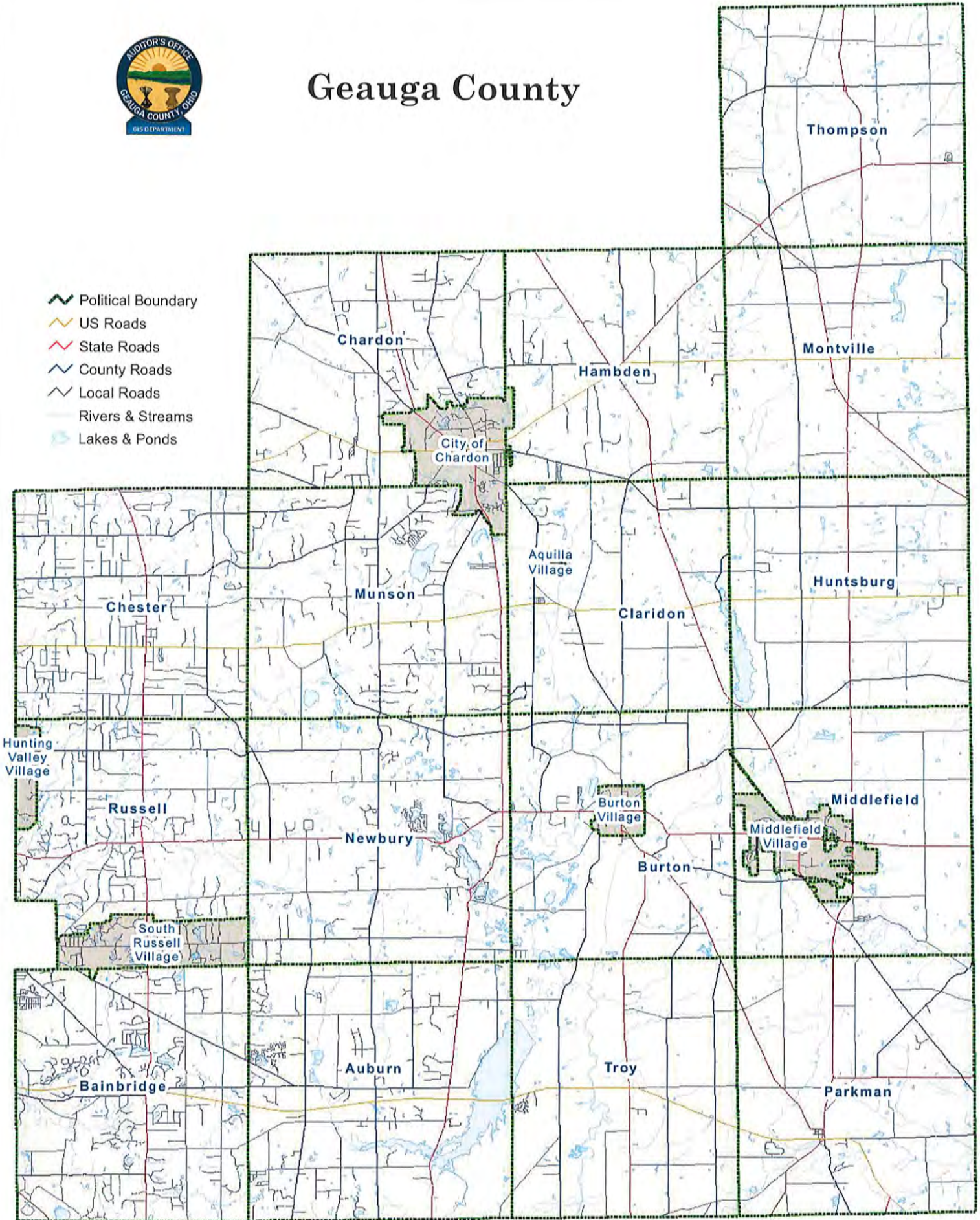
Geauga County Map

Appendix B provides a Geauga County map that outlines the City of Chardon, all villages and township within the county limits.



Geauga County

-  Political Boundary
-  US Roads
-  State Roads
-  County Roads
-  Local Roads
-  Rivers & Streams
-  Lakes & Ponds



0 0.5 1 2 3 4 Miles



Geauga County digital data is a representation of recorded plats, surveys, deeds, and other collected information for use within the Geographic Information System for purposes of public access and analysis. These and other digital data do not replace or modify land surveys, deeds, and/or other legal instruments defining land ownership or use. Geauga County assumes no legal responsibility for this information and users should contact the GIS Department with questions or concerns. April 27, 2018

Appendix C

Meeting Minutes

Appendix C provides meeting minutes that contain detailed agendas for completion of the review of the Geauga County Natural Hazards Mitigation Plan.

**Mitigation Kick-Off Meeting
Meeting Minutes
1.16.19**

Introductions

- In attendance
 - Luan K. Nguyen, Ohio EMA
 - Roger Peterson, Department of Emergency Services
 - Tom Vencl, Department of Emergency Services
 - Austin Rice, Department of Emergency Services
 - Dave Sage, Health District
 - Randy Sharpe, City of Chardon
 - Scott Niehus, City of Chardon
 - Leslie Gambosi-McCoy, Village of Middlefield
 - Joe Tucholski, Village of Middlefield
 - Mike Mihalisin, Building Department
 - Michael J. Cannon, Hunting Valley
 - Rich Smigelski, Village of Burton
 - Terry Vodicka, Village of Aquilla
 - Tom Rowan, Sheriff's Office

What is Mitigation?

- "...Any action taken to reduce or eliminate long term risk to people and property from natural disasters. "
 - "Hazard Mitigation planning is a process used by State, tribal, and local governments to identify risks and vulnerabilities associated with natural disasters and develop mitigation strategies to reduce or eliminate long term risks. "
- Planning Process
- Luan K. Nguyen -State Hazard Mitigation Planner (OEMA)

Geauga County's Current Mitigation Plan

- **1.0 Introduction**
 - Introduction, Purpose, Participating Communities
- **2.0 Community Information**
 - County Profile, Geography, Transportation, Economy, Utilities, Social and Economic Characteristics, Geauga County Information, County Development
- **3.0 Countywide All Natural Hazards Mitigation Planning Process**
 - Plan Adoption, Participation, Planning Process, Public Outreach and Other Stakeholder Involvement, Integration with Existing Plans, Finalization Process, NFIP Compliance Activities
- **4.0 Identification of Hazards and Risks**
 - Hazard Analysis, Hazard Identification, Winter Storms, Severe Storms, Floods, Tornadoes, Wildfires, Dam Failure, Droughts, Earthquakes
- **5.0 Goals**
 - Goals, Completed/Deleted Activities, Action Plan for Hazards
- **6.0 Plan Maintenance Process**

- Plan Monitoring, Evaluation, and Update process, Plan Incorporation, Continued Public Involvement
- **Appendixes**
 - List of Participants and invitation Letters, Geauga County Map, Meeting Minutes, Outreach Information, Action Plan
 -

Important Elements of a Hazard Mitigation Plan

- *Community Involvement* – Community involvement is vital in the reviewing of the plan. All incorporated jurisdiction must adopt the plan.
- *Hazard Determination* – This section identifies what hazards can happen within the county and provides a review on those hazards.
- *Vulnerability Assessment* – This section reviews how vulnerable Geauga County is to property damage and threats to public health and safety.
- *Goal Determination* – The sections list the overall goal that the county would like to accomplish under each hazard identified.
- *Hazard Mitigation Projects* – This sections lists out the agreed upon mitigation projects that the county would like to implement.
- *Identification of activities and action plan* – This section identifies an action plan for completion of the Hazard Mitigation Projects that were identified in the previous section.
- *Plan Maintenance and Schedule* – This section identifies a plan maintenance schedule to keep the plan reviewed, updated and current.

Completed Actions

- *Outreach* – outreach on the plan has already begun. The plan has been posted on the website, and is available to be viewed at the Department of Emergency Services Office. Also, public notices have been placed at the following Geauga Library branches: Bainbridge Library, Geauga West Library, Chardon Library, Middlefield Library, Newbury Library Station and Thompson Library Station. Further, a public notice has been advertised in the Geauga County Maple Leaf. In addition to this public outreach, formal letters have been sent to local communities, businesses, agencies, and neighboring counties as a means of invitation to participate in the plan review process. It was suggested that the Chagrin Valley Times be added to the outreach list.
- *Plan Review* – Reviewed revisions and updates to sections 1.0, 2.0, and 3.0 in the previous plan.

Next Meeting

- **Next meeting is set for Wednesday, February 20, 2019 at 10:00am at the Department of Emergency Services**
- If there is anyone that you feel should be a part of the planning process, please provide us with their contact information, and they will be invited to the next meeting. Suggestions were made to include water and similar utilities.

Action Items

- Please review section **4.0 Identification of Hazards and Risks** for the next meeting. We will be reviewing and updating these sections. If you or your agencies are able to provide any additional information that would be a benefit to the review for these sections, please contact us.

**Mitigation Hazards Meeting
Meeting Minutes
2.20.19**

Introductions

- In attendance
 - Roger Peterson, Department of Emergency Services
 - Judy Oberstar, Department of Emergency Services
 - Austin Rice, Department of Emergency Services
 - Dave Sage, Health District
 - Randy Sharpe, City of Chardon
 - Scott Niehus, City of Chardon
 - Rick Whitehead, American Red Cross
 - Mike Mihalisin, Building Department
 - Ray Perme, Hunting Valley
 - Rich Smigelski, Village of Burton
 - Brandon Savage, Village of Middlefield
 - Tom Rowan, Sheriff's Office
 - David Loomis, Sheriff's Office

4.0 Identification of Hazards and Risks

4.1 Hazard Analysis

- All participants completed their own hazard analysis, then we compared and compiled them together into a new list, assessing the hazards of the county.

4.2 Hazard Identification

- The planning team came up with the following 11 hazards in order:
 - Winter Storms/Ice Storms
 - Severe Storms (High Wind, Lightning, Hail)
 - Power Outage
 - Tornadoes
 - Floods (Flash, 25yr, 100yr)
 - Extreme Temperatures
 - Earthquakes
 - Dam Failure
 - Disease (Epidemic)
 - Droughts
 - Wildfires

4.3 Winter Storms and Ice Storms

- Probability, Impact, Preparedness

4.4 Severe Storms – High Wind, Lightning and Hail

- Selection of Major Hazards for County Plan Consideration

4.5 Floods (Flash/100-year)

- Probability, Impact, Preparedness

4.6 Tornadoes

- Selection of Major Hazards for County Plan Consideration

4.7 Wildfires

- Probability, Impact, Preparedness

4.8 Dam Failure

- Selection of Major Hazards for County Plan Consideration

4.9 Droughts

- Probability, Impact, Preparedness

4.10 Earthquakes

- Selection of Major Hazards for County Plan Consideration

Action Items

- Please review section **5.0 Local Hazard Mitigation Goals** for the next meeting. We will be reviewing and updating these sections. If you or your agencies are able to provide any additional information that would be a benefit to the review for these sections, please contact us.
- Discussions took place over the types of graphs/charts to include in each section, and which ones were unnecessary. Also, thoughts were shared about removing the historical narratives of particular instances of hazards, if the requirements for the plan did not need them. Further, there were a few resources suggested to look into for further research gathering.

Next Meeting

- **Next meeting is set for Wednesday, March 27, 2019 at 10:00am at the Department of Emergency Services**
- If there is anyone that you feel should be a part of the planning process, please provide us with their contact information, and they will be invited to the next meeting.

**Goals Meeting
Meeting Minutes
3.27.19**

Introductions

- In attendance
 - Roger Peterson, Department of Emergency Services
 - Judy Oberstar, Department of Emergency Services
 - Austin Rice, Department of Emergency Services
 - Thomas Vencl, department of Emergency Services
 - Randy Sharpe, City of Chardon
 - Scott Niehus, City of Chardon
 - Rick Whitehead, American Red Cross
 - Mike Mihalisin, Building Department
 - Rich Smigelski, Village of Burton
 - Scott Hildenbrand, Sheriff's Office
 - Shirley Lehman, Mont Mere Lake Association Inc.

- **4.0 Identification of Hazards and Risks**
 - Recap from last meeting

- **5.0 Local Hazard Mitigation Goals**
 - Overview

- **5.1 Goals**
 - Goals for each type of selected hazard

- **5.2 Completed/Deleted Activities**
 - Status Assessment

- **5.3 Action Plan for Hazards**
 - Summary Overview and Priorities Chart
 - Addition of New Goals

- **Action Items**
 - Please review section **6.0 Local Hazard Mitigation Goals** for the next meeting. We will be reviewing and updating these sections. Also, we will provide a rough draft of changes to the plan that have resulted from the previous meetings. If you or your agencies are able to provide any additional information that would be a benefit to the review for these sections, please contact us.

- **Next Meeting**
 - Next meeting is set for Wednesday, April 17, 2019 at 10:00am at the Department of Emergency Services
 - If there is anyone that you feel should be a part of the planning process, please provide us with their contact information, and they will be invited to the next meeting.

Review Meeting Meeting Minutes 4.17.19

Digital Draft Review

Sent: Wed 4/17/2019 12:57 PM

To: Vend, Thomas; Peterson, Roger; 'jtucholski@middlefieldpolice.com'; 'terry.vodicka@gmail.com'; 'chief@huntingvalley.net'; 'lgambosi@middlefieldohio.com'; 'sniehus@chardon.cc'; Sage, Dave; Mihalisin, Mike; Rowan, Thomas; 'rsharpe@chardon.cc'; Michael Rizzo; Ben Stankevicz; Whitehead, Richard; Smigelski, Richard A; hvpd3807@huntingvalley.net; Zimmerman, Donald; Hildenbrand, Sheriff; Michael Rizzo

Message DRAFT FOR REVIEW 4-17-2019.pdf (7 MB)

Attached is the draft of the natural hazards plan. Some notes to consider:

1. There were questions about the historical instances for the hazards (section 4.0). We must keep them in there per the requirements.
2. The Power Outage section (4.0) is not yet complete, but we are working on it with First Energy.
3. The Disease Epidemic (4.0 and 5.0) parts are not complete, but are being worked on by Geauga Health Dept.
4. Not all the community and economic information (2.0) is complete, but is almost done. I attached what information I could at this point.
5. Overall, all parts in RED are not yet complete.

Please reply with any questions, comments, or concerns about the draft of the plan. If you have nothing noteworthy to say, a simply reply of "it looks good" or something along those lines would be appreciated to show participation in lieu of the meeting that would have been earlier today.

Thank you,

M. Austin Rice
Gauga County
Planner- Department of Emergency Services

12518 Merritt Rd.
Chardon, OH 44024-9049

Phone: 440-279-2173
<http://co.geauga.oh.us/Departments/DES>

- **Comments/Corrections/Suggestions**
 - Formal title changes
 - (Sheriff's Office, Geauga Public Health, Building Department)
 - Utility Changes
 - (Brainard Gas, Orwell natural Gas, Northeast Ohio Natural Gas Corp)
 - Spelling Errors
 -
- **Action Items**
 - None. If you or your agencies are able to provide any additional information that would be a benefit to the review for these sections, please contact us.
- **Next Meeting**
 - Next meeting is set for Wednesday, June 26, 2019 at 10:00am at the Department of Emergency Services
 - If there is anyone that you feel should be a part of the planning process, please provide us with their contact information, and they will be invited to the next meeting.

**Public Review Meeting
Meeting Minutes
6.26.19**

Introductions

- In attendance
 - Roger Peterson, Department of Emergency Services
 - Austin Rice, Department of Emergency Services
 - Thomas Vencl, department of Emergency Services
 - Randy Sharpe, City of Chardon
 - Scott Niehus, City of Chardon
 - Rick Whitehead, American Red Cross
 - Rich Smigelski, Village of Burton
 - Scott Hildenbrand, Sheriff's Office
 - Tom Rowan, Sheriff's Office

- **Comments/Corrections/Suggestions**
 - Needed to double check the dam information due to new developments in the county.
 - Revisions to the draft will need to be made to include the final meeting information

- **Action Items**
 - The plan has been reviewed and is ready for the submission process.

Appendix D

Outreach Information

Public participation was crucial for implementation of the review of the Geauga County Natural Hazards Mitigation Plan. Appendix D provides notices of public comment requests and outreach flyers to the public.

Please refer to the screenshots of the Plans and Procedures page on the DES website, showing the Natural Hazards Mitigation Plan description, links to the plan, awareness for the planning process, and advertisement for each meeting.

MEETING 1

The screenshot shows a web browser window displaying the Geauga County website. The page title is "Through Preparedness" and the URL is "https://www.co.geauga.oh.us/Departments/DES/Plans". The main content area features a sidebar on the left with navigation links: Home, Contact Us, Employee Listing, Related Links, Project List, Calendar of Events, Plans and Procedures, Training, and LEPC. The main content area has three sections: "Gaugua County Chemical Emergency Response Plan", "Gaugua County Natural Hazards Mitigation Plan" (highlighted with a red box), and "NOAA - NWS Automatic Flood Warning System". The "Gaugua County Natural Hazards Mitigation Plan" section includes a description of the plan's purpose and a list of links: "A Resolution Adopting the Updated Geauga County Natural Hazard Mitigation Plan" and "Gaugua County Natural Hazards Mitigation Plan". Below the links, a paragraph states: "The Geauga County Hazard Mitigation Planning Committee is reviewing and revising the local mitigation plan for Geauga County, Ohio, to reflect changes in development, progress in local mitigation efforts, and changes in priorities in accordance with 44 CFR 201.6. The Mitigation Plan addresses the types, location, probability and vulnerability to various natural and technological hazards that may impact both property and citizens of Geauga County. The public is invited to review the current plan and provide comments to the Committee before it begins the update planning process required every five (5) years. A copy of the plan is posted above. Please forward any comments to Director Roger Peterson at rpeterson@co.geauga.oh.us or call (440) 279-2170. The public is invited to attend and participate in each meeting. The first meeting of the Committee is scheduled for Wednesday, January 16, 2019 at 10:00am and will be held at the department of Emergency Services located at 12518 Merritt Road, Chardon, Ohio 44024." The Windows taskbar at the bottom shows the time as 11:00 AM on 11/30/2018.

Geauga County Natural Hazards Mitigation Plan

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- [A Resolution Adopting the Updated Geauga County Natural Hazard Mitigation Plan](#)
- [Gaugua County Natural Hazards Mitigation Plan](#)

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MEETING 2

county resources will be utilized to support local communities in the event of a man-made, natural, or technological emergency.

Geauga County Radiological Emergency Response Plan

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MEETING 3

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Please fill out our [Natural Hazards Survey](#). It should take 5 minutes or less to complete. We appreciate your input and experiences with hazards in your community. Thank you.

11:35 AM 3/5/2019

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MEETING 4

The screenshot shows a web browser window displaying the Geauga County website. The page title is "Gaugua County Radiological Emergency Response Plan". The main content area is titled "Gaugua County Natural Hazards Mitigation Plan". A red box highlights this section. The text in the highlighted section reads: "The Geauga County Hazard Mitigation Plan was created to protect the health, safety, and economic interests of Geauga County residents and businesses by reducing the impacts of natural hazards through mitigation planning, awareness, and implementation. The plan serves as the foundation for hazard mitigation activities and actions within Geauga County." Below this text is a bulleted list with two items: "A Resolution Adopting the Updated Geauga County Natural Hazard Mitigation Plan" and "Gaugua County Natural Hazards Mitigation Plan". The text continues: "The Geauga County Hazard Mitigation Planning Committee is reviewing and revising the local mitigation plan for Geauga County, Ohio, to reflect changes in development, progress in local mitigation efforts, and changes in priorities in accordance with 44 CFR 201.6. The Mitigation Plan addresses the types, location, probability and vulnerability to various natural and technological hazards that may impact both property and citizens of Geauga County. The public is invited to review the current plan and provide comments to the Committee before it begins the update planning process required every five (5) years. A copy of the plan is posted above. Please forward any comments to Director Roger Peterson at rpeterson@co.geauga.oh.us or call (440) 279-2170. The public is invited to attend and participate in each meeting. The fourth meeting of the committee is scheduled for Wednesday, April 17, 2019 at 10:00am and will be held at the department of Emergency Services located at 12518 Merritt Road, Chardon, Ohio 44024. Please fill out our Natural Hazards Survey. It should take 5 minutes or less to complete. We appreciate your input and experiences with hazards in your community. Thank you."

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Meeting 5 (Public Review)

The screenshot shows a web browser window displaying the 'Plans and Procedures' page of the Geauga County website. The page lists several emergency response plans. The 'Gaugua County Natural Hazards Mitigation Plan' section is highlighted with a red rounded rectangle. This section includes a list of items: 'A Resolution Adopting the Updated Geauga County Natural Hazard Mitigation Plan' and 'Gaugua County Natural Hazards Mitigation Plan'. Below the list, there is a paragraph explaining that the plan is being reviewed and revised, and a public draft and review meeting is scheduled for Wednesday, June 26, 2019, at 10:00 a.m. at the department of Emergency Services. A link to a 'Natural Hazards Survey' is also provided.

Geauga County Natural Hazards Mitigation Plan

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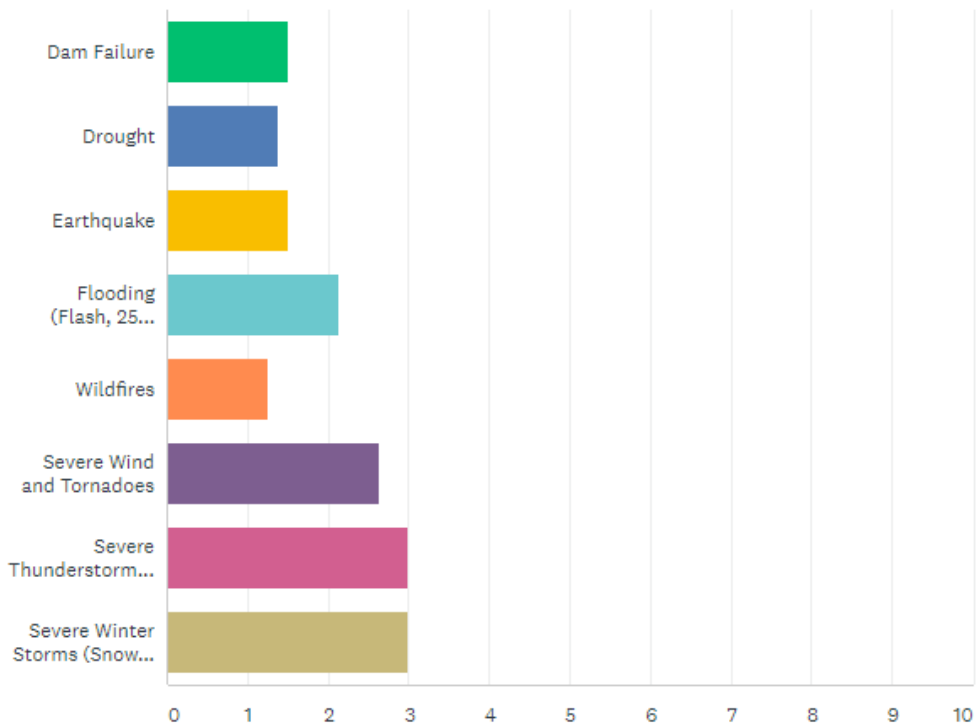
Please fill out our [Natural Hazards Survey](#). It should take five minutes or less to complete. We appreciate your input and experiences with hazards in your community. Thank you.

Please refer to the screenshots of the SurveyMonkey public survey below, showing the questions, example link locations, and results table. Also, refer to the meeting minutes for Meeting 3 and 4 in Appendix C.

Geauga County Natural Hazards Survey

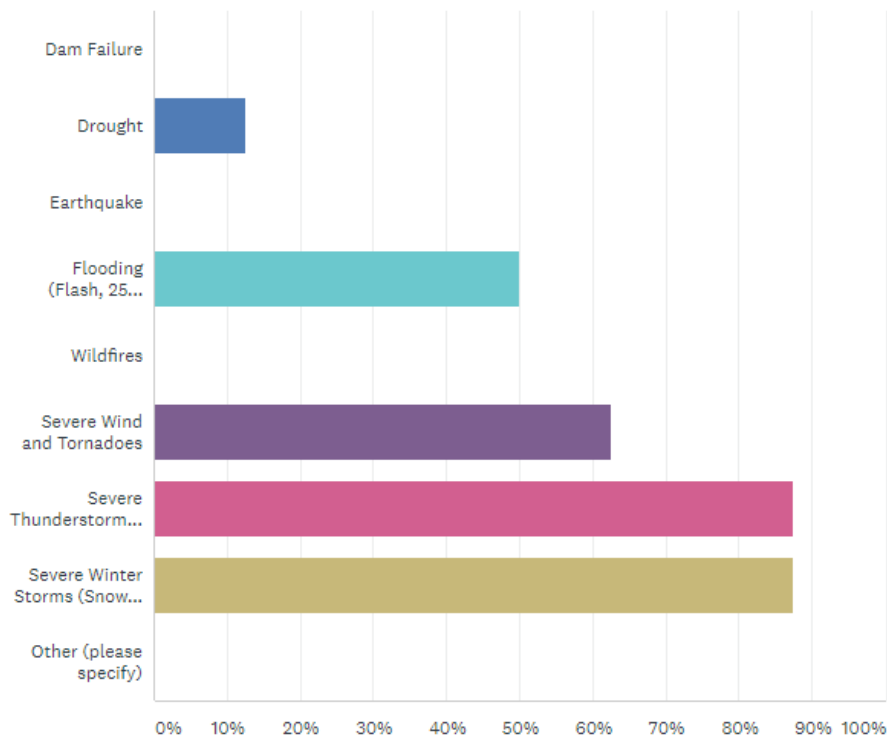
1. Please indicate how concerned you are about the following hazards where you live.

	Not At All Concerned	Somewhat Concerned	Concerned	Very Concerned
Dam Failure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drought	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Earthquake	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flooding (Flash, 25 year, 100 year)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildfires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe Wind and Tornadoes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe Thunderstorms (Wind, Rain, Hail, Lightning)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe Winter Storms (Snow, Ice, Blizzard, Cold)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>			



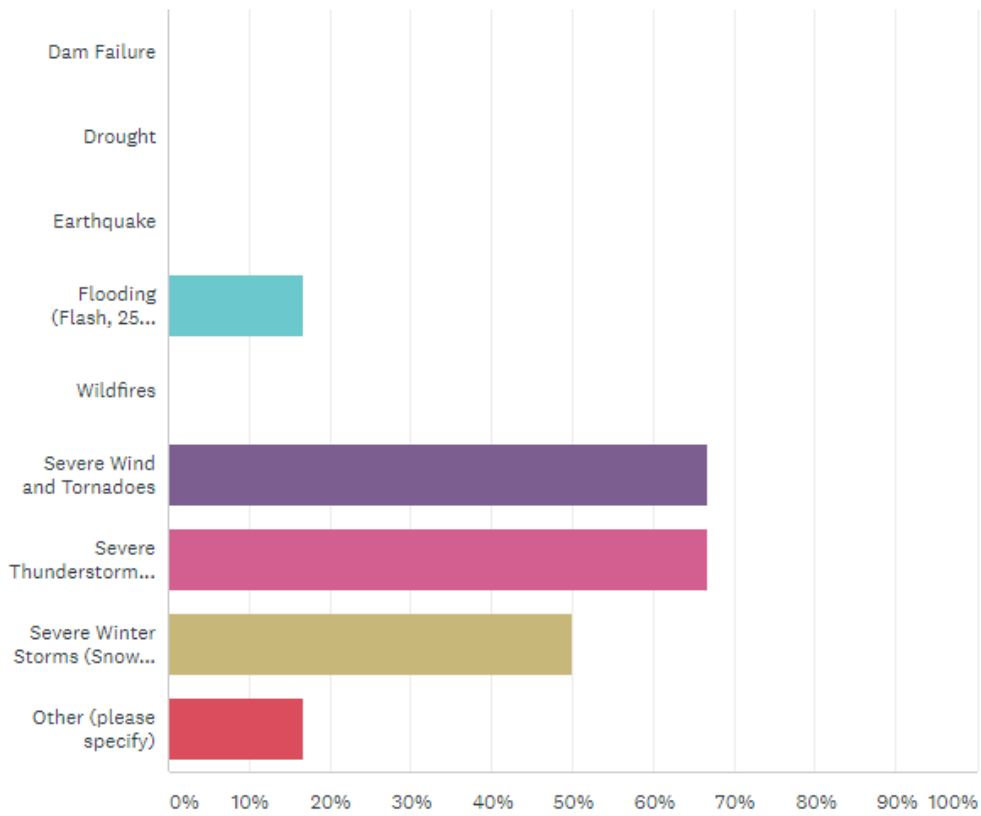
2. In the past 10 years, which hazards do you remember occurring in your community? (Check all that apply)

- Dam Failure
- Drought
- Earthquake
- Flooding (Flash, 25 Year, 100 Year)
- Other (please specify)
- Wildfires
- Severe Wind and Tornadoes
- Severe Thunderstorms (Wind, Rain, Hail, Lightning)
- Severe Winter Storms (Snow, Ice, Blizzard, Cold)



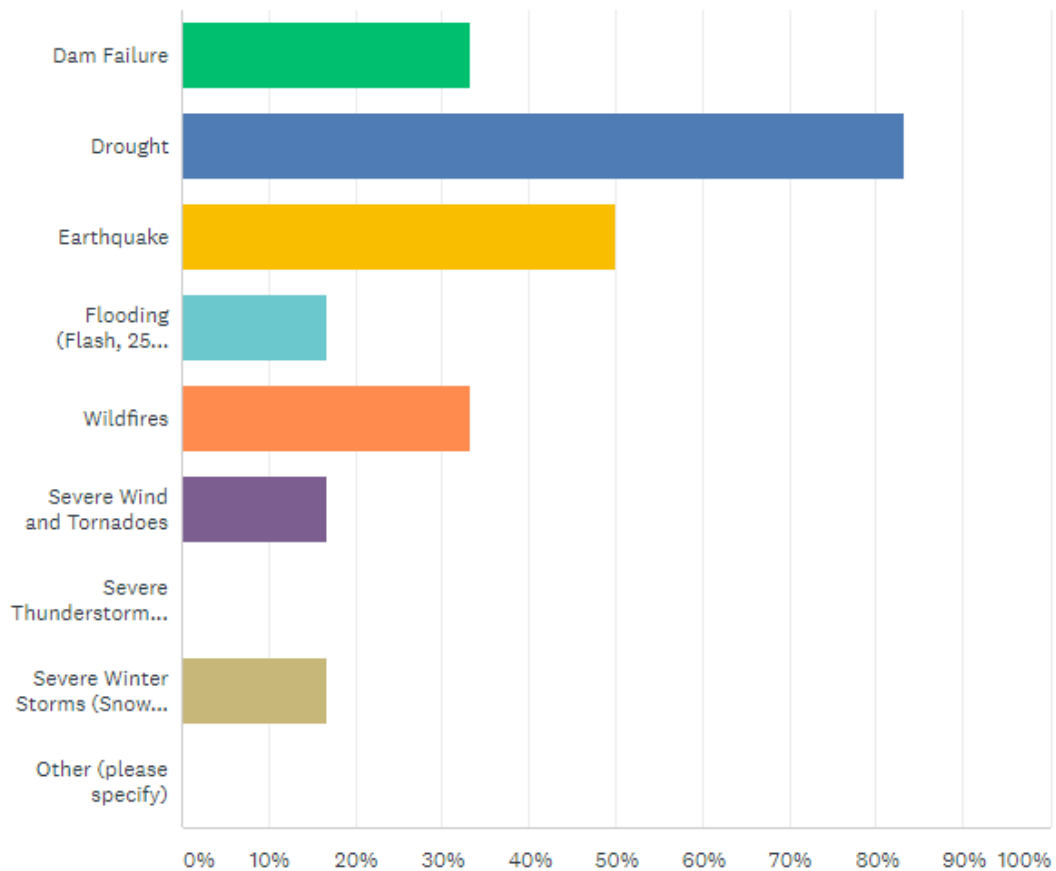
3. Have you noticed an increase in the occurrences or intensity of any of the following hazards? (Check all that apply, if yes)

- Dam Failure
- Drought
- Earthquake
- Flooding (Flash, 25 Year, 100 Year)
- Other (please specify)
- Wildfires
- Severe Wind and Tornadoes
- Severe Thunderstorms (Wind, Rain, Hail, Lightning)
- Severe Winter Storms (Snow, Ice, Blizzard, Cold)



4. Have you noticed a decrease in the occurrences or intensity of any of the following hazards? (Check all that apply, if yes)


- Dam Failure
- Drought
- Earthquake
- Flooding (Flash, 25 Year, 100 Year)
- Other (please specify)
- Wildfires
- Severe Wind and Tornadoes
- Severe Thunderstorms (Wind, Rain, Hail, Lightning)
- Severe Winter Storms (Snow, Ice, Blizzard, Cold)



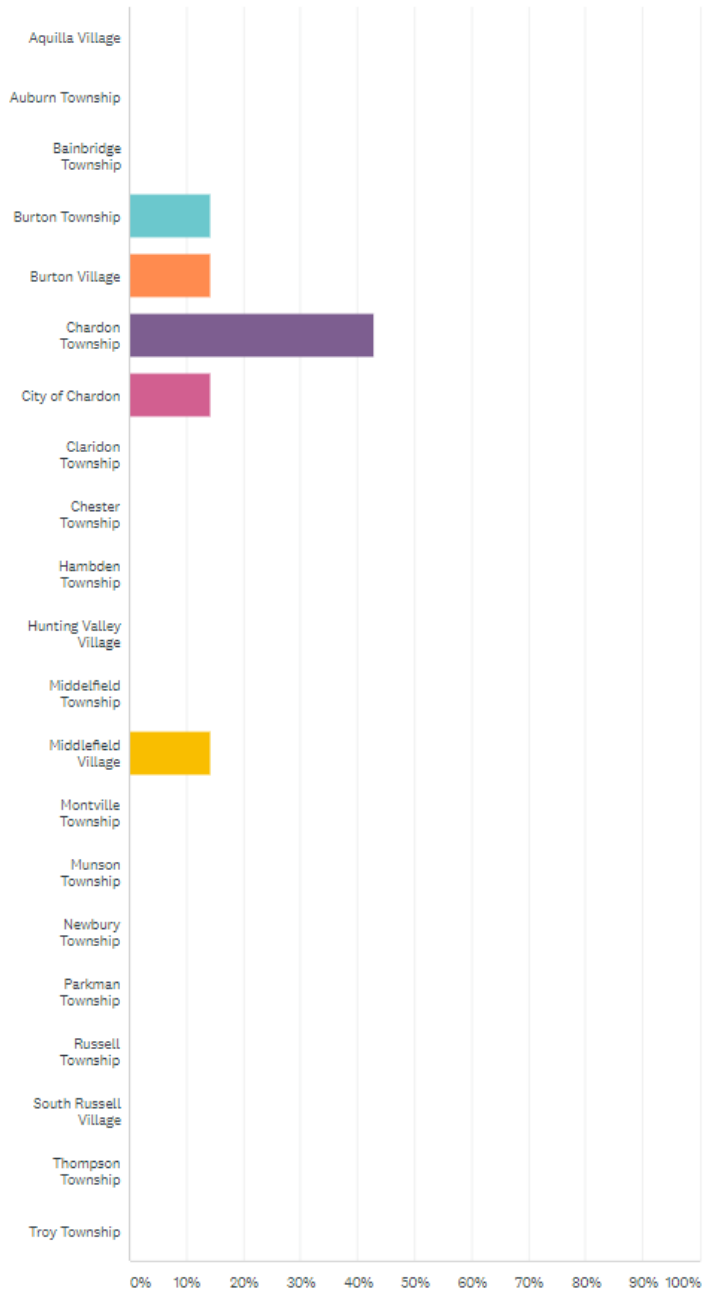
5. What Community Do You Live In?

- Aquila Village
- Auburn Township
- Bainbridge Township
- Burton Township
- Burton Village
- Chardon Township
- City of Chardon
- Claridon Township
- Chester Township
- Hambden Township
- Hunting Valley Village
- Middelfield Township
- Middelfield Village
- Montville Township
- Munson Township
- Newbury Township
- Parkman Township
- Russell Township
- South Russell Village

DONE

Powered by
 SurveyMonkey
 See how easy it is to [create a survey](#).

[Privacy & Cookie Policy](#)



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NOAA - NWS Automatic Flood Warning System

Perry

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Geauga County hazard Mitigation Plan Meeting 2-20-2019

Rice, Austin

Sent: Mon 1/28/2019 10:18 AM

To: Vend, Thomas; Peterson, Roger; 'tucholski@middlefieldpolice.com'; 'terry.vodicka@gmail.com'; 'chief@tuningvalley.net'; Smigelski, Richard A; 'knguyen@dps.ohio.gov'; 'lgambosi@middlefieldohio.com'; 'sniehus@chardon.cc'; Sage, Dave; Mihalski, Mike; Rowan, Thomas; 'rsharpe@chardon.cc'; Ben Stankewicz

Message Hazards Mitigation Plan HVA 2-20-2019.xls (40 KB)

Hello,

Thank you for your continued participation in the hazards mitigation planning process. As a reminder, we will be discussing section 4.0 for this upcoming meeting. This is looking at and assessing what hazards are in the county, as well as our vulnerabilities. Instead of the generic HVA forms that I sent out in my previous email as a resource, I have attached here the form that we will be using specifically for the upcoming meeting. Please take a few minutes to fill it out, and bring your form to the meeting on the 20th. If there are other hazards that you think are important, please fill in the blank spaces provided on the spreadsheet, and we will consider them as well. We will compare notes and use that as a starting point for our analysis. Also, below is a link to a short survey (5 minutes). This is a natural hazards survey for everyone in the county to fill out, if they would like to provide further feedback. Please promote the survey to whomever you like, whether it be your employees or clients etc. I will send out a reminder about the meeting a day or so before to give everyone additional notice.

<https://www.surveymonkey.com/r/3XQDTCG>

Thank you,

M. Austin Rice
 Geauga County
 Planner- Department of Emergency Services

12518 Merritt Rd.
 Chardon, OH 44024-9049

Phone: 440-279-2173
<http://co.geauga.oh.us/Departments/DES>

Please refer to the screenshots of communication with the maple Leaf, as well as the Geauga County Public Library Systems. Here are examples of public postings.

Re: Department of Emergency Services

John Karlovec <jdk@dln.com>

Follow up, Start by Tuesday, January 22, 2019. Due by Tuesday, January 22, 2019.

Sent: Tue 1/22/2019 11:12 AM

To: Rice, Austin

I just updated the form and will reuse it with new date

John Karlovec (iPhone)

On Jan 22, 2019, at 10:57 AM, Rice, Austin <ARice@co.geauga.oh.us> wrote:

Yes, same place (DES on Merritt Rd.) and same time (10:00am). The date is 2-20-2019. I can provide a paper again, or you can use information from before to put together the ad/post.

Thanks!

M. Austin Rice
Gauga County
Planner- Department of Emergency Services

12518 Merritt Rd.
Chardon, OH 44024-9049

Phone: 440-279-2173
<http://co.geauga.oh.us/Departments/DES>

From: John Karlovec [<mailto:jdk@dln.com>]
Sent: Tuesday, January 22, 2019 10:31 AM
To: Rice, Austin
Subject: Re: Department of Emergency Services

10 am still?

John D. Karlovec

KARLOVEC MEDIA GROUP
Gauga County Maple Leaf / Chesterland News / Kirtland Chronicle
Cell: 216-509-6600 / Office: 440-285-2013 / Fax: 440-285-2015

Re: Public Notice

Kris Carroll <kcarroll@geaugalibrary.net>

You replied to this message on 11/30/2018 12:11 PM.

Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

Sent: Fri 11/30/2018 12:09 PM

To: Rice, Austin

Austin,

I have sent this to all of our public branches. I have asked them to post it until January 2, 2019.

Let me know if I can be of further assistance.

Kris Carroll
Gauga County Public Library
Assistant Director

12701 Ravenwood Drive

Chardon, OH 44024

Office: [440-286-6811](tel:440-286-6811) x2534

Cell: [440-313-5637](tel:440-313-5637)

Fax: 440-286-7419

Please refer to the example screenshots of communication with the other organizations, such as ODNR, Geauga Planning Commission, State Fire Marshall, etc.

RE: Geauga County Dams

dswc@dnr.state.oh.us

Follow up. Completed on Thursday, March 21, 2019.
You replied to this message on 3/12/2019 10:42 AM.

Sent: Tue 3/12/2019 9:30 AM

To: Rice, Austin

Message  CountyData.xls (173 KB)

Attached is the list of the dams in Geauga County with their classifications. About half of these dams are either classified as "Abandon" or "Exempt" and are not regulated by the Division of Water Resources. We have jurisdiction over the Class IV dams, but we only regulate and/or inspect Class I, II and III dams. If we can be of further assistance, please feel free to contact this office. Rather than using our generic e-mail address, you can e-mail me directly at kathleen.mcdaniel@dnr.state.oh.us if you need additional assistance.

Kathleen McDaniel

Administrative Professional
Division of Water Resources
Ohio Department of Natural Resources
614-265-6731 or 614-265-6620
<http://water.ohiodnr.gov>




RE: Geauga County Hazards Mitigation Plan

Palmisano, Maria

Follow up. Completed on Friday, April 12, 2019.
You replied to this message on 4/12/2019 10:45 AM.

Sent: Fri 4/12/2019 10:06 AM

To: Rice, Austin

Message  Haz Mit 2019.docx (508 KB)

Hi Austin,

So will notice some a couple spots that are still red, and I am doing my best to get them updated. I did want to send you what we currently have though. Thanks so much for your patience.

Regards,

Maria Palmisano
Gauga County Planning Commission
470 Center St. Building 1C
Chardon, Oh 44024
440.279.1742
mpalmisano@co.geauga.oh.us


RE: Geauga County Wildfire Statistics

OFIRS.OFIRS@com.state.oh.us

You replied to this message on 2/19/2019 12:41 PM.

Sent: Tue 2/19/2019 12:39 PM

To: Rice, Austin

Message  Geauga County Wildfires 02142019.xlsx (200 KB)

Good afternoon, Austin.

Attached is the information you had requested.
Thank you.



Andrea Lemaster
Customer Service Assistant
Fire Prevention
Ohio Department of Commerce
Division of State Fire Marshal
8895 E. Main St. Reynoldsburg, Ohio 43068
614-752-7207 Direct Dial
614-752-7115 Department Number
614-644-1443 Fax
www.com.ohio.gov

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Re: Hazard Mitigation Plan

William Koons <mayor@southrussell.com>

● Follow up. Start by Monday, September 30, 2019. Due by Monday, September 30, 2019.
If there are problems with how this message is displayed, click here to view it in a web browser.

Sent: Sat 9/28/2019 9:00 AM
To: Rice, Austin

This email contains a link!
This email contains a World Wide Web link. Use caution when following links as they could open malicious web sites.

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We are fine with it.

Thanks for coming to SRV to explain the plan.

Mayor William G. Koons, Ph.D.
5205 Chillicothe Road
South Russell, Ohio 44022
440-338-6700

On Thu, Sep 26, 2019 at 9:50 AM Rice, Austin <ARice@co.geauga.oh.us> wrote:

Hello Mayor Koons,

I'm just following up with you regarding your review of the proposed haz mit plan. Have you been able to review it? Did you have any further questions or comments?

Thanks!

M. Austin Rice
Geauga County

Appendix E

Action Plan

The Action Plan in Appendix E lists out by hazard the activities that were identified throughout the plan review process.

**Appendix E
Ongoing / New Items**

Winter Storms (Snow, Ice, Extreme Cold)

Priority Activity Ranking	Description of Activity	Start Date	End Date	Funding	Responsibly agencies	Status	
Priority #1	residents understanding the significant of winter storms, a comprehensive public outreach campaign on what to do in the first few days of a large winter event is needed.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director	Ongoing	
Priority #2	Every winter there is a problem with uninformed residents utilizing improper or old heating sources such as kerosene heaters. Another hazard is safe use and handling of white gas. Conduct outreach to residences on the use of improper heat sources.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director & Fire Departments, Fire Chief	Ongoing	
Priority #3	Provide an alternate power source, such as back-up generators, for those sensitive populations and critical facilities that must have continuous power to preserve and protect human health.	1/1/2020	12/31/2025	HMGP	Geauga County DES/EMA, Director & the Mitigation Focus Group, Chair	Ongoing	This action has been completed for Fire Departments and town halls, however there are still critical facilities throughout the county that need back up generators.
Priority #4	Geauga County has a comprehensive Spillman System. Evaluate need (seek funding) for data information sharing (network infrastructure) to help with coordinated damage assessments, and continued technological updates.	1/1/2020	12/31/2025	PDM	Geauga County DES/EMA, Director	Ongoing	This action item is designed for continuous ongoing technology updates since there is always a need for this action item.
Severe Storms (High Wind, Lightning, Hail, Rain)							
Priority #1	There is a need to better define and establish a shelter network throughout Geauga County. Seek funding for shelter network (public/private).	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director	Ongoing	Geauga county is a resilient community, however there is still a need to plan and prepare for the possibility for sheltering. Coordinated meetings with several groups including those provided services and those who may need the shelters are happening within the county to better prepare for events.

Priority #2	Continue to distribute outreach/pamphlets on preparedness activities as it relates to storms.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director	Ongoing	Even though many Communities within Geauga County have Websites that can provide this outreach information it is still very important to continue with an educational outreach program for residents.
Priority #3	Geauga County has a large agricultural component. Coordinate with the agricultural community on disaster preparedness.	1/1/2020	12/31/2025	County EMA Annual Budget	Director, Geauga County EMA	Ongoing	
Priority #4	There have been several locations identified as critical locations to be used in the time of an event. These locations may need to have back up generators and currently do not have the proper hook up for the generator. Seek funding to assist with getting the proper hook up for generators at these locations.	1/1/2020	12/31/2025	HMGP	Geauga County DES/EMA, Director	New/Ongoing	This action item was created due to the fact that several generators have been purchased through prior mitigation planning. However some of the locations identified can not use the generators due to not having the correct hook up.
Priority #5	Look into and seek funding for residential storm-shelters. Also, identify and develop a method for appropriate distribution and allocation of any potentially received funds.	1/1/2020	12/31/2025	HMGP	Geauga County DES/EMA, Director.	New	
Power Outages							
Priority #1	Develop a list of Critical Infrastructure throughout the county. Identify their backup power needs and capabilities, as well as coordinating the list with the electric utility company for repair priority.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director and Geauga County GIS Department, Director	Ongoing	
Priority #2	Educate the public on the safe use of generators	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director	Ongoing	
Priority #3	Identify which Gas Stations, Stores, and other fuel sources throughout the county have backup generators.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director	Ongoing	
Tornadoes							

Priority #1	Knowing that sirens are for outdoor notification only the Planning Team would like to seek funding for NOAA weather alert radios to reach out to residents that are within their homes. Also, there should be outreach and awareness conducted regarding low cost and free technology available that relays reliable weather and warning information, such as phone apps.	1/1/2020	12/31/2025	HMGP	Geauga County DES/EMA, Director	Ongoing	With the increase use of Weather Aps and the WENS Notification system and other notification system such as through the National Weather Service the general population has warnings. However there are still populations throughout the county that may not use these types of technologies, therefore this action item is still relevant.
Priority #2	Evaluate the need for storm shelters in existing schools and new schools. Potentially seek funding for storm shelters within critical facilities.	1/1/2020	12/31/2025	HMGP	Geauga County DES/EMA, Director and Geauga School Districts, Superintendents	Ongoing	
Priority #3	Seek funding for multi-use storm shelters within public parks and campgrounds (multi-use possibility).	1/1/2020	12/31/2025	HMGP	Geauga County DES/EMA, Director	Ongoing	This action item mainly pertains to Punderson State Park.
Priority #4	Evaluate the need (seek funding) for the establishment of storm shelter networks within mobile home parks. Possible funding available through Community Development Block Grant Program.	1/3/2020	12/31/2025	Community Development Block Grant Program.	Geauga County DES/EMA, Director	Ongoing	
Flooding (Flash, 100 yr., 25 yr.)							
Priority #1	Insurance agents need education on the requirements of purchasing flood insurance. Insurance agents are misinforming residents on the requirements of flood insurance. Outreach to insurance agents.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director	Ongoing	Possibly Conduct seminar with local insurance companies discussing flood insurance programs.
Priority #2	The Chagrin River Watershed Partners boundaries are within Geauga County and there have been several communities within Geauga County that have adopted riparian buffer overlays. Hazardous areas should be identified and communities should be made aware of these hazards and potential remedies.	1/1/2020	12/31/2025	HMGP, PDM, FMA	Geauga County DES/EMA, Director and Geauga County Soil and Water Conservation District, Board	Ongoing	

Priority #3	Identify and repetitive loss properties within Geauga County	1/1/2020	12/31/2025	FMA	Geauga County DES/EMA, Director and Geauga County Soil and Water Conservation District, Board	New	
Priority #5	Look into and consider the process and possibilities involved in the acquisition, demolition, and/or retrofit of flood-prone properties.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director, Geauga County Building Department, and the Geauga County Soil and Water Conservation District, Board.	New	
Earthquake							
Priority #1	Most residents in Geauga County are unaware that earthquakes are not typically covered on their homeowners insurance and that insurance coverage is cost-effective. Considering that the Northeast quadrant of Ohio has been the most active area as it relates to earthquakes outreach to residents on the benefits of insurance is something the Core Group wanted to support.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director and Mitigation Focus Group, Chair	Ongoing	

Dams Failure and Dam Safety							
Priority #1	Dam Safety for the Core Group is a significant issue, especially since there are so many unknowns. The Core Group would like to evaluate the use of mitigation dollars to help dam owners in the County.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director and State of Ohio: ODNR	Ongoing	
Priority #2	Seek to obtain/maintain EAP's and inundation data for all Class I and II dams in Geauga County.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director and State of Ohio: ODNR	New	
Priority #3	Seek to rehabilitate or mitigate all high hazard potential dams in Geauga County.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director and State of Ohio: ODNR	New	
Disease (Epidemic)							
Priority #1	Continue to educate and distribute outreach/pamphlets on preparedness activities as it relates to disease epidemics.	1/1/2020	12/31/2025		Geauga County DES/EMA, Director, Geauga County Health Dept.	Ongoing	
Drought and Extreme Heat							
Priority #1	There are numerous businesses in Geauga County that are dependent on water. The Core Group feels it's necessary to create a comprehensive list of businesses dependent on water to help elevate the potential problems with a long-term drought.	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director	Ongoing	Locations have been identified geographically but need specific contact information
Wildfires							
Priority #1	Create Outreach program in regards to wildfire prevention	1/1/2020	12/31/2025	County EMA Annual Budget	Geauga County DES/EMA, Director and State of Ohio, Fire Marshal	Ongoing	