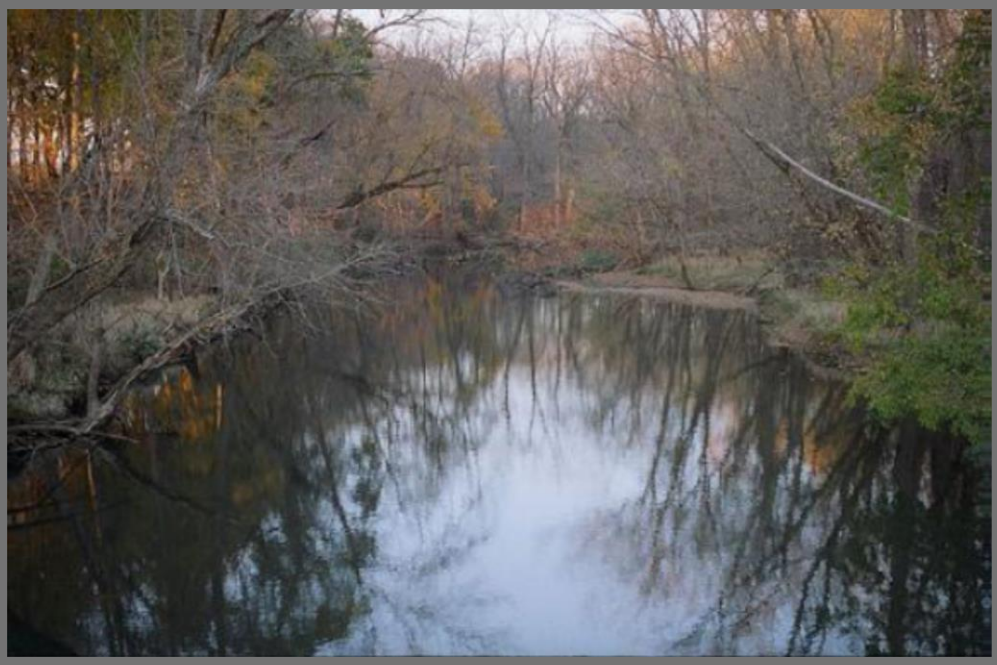
2020 - 2025

Holmes County Hazard Mitigation Plan



HOLMES COUNTY EMERGENCY MANAGEMENT AGENCY
2 Court Street, Suite 11
Millersburg, Ohio 44654
330-674-0989

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Section One: Introduction

The Disaster Mitigation Act of 2000 requires local governments to develop and update a hazard mitigation plan every five (5) years in order to be eligible for certain types of federal hazard mitigation grant funding.

The development of the Holmes County Hazard Mitigation Plan began back in 2007 and involved the participation of numerous local agencies and various subject-matter experts. The Holmes County Hazard Mitigation Plan was approved by FEMA in 2007 and was updated and re-approved in 2014 to meet the requirements of the Disaster Mitigation Act of 2000.

Natural hazards have the potential to cause loss of life, property losses, economic hardships, and threats to public safety. While natural disasters cannot be prevented from occurring, implementing mitigation strategies can reduce the long-term risk to life and property and make Holmes County a more disaster resilient community. By implementing hazard mitigation actions, Holmes County is striving to break the disaster cycle of damage, reconstruction, and repeat damage.

The first step in the planning process for developing the Holmes County Hazard Mitigation Plan was to determine the overall risk to the county with regards to hazard vulnerability. Once the hazards were identified, the vulnerability to those hazards was assessed. The 2019-2020 plan update utilized data from multiple sources to evaluate risk, including historical damage data, input from subject-matter experts, and information from HAZUS. The 2019-2020 revision of the plan details Holmes County's highest-priority hazards to include: flooding, winter storm, drought, landslide, and tornado/wind events.

The next step in the planning process was to develop a blueprint of actions that will mitigate the risk to the identified hazards. The plan details a list of mitigation goals, objectives, and related actions that can assist Holmes County in reducing risk and preventing loss from future natural hazard events.

Section Two: Community Profile

Community Overview

Holmes County is located in the Appalachian Plateaus region of Ohio and is bordered by Wayne County to the north, Stark and Tuscarawas to the east, Ashland and Knox to the west, and Coshocton to the south. The county is comprised of 19 political subdivisions which include: Village of Millersburg, Glenmont, Holmesville, Killbuck, Nashville; and the townships of Berlin, Clark, Hardy, Killbuck, Knox, Mechanic, Monroe, Paint, Prairie, Richland, Ripley, Saltcreek, Walnut Creek, and Washington. A portion of the Village of Baltic and Loudonville resides within Holmes County, but they opted to not be a part of Holmes County's planning area.

Holmes County was established January 20, 1824, and encompasses 423 square miles. According to the State of Ohio's Office of Research, land usage in Holmes County is approximately 40% forest, 39% pasture, and 13% crops (refer to Table 2.1).

Table 2.1

Land Use	Percent	Previously
Forest	39.88%	51%
Pasture/Hay	38.64%	18%
Cultivated Crops	12.83%	29%
Developed – Lower Intensity and Higher Intensity	6.72%	Less than 1%
Wetlands	1.10%	Less than 1%
Open Water	.38%	Less than 1%

Holmes County has over 500 million dollars of residential inventory and over 250 million in agriculture (See Table 2.2)

Table 2.2

Type	2018 Value	2014 Value
Residential	$516,686,310	$420,676,200
Agriculture	$285,424,480	$208,868,350
Industrial	$61,553,350	$40,882,840
Commercial	$115,900,170	$88,690,930
Mineral	$1,578,400	$3,686,580

Demographics

According to the 2010 census, the population of Holmes County was 42,366 with a projected population in 2020 of 44,620 (see Table 2.3 and Table 2.4). Based on the census data, Holmes County's largest racial group is White at 98.5% with 2.1% minority population (see Table 2.5). The median age for Holmes County residents is 30.8 years. At present, approximately 8.7% of the population is less than 5 years of age (3,819) and 12.7% of the population are 65 years or more (5,567). These are the two age groups that often need special consideration during disaster events (see Table 2.6).

Table 2.3

Holmes County Largest Jurisdictions	2010 Census Data	2018 Estimated Population
Salt Creek Township	4,252	4,401
Berlin Township	4,252	4,396
Paint Township	4,134	4,276
Clark Township	3,936	4,053
Walnut Creek Township	3,821	3,924
Mechanic Township	3,127	3,247
Village of Millersburg	3,025	3,189
Prairie Township	2,761	2,714
Hardy Township	2,624	2,823
Ripley Township	2,338	2,417

Table 2.4

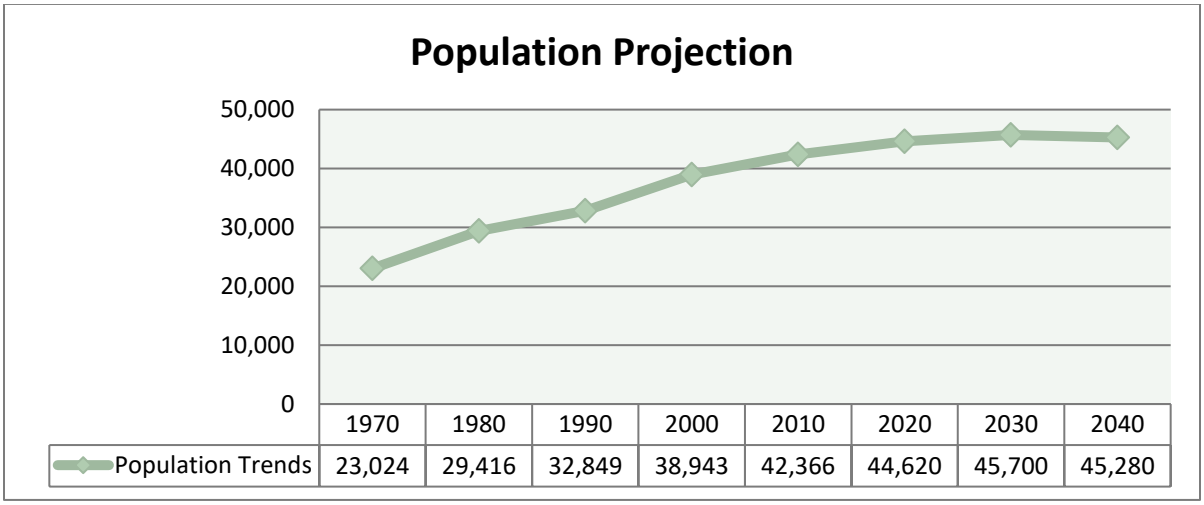

Table 2.5

Race	2018	2018 Percentage	2014	2014 Percentage
Total Population	43,808	100%	42,264	100%
White	43,130	98.5%	41,723	98.7%
African-American	72	0.2%	173	.4%
Native American	11	0.0%	7	0%
Asian	97	0.2%	33	.1%
Pacific Islander	0	0.0%	28	.1%
Other	39	0.1%	123	.3%
Two or More Races	459	1.0%	177	.4%
Hispanic (may be of any race)	392	0.9%	317	.8%
Total Minority	**901**	**2.1%**	**735**	**1.7%**

Table 2.6

Age	2018	Percentage	2014	Percentage
Under 5 years	3,819	8.7%	4,086	9.7%
5 to 17 years	10,540	24.1%	10,457	24.7%
18 to 24 years	4,378	10.0%	4,143	9.8%
25 to 44 years	10,041	22.9%	9,91	23.5%
45 to 64 years	9,472	21.6%	8,843	20.9%
65 years and more	5,567	12.7%	4,823	11.4%
Total	43,808	100%	42,264	100%
Median Age	**30.8**		**29.4**	

Economy

Holmes County's economy is largely based in the private sector, producing goods, providing services, manufacturing, construction, and trade, transportation, and utilities. Data has shown that Holmes County experienced a 56% loss of professional and business services sector jobs in the last five years. Refer to Table 2.7 for more detailed information.

Table 2.7: Establishments, Employment, and Wages by Sector

Industrial Sector	Number of Establishments	Average Employment	Total Wages	Average Weekly Wages
Private Sector	1,302	17,862 (10.4%)	$673,483,315	$725
Goods-Producing	662	9,601 (16.2%)	$405,102,720	$811
Natural Resources and Mining	46	253 (-10.6%)	$8,712,366	$661

Construction	285	2,193 (32.3%)	$98,308,179	$862
Manufacturing	331	7,155 (13.2%)	$298,082,175	$801
Service-Providing	640	8,261 (4.3%)	$268,380,595	$625
Trade, Transportation and Utilities	292	4,153 (26.5%)	$152,454,561	$706
Information	6	74 (-6.3%)	$2,453,014	$635
Financial Services	45	429 (2.1%)	$18,546,862	$831
Professional and Business Services	86	702 (-56.2%)	$29,479,623	$807
Education and Health Services	55	1,065 (10.5%)	$32,453,607	$586
Leisure and Hospitality	80	1,529 (16.3%)	$23,238,602	$292
Other Services	74	302 (19.8%)	$9,635,517	$613
Federal Government		62 (-3.1%)	$3,183,763	$992
State Government		43 (22.9%)	$2,377,448	$1,069
Local Government		1,493 (-2.2%)	$57,398,031	$739

Agriculture is an important part of Holmes County's economy; generating a total of $182,088,000 in cash receipts, 33,467,000 from crops and $148,621,000 for livestock/products (refer to Table 2.8).

Table 2.8

	2018	2014
Land in Farms (acres)	173,925	181,000
Number of Farms	1,673	1,510
Average size (acres)	104	120
Total cash receipts	$182,088,000	$152,026,000
Per Farm	$108,839	$100,017

Holmes County unemployment rates declined from 4.0% in 2014 to 3.3% for 2018 (See Table 2.9). The median household income for Holmes County is $58,728, which is higher than the states average at $52,407 and the national average at $57,652 (See Table 2.10).

Table 2.9

Civilian Labor Force	2018	2017	2016	2015	2014
Total Labor Force	20,600	20,800	21,000	20,600	19,900
Employed	19,900	20,000	20,200	19,900	19,100
Unemployed	700	700	800	700	800
Unemployment Rate	3.3	3.5	3.6	3.4	4.0

Table 2.10

Household Income	2018	2018 Percentage	2014	2014 Percentage
Total Households	12,520	100%	12,120	100%
Less than $10,000	607	4.8%	840	6.9%
$10,000 to $19,999	905	7.2%	1,180	9.7%
$20,000 to $29,999	1,236	9.9%	1,518	12.5%
$30,000 to $39,999	1,355	10.8%	1,835	15.1%
$40,000 to $49,999	1,138	9.1%	1,669	13.8%
$50,000 to $59,999	1,164	9.3%	1,091	9.0%
$60,000 to $74,999	1,558	12.4%	1,146	9.5%
$75,000 to $99,999	2,073	16.6%	1,400	11.6%
$100,000 to $149,999	1,557	12.4%	1,027	8.5%
$150,000 to $199,999	540	4.3%	285	2.4%
$200,000 or more	387	3.1%	129	1.1%
Median household income	$58,728		$43,533	

There are 13,639 housing units in Holmes County (See Table 2.11). The majority of the homes in the county are owner-occupied (76.7%), with 23.3% that are renter occupied. Currently, 8.2% of Holmes County's housing units are vacant.

Table 2.11

Housing Units	**2018**	**2018 Percentage**	**2014**	**2014 Percentage**
Total housing units	13,639	100%	13,608	100%
Occupied housing units	12,520	91.8%	12,261	90.1%
Owner occupied	9,605	76.7%	9,512	77.6%
Renter occupied	2,915	23.3%	2,749	22.4%
Vacant housing units	1,119	8.2%	1,347	9.9%

Holmes County has a total of 117 new residential structures that were built in the last five (5) years. The median build year for residential structures in Holmes County is 1979 (See Table 2.12), with an average housing value of $183,800 (See table 2.13).

Table 2.12: Housing Stock Age

Year structures were built	2018	2014
Built 2014 or later	117	--
Built 2010 to 2013	407	--

Built 2000 to 2009	1,838	--
Built 1990 to 1999	2,300	2,153
Built 1980 to 1989	1,989	1,786
Built 1970 to 1979	2,074	1,954
Built 1960 to 1969	799	966
Built 1950 to 1959	751	1,038
Built 1940 to 1949	483	537
Built 1939 or earlier	2,881	3,271
Total	13,639	13,608
Median year built	1979	1975

Table 2.13: Value of Occupied Housing Units

Housing value	2018	2014
Less than $20,000	371	432
$20,000 to 39,999	236	282
$40,000 to $59,999	337	238
$60,000 to $79,999	309	621
$80,000 to $99,999	581	882
$100,000 to 124,999	822	1,114
$125,000 to $149,999	892	1,044
$150,000 to $199,999	1,718	1,803
$200,000 to $299,999	2,291	1,879
$300,00 to $499,999	1,618	786
$500,000 to $999,999	325	269
$1,000,000 or more	105	162
Median value	**$183,800**	**$153,400**

TRANSPORTATION

Holmes County's transportation infrastructure is comprised mostly of land and rail components. Holmes County has no interstate highways, but contains approximately 37 miles of U.S. highway, 137 miles of state highway, and 848 miles of county, township, and municipal roads, with 98 state maintained bridges. The Ohio Central Railroad and CSX provide limited freight service in and around the Sugar Creek and Baltic area, and non-stop rail passes through Washington Township, which is located in the northwest portion of the county.

Holmes County has one (1) county owned airport, which is located in Hardy Township and provides limited air capabilities.

Section Three: Planning Process

This section describes the planning process taken by Holmes County beginning in 2019 to update the Holmes County Hazard Mitigation Plan.

For the plan update, the Holmes County Emergency Management Director decided to utilize the services of an intern and local planning contractor to facilitate the plan update. The contractor and the intern were utilized to facilitate planning meetings and generate the planning document based upon meeting findings.

PLANNING TEAM

One of the most important factors in the development of the Holmes County Hazard Mitigation Plan was to re-acquire the services of qualified and committed individuals who were willing to participate in the plan development process.

The selection of planning team members was determined by the Emergency Management Agency Director. The criteria for selecting team members included candidates that have positions within the community, are involved in public service activities, or had other valued experience, education, or training. It was their intent to develop a planning team with diverse backgrounds that would allow for a broad perspective on important issues and generate well-balanced discussions. Holmes County's 2019-2020 Planning Team members are listed in Table 3.1.

Table 3.1

2019-2020 Mitigation Planning Team	
Name	Organization
Gary Mellor	Holmes County Emergency Management Agency
Arnie Oliver	Holmes County Planning Commission
Ray Eyler	Holmes County Commissioners
Jerry Galbraith	Holmes County Highway Department
Michelle Wood	Holmes County Soil & Water Conservation
Jackie McKee	Holmes County Auditor's Office
Chris Young	Holmes County Highway Department
Scott Balder	Holmes Fire District 1
Richard Haun	Holmes County Sheriff's Office
Mark Leininger	Holmes County Economic Development
Jen Halverson	Holmes County Park District
Matthew Shaner	Millersburg Police Department

PLANNING OBJECTIVES

The 2019-2020 plan update process was similar to the planning process executed in both 2014 and 2007. Planning objectives were determined based on FEMA's Local Mitigation Plan Review Tool. The 2019-2020 planning process followed the actions outline below:

- Re-established the Mitigation Planning Team
- Review of the existing plan to FEMA's Local Mitigation Plan Review Guide
- Held a project kickoff meeting as an introduction/refresher
- Review and update participating jurisdiction information
- Review and update the public outreach mechanisms
- Review and update the Hazard Identification and Risk Assessment (HIRA)
- Review and update mitigation strategies
- Review and update plan maintenance, monitoring, and evaluation information
- Develop plan draft
- Conduct draft review
- Submit final draft to Ohio Emergency Management Agency (OEMA) and the Federal Emergency Management Agency (FEMA) Region V for approval
- Upon FEMA approval, present final document to the jurisdictions for adoption.

PARTICIPATION

A range of stakeholders were personally invited to participate in the plan update process by the EMA Director or the Planning Commission Director (Table 3.3B). The table below documents participants that contributed during planning meetings (Table 3.3A).

Table 3.3A

Participant	Agency	
Gary Mellor	Holmes County EMA	Phone call discussions, emails, surveys, and individual meetings.
Luke Hall	Holmes County EMA	Phone call discussions, emails, surveys, and individual meetings.
Arnie Oliver	Holmes County Planning Commission	Phone call discussions, emails, surveys, and individual meetings.
Michelle Wood	Holmes County Soil & Water Conservation	Phone call discussions, emails, surveys, and individual meetings.

Chris Young	Holmes County Engineer	Phone call discussions, emails, surveys, and individual meetings.
Matt Shaner	Millersburg PD	Phone call discussions, emails, surveys, and individual meetings.
Nate Troyer	Village of Millersburg	Phone call discussions, emails, surveys, and individual meetings.
Robert Ault	Holmes County Commissioner	Phone call discussions, emails, surveys, and individual meetings.
	Village of Baltic	Phone call discussions, emails, and surveys
	Village of Glenmont	Phone call discussions, emails, and surveys
	Village of Holmesville	Phone call discussions, emails, and surveys
	Village of Killbuck	Phone call discussions, emails, and surveys
	Village of Nashville	Phone call discussions, emails, and surveys
	Village of Loudonville	Phone call discussions, emails, and surveys

For the plan update, the planning team incorporated the input, technical assistance, and/or feedback from the stakeholders, neighboring jurisdictions', and non-governmental entities listed below.

Table 3.3B

Community Stakeholders	Name	Title
Holmes County	Robert Ault	Commissioner
	Joe Miller	Commissioner
	Ray Eyler	Commissioner
Village of Baltic	Lana Guisinger	Mayor
Village of Glenmont	Robert Turner	Mayor
Village of Holmesville	Rocky Snyder	Mayor
Village of Killbuck	Denny Hahn	Mayor
Village of Millersburg	Jeff Huebner	Mayor
	Nathan Troyer	Village Administrator
Village of Nashville	Wade Johnson	Mayor

Village of Loudonville	Steve Stricklen	Mayor
Berlin Township	Duane Miller	Trustee
	Daniel Schlabach	Trustee
	Delbert Schlabach	Trustee
Clark Township	John Jorg	Trustee
	David Yoder	Trustee
	Marvin Hersberger	Trustee
Hardy Township	Rodney Arnold	Trustee
	David Crilow	Trustee
	Kevin Duff	Trustee
Killbuck Township	Jeffery Chaney	Trustee
	Jack Whitney Jr.	Trustee
	Travis Chaney	Trustee
Knox Township	Charles Mark Bevington	Trustee
	Larry Ogi	Trustee
	Gary Morris	Trustee
Mechanic Township	Ervin Yoder	Trustee
	Lester Yoder	Trustee
	Allen Troyer	Trustee
Monroe Township	David Burgett	Trustee
	Kevin Miler	Trustee
	Tim Eastep	Trustee
Paint Township	Timothy Hershberger	Trustee
	Randy Sprang	Trustee
	Matthew Schneider	Trustee
Prairie Township	Stacey Shaw	Trustee
	Paul Troyer	Trustee
	Dale Wolboldt	Trustee
Richland Township	Heath Wolfe	Trustee
	Mike Phillips	Trustee
	Nolan Mackey	Trustee
Ripley Township	James Martin	Trustee
	Dale Sprang	Trustee
	Kevin Miller	Trustee

Saltcreek Township	Clifford Kandel	Trustee
	Daniel Gingerich	Trustee
	Lester Miller	Trustee
Walnut Creek Township	Richard Brand	Trustee
	Alvin Yoder	Trustee
	Joseph Varga	Trustee
Washington Township	Todd Humphrey	Trustee
	David Kick	Trustee
	Fred Wolf	Trustee

Neighboring County Emergency Management Agencies		
County	Name	Title
Ashland County	Mark Rafeld	EMA Director
Coshocton County	Rob McMasters	EMA Director
Knox County	Mark Maxwell	EMA Director
Stark County	Tim Warstler	EMA Director
Tuscarawas County	Alex McCarthy	EMA Director
Wayne County	Joe Villegas	EMA Director
Holmes County Businesses/Special Interest/Non-profit Organizations		
Muskingum Watershed Conservancy District		

PLANNING MEETINGS & PLAN DEVELOPMENT

Conducting a planning document update requires holding planning meetings to acquire essential data to achieve project objectives. During Holmes County's 2007 plan development process, planning meetings were conducted on a monthly basis for the first two months of the project and then were held every six weeks until the project's completion. In 2014's planning initiative, planning meetings were held every two to three weeks because of the heightened planning timeline.

For Holmes County's Hazard Mitigation Plan update, Holmes County EMA decided to make minor modifications in the way the plan update was initially rolled-out in an attempt to troubleshoot some of the difficulties that had been previously encountered in both 2007 and 2014's plan updates. To minimize the lag time in compiling mitigation strategies for this year's update Holmes County EMA decided to hold a series of pre-kickoff meeting planning sessions with key community stakeholders in an attempt to garner more thought-out mitigation strategies for this planning cycle. Below is a brief description of all planning activities which were executed during the 2019-2020 plan update:

June 18, 2019 – Subsequent to the kickoff of the mitigation plan update project, the contractor, the EMA Director and the intern all met to discuss the process involved in updating the mitigation plan.

July 11, 2019 – Small group meeting was conducted with the EMA Director and the Holmes County Planning Commission Director, and the EMA intern to discuss new possible projects to include in the Holmes County Mitigation Plan.

July 25, 2019 – Another small group meeting was conducted with the EMA Director and the Holmes County Planning Commission Director, the County Engineer, and the EMA intern to discuss new possible projects to include in the Holmes County Mitigation Plan.

August 1, 2019 – Another small group meeting was conducted with the EMA Director and the Holmes County Planning Commission Director, the Holmes County Soil & Water Director, and the EMA intern to discuss new possible projects to include in the Holmes County Mitigation Plan.

August 13, 2019 – Holmes County EMA launched the Hazard Mitigation Kickoff Meeting. The intent of the meeting was to provide a refresher to planning team members and/or stakeholders on hazard mitigation and to discuss / review as many planning elements as possible during the time allotted. Elements addressed during the Kickoff Meeting included:

- A review of the county's planning area and resources - members discussed some of the notable changes and how they could impact mitigation actions/threat assessments moving forward.
- A review of the public outreach strategy – members made adjustments to the location of draft documents on various municipal websites so that the public is able to review and provide feedback prior to acceptance and implementation of the plan. Refer to Section 4: Outreach Strategy for detailed results.
- A review of 2014 Community Capabilities and discussed current capabilities (refer to Section 5.3 of this plan for updated capabilities).
- A review of Hazard Identification and Risk Assessment data from past hazards the county has faced and conducted a reassessed of each hazard to determine its place in the Hazard Identification Threat Index (refer to Section 5 of this plan for the results).
- Reviewed and discussed the Mitigation Strategy Projects from the previous plan. Members of the committee presentment new projects to the entire committee and the floor was opened to identify other new project proposals (refer to Section 6 for the results).
- Members reviewed and discussed plan maintenance schedule and minor alterations were made to include responsibility to mitigation project actions for the organization / agency

having jurisdiction. Refer to Section 7 for a detailed account of Plan Evaluation, Implementation and Plan Update information.

Upon completion of the planning meetings the contractor had all the necessary information necessary to compile the plan draft document.

DRAFT DEVELOPMENT

During 2014's plan update, Holmes County Hazard Mitigation Plan underwent a complete overhaul because the contracting firm for that 2007 plan failed to provide the county with an editable copy of the document. For the plan update, the EMA Director determined that the layout of the 2014 plan was clear, concise, and organized in a meaningful manner; so, the contractor would update its contents to reflect the results of the 2019-2020 planning meeting efforts.

Once the contractor completed the plan draft, the document was submitted to the Holmes County EMA Director to be posted on the Holmes County website so that all jurisdictions, stakeholders, and the general public could review the document and submit comments or recommendations.

DRAFT PLAN REVIEW MEETING:

Holmes County's planning team instituted a two-pronged approach to gathering comments and feedback regarding the Hazard Mitigation Plan draft document. The first method involved hosting a public meeting to garner feedback; and the second method involved posting the draft to local government websites where the general public and community stakeholders could view the plan and submit comments and/or recommendations back to the Holmes County EMA Director. The EMA Director would report any comments or feedback received back to the planning team members for consideration and incorporation into the plan.

The plan review meeting was held on October 22, 2019 and open to public. The goal for the plan review meeting was to provide a forum where the plan draft could be reviewed and comments or recommendations could be incorporated into the final plan edits before submission. All document change requests were provided to the contractor for incorporation into the final document.

APPROVAL

Upon completion of the plan draft review process, the Holmes County Hazard Mitigation Plan and the completed compliance crosswalk will be submitted to the Ohio Emergency Management

Agency (OEMA) and the Federal Emergency Management Agency (FEMA) for final review and approval.

ADOPTION

Formal adoption of the Holmes County Mitigation Plan will occur following FEMA approval. This plan will be submitted to all political subdivisions in Holmes County for adoption and support. The Holmes County Board of Commissioners and the villages will put forth resolutions to formally adopt the Holmes County Mitigation Plan within one year of receipt of FEMA's "Approval Pending Adoption."

Once adoptions have been completed, jurisdictions are to forward a copy of their resolutions to the Holmes County EMA Director so they can be forwarded on to OEMA.

Section Four: Outreach Strategy

This section of the plan describes Holmes County's outreach strategy for reaching out to key stakeholders and the general public during the 2019-2020 plan update process.

The intent of Holmes County's outreach activities was primary for the purposes of educating the general public and community stakeholders on the hazards that impact the jurisdiction; garnering comments and feedback regarding the plan draft and the plan's overall development; and for the purposes of soliciting final adoption of the plan.

4.1 STAKEHOLDER OUTREACH STRATEGY

Holmes County utilizes existing infrastructure as a platform to encourage key stakeholders, neighboring communities, and technical experts to participate in the planning process. Stakeholders' involvement was encouraged through Township Association Meetings, Holmes County Commissioner Meetings, Wayne-Holmes Emergency Coalition Meetings, EMA Director's Conferences, and at regional EMA sector meetings.

Another method for obtaining stakeholder involvement was to contact them directly by phone or via email. A formal letter was sent via email as an invitation to all identified stakeholders in the community (refer to Section 3 - planning team and key community stakeholders list). A copy of the letter was as follows:

Gary Mellor, Director
Holmes County Emergency Management Agency
2 Court St #11
Millersburg, OH 44654

The Holmes County Emergency Management Agency (HCEMA) is required under Ohio Emergency Management (OEMA) guidelines and statutory regulations to develop and maintain a county-wide Mitigation Plan with regard to natural and man-made disasters. The current Holmes County Mitigation Plan is set to expire this year. As such, we are required to draft a new plan for the 2019-2024 cycle. As part of this process, these regulations require cooperation and input from various stakeholders in the community.

You have been selected as a potential participant in this planning process because of your current position, past participation, or as a stakeholder in the safety and security of Holmes County or contiguous jurisdictions. Participation in this planning process will be conducted over the course of at least two structured meetings. The kickoff meeting will

*be held on **August 13th, 2019 at 9:30 AM** at the offices of the Holmes County Commissioners.*

During these meetings, the Mitigation Planning Committee will be identifying and discussing the hazards Holmes County faces and updating the county's Hazard Identification and Risk Assessment (HIRA), forming the county's Capability Assessment, evaluating mitigation strategies, forming and disseminating a mitigation project survey, selecting mitigation projects, and finally, drafting the county's Mitigation Plan for the 2019-2024 cycle. The finalized plan will then be submitted to OEMA and FEMA Region V for plan approval.

Why You Should Participate

As stakeholders in the community, it is incumbent upon us to make the necessary arrangements to ensure the safety and security of the citizens who reside under our purview. Additionally, post-disaster funding from FEMA and OEMA is contingent upon signing off on the county plan. Participation in the planning process is encouraged, but not necessary-- only a final sign off on the plan is required by each jurisdiction. Once the plan has been drafted and approved by the committee, each jurisdiction will be provided a copy for signature.

Please contact HCEMA if you plan on attending the meeting on August 13th, or have any questions regarding participation in the Holmes County Mitigation Planning Committee.

Sincerely,

Gary Mellor
Director, HCEMA
p. 330.674.4591
e. gmellor@co.holmes.oh.us

4.2 PUBLIC OUTREACH STRATEGY

The Mitigation Planning Team pursued public input through advertisements in the local paper, posts to Facebook and the county website. At the beginning of planning meetings, all attendees (including the public) were encouraged to participate in plan discussions.

Press releases were used to solicit public input for the draft development and the draft review process. Holmes County utilized *The Bargain Hunter* to disseminate information to the public.

In addition to the press release, the plan draft was posted to the Holmes County website for viewing and comment. The website provided citizens with the opportunity to review the plan and to submit comments or suggestions before the final revision.

During the Plan update, local stakeholders participated during various stages of the planning and draft process but the general public did not.

4.3 PRESS RELEASE

The following announcement was published in the Bargain Hunter – Holmes on Saturday, October 5, 2019 and Saturday, October 12, 2019.

PUBLIC MEETINGS

• **Millersburg Village Council** meeting second and fourth Monday each month at 7 p.m. at the village office, 6 N. Washington St., Millersburg. Call 330-674-1886.

• **Holmes County Commissioners** meeting Monday, Oct. 14. Next business meeting for board Thursday, Oct. 17.

• **Holmes County Emergency** Management Agency meeting Oct. 22 at 10 a.m. at Old Jail Office

8 • The Bargain Hunter – Holmes

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DISPLAY AD DEADLINE

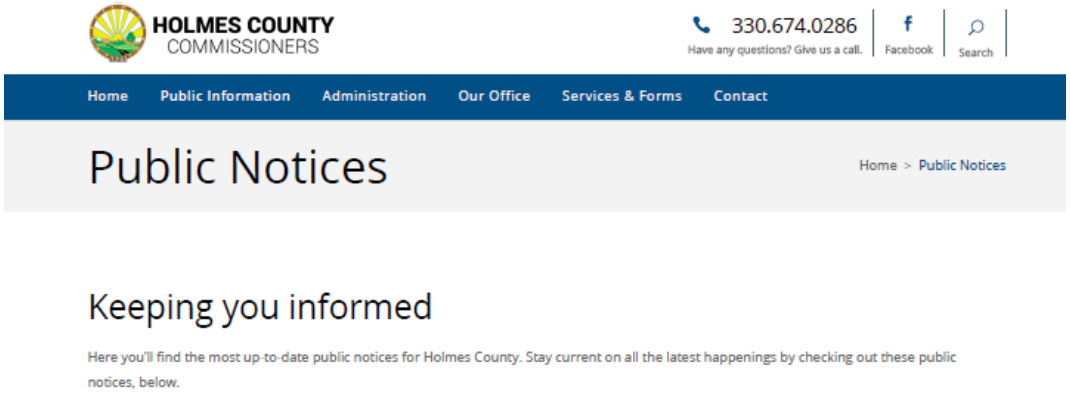
Building, 2 Court St., Millersburg, to review updated draft of Holmes County Hazard Mitigation Plan. Call 330-674-0989.

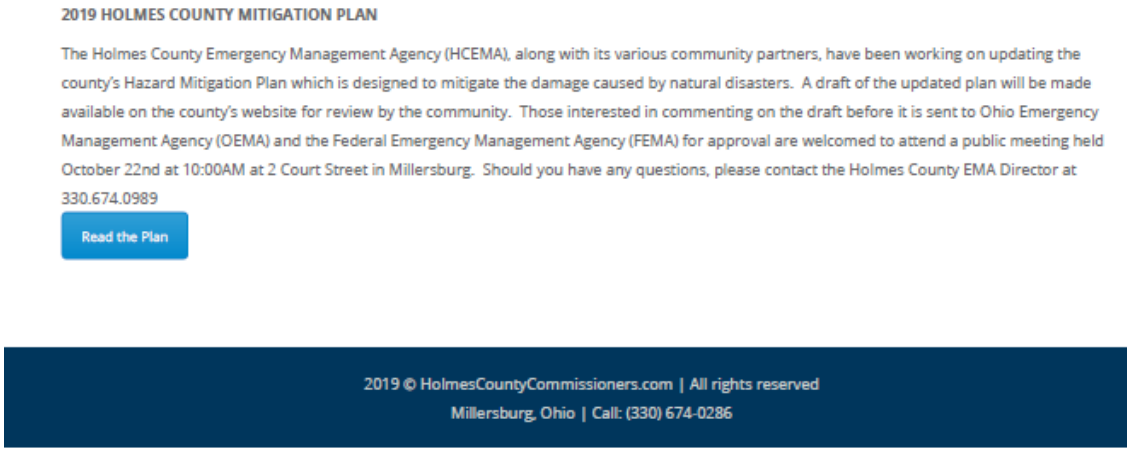
• **Holmes County Board of** Developmental Disabilities meeting Tuesday, Oct. 22 at 6 p.m. at the Holmes BDD, 8001 Township Road 574, Holmesville.

REUNIONS

• **Garaway class of 1979 40th** class reunion Saturday, Nov. 23 at 5 p.m. at Winetagous Winery, 540 Belden Parkway, SugarCreek.

Public Notice on the Holmes County Commissioners Website:





2019 HOLMES COUNTY MITIGATION PLAN

The Holmes County Emergency Management Agency (HCEMA), along with its various community partners, have been working on updating the county's Hazard Mitigation Plan which is designed to mitigate the damage caused by natural disasters. A draft of the updated plan will be made available on the county's website for review by the community. Those interested in commenting on the draft before it is sent to Ohio Emergency Management Agency (OEMA) and the Federal Emergency Management Agency (FEMA) for approval are welcomed to attend a public meeting held October 22nd at 10:00AM at 2 Court Street in Millersburg. Should you have any questions, please contact the Holmes County EMA Director at 330.674.0989

Read the Plan

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Millersburg, Ohio | Call: (330) 674-0286

Public Notice on the Holmes County Commissioners Facebook page:

Posts

Holmes County Commissioners
September 19 at 7:51 AM ·

The Holmes County Emergency Management Agency will host a public meeting on October 22nd at 10:00AM to review the updated draft of the Holmes County Hazard Mitigation Plan. The meeting will be held at the Old Jail Office Building at 2 Court St. in Millersburg. The public is invited to attend. Should you have any questions, please contact the Holmes County EMA Director at 330.674.0989.

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Like Comment Share

Section Five: Hazard Identification & Risk Assessment

This section of the plan describes the process taken by the Mitigation Planning Team to update Holmes County's Hazard Identification and Risk Assessment (HIRA) information.

Holmes County has experienced many natural disasters in the past fifty years. These disasters have included floods, tornadoes, and blizzards (See the Holmes County Disaster Declaration History Table below). The purpose of the Hazard Identification and Risk Assessment (HIRA) is to identify the hazards that can affect the county and to determine the risks that they pose.

Holmes County Disaster Declaration History

Disaster Declarations – Holmes County			
Disaster Number	Declared	Disaster Type	Public Assistance
DR- 266	7/15/1969	Heavy storms and floods	$43,478.25
DR-3055-EM	1/26/1978	Severe blizzard conditions	$40,303.06
DR-1227	7/5/1998	Flash flooding, flooding, high winds and tornadoes.	
DR-1519*	6/3/2004	Severe storms and flooding	$477,879.95
DR-1580*	2/15/ 2005	Severe winter storms, ice and mudslides	$5,410,578.23
EM-3250	9/13/2005	Hurricane Katrina Emergency Shelter Operations	
DR-1805	10/24/2008	Severe wind storms associated with Tropical Depression Ike	$77,908.33
EM-3346	6/30/2012	Ohio Severe Storms	
		TOTAL	**$6,050,147.83**

HAZARD IDENTIFICATION & RISK ASSESSMENT

Hazard identification involves recognizing all of the hazards that can potentially threaten a community. The hazard identification and risk assessment provides the basis for determining risks or dangers to which the county may be vulnerable; the preparedness needs for man-made, technological, or natural disasters; and is a guideline for the procurement of training and equipment needs for the county. In addition, the hazard identification and risk assessment creates awareness for new hazards, provides information for developing disaster mitigation plans, and develops standards for response actions and recovery operations.

Sources of researched used while conducting the hazard identification and risk assessment included data from local, State and Federal agencies, National Weather Service, National Climatic Data Center, interviews, surveys, and newspapers and internet searches.

The first step for the Holmes County Mitigation Planning Team was to determine the hazards which would be assessed for the plan update. Planning team members reviewed the hazards identified for the 2014 plan update and determined that those hazards would be utilized again for the 2019 plan update. Those hazards included dam failure, drought, earthquake, extreme temperature, flooding, landslide, lightning, thunderstorm/hail, tornado/wind, and winter weather.

RISK ASSESSMENT METHODOLOGY

Each hazard was then analyzed by the Mitigation Planning Team to determine the risk that hazards pose to the community. Hazards were evaluated based on six key risk factors including probability, vulnerability, spatial extent, severity, speed of onset, and duration.

Risk Factor	Definitions
Probability	Classified in terms of hazards likelihood to occur within the next year.
Vulnerability	Classified in terms of areas susceptible to a hazards impact.
Spatial Extent	Classified in terms of the geographical range that a hazard can impact.
Severity	Classified in terms of injuries, deaths, and damage that a hazard could inflict.
Speed of Onset	Classified in terms of the speed in which the hazard could impact the community.
Duration	Classified by how long the event usually lasts or how long it takes to respond to the hazard.

RISK ASSESSMENT			
PROBABILITY	**Highly Likely**	90% to 100% probability in the next year.	4
	Likely	10% to 90% probability in the next year or at last one chance in the next 10 years.	3
	Possible	Between 1% and 10% probability in the next year, and at least one chance in the next 100 years.	2
	Unlikely	Less than 1% probability in the next 100 years.	1

VULNERABILITY	**Catastrophic**	Catastrophic damage and uninhabitable conditions	4
	Critical	Devastating damage and loss of services for weeks or months	3
	Limited	Some damage and loss of services for days	2
	Minor	Little to no damage	1
SPATIAL EXTENT	**Extensive**	75% to 100% of the planning area	4
	Significant	25% to 75% of the planning area	3
	Limited	10% to 25% of the planning area	2
	Negligible	Less than 10% of the planning area	1
SEVERITY	**Catastrophic**	10 or more deaths, or more than 12 life threatening injuries	4
	Critical	6-10 deaths, or 7-11 treat and transport injuries	3
	Limited	1-5 deaths, or deferred treatment injuries	2
	Negligible	if no fatalities or only minor injuries resulted	1
SPEED OF ONSET (WARNING TIME)	**Minimal to 6 hours**		4
	6 to 12 hours		3
	12 to 24 hours		2
	24 hours +		1
DURATION	**Less than 1 year**		4
	Less than 1 month		3
	Less than 1 week		2
	Less than 1 day		1

Each factor was assigned a risk value between 1 and 4. The sum of all six factors then provides the jurisdiction with its overall risk value.

HIRA 2019-2020 Results

Based on the 2019-2020 HIRA, Holmes County's top five hazards include flood, severe winter weather, drought, landslide, and tornado/high winds. Refer to the Hazard Summary Chart on the next page for a detailed list of the HIRA findings for 2019-2020.

During this year's assessment, Holmes County's flood ranking increased from a value of 16 to 22. Flooding and flash flood incidents have become a more frequent, with almost annual

occurrence as a result of changes in the county's composition. Deforestation and the clearing of land for additional structures and fields, has increased runoff and contributed to higher water velocities during flooding events. Flooding and flash flooding events also have the capacity to render buildings over an extensive area uninhabitable if they were to occur. While there is typically warning for standard flooding events, flash flooding has little-to-no warning which contributed heavily to the value increase for this hazard.

Winter storms, another almost annual event, were also increased to better-reflect the current threat environment. Notable alterations were made in the areas of vulnerability and speed of onset as a result of past severe events, which left the county scrambling to respond. It was determined by the committee that while there is typically ample warning provided for a winter storm system, the exact severity of the storm is often unknown until during or after the event. Both of the catastrophic winter storm events in 2004 and 2005 were not anticipated by the NWS to be as damaging as they were. Thus, the committee felt it was necessary to change the speed of onset rating from 1 to 4.

Landslides received a significant boost in their overall score due to increases in several categories. First, the vulnerability score was raised due to likelihood of roads that could be shut down for extended periods of time due to an event. Severity was also increased because of the potential that a landslide could destroy nearby buildings, or occur near a roadway where vehicles could be covered or pushed off the roadway if the event occurred at a time when traffic was present. Landslides speed of onset ranking was also increased because there is often almost no warning of a landslide about to occur.

Holmes County's tornado ranking also received a significant boost because of changes to its vulnerability, speed of onset, and severity classifications. Holmes County has areas of foundationless mobile homes that would be at great risk of complete loss (and human loss) during an event should a tornado incident occur there. The vulnerability and severity ranking were increased to take into account these additional structures and increased population densities at risk, and the potential for whole structure losses. And lastly, tornado warnings only occur minutes before an event, which leaves little time for residents to prepare.

During the 2019-2020 assessment, dam failure's overall ranking ultimately increased by a point because of modifications to the severity classification for the potential for loss of life and property in an adjacent county if Holmes County's largest dam broke. Losses in Coshocton County could potentially total in the tens/hundreds of millions of dollars if an incident with Lake Buckhorn was to occur.

For the remaining hazards (i.e. drought, thunderstorms, lightning, extreme temperatures, and dam failures), their scores for the most part remained the same as their scores in the 2014

assessment. Their fall in the hazard rankings was the result of the increases in the other hazards overall totals.

HAZARD SUMMARY CHART

Hazards	Probability	Vulnerability	Duration	Speed of Onset	Severity	Spatial Extent	Total
Flood	4	4	2	4	4	4	22
Winter Storm (Heavy Snow/ Ice Storm/ Winter Storm)	3	3	2	3	3	4	18
Drought	3	1	4	1	3	4	16
Landslide	3	3	1	4	4	1	16
Tornado/Wind	2	4	1	4	4	1	16
Thunderstorm/ Hail	4	2	1	1	2	4	14
Lightning	3	2	1	4	2	1	13
Extreme Temperatures	3	1	1	1	1	4	11
Dam Failure	1	1	1	2	4	1	10
Earthquake	1	1	1	4	1	1	9

HAZARD PROFILE: DAM FAILURE (CLASS I & CLASS II)

A dam is an artificial barrier usually constructed across a stream to impound water. The benefits of dams are numerous: they provide for drinking water, navigation, and agricultural irrigation. Dams also provide hydroelectric power and create lakes for fishing and recreation. Most importantly, dams save lives by preventing or reducing floods.

If dams have many benefits, they also can pose a risk to communities if not designed, operated, or maintained properly. In the event of a dam failure, the water stored behind them is capable of causing loss of life and great property damage to people downstream.

There are about 80,000 dams in the U.S. today, the majority of which are privately owned.

Holmes County has two (2) Class I dams, two (2) Class II dams, and one (1) Class III dam per the Ohio Division of Water Resources.

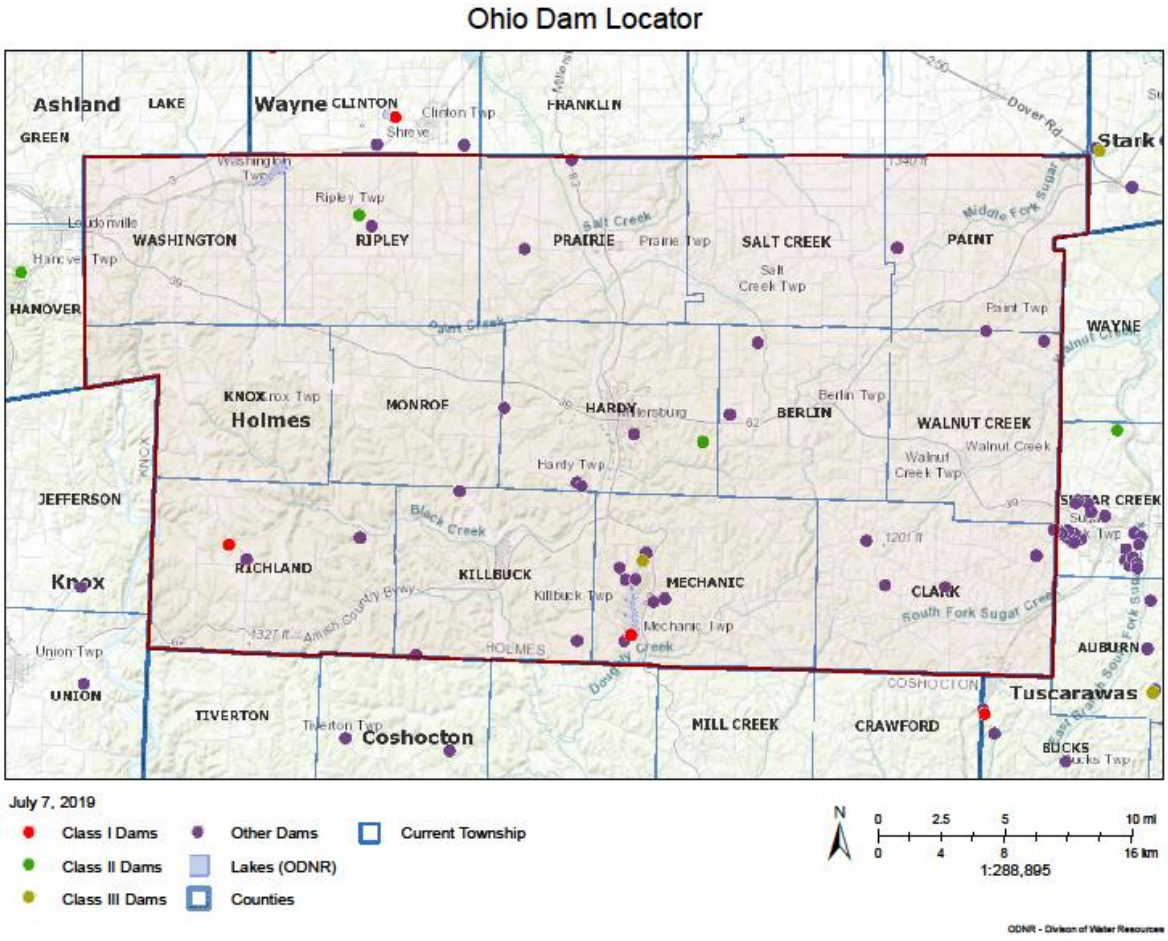


Table 5.2.1:

Dam Name	Whispering Hills Recreation Lake Dam	Bethany Lake Dam	Lake Buckhorn Dam	Hickory Lake Dam	Hidden Valley Acres Dam
NIDID	OH01792	OH00065	OH00063	OH00064	OH00066
Hazard Potential	Significant	High	High	Low	Significant
ODNR Classification	Class II	Class I	Class I	Class III	Class II
Inspection Date	11/19/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Owner Type	Private	Private	Private	Private	Private
NID Height (Ft.)	23.4	29.4	64.8	39.2	30.4
NID Storage	52	213	6,735	150	94
Primary Purpose	Recreation	Recreation	Recreation	Recreation	Recreation
Dam Type	Earth	Earth	Earth	Earth	Earth
River	Tributary to Lake Fork	Tributary to Black Creek	Tributary to Doughty Creek	Tributary to Doughty Creek	Upper Sand Run
Nearest City	Big Prairie	Glenmont	Clark	Clark	Killbuck
Distance To City (Mi.)	4	2.7	0.9	3	7.6
Permitting Authority	Yes	Yes	Yes	Yes	Yes
Inspection Authority	Yes	Yes	Yes	Yes	Yes
Enforcement Authority	Yes	Yes	Yes	Yes	Yes
EAP Status as of June 2018	Not Approved	Not Approved	Approved	Not Approved	Not Approved
Condition Assessment	Not Rated	Satisfactory	Satisfactory	Not Rated	Not Rated
Condition Assessment Date	-	-	-	-	-
Condition Assessment Detail	-	Meets applicable hydrologic and seismic regulatory criteria	Meets applicable hydrologic and seismic regulatory criteria	-	-

PAST HISTORY

In the last forty years, Holmes County has not experienced a dam failure.

PROBABILITY

Holmes County has a 2% chance of experiencing a dam failure in the next 50 years. Most dam failures are the result of prolonged rains, flooding, and debris jams. Holmes County frequently experiences periods of prolonged rains and flooding.

VULNERABILITY

Through the use of topographical maps of Holmes County's two Class I dams there are potentially fifty-eight (58) residential structures, five (5) non-residential structures, and one (1) critical facility that could be susceptible in a breach or failure. If a catastrophic breach occurred was to occur at Lake Buckhorn Dam, damages could realistically extend into Clark Township, which is located in the northern portion of Coshocton County.

Lake Buckhorn		
Structure Type	Structures at Risk	Potential Damage/Exposure
Residential	50	$5,868,100
Non-Residential	5	$749,570
Critical Facilities	1	$149,914

In regards to Bethany Lake Dam, the dam is located in a remote area and is surrounded by hills on all sides. Water from a breach would most likely run down the valley to Township Road 14 and inundate the area with 2-4 feet of water in some locations.

Bethany Lake Dam		
Structure Type	Structures at Risk	Potential Damage/Exposure
Residential	8	$938,896
Non-Residential	0	$0
Critical Facilities	0	$0

SPEED OF ONSET & DURATION

Dam failures or levee breeches can occur quickly with little to no warning. The duration of a dam failure will vary depending on the breach. For minor failures in the dam, a breach could occur within hours while other failures or breeches can take days to weeks.

SEVERITY

Loss of life resulting from a dam failure is influenced by the number of people occupying the dam failure flood plain, the amount of warning time, the severity of the flooding, and the time of

day the failure occurs. With a failure at Lake Buckhorn Dam there are approximately 56 structures that could be affected downstream, while if a failure were to occur at Lake Bethany Dam it would only impact eight (8).

As both Holmes County's Class I dams are privately owned, it is the responsibility of the owner for maintaining dam safety and is liable for damages that are caused by a failure.

HAZARD PROFILE: DROUGHT

A drought is a period of unusually persistent dry weather that lasts long enough to cause serious problems such as crop damage and/or water supply shortages. The severity of the drought depends upon the degree of moisture deficiency, the duration, and the size of the affected area. High temperatures, high winds, and low humidity can worsen drought conditions and also make areas more susceptible to wildfire. In addition, human actions and demands for water resources can accelerate drought-related impacts.

There are four types of drought, which include meteorological, agricultural, hydrological, and socioeconomic drought. These four types of drought are summarized below.

- **Meteorological Drought:** Is based on the number of days where precipitation is less than the average amounts on monthly, seasonal, or annual time scales.
- **Agricultural Drought:** Refers to a situation where the amount of moisture in the soil no longer meets the needs of a specific crop.
- **Hydrological Drought:** Refers to a situation where the surface and subsurface water supplies are below normal.
- **Socioeconomic Drought:** Occurs when the demand for economic goods exceeds supply as a result of a weather-related shortfall in water supply.

Droughts are slow-onset hazards, and over time, they can severely affect crops, municipal water supplies, recreational resources, and wildlife. If drought conditions extend over a number of years, the direct and indirect economic impacts may be significant.

MEASURING DROUGHT

The Standardized Precipitation Index (SPI) is a way of measuring drought that considers only the precipitation. The SPI index is negative for drought and positive for wet conditions.

Palmer Drought Severity Index measures the duration and intensity of the drought. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns and the previous month's weather patterns (See Drought Severity Indices Table).

Drought Severity	Return Period (years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

*NDMC - National Drought Mitigation Center

PAST HISTORY

According to NOAA's National Climatic Data Center, Holmes County has experienced five (5) droughts between 1/01/1996 and 7/1/2019 (See Table below).

Location	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
HOLMES (ZONE)	08/01/1996	00:00	Drought		0	0	0.00K	0.00K
HOLMES (ZONE)	06/01/1999	00:00	Drought		0	0	0.00K	0.00K
HOLMES (ZONE)	07/01/1999	00:00	Drought		0	0	0.00K	0.00K
HOLMES (ZONE)	08/01/1999	00:00	Drought		0	0	0.00K	0.00K
HOLMES (ZONE)	09/01/1999	00:00	Drought		0	0	0.00K	8.000M
				Totals:	0	0	0.00K	8.000M

PAST EVENT SUMMARIES

Event Details	Event Narrative
The North American Drought of 1988-1989	The drought of the late 1989s followed a milder drought in the Southeastern United States and California the year before. This drought spread from the Mid-Atlantic, Southeast, Midwest, Northern Great Plains, and Western United States. It was widespread, unusually intense, and accompanied by heat waves which killed 4,800 to 17,000 people across the country and also livestock. A couple of the reasons that the Drought of 1989 was damaging to

	farmers might have resulted due to farming on land that was marginally arable and the pumping of groundwater near the depletion mark. The Drought of 1989 destroyed crops almost nationwide, residents' lawns went brown, and water restrictions were declared in many cities. This drought was very catastrophic for multiple reasons; it continued across the Midwest States and North Plains States during 1989, not officially ending until 1990. Drought conditions continued across most of northern Ohio during September. For the month of September, only 1.63 inches of rain fell in Mansfield making it the 9th driest September on record. Even with an inch of rain on the 29th, both Toledo and Cleveland finished with below two inches of rain for the month. Holmes County's losses from reduced crop yields were estimated at $8 million.

Event Details	Event Narrative
Holmes County Drought: August 1996	Dry weather persisted throughout the month of August in northern Ohio. Rainfall averaged from a few tenths of an inch in north central and northwest Ohio to one to two inches in extreme northeast Ohio. August rainfall normally averages between three and four inches. Rainfall totals were .76 inches at Toledo Airport and .71 inches at Cleveland Airport, which rank among the five driest Augusts on record. Crops that normally mature during August were affected by the dry weather and crop losses were predicted at ten to thirty percent. The actual dollar amount of crop loss was unknown.

Event Details	Event Narrative
The North American Drought of 2012	The 2012-2013 North American Drought is an expansion of the 2010-2012 United States drought which began in the spring of 2012, when the lack of snow in the U.S. caused very little melt water to absorb into the soil. The drought includes most of the U.S. and included many counties in Ohio. Holmes 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 to continue to have catastrophic economic ramifications. In most measures, the drought has exceeded the 1988-1989 North American Drought, which is the most recent comparable drought. On July 30, 2012, the Governor sent a memorandum to the USDA 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, Holmes County was one of the designated counties.

PROBABILITY

Based on the county's historical data, Holmes County has had three (3) drought events in the past 31 years and has a 10% change of experiencing a drought within a given year. The State of Ohio averages two drought events per decade.

VULNERABILITY

Droughts are a non-spatial hazard that would impact the entire county. Droughts are also more likely to impact people, animals, and crops than the build environment. If a drought occurs in Holmes County, 173,925 acres of farm land could be severely impacted and the water supply could be depleted.

DROUGHT		
Structure Type	Structures at Risk	Potential Damage/Exposure
Residential	0	$0
Non-Residential	0	$0
Critical Facilities	0	$0

SPEED OF ONSET & DURATION

Droughts are a slow onset hazard where only the effects are seen. Drought duration can last from a few weeks over a number of years.

SEVERITY

Droughts rarely pose a threat to life or property, but can severely affect crops, water supplies, and recreational resources if drought conditions extent over multiple years. In 1999, Holmes County experienced $8 million in crop damages as a result of a drought. The table below compares last year's crop data compared to a previous drought and non-drought season.

Commodity	2011 Production	2012 Drought Year	2012 % Difference	2018 Production	Hypothetical Drought Year following 2018	Potential Losses
Corn –Acres Planted	23,600	24,800	5.08%	23,000	24,169	1,169 (Gain)
Corn, Grain – Acres Harvested	20,900	20,200	-3.35%	16,000	15,464	-536
Corn, Grain – Production measured in BU	3,287,000	2,635,000	-19.84%	2,400,000	1,923,943	-476,057
Corn, Grain – Yield, Measured in BU/Acre	157.3	130.4	-17.10%	150	124	-26
Hay, Alfalfa – Acres Harvested	14,100	13,000	-7.80%	13,100	12,078	-1,022
Hay, Alfalfa – Production measured in tons	50,700	35,600	-29.78%	36,500	25,629	-10,871
Hay, Alfalfa – Yield, measured in tons/acres	3.6	2.75	-23.61%	2.8	2	-1
Oats – Acres Harvested	2,300	1,500	-34.78%	1,000	652	-348
Oats – Acres Planted	3,400	3,100	-8.82%	1,400	1,276	-124
Oats – Production measured in BU	135,000	109,000	-19.26%	75,300	60,798	-14,502
Oats – Yield measured in BU/Acre	58.7	72.7	23.85%	75.3	93	18 (Gain)
Soybeans – Soybeans – Acres Harvested	12,500	12,300	-1.60%	12,500	12,300	-200
Soybeans – Soybeans – Acres Planted	12,600	12,300	-2.38%	12,900	12,593	-307
Soybeans – Production measured in BU	634,000	506,000	-20.19%	677,000	540,319	-136,681
Soybeans – Yield, measured in BU/Acre	50.7	41.1	-18.93%	54.2	44	-10
Wheat – Winter-Acres Harvested	2,170	1,330	-38.71%	1,400	858	-542
Wheat – Winter-Acres Planted	2,200	1,400	-36.36%	1,600	1,018	-582
Wheat – Wheat, Winter-Production, measured in BU	114,000	85,700	-24.82%	98,000	73,672	-24,328
Wheat – Wheat, Winter-Yield, measured in BU/Acre	52.5	64.4	22.67%	70	86	16 (Gain)

HAZARD PROFILE: EARTHQUAKE

An earthquake is a sudden release of energy that creates a movement in the earth's crust. Most earthquake-related property damage and deaths are caused by the failure and collapse of structures due to ground shaking. The level of damage depends upon the extent and duration of the shaking. Other damaging earthquake effects include landslides, the down-slope movement of soil and rock (in mountain regions and along hillsides), and liquefaction.

Earthquakes are measured using the Richter and Modified Mercalli Intensity Scale. The Richter Scale assigns a single number to quantify the amount of seismic energy released by an earthquake where the Modified Mercalli Intensity Scale measures the intensity of an earthquake's effects in a given locality (based on observations of earthquake effects at specific places). See the below table.

Richter Scale	**Typical Maximum Modified Mercalli Intensity**		
1.0 - 3.0	I	I – INSTRUMENTAL	Not felt by many people unless in favorable conditions.
3.0 - 3.9	II - III	II – WEAK	Felt only by a few people at best, especially on the upper floors of buildings. Delicately suspended objects may swing.
		III – SLIGHT	Felt quite noticeably by people indoors, especially on the upper floors of buildings. Many do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.
4.0 - 4.9	IV - V	IV - MODERATE	Felt indoors by many people, outdoors by few people during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rock noticeably. Dishes and windows rattle alarmingly.
		V – RATHER STRONG	Felt outside by most, may not be felt by some outside in non-favorable conditions. Dishes and windows may break and large bells will ring. Vibrations like large train passing close to house.
5.0 - 5.9	VI- VII	VI – STRONG	Felt by all; many frightened and run outdoors, walk unsteadily. Windows, dishes, glassware broken; books fall off shelves; some heavy

Richter Scale	Typical Maximum Modified Mercalli Intensity		
			furniture moved or overturned; a few instances of fallen plaster. Damage slight.
		VII – VERY STRONG	Difficult to stand; furniture broken; damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken. Noticed by people driving motor cars.
6.0 - 6.9	VII - IX	VIII – DESTRUCTIVE	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture moved.
		IX – VIOLENT	General panic; damage considerable in specially designed structures, well designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
7.0+	VIII-XII	X – INTENSE	Some well built wooden structures destroyed; most masonry and frame structures destroyed with foundation. Rails bent.
		XI - EXTREME	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
			Total destruction - Everything is destroyed. Lines of sight and level distorted. Objects thrown into the air. The ground moves in waves or ripples. Large amounts of rock move position. Landscape altered, or leveled by several meters. In some cases, even the routes of rivers are changed.

PAST HISTORY

Holmes County has no history of an earthquake occurring in the county.

PROBABILITY

Based on past occurrences, Holmes County has a less than 1% chance of an earthquake occurring in the next 100 years.

VULNERABILITY

Earthquakes would be a county-wide event and affect all areas and jurisdictions in the county. Based on the earthquakes that have occurred in neighboring counties, the region's average earthquake magnitude is approximately 3.8 on the Modified Mercalli Intensity Scale. Generally, a 3.8 magnitude earthquake causes no structural damages.

The State of Ohio EMA utilized HAZUS-MH, a software application model, to generate an earthquake event report that estimates the potential losses that Holmes County could experience if a 5.0 magnitude arbitrary earthquake impacted Millersburg, Ohio. The estimated losses are documented in the tables below.

Table 1: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	77.03	0.88	31.15	0.96	35.87	1.77	18.36	2.58	4.60	2.54
Commercial	367.89	4.22	176.05	5.45	192.87	9.51	92.08	12.94	26.11	14.40
Education	14.55	0.17	6.72	0.21	7.51	0.37	3.24	0.46	0.98	0.54
Government	17.77	0.20	8.72	0.27	10.56	0.52	4.51	0.63	1.44	0.79
Industrial	195.52	2.24	84.85	2.63	103.67	5.11	54.18	7.61	13.78	7.60
Other Residential	638.76	7.32	368.78	11.41	468.71	23.12	216.48	30.42	46.27	25.52
Religion	46.93	0.54	22.08	0.68	20.54	1.01	10.35	1.45	3.09	1.71
Single Family	7365.19	84.43	2533.82	78.39	1187.45	58.58	312.51	43.91	85.04	46.90
Total	**8,724**		**3,232**		**2,027**		**712**		**181**	

Based on HAZUS report, Pomerene Hospital had 38 hospital beds available for use before the earthquake. On the day of the earthquake the model estimates that only 5 hospital beds (16.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 27.00% of the beds will be back in service. By 30 days, 58.00% will be operational.

Table 2: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	1	1	0	0
Schools	18	2	0	4
EOCs	0	0	0	0
Police Stations	4	0	0	2
Fire Stations	6	1	0	2

Table 3: Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipeline Length (miles)	Number of Leaks	Number of Breaks
Potable Water	3,548	510	127
Waste Water	2,129	256	64
Natural Gas	1,419	88	22
Oil	0	0	0

Table 4: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	12,554	273	32	0	0	0
Electric Power		5,103	3,044	1,087	171	7

Table 5: Building-Related Economic Loss Estimates (Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income	Wages	0.0000	1.6366	10.2940	1.7282	1.1056	14.8644
	Capital-Related	0.0000	0.6984	7.9993	1.0615	0.1951	9.9543
	Rental	3.4961	2.6816	5.7867	0.5802	0.4111	12.9557
	Relocation	12.1960	2.1380	9.6084	2.4306	3.2993	29.6723
	Subtotal	**15.6921**	**7.1546**	**33.6884**	**5.8005**	**5.1111**	**67.4467**
Capital Stock Losses	Structural	18.8140	4.9304	16.2228	8.8172	4.7166	53.5010
	Non-Structural	73.4091	19.5577	38.3064	26.2599	10.5980	168.1311
	Content	29.7260	5.3967	21.8120	19.0282	6.4091	82.3720

	Inventory	0.0000	0.0000	0.9265	3.8465	0.1730	4.9460
	Subtotal	**121.9491**	**29.8848**	**77.2677**	**57.9518**	**21.8967**	**308.9501**
Total		**137.64**	**37.04**	**110.96**	**63.75**	**27.01**	**376.40**

SPEED OF ONSET & DURATION

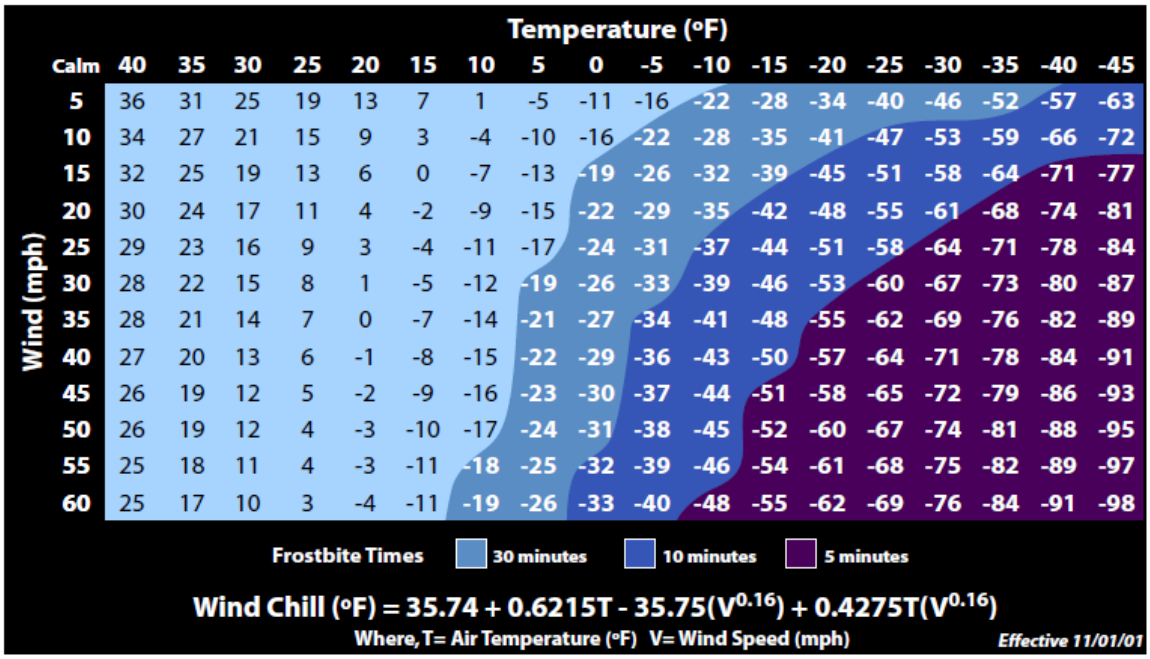
Earthquakes are an immediate impact hazard that occurs without warning. Earthquakes are relatively short in duration and only last for mere seconds.

SEVERITY

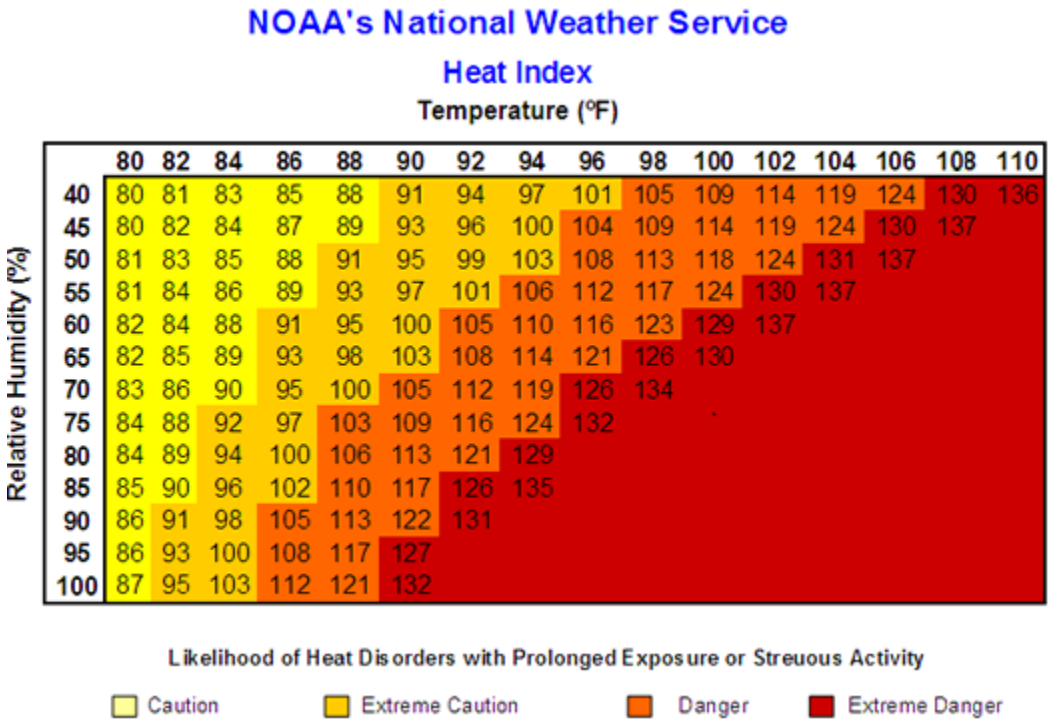
Earthquake events in the State of Ohio have resulted in no deaths, minor injuries, and generated minor to moderate structural damages in effective jurisdictions. If a 3.8 earthquake occurred in Holmes County, it would be reasonable to assume that the county could encounter similar results.

HAZARD PROFILE: EXTREME TEMPERATURES

Extreme cold is defined as an interval of time where the temperatures are at or below zero degrees Fahrenheit. Extremely cold temperatures often accompany a winter storm. Exposure to cold temperatures, whether indoors or outside, can cause other serious or life-threatening health problems and/or the loss of utilities, sometimes for days at a time. The Wind Chill Index is often used to describe the apparent severity of the cold.



Extreme Heat is classified if temperatures hover 10 degrees or more above the average high temperature for the region and are maintained for more than two days. In extreme heat conditions, high humidity stops the body of being able to maintain or cool itself through sweating or evaporation. Consequently, people living in urban areas are at a greater risk from the effects of a prolonged heat wave because asphalt and concrete store heat longer and gradually release it at night. The Heat Index can be used to determine the effects which temperature and humidity can have on the population.



Category	Heat Index	Health Hazards
Extreme Danger	**130°F – Higher**	**Heat Stroke/Sunstroke is likely with continued exposure.**
Danger	**105°F - 129°F**	**Sunstroke, muscle cramps and/or heat exhaustion possible with prolonged exposure and/or physical activity.**
Extreme Caution	**90°F - 105°F**	**Sunstroke, muscle cramps and/or heat exhaustion possible with prolonged exposure and/or physical activity.**
Caution	**80°F - 90°F**	**Fatigue possible with prolonged exposure and/or physical activity.**

PAST HISTORY

According to NOAA's National Climatic Data Center, Holmes County has experienced 11 extreme temperature events between 1/01/1996 and 7/1/2019 (See Table below).

Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
HOLMES (ZONE)	02/02/1996	20:00	Cold/ Wind Chill	0	0	20.00K	0.00K
HOLMES (ZONE)	01/10/1997	00:00	Cold/ Wind Chill	0	0	5.00K	0.00K
HOLMES (ZONE)	06/06/1999	00:00	Heat	0	0	0.00K	0.00K
HOLMES (ZONE)	07/01/1999	00:00	Heat	0	0	0.00K	0.00K
HOLMES (ZONE)	04/06/2000	06:00	Extreme Cold/ Wind Chill	0	0	0.00K	250.00K
HOLMES (ZONE)	01/15/2009	00:00	Extreme Cold/ Wind Chill	0	0	0.00K	0.00K
HOLMES (ZONE)	03/27/2012	02:00	Extreme Cold/ Wind Chill	0	0	0.00K	0.00K
HOLMES (ZONE)	01/06/2014	12:00	Extreme Cold/ Wind Chill	0	0	0.00K	0.00K
HOLMES (ZONE)	01/28/2014	02:00	Extreme Cold/ Wind Chill	0	0	0.00K	0.00K
HOLMES (ZONE)	02/20/2015	00:00	Extreme Cold/ Wind Chill	0	0	0.00K	0.00K
HOLMES (ZONE)	01/30/2019	08:00	Extreme Cold/ Wind Chill	0	0	0.00K	0.00K
			Totals:	0	0	25.00K	250.00K

PAST EVENT SUMMARIES

Event Details	**Event Narrative**
April 6, 2004 Event Type: Extreme Cold/Wind Chill Location: Countywide Duration 6:00am – 6:00pm Fatalities/Injuries: 0/0 Crop Damage: $ 250,000	The temperature at Walnut Creek fell to 27 degrees shortly before daybreak. Several large orchards near Walnut Creek suffered severe crop damage. Approximately 50 percent of the apple crop and 20 percent of the peach crop was destroyed.

Event Details	Event Narrative
February 2-5, 1996 Event Type: Cold/Wind Chill Location: Countywide Duration 8:00pm – 2:00pm Fatalities/Injuries: 0/0 Property Damage: $ 20,000	Bitter cold arctic air was over the area with overnight low temperatures averaging between zero and 10 below and daytime high temperatures in the single digits. Wind gusts of 25 mph on the 2nd dropped wind chills as low as 40 below zero and the wind picked back up on the 5th again bringing similarly low wind chills. Record lows were set at most stations across northern Ohio for the 3rd and 4th. A number of pipes and water mains froze and/or broke.

Event Details	Event Narrative
January 10-19, 1997 Event Type: Cold/Wind Chill Location: Countywide Duration 12:00am – 11:59pm Fatalities/Injuries: 0/0 Property Damage: $ 5,000	Low temperatures were in the single digits or below zero across all of Northern Ohio, causing frozen and ruptured water pipes. With wind chills of 40 to 50 below zero, many schools were forced to close.

PROBABILITY

In the last 23 years, Holmes County has experienced eleven (11) extreme temperature events and has a 48% chance of experiencing an extreme temperature event in any given year. Extreme or excessive cold events usually occur during the months of December through April, while excessive heat events normally occur from June through August.

VULNERABILITY

Extreme temperature events are non-spatial hazards that occur county-wide. The mitigation planning team determined that an extreme temperature event would not impact the build environment, but would impact residents, animals, and crops.

SPEED OF ONSET & DURATION

The National Weather Service (NWS) provides alerts when extreme temperatures approach hazardous levels. The duration for extreme temperature events can last for several days.

SEVERITY

The most severe extreme temperature event that impacted Holmes County resulted in $20,000 in property damages and $250,000 in crop damages.

HAZARD PROFILE: FLOOD

A flood is a temporary rise in the water level that spills over and out of its natural or artificial banks onto land which is normally dry. Floods occur for many reasons, such as long-lasting rainfall over a broad area, locally intense rainfall, or the rapid melting of a large snow pack. Flash flooding is rapid flooding of low-lying areas, rivers and creeks that is caused by the intense rainfall. Flash flooding occurs when the ground becomes overly saturated with water that it cannot be absorbed. Common impacts of flooding include damage to personal property, buildings, and infrastructure; bridge and road closures; service disruptions; and injuries or even fatalities.

PAST HISTORY

According to NOAA's National Climatic Data Center, Holmes County has experienced 40 flood or flash flood events between 1/01/1996 and 7/1/2019.

Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
RICHLAND TWP	04/29/1996	18:00	Flash Flood	0	0	0.00K	0.00K
HOLMES (ZONE)	04/30/1996	11:30	Flood	0	0	0.00K	0.00K
NORTHWEST PORTION	05/11/1996	06:30	Flash Flood	0	0	0.00K	0.00K
CENTRAL PORTION	06/13/1996	16:45	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	12/11/1996	18:00	Flash Flood	0	0	5.00K	0.00K
COUNTYWIDE	12/12/1996	13:00	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	06/01/1997	07:33	Flash Flood	0	0	20.00K	10.00K
COUNTYWIDE	06/01/1997	11:00	Flash Flood	0	0	40.00K	10.00K
COUNTYWIDE	06/01/1997	15:36	Flash Flood	0	0	30.00K	20.00K
HOLMES (ZONE)	06/01/1997	20:00	Flood	0	0	0.00K	0.00K
BIG PRAIRIE	01/09/1998	01:09	Flash Flood	0	0	0.00K	0.00K
SOUTHWEST PORTION	06/15/1998	21:00	Flash Flood	0	0	200.00K	0.00K
HOLMESVILLE	06/16/1998	15:21	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	06/29/1998	19:30	Flash Flood	0	0	100.00K	50.00K
COUNTYWIDE	06/29/1998	19:55	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	08/25/1998	15:00	Flash Flood	0	0	0.00K	0.00K
HOLMES (ZONE)	01/24/1999	00:30	Flood	0	0	0.00K	0.00K
HOLMES (ZONE)	04/03/2000	12:00	Flood	0	0	0.00K	0.00K
HOLMES (ZONE)	04/09/2000	03:00	Flood	0	0	0.00K	0.00K
KILLBUCK	06/16/2000	17:45	Flash Flood	0	0	0.00K	0.00K

Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
COUNTYWIDE	04/19/2002	18:00	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	06/05/2002	00:05	Flash Flood	0	0	750.00K	0.00K
KILLBUCK	07/08/2003	19:00	Flash Flood	0	0	100.00K	250.00K
HOLMES (ZONE)	01/04/2004	20:00	Flood	0	0	250.00K	0.00K
HOLMES (ZONE)	06/14/2004	17:45	Flood	0	0	100.00K	0.00K
COUNTYWIDE	06/15/2004	14:30	Flash Flood	0	0	125.00K	0.00K
COUNTYWIDE	06/16/2004	23:00	Flash Flood	0	0	1.500M	0.00K
HOLMES (ZONE)	06/17/2004	01:00	Flood	0	0	0.00K	0.00K
HOLMES (ZONE)	09/17/2004	12:00	Flood	0	0	35.00K	0.00K
HOLMES (ZONE)	01/03/2005	06:00	Flood	0	0	6.500M	0.00K
KILLBUCK	06/10/2005	16:00	Flash Flood	0	0	10.00K	0.00K
WEST PORTION	07/10/2006	17:30	Flash Flood	0	0	1.100M	250.00K
NASHVILLE	07/19/2007	03:00	Flash Flood	0	0	150.00K	0.00K
MILLERSBURG	08/21/2007	04:15	Flash Flood	0	0	1.500M	750.00K
KILLBUCK	08/21/2007	08:20	Flood	0	0	50.00K	0.00K
BECKS MILLS	08/21/2007	09:45	Flood	0	0	0.00K	0.00K
LAKEVILLE	02/28/2011	02:00	Flood	0	0	300.00K	0.00K
BIG PRAIRIE	06/24/2014	00:00	Flash Flood	0	0	800.00K	75.00K
BERLIN	05/26/2018	17:00	Flash Flood	0	0	15.00K	0.00K
BERLIN	06/22/2018	17:45	Flash Flood	0	0	10.00K	0.00K
			Totals:	0	0	13.690M	1.415M

PAST EVENT SUMMARIES:

Event Details	**Event Narrative**
January 3-16, 2005 Event Type: Flood Location: Holmes County Time: 6:00am Fatalities/Injuries: 0/0 Property Damage: $ 6,500,000	Heavy rain and runoff from snowmelt caused extensive flooding in Holmes and Wayne Counties during the first half of January. The flooding was most severe along and near Killbuck Creek which went into flood around midday on January 3rd. Heavy rain and freezing rain fell on the 5th and 6th causing the creek to reach it's highest level in 26 years at Killbuck. A peak crest of 18.17 feet was reached late in the evening on the 6th. Rainfall totals for the two day storm included 2.16 inches at Millersburg; 2.64 inches at Nashville and 1.88 inches at Berlin, all in Holmes County. Flooding at Killbuck was classified as major with evacuations beginning along Water Street around sunset on the 5th. Extensive flooding also occurred on the south side of Millersburg with 25 homes evacuated in two mobile

	home parks on South Washington Street. Killbuck Creek finally went back below flood stage early on the 16th. A large landslide occurred along State Route 39 just east of Walnut Creek. Three people had to be rescued near Glenmont after a small bridge over Black Creek collapsed. Dozens of roads, including US. Highway 62, State Route 60 and State Route 83 had be closed because of flooding. In Wayne County, flooding was reported in Wooster along Grosjean, Spruce, South and Henry Streets. State Routes 3, 95, 301 and 302 also had to be closed because of flooding. Damage to just the state routes in the county totaled nearly $500,000. January rainfall totals from the cooperative observer network included: 6.54 inches at Wooster (Wayne County); 6.93 inches at Congress (Wayne County); 5.71 inches at Marshallville (Wayne County) and 6.44 inches at Millersburg (Holmes County). In addition to this rain, extensive snowpack existed over Wayne and Holmes Counties at the beginning of the month. Temperatures in the 50s the first three days of the month caused a rapid snowmelt and brought area streams and creeks to bankfull just in time for the record ice storm on the 5th and 6th. Sump pump failures caused by power outages resulting from this storm led to many homes sustaining damage from basement flooding. Then, just as the flood waters began to recede, more heavy rain fell on the 11th, 12th and 13th causing conditions to once again worsen. Well over a thousand homes reported flood related damages. A few of the homes, especially along Killbuck Creek were heavily damaged.

Event Details	**Event Narrative**
August 21, 2007 Event Type: Flash Flood Location: Millersburg & Glenmont Duration 4:15pm – 9:45pm Fatalities/Injuries: 0/0 Property Damage: $ 1,500,000 Crop Damage: $750,000	Heavy rain producing thunderstorms affected Holmes County during the late evening hours of August 20th and early morning hours of August 21st. Rainfall totals from across the county included: 4.30 inches at Nashville; 3.74 inches at Millersburg; 3.08 inches at Holmesville and 2.40 inches at Stillwell. Runoff from this rain combined with ground already saturated from earlier rains led to significant flooding across portions of Holmes County. Widespread lowland flooding occurred across the county

	and many roads had to be closed because of flooding. Some of the worst flooding occurred in and around Millersburg and also near Glenmont. Killbuck Creek left it's banks in Millersburg flooding homes and business nearby. Several people had to be evacuated from their homes. In Glenmont, Black Creek went into flood and damaged some homes. Hundreds of homes elsewhere in the county suffered damage as well, mainly from basement flooding. Finally, standing water and erosion from the runoff caused damage to agricultural interests in the county.

Event Details	**Event Narrative**
June 16-17, 2004 Event Type: Flash flood Location: Countywide Duration 11:00pm – 2:30am Fatalities/Injuries: 0/0 Property Damage: $ 1,500,000	Another round of heavy rain producing thunderstorms moved across Holmes County late on June 16th and early on the 17th. Spotters near Berlin measured two inches of rain between 11 p.m. and midnight with storm totals of four to five inches. This rain combined with ground already saturated from earlier rains led to devastating flooding in portions of Holmes County. The Walnut Creek area was among the hardest hit in the county. Rapid rises in streams and creeks damaged many roads and buildings. Over 14,000 chickens perished at a Walnut Creek Township farm after flood waters surged into a barn. Two motorists were injured when their car was swept off a flooded county road and overturned. Two bridges were washed out in Salt Creek Township. Many roads had to be closed because of washouts or flooding. Hundreds of homes and businesses sustained at least minor flood damage. Damage to roads, bridges and other public property topped $700,000.

PROBABILITY

Based on past flood history data, Holmes County has encountered 40 flood events in the last 25 years and could realistically expect to have 2 to 3 flood events in a given year.

VULNERABILITY

More than 50% of all flooding events in Holmes County have affected a significant portion of the county or have been a countywide event (refer to Appendix A for floodplain maps). The Village of Killbuck has the highest potential for flooding in the county.

Killbuck Creek Flood Levels	
At 15 feet	• Flooding begins in low lying areas west of Water Street in the Village of Killbuck.
At 17 feet	• Flooding begins to impact homes on Water Street in the Village of Killbuck. • Many low lying roads in the Killbuck Valley, including County Road 621 are flooded.
At 22 feet	• Severe flooding will occur in the Village of Killbuck and throughout the valley. • Flood waters may begin to back up onto I-71 near Burbank.
At 26 feet	• Record flooding will occur in the Village of Killbuck and throughout the valley.

The State of Ohio EMA generated a HAZUS-MH: Flood Event Report to estimate the potential losses that Holmes County could experience as a result of a 100-year flood. The estimated losses are documented in the tables below.

Table 1: Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		>50	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	0	0	1	100	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	1	100	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	21	31	33	49	11	16	3	4	0	0	0	0
Total	**21**		**35**		**11**		**3**		**0**		**0**	

Based on HAZUS report, Pomerene Hospital had 38 hospital beds available for use before the flood. On the day of the scenario flood event, the model estimates that 38 hospital beds are available.

Table 2: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage	At Least Substantial	Loss of Use
Emergency Operation Centers	0	0	0	0
Fire Stations	6	0	0	0
Hospital	1	0	0	0
Police Stations	4	0	0	0
Schools	18	0	0	0

Table 3: Building-Related Economic Loss Estimates (Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss	Building	12.55	2.62	2.38	0.63	18.18
	Content	6.43	9.52	6.17	3.09	25.20
	Inventory	0.00	0.32	0.65	0.08	1.05
	Subtotal	**18.98**	**12.46**	**9.20**	**3.79**	**44.42**
Business Interruption	Income	0.43	8.25	0.19	1.26	10.13
	Relocation	4.07	2.49	0.29	0.81	7.65
	Rental Income	1.89	1.79	0.05	0.07	3.80
	Wage	1.03	10.34	0.30	31.36	43.02
	Subtotal	7.42	22.86	0.83	33.49	64.60
Total		**26.40**	**35.32**	**10.02**	**37.29**	**109.02**

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

Holmes County and four (4) of its villages participate in the NFIP. As of the plan update, there are 108 (previously 115) NFIP insurance policies in the county (See Table: NFIP Policies), and all jurisdictions were in compliance with NFIP requirements (refer to NFIP Compliance Table).

Table: NFIP Policies

Community Name	Policies In-force	Insurance In-force (whole $)	Written Premium In-force
Village of Baltic	1	$450,000	$1,643
Village of Glenmont	13	$743,900	$10,323
Holmes County	36	$5,641,400	$43,349
Village of Killbuck	46	$3,868,200	$46,113
Village of Millersburg	12	$5,540,300	$41,947

Table: NFIP Compliance

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Reg-Emer Date
390886	Village of Baltic		6/15/1988	7/22/2010 (M)	8/19/1988
390277	Village of Glenmont	10/29/1976	12/15/1990	12/02/2008	12/15/1990
390276	Holmes County	1/20/1978	12/15/1990	10/18/2011	12/15/1990
390279	Village of Killbuck	5/3/1974	2/5/1986	10/18/2011	2/5/1986
390280	Village of Millersburg	2/1/1974	12/15/1990	12/2/2008	12/15/1990
390278	Village of Holmesville	3/22/1974	12/15/1990	12/02/2008	9/1/1986
390009	Village of Loudonville	5/31/1974	8/1/1987	08/18/2009 (M)	8/1/1987
	*Village of Nashville				

*** Does not participate due to being in area of minimal flood hazard.**

Holmes County underwent floodplain map modernization in Fiscal Year 2006. A scoping meeting was held on August 14, 2006 and the preliminary maps were released on July 27, 2007. An open house was conducted for the government and public review on October 17, 2007. The period for comments and appeals was opens from November 8 to December 8, 2007. The Letter of Final Determination was issued on June 2, 2008. The current floodplain maps became effective when the county adopted the maps on December 2, 2008.

Holmes County's Special Purpose Flood Damage Reduction Resolution serves as the official floodplain regulation. Section 3.1 of the resolution designates the County Floodplain Administrator, whereas, Section 3.2 specifies duties and responsibilities, including routine monitoring of the floodplain, enforcement actions, and community assistance such as encouraging owners to maintain flood insurance.

A Repetitive Loss property is defined as any insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A severe repetitive loss property is defined as a subset of insured properties that have a high frequency of losses or a high value of claims. Holmes County has no severe repetitive loss properties as of August 2018.

Table: Repetitive Loss Properties as of August 2018

Community	Number	Type	Number of Losses	Building Payments	Contents Payments	Total Payments
Holmes County	1	Residential	2	$36,021.98	$1,437.49	$37,459.47
	0	Non-residential	0	$ 0	$ 0	$ 0
Village of Glenmont	1	Residential	2	$10,138.41	$ 0	$10,138.41
	0	Non-residential	0	$ 0	$ 0	$ 0
Village of Killbuck	5	Residential	11	$47,382.46	$6,780.46	$ 54,162.92
	1	Non-residential	2	$ 0	$3,780.21	$3,780.21
Village of Millersburg	0	Residential	0	$ 0	$ 0	$ 0
	1	Non-residential	3	$4,890.31	$24,607.24	$29,497.55
County and jurisdiction totals:	**7**	**Residential**	**17**	**$93,542.85**	**$8,217.95**	**$101,760.80**
	2	**Non-residential**	**5**	**$4,890.31**	**$28,387.45**	**$33,277/76**

SPEED OF ONSET & DURATION

The National Weather Service will issue a Flood Watch when flooding is possible or expected within 12–48 hours. A Flood Warning will be issued when flooding is imminent or occurring. When rapid flooding from heavy rain or a dam failure is expected, Flash Flood Watches and Warnings will be issued. Floods can last from a few hours to a several days. The duration is dependent on the amount of snowmelt, precipitation, and saturation levels of the area.

SEVERITY

Holmes County has been fortunate not to have any deaths or serious injuries during previous flooding events. The same cannot be said in regard to property damages. Holmes County, on average, generates more than $347,000 in damages from a flood event. The highest single flooding event totaled $1.5 million in property damages and $750,000 in crop damages. Refer to the following table for a detailed list of NFIP insurance losses:

Table: NFIP Losses

Community Name	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
Village of Baltic	3	3	0	0	$81,798.48
Village of Glenmont	24	19	0	5	$261,337.67
Holmes County*	1	1	0	0	$2,968.14
Village of Killbuck	74	56	0	18	$171,892.44
Village of Millersburg	10	8	0	2	$51,107.19

HAZARD PROFILE: LANDSLIDES/SUBSIDENCE

The movement of a mass of rock, debris, or earth down a slope by force of gravity is considered a landslide. Landslides occur when the slope or soil stability changes from stable to unstable, which may be caused by earthquakes, storms, volcanic eruptions, erosion, fire, or additional human-induced activities. Slopes greater than 10 degrees are more likely to slide, as are slopes where the height from the top of the slope to its toe is greater than 40 feet. Slopes are also more likely to fail if vegetative cover is low and/or soil water content is high. Potential impacts include environmental disturbance, property and infrastructure damage, and injuries or fatalities.

Subsidence is the gradual settling or sudden sinking of the Earth's surface due to subsurface movement of earth materials. The level of subsidence ranges from a broad lowering to collapse of land surface. Most causes of subsidence are human-induced, such as groundwater pumpage, aquifer system compaction, drainage of organic soils, underground mining, hydrocompaction, natural compaction, sinkholes, and thawing permafrost. Areas located above or adjacent to karsts topography have a greater risk of experiencing subsidence. Sudden collapses of surface areas can damage and destroy buildings and infrastructure.

PAST HISTORY

Holmes County had ten (10) landslide/subsidence/slips reported to the County Engineer since 2002.

Location	Date	Type	Deaths	Injuries	Damages
County Road 292	2002	Landslide/Subsidence/Slip	0	0	$ 0
County Road 622	5/18/2004	Landslide/Subsidence/Slip	0	0	$68,652
County Road 23	2005	Landslide/Subsidence/Slip	0	0	$ 0
State Route 39	1/3/2005	Landslide/Subsidence/Slip	0	0	$ 6,500,000
County Road 120	2008	Landslide/Subsidence/Slip	0	0	$ 0
Bridge on Township Road 652	2/28/2011	Landslide/Subsidence/Slip	0	0	$112,323
Bridge on Township Road 265	3/1/2011	Landslide/Subsidence/Slip	0	0	$ 0
Durst Property	2015	Subsidence	0	0	$ 0

County Road 120	10/2018	Landslide	0	0	$ 0
County Road 23	6/1/2019	Landslide	0	0	$ 0
		Total	0	0	$6,680,975

PAST EVENT SUMMARIES:

Event Details	Event Narrative
January 3-16, 2005 Event Type: Flood Location: Holmes County Time: 6:00am Fatalities/Injuries: 0/0 Property Damage: $ 6,500,000	A large landslide occurred along State Route 39 just east of Walnut Creek. Three people had to be rescued near Glenmont after a small bridge over Black Creek collapsed. Dozens of roads, including US. Highway 62, State Route 60 and State Route 83 had to be closed because of flooding.

Event Details	Event Narrative
Date:2/28/2011 Event Type: Flood Location: Holmes County TR 652 Time: 11:59pm Fatalities/Injuries: 0/0 Property Damage: $ 112,323	Heavy rain and rapid snow melt led to widespread flooding across Holmes County. Rainfall totals across the county ranged from one to three inches on February 27th and 28th. Up to ten inches of heavy snow was on the ground at the onset of the rain. This snow rapidly melted as temperatures warmed into the 50s on the 28th. Up to an additional inch of water equivalent rainfall was released from the melted snow. Hundreds of homes in the county sustained damage, mainly from basement flooding. Many roads had to be closed because of the flooding and TR 652 bridge was washed-out. The Killbuck Creek crested at 18.07 feet, the eight highest height on record. South end of Millersburg and western portions of the Killbuck sustained flood damage.

Event Details	Event Narrative
Date: May 18-June 21, 2004 Event Type: Flood Location: Holmes County CR 622 Time: 3:00pm Fatalities/Injuries: 0/0 Property Damage: $ 68,652	A sizable landslide occurred on county road 622 just east of Killbuck. Multiple roads were impacted due to the flooding conditions.

PROBABILITY

Holmes County has had ten (10) landslide/subsidence events in last seventeen (17) years and has a 59% chance of experiencing a landslide/subsidence event in any given year. For the county, landslide/subsidence/slip events occur as a result of a wet spring and wet springs are very common in Holmes County.

VULNERABILITY

Landslide/subsidence/slip event would most likely occur in the areas of Holmes County that have a steep terrain and a water source located at the bottom. However, there is also the potential for landslide/subsidence/slip incident to impact the 37 miles of U.S. highway, 137 miles of state highway, the 848 miles of county, township, and municipal roads, or the 98 state-maintained bridges within the county.

SPEED OF ONSET & DURATION

Landslide/subsidence/slip are an evolving hazard, so local street and road departments as well as the County Engineer's Office constantly monitor road conditions for any sign of fatigue.

The duration of a landslide/subsidence/slip event varies depending on the amount of erosion/damage. For large events, the duration could last for months, whereas in small events, it is usually resolved in approximately one week. Most of the county's events to date have been small.

SEVERITY

In all previous landslide/subsidence/slip events, there were no reported deaths or injuries. The costs associated with a landslide/subsidence/slip event will vary depending on the jurisdiction impacted. Based on past history, most events will generate limited damages.

HAZARD PROFILE: LIGHTNING

Lightning is a discharge of electrical energy that results from the buildup of positive and negative charges in a thunderstorm. On average, 53 people are killed and hundreds are injured yearly from lightning strikes in the United States. Lightning can also strike communications equipment and cause significant damage to buildings, critical facilities, and infrastructure by catching fire.

PAST HISTORY

According to county insurance claims, Holmes County has experienced a total of nine (9) lightning strikes to county-owned government facilities in the last thirteen (13) years. The National Climatic Data Center reported (1) additional incident for Holmes County (See table below).

Table - Lightning

Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
Saltcreek Township	8/08/1996	14:01	Lightning	0	0	7.50K	0.00K
Millersburg	6/9/2010		Lightning	0	0	13.7K	0.00K
Millersburg (5)	5/12/2011	6:55	Lightning	0	0	14.7K	0.00K
Millersburg (2)	2012		Lightning	0	0	1.60K	0.00K
Millersburg	2014		Lightning	0	0	9K	0.00K
			Totals:	0	0	46.5K	0.00K

PAST EVENT SUMMARIES:

Event Details	Event Narrative
Date: 5/12/2011 Event Type: Thunderstorm Wind Location: Millersburg Time: 6:55am Fatalities/Injuries: 0/0 Property Damage: $ 14,657	During the evening and nighttime hours of May 11th, an area of low pressure located over southern Wisconsin slowly progressed northeast over the upper Great Lakes. A frontal boundary extended southeast of the low, across portions of Indiana into southern Ohio. That frontal boundary lifted north during the day on May 12 and stalled directly over northern Ohio. Thunderstorms developed along this boundary and produced large hail, lightning, and significant rainfall throughout the day on May 12th. The

	Holmes County Sheriff's Office sustained a lightning strike causing moderate to severe damage. The severe thunderstorms and flash flooding continued through May 13th.

Event Details	Event Narrative
Date:6/9/2010 Event Type: Thunderstorm Wind Location: Millersburg Time: 8:00pm Fatalities/Injuries: 0/0 Property Damage: $ 13,689.50	Low pressure moving across the Great Lakes pulled a cold front across the Ohio Valley with scattered severe thunderstorms. The Holmes County Engineers Office was struck by lightning causing moderate damage.

Event Details	Event Narrative
August 8, 1996 Event Type: Lightning Location: Lat:40.53/Log:-81.75 Duration 2:01pm Fatalities/Injuries: 0/0 Property Damage: $ 7,500	Lightning struck a house and traveled by wire to a mobile home which suffered heavy damage.

PROBABILITY

Based on past data for lighting and severe thunderstorm events, Holmes County has had nine lightning strikes in the last 4 years and could realistically expect to see 2 to 3 lightning events per year. Most locations in Northeast Ohio average between 2 and 4 lightning strikes per year.

VULNERABILITY

Lightning strikes are random and are typically limited to single location, which makes all of Holmes County's build environment susceptible to a lightning strike. Based on past history, the estimated losses associated with a lightning strike are documented in the table below.

LIGHTNING	
Structure Type	Estimated Potential Building Damage
Residential	$87,942
Non-Residential	$43,971
Critical Facilities	$14, 657

Total	$146,570

SPEED OF ONSET & DURATION

The National Weather Service will issue a Severe Thunderstorm Warning when either a severe thunderstorm is indicated by radar or a spotter reports a thunderstorm producing hail 3/4 inch or larger in diameter and/or winds equal or exceed 58 miles an hour.

The duration of severe thunderstorms is contingent upon the storm type. A single cell thunderstorm usually last between 20-30 minutes, whereas a multicell cluster thunderstorm can persist for several hours.

SEVERITY

Holmes County has been extremely fortunate that there have not been any fatalities or injuries resulting from a lightning strike. The damage generated from a lightning event is generally limited to property damage. The communication tower at the Sheriff's Office has accumulated $63,092 in damage costs from four incidents. The highest single event cost more than $14,600 in damages.

HAZARD PROFILE: THUNDERSTORM/HAIL

Thunderstorms are generated naturally from changes in atmospheric temperature. Thunderstorms stabilize the environment by expending excess water vapor into the upper troposphere. A formation of a thunderstorm requires warm and moist air. Storms usually develop between 2 to 4 p.m. because that is when the surface air is warmest.

Hailstorms are a potentially damaging outgrowth of severe thunderstorms, so their locations and spatial extents overlap. Hail can cause substantial damage to vehicles, roofs, landscaping, and other areas of the built environment. U.S. agriculture is typically the area most affected by hail storms, which cause severe crop damage even during minor events.

PAST HISTORY

Holmes County has experienced 196 thunderstorm events between 1/01/1950 and 8/20/2019 according to NOAA's National Climatic Data Center. Refer to the chart below for events that were reported in the last 25 years.

Table -Thunderstorm

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Holmes County	08/28/1994	16:49	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
Millersburg & Southwest	04/18/1995	18:15	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Northeast part	06/21/1995	18:50	Thunderstorm Wind	0 kts.	0	0	3.00K	0.00K
Countywide	07/13/1995	20:15	Thunderstorm Wind	0 kts.	0	0	70.00K	20.00K
Millersburg	03/25/1996	16:10	Thunderstorm Wind		0	0	0.00K	0.00K
Winesburg	04/29/1996	07:35	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
Millersburg	05/10/1996	19:10	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
Holmesville	06/13/1996	16:08	Thunderstorm Wind	60 kts.	0	0	5.00K	0.00K
Countywide	06/24/1996	12:13	Thunderstorm Wind	55 kts.	0	0	2.00K	0.00K
Countywide	06/24/1996	12:20	Thunderstorm Wind	50 kts.	0	0	2.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Benton	08/08/1996	16:15	Thunderstorm Wind		0	0	1.00K	0.00K
Millersburg	11/07/1996	19:15	Thunderstorm Wind		0	0	2.00K	0.00K
Nashville	12/01/1996	11:55	Thunderstorm Wind	50 kts.	0	0	2.00K	0.00K
Countywide	08/16/1997	19:28	Thunderstorm Wind		0	0	5.00K	0.00K
Killbuck	03/09/1998	06:30	Thunderstorm Wind		0	0	3.00K	0.00K
Millersburg	05/31/1998	16:25	Thunderstorm Wind		0	0	2.00K	0.00K
Countywide	06/12/1998	20:55	Thunderstorm Wind		0	0	5.00K	0.00K
Countywide	06/28/1998	18:30	Thunderstorm Wind		0	0	3.00K	0.00K
Countywide	06/29/1998	19:20	Thunderstorm Wind		0	0	5.00K	0.00K
Berlin	07/21/1998	23:15	Thunderstorm Wind		0	0	10.00K	0.00K
Glenmont	07/22/1998	22:00	Thunderstorm Wind		0	0	10.00K	0.00K
Countywide	07/22/1998	22:50	Thunderstorm Wind		0	0	10.00K	0.00K
Millersburg	08/24/1998	19:15	Thunderstorm Wind		0	0	2.00K	0.00K
Millersburg	11/10/1998	17:15	Thunderstorm Wind		0	0	5.00K	0.00K
Millersburg	04/09/1999	12:30	Thunderstorm Wind		0	0	2.00K	0.00K
Countywide	07/09/1999	18:55	Thunderstorm Wind		0	0	10.00K	0.00K
Countywide	07/24/1999	21:10	Thunderstorm Wind		0	0	15.00K	0.00K
Berlin	07/28/1999	11:30	Thunderstorm Wind		0	0	10.00K	0.00K
Stillwell	09/29/1999	13:00	Thunderstorm Wind		0	0	5.00K	0.00K
Countywide	10/13/1999	16:30	Thunderstorm Wind		0	0	10.00K	0.00K
Millersburg	06/02/2000	13:00	Thunderstorm Wind		0	0	5.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Countywide	06/14/2000	18:00	Thunderstorm Wind		0	0	5.00K	0.00K
Millersburg	06/16/2000	18:00	Thunderstorm Wind		0	0	5.00K	0.00K
Countywide	07/14/2000	15:15	Thunderstorm Wind		0	1	35.00K	0.00K
Winesburg	08/06/2000	23:30	Thunderstorm Wind		0	0	10.00K	0.00K
Countywide	09/20/2000	20:30	Thunderstorm Wind		0	0	15.00K	0.00K
Millersburg	05/21/2001	17:50	Thunderstorm Wind		0	0	2.00K	0.00K
Millersburg	05/21/2001	17:57	Thunderstorm Wind		0	0	5.00K	0.00K
Millersburg	06/12/2001	15:50	Thunderstorm Wind		0	0	500.00K	0.00K
COUNTYWIDE	07/01/2001	11:40	Thunderstorm Wind		0	0	5.00K	0.00K
GLENMONT	10/24/2001	22:05	Thunderstorm Wind		0	0	5.00K	0.00K
KILLBUCK	05/14/2002	17:19	Thunderstorm Wind		0	0	5.00K	0.00K
MILLERSBURG	05/30/2002	14:45	Thunderstorm Wind		0	0	50.00K	0.00K
MILLERSBURG	06/04/2002	23:30	Thunderstorm Wind		0	0	8.00K	0.00K
COUNTYWIDE	06/05/2002	15:30	Thunderstorm Wind		0	0	35.00K	0.00K
MILLERSBURG	06/26/2002	16:00	Thunderstorm Wind		0	0	5.00K	0.00K
LAKEVILLE	07/19/2002	13:10	Thunderstorm Wind		0	0	5.00K	0.00K
NASHVILLE	07/19/2002	13:13	Thunderstorm Wind		0	0	2.00K	0.00K
MILLERSBURG	07/29/2002	18:50	Thunderstorm Wind		0	0	10.00K	0.00K
MILLERSBURG	09/03/2002	17:15	Thunderstorm Wind		0	0	10.00K	0.00K
CHARM	09/03/2002	17:25	Thunderstorm Wind		0	0	2.00K	0.00K
NASHVILLE	11/10/2002	19:40	Thunderstorm Wind		0	0	150.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
MILLERSBURG	04/04/2003	17:50	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
MILLERSBURG	04/20/2003	20:30	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
GLENMONT	05/07/2003	21:50	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
KILLBUCK	07/04/2003	15:15	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
MILLERSBURG	07/07/2003	15:10	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
COUNTYWIDE	07/08/2003	04:15	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
COUNTYWIDE	07/08/2003	16:50	Thunderstorm Wind	50 kts. EG	0	0	100.00K	0.00K
KILLBUCK	07/21/2003	09:15	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
MILLERSBURG	08/16/2003	19:00	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
KILLBUCK	08/26/2003	19:15	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MILLERSBURG	08/27/2003	04:45	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
KILLBUCK	08/27/2003	15:05	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
NASHVILLE	11/12/2003	19:40	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
WINESBURG	05/17/2004	19:30	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
COUNTYWIDE	05/21/2004	15:30	Thunderstorm Wind	50 kts. EG	0	0	100.00K	0.00K
KILLBUCK	06/13/2004	22:30	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
COUNTYWIDE	06/14/2004	17:30	Thunderstorm Wind	52 kts. EG	0	0	25.00K	0.00K
HOLMESVILLE	06/24/2004	18:30	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
COUNTYWIDE	04/20/2005	17:00	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
MILLERSBURG	05/13/2005	18:48	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
WINESBURG	05/13/2005	19:00	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
KILLBUCK	06/10/2005	15:40	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
FRYBURG	07/25/2005	14:02	Thunderstorm Wind	61 kts. EG	0	0	10.00K	0.00K
COUNTYWIDE	07/26/2005	15:20	Thunderstorm Wind	50 kts. EG	0	0	30.00K	0.00K
CENTRAL PORTION	07/26/2005	19:14	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
LAKEVILLE	05/25/2006	20:00	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
NASHVILLE	06/21/2006	23:00	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
FRYBURG	06/21/2006	23:15	Thunderstorm Wind	50 kts. EG	0	0	425.00K	0.00K
LAKEVILLE	06/22/2006	16:15	Thunderstorm Wind	61 kts. EG	0	0	200.00K	0.00K
NASHVILLE	07/14/2006	17:48	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
MILLERSBURG	08/03/2006	16:58	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
NASHVILLE	04/23/2007	18:45	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
BERLIN	06/13/2007	16:35	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
HOLMESVILLE	06/17/2007	15:50	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	07/19/2007	01:00	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
KILLBUCK	08/09/2007	16:45	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
NASHVILLE	08/20/2007	14:20	Thunderstorm Wind	50 kts. EG	0	0	35.00K	0.00K
BERLIN	06/13/2008	18:26	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
MILLERSBURG	06/28/2008	15:20	Thunderstorm Wind	50 kts. EG	0	0	30.00K	0.00K
HOLMESVILLE	12/28/2008	06:30	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
BIG PRAIRIE	05/26/2009	16:55	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
NASHVILLE	06/19/2009	17:30	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
WALNUT CREEK	06/02/2010	20:05	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
GLENMONT	06/04/2010	16:42	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
GLENMONT	06/23/2010	15:35	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
NASHVILLE	09/07/2010	16:50	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
MILLERSBURG	10/26/2010	14:11	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
WINESBURG	05/23/2011	21:00	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
GLENMONT	06/04/2011	20:15	Thunderstorm Wind	50 kts. EG	0	0	100.00K	0.00K
NASHVILLE	07/29/2011	14:37	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
CHARM	07/29/2011	14:40	Thunderstorm Wind	65 kts. EG	0	0	250.00K	0.00K
BERLIN	07/29/2011	14:40	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
MILLERSBURG	06/18/2012	16:20	Thunderstorm Wind	50 kts. EG	0	0	75.00K	0.00K
BERLIN	06/18/2012	16:25	Thunderstorm Wind	59 kts. EG	0	0	0.00K	0.00K
NASHVILLE	06/29/2012	16:35	Thunderstorm Wind	52 kts. EG	0	0	300.00K	0.00K
KILLBUCK	07/26/2012	16:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MILLERSBURG	07/26/2012	16:18	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
KILLBUCK	04/10/2013	16:35	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
WALNUT CREEK	05/10/2013	14:50	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
KILLBUCK	06/12/2013	18:08	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
STILLWELL	06/12/2013	21:20	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
MILLERSBURG	06/12/2013	21:25	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
MILLERSBURG	06/13/2013	01:15	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
MILLERSBURG	06/13/2013	01:20	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
GLENMONT	07/10/2013	15:20	Thunderstorm Wind	50 kts. EG	0	0	25.00K	0.00K
FRYBURG	07/10/2013	15:30	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
MILLERSBURG	07/10/2013	15:30	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
HOLMES CO.	10/06/2013	18:00	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
HOLMES CO.	10/06/2013	18:30	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
KILLBUCK	11/01/2013	00:25	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
GLENMONT	11/17/2013	20:05	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
WALNUT CREEK	11/17/2013	20:25	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
Millersburg	12/22/2013	00:40	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
Millersburg	12/22/2013	01:15	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Millersburg	05/28/2014	13:40	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
Killbuck	05/11/2015	17:10	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
Walnut Creek	08/28/2016	17:25	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
Millersburg	05/30/2018	19:53	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Berlin	08/10/2018	15:07	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
Millersburg	09/21/2018	16:36	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Clark	03/14/2019	18:54	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Winesburg	05/28/2019	16:44	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Winesburg	05/28/2019	16:50	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Holmesville	06/05/2019	16:51	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Glenmont	06/05/2019	17:30	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Glenmont	07/02/2019	17:30	Thunderstorm Wind	61 kts. EG	0	0	10.00K	0.00K
Nashville	07/02/2019	17:30	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Millersburg	07/11/2019	15:04	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Charm	08/06/2019	17:14	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Millersburg	08/06/2019	17:22	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
Welcome	08/20/2019	17:51	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Holmesville	08/20/2019	18:02	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
				Totals:	0	1	3.529M	20.00K

PAST EVENT SUMMARIES:

Event Details	**Event Narrative**
August 17, 1991 Event Type: Thunderstorm Wind Magnitude: 0kts. Location: Lat:40.53/Log:-81.75 Duration 2:45pm – 2:45pm Fatalities/Injuries: 0/31 Property Damage: $ 0	Thunderstorms, scattered throughout much of Ohio, blew down trees and power lines and dropped large hail in many areas. The roof of a flea market collapsed and fell on over 100 people near Walnut Creek. Thirty-one people were injured, and many automobiles and trucks were damaged or destroyed.

Event Details	**Event Narrative**
February 23, 1994 Event Type: Thunderstorm Wind Magnitude: 0kts Location: Monroe and Washington Duration 3:20pm – 5:45pm Fatalities/Injuries: 0/0 Property Damage: $ 500,000	Numerous trees were downed northwest of Nashville (Washington Twp) at 1520 EST along Township Road 476 where a resident claimed to have seen a tornado. The tornado could not be confirmed but just west of Nashville a roof was blown off a barn at about 1530 EST and at 1545 EST a barn was destroyed and a home damaged by thunderstorm winds ten miles southeast of Nashville (Monroe Twp).

Event Details	**Event Narrative**

June 16, 1994 Event Type: Thunderstorm Wind Location: Holmeville and Lakeville Duration 3:00pm – 3:01pm Fatalities/Injuries: 0/1 Property Damage: $ 500,000	Numerous trees were downed, some on power lines, and some on homes which caused significant damage. A man was struck by a large falling limb and injured.

Event Details	**Event Narrative**
June 21, 2006 Event Type: Thunderstorm Wind Magnitude: 50kts. Location: Winesburg Duration 11:15pm – 11:201pm Fatalities/Injuries: 0/0 Property Damage: $ 425,000	A line of severe thunderstorms moved across northeastern Holmes County during the early morning hours of June 22nd. Several hundred trees and many utility poles were toppled in Berlin, Paint and Salt Creek Townships. Three buildings at a factory on Township Road 654 west of Winesburg were heavily damaged. A home inside of Winesburg was damaged and a barn and garage were flattened near Fryburg. Several homes and buildings in the Berlin area also sustained some damage.

Holmes County has experienced 69 hail events between 1/01/1994 and 7/1/2019 according to NOAA's National Climatic Data Center (See Table below).

Table - Hail

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Battle Pass	08/20/1994	18:15	Hail	0.75 in.	0	0	0.00K	50.00K
Fredericksburg	06/21/1995	18:35	Hail	0.75 in.	0	0	0.00K	0.00K
NASHVILLE	06/03/1996	17:45	Hail	0.75 in.	0	0	0.00K	0.00K
MILLERSBURG	06/13/1996	16:40	Hail	0.75 in.	0	0	0.00K	0.00K
WINESBURG	05/18/1997	17:20	Hail	0.75 in.	0	0	0.00K	0.00K
WALNUT CREEK	07/07/1997	14:22	Hail	0.75 in.	0	0	0.00K	0.00K
LAKEVILLE	06/27/1998	16:45	Hail	1.75 in.	0	0	0.00K	0.00K
MILLERSBURG	07/22/1998	22:00	Hail	1.50 in.	0	0	0.00K	0.00K
MT HOPE	08/24/1998	14:00	Hail	0.75 in.	0	0	0.00K	10.00K
MILLERSBURG	08/24/1998	17:10	Hail	1.75 in.	0	0	0.00K	5.00K
WALNUT CREEK	04/09/2001	15:15	Hail	1.00 in.	0	0	15.00K	0.00K
MT HOPE	04/19/2002	16:50	Hail	0.75 in.	0	0	5.00K	0.00K
MILLERSBURG	04/28/2002	12:20	Hail	1.00 in.	0	0	10.00K	0.00K
MILLERSBURG	04/28/2002	12:30	Hail	1.00 in.	0	0	5.00K	0.00K
MILLERSBURG	04/28/2002	12:45	Hail	1.00 in.	0	0	10.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
NASHVILLE	05/31/2002	16:40	Hail	0.75 in.	0	0	2.00K	0.00K
LAKEVILLE	06/05/2002	15:25	Hail	0.75 in.	0	0	5.00K	0.00K
MILLERSBURG	09/03/2002	17:06	Hail	1.00 in.	0	0	5.00K	0.00K
BERLIN	05/10/2003	04:55	Hail	0.75 in.	0	0	0.00K	0.00K
MILLERSBURG	05/15/2003	17:20	Hail	0.75 in.	0	0	0.00K	0.00K
NASHVILLE	04/17/2004	20:24	Hail	1.00 in.	0	0	1.00K	0.00K
FRYBURG	05/17/2004	18:17	Hail	0.75 in.	0	0	0.00K	0.00K
GLENMONT	04/20/2005	11:00	Hail	1.00 in.	0	0	3.00K	0.00K
HOLMESVILLE	04/20/2005	16:45	Hail	0.75 in.	0	0	2.00K	0.00K
NASHVILLE	05/13/2005	17:40	Hail	0.75 in.	0	0	0.00K	0.00K
LOUDONVILLE	06/28/2006	18:55	Hail	0.75 in.	0	0	0.00K	0.00K
CENTRAL PORTION	07/10/2006	15:45	Hail	0.75 in.	0	0	0.00K	0.00K
MILLERSBURG	04/23/2007	19:10	Hail	1.00 in.	0	0	0.00K	0.00K
WINESBURG	06/23/2008	14:15	Hail	0.88 in.	0	0	0.00K	0.00K
NASHVILLE	05/26/2009	16:14	Hail	0.75 in.	0	0	0.00K	0.00K
WINESBURG	06/17/2009	16:43	Hail	0.88 in.	0	0	0.00K	0.00K
GLENMONT	06/19/2009	17:30	Hail	0.75 in.	0	0	0.00K	0.00K
KILLBUCK	06/19/2009	17:30	Hail	0.75 in.	0	0	0.00K	0.00K
GLENMONT	06/19/2009	17:30	Hail	0.75 in.	0	0	0.00K	0.00K
GLENMONT	06/02/2010	12:00	Hail	0.75 in.	0	0	0.00K	0.00K
STILLWELL	06/02/2010	12:00	Hail	1.00 in.	0	0	0.00K	0.00K
KILLBUCK	06/02/2010	12:20	Hail	0.75 in.	0	0	0.00K	0.00K
NASHVILLE	06/04/2010	12:55	Hail	1.75 in.	0	0	5.00K	0.00K
HOLMESVILLE	06/04/2010	13:20	Hail	1.00 in.	0	0	0.00K	0.00K
MILLERSBURG	06/04/2010	13:55	Hail	1.75 in.	0	0	5.00K	0.00K
LAKEVILLE	06/04/2010	16:25	Hail	1.00 in.	0	0	0.00K	0.00K
GLENMONT	06/04/2010	16:42	Hail	1.00 in.	0	0	0.00K	0.00K
NASHVILLE	09/07/2010	16:50	Hail	1.00 in.	0	0	0.00K	0.00K
WALNUT CREEK	09/07/2010	18:50	Hail	1.00 in.	0	0	0.00K	0.00K
BERLIN	03/23/2011	14:29	Hail	1.25 in.	0	0	5.00K	0.00K
MT HOPE	03/23/2011	14:35	Hail	1.00 in.	0	0	5.00K	0.00K
GLENMONT	03/23/2011	14:57	Hail	1.75 in.	0	0	5.00K	0.00K
FARMERSTOWN	05/12/2011	06:55	Hail	1.00 in.	0	0	5.00K	0.00K
HOLMESVILLE	06/09/2011	06:18	Hail	1.25 in.	0	0	30.00K	0.00K
MILLERSBURG	05/29/2012	09:20	Hail	0.75 in.	0	0	0.00K	0.00K
WALNUT CREEK	05/29/2012	09:41	Hail	1.00 in.	0	0	0.00K	0.00K
MT HOPE	08/21/2012	13:00	Hail	0.75 in.	0	0	0.00K	0.00K
LAKEVILLE	04/10/2013	16:00	Hail	1.25 in.	0	0	0.00K	0.00K
MILLERSBURG	04/10/2013	16:35	Hail	1.00 in.	0	0	0.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
GLENMONT	06/12/2013	18:15	Hail	1.75 in.	0	0	15.00K	0.00K
GLENMONT	06/12/2013	18:26	Hail	0.75 in.	0	0	0.00K	0.00K
MILLERSBURG	06/25/2013	17:00	Hail	0.75 in.	0	0	0.00K	0.00K
FRYBURG	06/28/2013	14:20	Hail	0.75 in.	0	0	0.00K	0.00K
WINESBURG	08/07/2013	15:05	Hail	1.00 in.	0	0	1.00K	0.00K
NASHVILLE	05/07/2014	03:02	Hail	1.00 in.	0	0	1.00K	0.00K
BIG PRAIRIE	05/07/2014	04:30	Hail	0.75 in.	0	0	0.00K	0.00K
LAKEVILLE	05/07/2014	05:03	Hail	1.00 in.	0	0	0.00K	0.00K
NASHVILLE	05/14/2014	13:50	Hail	1.75 in.	0	0	75.00K	0.00K
NASHVILLE	05/14/2014	14:00	Hail	1.00 in.	0	0	0.00K	0.00K
BIG PRAIRIE	05/14/2014	14:10	Hail	0.88 in.	0	0	0.00K	0.00K
HOLMESVILLE	05/14/2014	14:26	Hail	1.00 in.	0	0	0.00K	0.00K
HOLMESVILLE	05/14/2014	14:28	Hail	1.00 in.	0	0	0.00K	0.00K
HOLMESVILLE	05/14/2014	14:28	Hail	1.00 in.	0	0	0.00K	0.00K
CLARK	3/14/2019	18:54	Hail	1.00 in.	0	0	0.00K	0.00K
				Totals:	0	0	215.00K	65.00K

PROBABILITY

The probability that Holmes County will experience another thunderstorm and/or hail event is extremely high since they have experienced 133 thunderstorm events and 69 hail events over the past 25 years. Based on past history, it is realistic to assume that Holmes County will experience 5 to 6 thunderstorm events per year and 2 to 3 hail events per year.

VULNERABILITY

Thunderstorms, since they are non-spatial in nature, could potentially hit impact all of Holmes County's build environment. Thunderstorms can be extremely dangerous because they are often strong and fast in their approach and can be accompanied by flash flooding, lightning, hail, tornadoes, and high winds. Based on past experience, Holmes County has encountered many severe thunderstorm events that were capable of producing winds averaging between 50 to 65 knots. Based on past history, the estimated losses associated with a thunderstorm event are documented in the table below.

Thunderstorm	
Structure Type	Estimated Potential Building Damage
Residential	$1,680,000
Non-Residential	$770,000
Critical Facilities	$625,000

Total	$3,075,000

SPEED OF ONSET & DURATION

The National Weather Service will issue a Severe Thunderstorm Warning when either a severe thunderstorm is indicated by radar or a spotter reports a thunderstorm producing hail 3/4 inch or larger in diameter and/or winds equal or exceed 58 miles an hour.

The duration of severe thunderstorms is contingent upon the storm type. A single cell thunderstorm usually last between 20-30 minutes, whereas a multicell cluster thunderstorm can persist for several hours.

SEVERITY

Holmes County has not experienced any fatalities and had only one minor injury during a thunderstorm or hail event. Based on past occurrences, thunderstorm events generate, on average, approximately $26,000 in property damages, while hail events only generate approximately $2500 in damages. The costliest severe thunderstorm event totaled $500,000 in damages.

HAZARD: TORNADO

A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. The destruction caused by tornadoes ranges from light to catastrophic depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, including residential dwellings and manufactured homes in particular. Tornadoes are more likely to occur during the months of March through May and tend to form in the late afternoon and early evening. The Enhanced Fujita Scale is used to rate the intensity of a tornado by examining the amount of damage it causes (See Table below).

Table - Scale

Fujita Scale			Operational EF-Scale	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85
1	73-112	79-117	1	86-110
2	113-157	118-161	2	111-135
3	158-207	162-209	3	136-165
4	208-260	210-261	4	166-200
5	261-318	262-317	5	Over 200

PAST HISTORY

Holmes County has experienced nine (9) tornadoes between 7/27/1968 and 7/1/2019 according to NOAA's National Climatic Data Center (See Tornado Table).

Table - Tornado

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
HOLMES	07/27/1968	18:20	Tornado	F1	0	0	3 K	0.00K
HOLMES	05/10/1973	18:25	Tornado	F2	0	1	250K	0.00K
HOLMES	06/07/1980	14:25	Tornado	F1	0	1	2.5M	0.00K
HOLMES	06/08/1981	20:25	Tornado	F1	0	0	25K	0.00K
HOLMES	06/08/1981	20:25	Tornado	F2	0	5	250K	0.00K
NASHVILLE	07/28/1999	11:08	Tornado	F1	0	4	75.00K	0.00K
MT HOPE	06/22/2006	16:30	Tornado	F2	0	0	750.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
BERLIN	06/05/2010	13:40	Tornado	EF1	0	0	200.00K	0.00K
FARMERSTOWN	09/16/2010	17:00	Tornado	EF1	0	0	500.00K	0.00K
				Totals:	**0**	**11**	**4.553M**	**0.00K**

PAST EVENT SUMMARIES:

Event Details	Event Narrative
June 22, 2006: F2 Tornado Length: 6 miles Width: 100 Yards Location: Winesburg Latitude: 40.62/Longitude: -81.70 Duration 4:30pm – 4:40pm Fatalities/Injuries: 0/0 Property Damage: $ 750,000	During the late afternoon hours of June 22nd, a severe thunderstorm moved across eastern Holmes County and produced a tornado. This tornado touched down at 5:30 pm just west of Mt Hope and tracked east through Winesburg and then exited the county. The tornado had a damage path in Holmes County roughly six miles in length and 50 to 100 yards in width. The majority of the damage was classified as F1, but there were several areas of F2 damage evident. Along the path, numerous structures were damaged and hundreds of trees toppled or snapped. A barn was heavily damaged near where the tornado first touched down. Two houses nearby sustained siding and roof damage. A home on State Route 241 just outside of Mt. Hope was destroyed and several buildings at a factory in Mt. Hope sustained major damage. Metal roofs were torn off of these factory buildings with debris found as far as a mile away. Wooden beams from the buildings were thrown and pierced metal garage doors. Empty box trailers were overturned and one box trailer was even torn from its frame. The tornado continued east from Mt Hope and damaged several more homes on its way to Winesburg. One house had its second floor torn off. A second factory near Winesburg lost large sections of roof. In Winesburg, a few homes sustained roof damage. The tornado continued into Tuscarawas County and caused damage there. Later, the same parent thunderstorm produced another tornado west of Waynesburg in southeastern Stark County.

Event Details	Event Narrative
September 9, 2010: EF1 Tornado Length: 3.13 miles Width: 75 Yards Location: Farmerstown Latitude: 40.482/Longitude: -81.75 Duration 5:00pm – 5:05pm Fatalities/Injuries: 0/0 Property Damage: $ 500,000	An EF1 tornado touched down in rural Clark Township near the intersection of Township Road 183 and Township Road 190. The tornado then moved east for just over three miles before lifting near the intersection of Township Roads 165 and 166. Several homes and buildings were damaged along the tornado path. Most of the damage was from lost roofing or siding, but a few small outbuildings were also leveled. Dozens of trees were toppled along the damage path which was up to 75 yards in width.

Event Details	Event Narrative
June 8, 1981: F2 Tornado Length: 2.3 Miles Width: 500 Yards Location: Holmes County Latitude: 40.45/Longitude: -81.92 Duration 8:25pm – 8:25pm Fatalities/Injuries: 0/5 Property Damage: $ 250,000	Twin tornadoes touched down about 1 mile north of Coshocton county line south of Millersburg. Several houses and farm buildings were destroyed. The storms moved west to east with the storm on the right being the straighter of the two. The houses in the strip between the storms were left undamaged.

Holmes County has experienced 40 high wind/strong wind events between 1/01/1996 and 1/12/2020 according to NOAA's National Climatic Data Center (See Wind Table).

Table - Wind

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
HOLMES (ZONE)	03/25/1996	12:00	High Wind	50 kts.	0	0	15.00K	0.00K
HOLMES (ZONE)	04/25/1996	14:00	High Wind	50 kts.	0	0	0.00K	0.00K
HOLMES (ZONE)	09/07/1996	04:00	High Wind	50 kts.	0	0	5.00K	10.00K
HOLMES (ZONE)	10/30/1996	00:10	High Wind	50 kts.	0	0	0.00K	0.00K
HOLMES (ZONE)	02/21/1997	10:30	High Wind	50 kts.	0	0	10.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
HOLMES (ZONE)	02/22/1997	02:13	High Wind	50 kts.	0	0	3.00K	0.00K
HOLMES (ZONE)	02/27/1997	00:15	High Wind	50 kts.	0	0	5.00K	0.00K
HOLMES (ZONE)	03/28/1998	12:28	High Wind		0	0	10.00K	0.00K
HOLMES (ZONE)	11/10/1998	11:45	High Wind		0	0	15.00K	0.00K
HOLMES (ZONE)	05/06/1999	14:00	High Wind		0	0	10.00K	0.00K
HOLMES (ZONE)	12/11/2000	23:30	High Wind		0	0	150.00K	0.00K
HOLMES (ZONE)	02/09/2001	20:00	High Wind		0	0	10.00K	0.00K
HOLMES (ZONE)	02/25/2001	07:00	High Wind		0	0	5.00K	0.00K
HOLMES (ZONE)	04/12/2001	09:00	High Wind		0	0	10.00K	0.00K
HOLMES (ZONE)	10/25/2001	11:00	High Wind		0	0	15.00K	0.00K
HOLMES (ZONE)	12/14/2001	15:00	High Wind		0	0	5.00K	0.00K
HOLMES (ZONE)	02/01/2002	10:00	High Wind		0	0	15.00K	0.00K
HOLMES (ZONE)	03/09/2002	14:30	High Wind		0	0	125.00K	0.00K
HOLMES (ZONE)	10/04/2002	18:30	High Wind		0	0	10.00K	0.00K
HOLMES (ZONE)	05/11/2003	10:00	Strong Wind	35 kts. EG	0	0	25.00K	0.00K
HOLMES (ZONE)	11/12/2003	21:00	High Wind	50 kts. EG	0	0	40.00K	0.00K
HOLMES (ZONE)	03/05/2004	12:30	High Wind	50 kts. EG	0	0	50.00K	0.00K
HOLMES (ZONE)	11/27/2004	18:00	Strong Wind	35 kts. EG	0	0	5.00K	0.00K
HOLMES (ZONE)	12/07/2004	12:15	High Wind	50 kts. EG	0	0	10.00K	0.00K
HOLMES (ZONE)	02/17/2006	00:00	High Wind	50 kts. EG	0	0	15.00K	0.00K

Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
HOLMES (ZONE)	03/10/2006	00:30	Strong Wind	49 kts. MG	0	0	25.00K	0.00K
HOLMES (ZONE)	12/01/2006	14:00	High Wind	50 kts. EG	0	0	15.00K	0.00K
HOLMES (ZONE)	12/23/2007	10:20	High Wind	50 kts. EG	0	0	15.00K	0.00K
HOLMES (ZONE)	01/09/2008	05:00	High Wind	50 kts. EG	0	0	8.00K	0.00K
HOLMES (ZONE)	01/30/2008	01:55	High Wind	50 kts. EG	0	0	8.00K	0.00K
HOLMES (ZONE)	09/14/2008	16:30	High Wind	52 kts. EG	0	0	2.500M	500.00K
HOLMES (ZONE)	02/11/2009	22:30	High Wind	55 kts. MG	0	0	400.00K	0.00K
HOLMES (ZONE)	12/09/2009	12:00	High Wind	52 kts. EG	0	0	150.00K	0.00K
HOLMES (ZONE)	04/28/2011	04:30	High Wind	50 kts. EG	0	0	75.00K	0.00K
HOLMES (ZONE)	02/24/2012	12:30	High Wind	50 kts. EG	0	0	15.00K	0.00K
HOLMES (ZONE)	10/29/2012	23:00	High Wind	50 kts. EG	0	0	50.00K	0.00K
HOLMES (ZONE)	11/24/2014	14:00	High Wind	52 kts. EG	0	0	100.00K	0.00K
HOLMES (ZONE)	02/24/2019	11:00	High Wind	50 kts. EG	0	0	50.00K	0.00K
HOLMES (ZONE)	11/27/2019	16:00	High Wind	50 kts. EG	0	0	4.00K	0.00K
HOLMES (ZONE)	01/12/2020	00:25	High Wind	50 kts. EG	0	0	0.00K	0.00K
				Totals:	0	0	4.469M	510.00K

PAST EVENT SUMMARIES:

Event Details	Event Narrative
September 14, 2008: High Wind Event Magnitude: 52 kts Location: Holmes County Duration 4:30pm – 8:00pm Fatalities/Injuries: 0/0	High winds associated with the remnants of Hurricane Ike began late in the afternoon of September 14th and then continued through much of the evening. Wind gusts were estimated to be as much as 60 mph. Damage in the county was

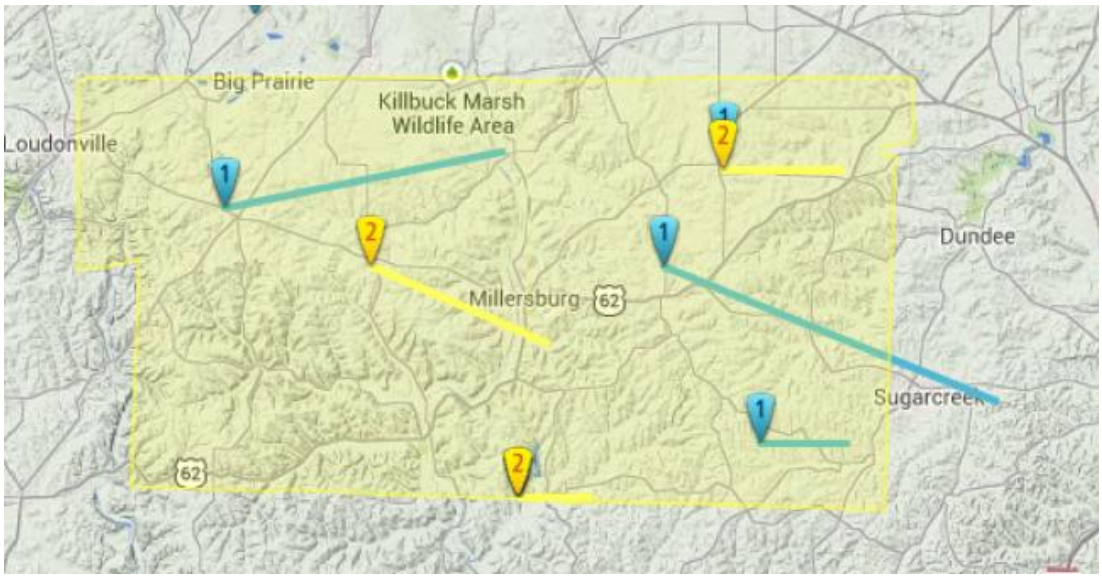
Property Damage: $ 1,500,000 Crop Damage: $500,000	extensive with thousands of trees and many utility poles downed. Widespread power outages occurred as well with some customers without power for as much as a week. Home and building damage across the county were also extensive. The damage ranged from a few shingles torn off to significant structural damage caused by fallen trees landing on roofs. Numerous vehicles were damaged by fallen trees and limbs and also from flying debris. This storm hampered travel as downed trees and power lines forced the closure of many roads. Substantial clean up costs were incurred by local governments. Many of the schools in the county were forced to close on Monday the 15th because of the power outages. Significant crop losses occurred as well. Corn yields were reduced between 3 and 5 percent in many areas with lesser losses to the soybean crop.

PROBABILITY

Holmes County has experienced nine (9) tornado events in last 51 years and has a 18% chance of experiencing a tornado in any given year. The probability that Holmes County will experience another high wind event is extremely high since they have experienced 38 events in the last 23 years. Based on past history, it is realistic to assume that Holmes County will experience 1 to 2 high wind events per year.

VULNERABILITY

Tornadoes are a non-spatial hazard and could potentially hit any location in Holmes County. That being said, the damage path would be limited to the assets along its trajectory and not countywide. Based on past experience, Holmes County tornadoes were F1 – F2 with wind speeds averaging between 72 and 157 mph. Holmes County's more recent tornadoes ranged from 86 – 110 mph. See the below map for the locations and trajectories of past tornadoes in Holmes County.



Depending on where a tornado touches down, will determine the susceptibility of Holmes County's residents and the build environment. The average population per square mile for Holmes County is 100.6. The planning team estimated potential tornado losses using past events and documented the findings in the table below.

Tornado	
Structure Type	Estimated Potential Building Damage
Residential	$6,720,000
Non-Residential	$3,080,000
Critical Facilities	$2,500,000
Total	$12,300,000

SPEED OF ONSET & DURATION

The National Weather Service will issue a Tornado Warning when a tornado has actually been sighted by spotters or indicated by radar. The current lead-time average for a tornado warning is 13 minutes.

Most tornadoes last less than 10 minutes. Strong tornadoes, with winds between 110 and 205 mph, can last 20 minutes or longer. The most violent tornadoes can last for more than an hour.

SEVERITY

Based on past occurrences, Holmes County has been very fortunate to not have had any fatalities associated with a tornado or high wind event. In regards to damages, the county averages

approximately $505,889 per tornado event, with the costliest individual occurrence totaling 2.5 million dollars in damages. For a high wind event, Holmes County averages approximately $107,079 in property damage per event and $13,421 in crop damages. The costliest high wind incident totaled 1.5 million dollars in property damages and $500, 000 in crop damages.

HAZARD: SEVERE WINTER WEATHER (ICE/SNOW/SLEET)

A winter storm is an event in which precipitation is formed at cold temperatures. Winter storms are generated from disturbances along the boundary between cold polar and warm tropical air masses. If cold temperatures are in place and a significant amount of moisture is pumped into a storm system, the result could be a major winter storm. Severe winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Severe winter weather can down trees, cause widespread power outages, damage property, and cause fatalities and injuries. Winter storms can affect all areas of the United States and come in various sizes. Winter storms are common from November through April, but sometimes can occur as early as October or as late as May.

PAST HISTORY

Holmes County has experienced a total of 34 severe winter weather events from 1/1/1994 to 7/1/2019 according to NOAA's National Climatic Data Center (See Winter Storm Table).

Table – Winter Storm

Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
Holmes	3/8/1994	1300	Ice Storm	0	6	500K	500K
Holmes	3/9/1994	0800	Ice Storm	0	14	5.0M	0
Holmes	1/6/1995	1200	Ice Storm	1	12	300K	0
Holmes	1/20/1995	0800	Heavy Snow	0	8	1.0M	0
Holmes	12/18/1995	0900	Ice Storm	0	0	30K	0
HOLMES (ZONE)	01/02/1996	09:00	Heavy Snow	0	0	70.00K	0.00K
HOLMES (ZONE)	01/02/1999	05:00	Winter Storm	0	2	15.00K	0.00K
HOLMES (ZONE)	01/08/1999	04:00	Winter Storm	0	0	2.00K	0.00K
HOLMES (ZONE)	01/13/1999	01:30	Winter Storm	0	0	2.00K	0.00K
HOLMES (ZONE)	03/09/1999	00:15	Heavy Snow	0	0	0.00K	0.00K
HOLMES (ZONE)	12/13/2000	14:00	Winter Storm	0	0	100.00K	0.00K
HOLMES (ZONE)	03/24/2002	20:00	Winter Storm	0	0	40.00K	0.00K
HOLMES (ZONE)	03/26/2002	01:00	Winter Storm	0	0	300.00K	0.00K
HOLMES (ZONE)	02/16/2003	07:00	Heavy Snow	0	0	400.00K	0.00K
HOLMES (ZONE)	12/05/2003	04:00	Winter Storm	0	0	250.00K	0.00K
HOLMES (ZONE)	01/25/2004	18:00	Winter Storm	0	0	300.00K	0.00K
HOLMES (ZONE)	02/05/2004	15:00	Winter Storm	0	0	125.00K	0.00K
HOLMES (ZONE)	03/16/2004	01:30	Heavy Snow	0	0	250.00K	0.00K
HOLMES (ZONE)	12/22/2004	09:00	Winter Storm	0	0	4.300M	0.00K
HOLMES (ZONE)	01/05/2005	02:00	Ice Storm	0	0	5.100M	0.00K

Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
HOLMES (ZONE)	02/13/2007	04:00	Winter Storm	0	0	20.00K	0.00K
HOLMES (ZONE)	02/25/2007	00:00	Ice Storm	0	0	25.00K	0.00K
HOLMES (ZONE)	02/11/2008	20:00	Winter Storm	0	0	40.00K	0.00K
HOLMES (ZONE)	03/04/2008	05:00	Winter Storm	0	0	250.00K	0.00K
HOLMES (ZONE)	03/07/2008	10:00	Winter Storm	0	0	400.00K	0.00K
HOLMES (ZONE)	12/19/2008	02:30	Winter Storm	0	0	20.00K	0.00K
HOLMES (ZONE)	01/27/2009	17:00	Winter Storm	0	0	125.00K	0.00K
HOLMES (ZONE)	02/05/2010	11:00	Winter Storm	0	0	250.00K	0.00K
HOLMES (ZONE)	02/15/2010	12:00	Winter Storm	0	0	250.00K	0.00K
HOLMES (ZONE)	02/01/2011	00:00	Winter Storm	0	0	200.00K	0.00K
HOLMES (ZONE)	02/21/2011	13:00	Winter Storm	0	0	200.00K	0.00K
HOLMES (ZONE)	12/26/2012	09:00	Winter Storm	0	0	50.00K	0.00K
HOLMES (ZONE)	01/12/2018	13:00	Winter Storm	0	0	125.00K	0.00K
HOLMES (ZONE)	01/19/2019	09:00	Winter Storm	0	0	50.00K	0.00K
			Totals:	0	2	19.415M	500K

PAST EVENT SUMMARIES:

Event Details	**Event Narrative**
December 22-23, 2004 Event Type: Winter Storm Location: Holmes County Duration 9:00am – 11:00am Fatalities/Injuries: 0/0 Property Damage: $ 4,300,000	A record setting winter storm affected northern Ohio on December 22nd and 23rd and dumped both heavy snow and freezing rain on Knox, Holmes, Wayne and Stark Counties. The impact and damage caused by this storm has been compared to the Blizzard of January 1978. Low pressure developed over eastern Texas early on the 22nd and then moved quickly northeast. The low eventually tracked across eastern Ohio during the morning hours of the 23rd after dumping nearly two feet of snow on portions of Ohio. The snow began around daybreak on the 22nd and then intensified during the afternoon. During the evening, warmer air spread into the area as the low approached from the southwest. This caused the snow to first mix with, and then change completely to freezing rain. Moderate to heavy freezing rain then continued through the early morning hours of the 23rd. The freezing rain lightened around daybreak and then changed back to light snow as colder air advected into the area behind the low. The precipitation finally tapered to flurries around midday on the 23rd. One half to as much as one inch of ice accumulated on area

	roads and power lines. Widespread power outages were reported especially in Knox, Holmes and southern Wayne Counties. It took over a week for power to be restored to all areas. Snow accumulations for the event ranged from 10 to 12 inches in northwestern Wayne County to 4 to 8 inches in Knox and southern Holmes Counties. Travel during this event was nearly impossible due to the ice accumulation and downed trees and power lines. Hundreds of accidents were reported. It took many days for road and power company crews to completely clean up after this event. Damage and clean up costs for this storm were historic with only the Blizzard of 1978 having more financial impact.

Event Details	**Event Narrative**
January 5-6, 2005 Event Type: Ice Storm Location: Holmes County Duration 2:00am – 10:00am Fatalities/Injuries: 0/0 Property Damage: $ 5,100,000	For the second time in just over two weeks, a devastating and historic winter storm affected Northern Ohio. Significant ice accumulations occurred over most of the area downing thousands of trees, causing widespread power outages and making travel nearly impossible. Low pressure over Missouri moved rapidly northeast on January 5th. This low moved across eastern Ohio early on January 6th and was responsible for producing a prolonged period of freezing rain. A mixture of rain and snow changed to freezing rain from west to east during the early morning hours of the 5th. Periods of freezing rain then continued for the remainder of the 5th and through the early morning hours of the 6th. Temperatures eventually warmed enough during the late morning hours of the 6th to change the freezing rain back to rain. The hardest hit locations were west of Interstate 71 along the U.S. Route 30 corridor. Ice accumulations of greater than three quarters of an inch were reported from Hancock County eastward across Wyandot, Crawford, Richland and Ashland Counties. Northern sections of Wyandot and Marion Counties along with the southern halves of Seneca and Huron County were also hard hit. Up to 80 percent of electric customers in these nine counties lost service during the storm, some for as much as ten days. In cities like Mansfield, Bucyrus and Findlay, nearly every property in some neighborhoods

	sustained tree damage. To the north and south of these areas ice accumulations ranged from one quarter to three quarters of an inch. Hundreds of crews were brought in from around the county to help restore the power outages. In addition to damage caused by fallen trees and limbs, a lot of basement flooding occurred as power outages prevented sump pumps from working. Clean up and repair costs for this storm were among the highest ever recorded for a natural disaster in Ohio. Damage in many counties topped $1 million with a couple counties exceeding $10 million in losses. Estimates indicate that as many as one million people lost power during this storm. Several power companies reported the largest number of outages in their histories. Hundreds if not thousands of homes and businesses were damaged by fallen trees, limbs and utility poles.

Event Details	**Event Narrative**
March 7-8, 2008 Event Type: Winter Storm Location: Holmes County Duration 10:00am – 9:00pm Fatalities/Injuries: 0/0 Property Damage: $ 400,000	Snow began during the morning hours of the 7th and continued through much of the day. During the evening hours, snow tapered off a bit and even some locations saw a break in the snow for a few hours. However, it was short lived as more snow moved into the area and intensified through the overnight hours into the 8th. This trend continued with snow persisting through much of the day, and visibilities were often less than two miles. For several hours on the 8th visibilities were as low as a quarter mile with heavy snow. By the end of the event between 10.0 and 15.0 inches was reported across the area.

Event Details	**Event Narrative**
January 25, 2004 Event Type: Winter Storm Location: Holmes County Duration 6:00pm – 11:00pm Fatalities/Injuries: 0/0 Property Damage: $ 300,000	Low pressure over the southern plains moved northeast across Ohio. Snow associated with this low spread into northern Ohio during the evening hours of the 26th. Light freezing rain began to mix with the snow during the early morning hours of the 27th. This light mixture continued through the middle part of the day. Snow accumulations through noon on the 27th ranged from 3 to 5 inches with the greatest amounts along and just south of U.S. Route 30. The precipitation intensified during the late afternoon hours

	with moderate to heavy freezing rain falling for around 90 minutes. Some sleet was also reported during this period. Ice accumulations of up to one half inch resulted from this period of heavy precipitation. This created extremely treacherous driving conditions and resulted in hundreds of accidents. Many downed power lines were also reported. The freezing rain diminished in intensity during the evening hours and finally ended just before midnight.

PROBABILITY

The probability that Holmes County will experience another severe winter storm is extremely high since they have experienced 34 events in the past 25 years. Based on past history, it is realistic to assume that Holmes County will experience 1 to 2 winter storm events per year.

VULNERABILITY

Winter weather is a non-spatial hazard that could potentially hit any or all jurisdictions within Holmes County. Winter storms usually impact residents and animals, and can make travel throughout the county extremely difficult. The average annual snowfall for Holmes County is 28 inches. Based on previous storms, Holmes County could see snow totals from a trace up to 15 inches, ice accumulations from ¾ inch to 1 inch, winds in excess of 25 mph, and limited (1/4 mile) to no visibility. Winter storm loss estimates were determined based upon the county's past damage history and is documented it in the table below.

WINTER STORM	
Structure Type	Estimated Potential Building Damage
Residential	$4,765,000
Non-Residential	$6,410,000
Critical Facilities	$1,545,000
Total	$12,720,000

SPEED OF ONSET & DURATION

The National Weather Service can issue a severe weather warning, watch, and advisories for 12 to 36 hours in advance of an approach storm. A major winter storm can last for several days.

SEVERITY

Holmes County has not been immune to injuries or fatalities during a severe winter weather event. The highest single event injury total for a winter storm was 56, and during an ice storm the county had a fatality. Holmes County has experienced significant monetary costs associated with severe winter weather. The county average for damages in a severe winter weather event is $571,029. The highest single event damage total was $5.1 million.

5.3 CAPABILITIES ASSESSMENT

For the 2019-2020 plan update, the Holmes County Mitigation Planning Team conducted a county-wide capability assessment to identify existing plans, ordinances, funding programs, and resources that could be utilized to accomplish mitigation actions. The results from the assessment are detailed in the table below.

CAPABILITIY ASSESSMENT FINDINGS

Plans	
Capital Improvement Plan	Village of Millersburg
Economic Development Plan	Holmes County
Comprehensive Land Use Plan	Holmes County Village of Berlin Village of Millersburg
Stormwater Management Plan	Village of Millersburg
Emergency Operations Plan	Holmes County
Continuity of Operations Plan	Holmes County (govt only) Village of Millersburg
Disaster Recovery Plan	None
Asset Management Plan*	Village of Millersburg
CODES	
Zoning Ordinance	Village of Millersburg
Floodplain Ordinance	Holmes County Village of Millersburg Village of Killbuck Village of Holmesville Village of Glenmont
Subdivision Regulations	Holmes County Village of Millersburg Village of Glenmont Village of Holmesville Village of Killbuck Village of Nashville
Stormwater Ordinance	None
Building Codes	Village of Millersburg • No residential for the rest of the county
Commercial Code	East Central Ohio Building Authority
Administration	
Planning Commission	Holmes County

	Village of Millersburg
Mitigation Planning Committee	Holmes County
Service/Maintenance Programs	County, villages and townships
Mutual Aid Agreements	Not written

Personnel	
Chief Building Official	Village of Millersburg East Central Ohio Building Authority
Floodplain Administrator	Holmes County Village of Killbuck Village of Millersburg
Emergency Manager	Holmes County
Community Planner	Holmes County
Civil Engineer	Holmes County
GIS Coordinator	Holmes County
Fire Chief/Inspectors/State Fire Marshall	8 chiefs, 4 inspectors and the State Fire Marshall

Technical	
Warning sirens, Facebook, twitter, and One Call	Yes
Hazard data and information	Yes
Grant writing	No
Hazus analysis	No

Funding Source	
Capital Improvement Project Funding	None
Authority to levy taxes for specific purposes	All jurisdictions
Fee for water, sewer, gas, or electric services	All jurisdictions
Impact fees for new development	Holmes County
Storm water utility fee	None
Incur debt through general obligation bonds and/or special tax bonds	All jurisdictions
Incur debt through private activities	All jurisdictions
Community Development Block Grant	Holmes County only
Other federal funding programs	All jurisdictions
State funding programs	All jurisdictions

Outreach	
Local citizen groups or non-profit organizations focused on emergency preparedness	American Red Cross conducts education and outreach to prepare for emergencies (i.e. Stop the Bleed Program)

Ongoing public education or information programs	None
Hazard Awareness Campaigns (ex: Severe Weather Awareness Month)	Regional, State, and Federal Effort – hazard awareness
Fire Safety Program	Local fire departments visit businesses and schools and provide safety awareness
Community Program (ex: StormReady or Firewise)	None
Public-private partnership initiatives addressing disaster related issues	None

SECTION SIX: MITIGATION STRATEGY

The section of the plan describes the strategies that Holmes County intends to implement to minimize loss of life and property damages from natural hazards. The goals and actions were determined by the Mitigation Planning Team based on the results from the Hazard Identification and Risk Assessment and feedback from key stakeholders.

6.1 MITIGATION STRATEGY

The mitigation strategy is Holmes County's long-term blueprint for how to reduce loss of life and property damage. This blueprint is made up of three components that include mitigation goals, mitigation actions, and an action plan for implementation. Together, these three components provided the mitigation planning team with a framework to identify, prioritize, and develop implementation actions to reduce the risk to hazards.

Mitigation goals: are general guidelines that explain what the community wants to achieve with the plan.

Mitigation actions: are specific projects and activities that help to achieve the goals.

The **action plan** will describe how the mitigation actions will be implemented; including how those actions will be prioritized, administered, and incorporated.

To update the mitigation goals and objectives for the 2014 plan update, the Holmes County Mitigation Planning Team and key stakeholders investigated and analyzed a wide variety of mitigation actions and projects from five different categories to determine the best strategy to combat the effects of hazards in Holmes County (see the types of mitigation actions below).

TYPES OF MITIGATION ACTIONS

Local Plans and Regulations - These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.

- Planning and zoning
- Building codes
- Subdivision regulations
- Floodplain regulations
- Drainage system maintenance
- Capital improvement programs
- Open space preservation
- Stormwater management regulations

Structural and Infrastructure Projects - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.

- Acquisitions
- Elevations
- Utility undergrounding
- Floodwalls and retaining walls
- Culverts
- Safe rooms

Natural System Protection - These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.

- Sediment and erosion control
- Stream corridor restoration
- Forest management
- Conservation easements
- Wetland restoration and preservation

Education and Awareness Programs - These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities.

- Radio or television spots
- Websites with maps and information
- Real estate disclosure
- Presentations to school groups or neighborhood organizations
- Mailings to residents in hazard-prone areas.
- StormReady or Firewise Communities

Preparedness Actions – are actions taken to prepare for a hazard. These actions can be included in the mitigation strategy; however, they will not meet the Federal mitigation planning requirements.

- Warning Sirens

PRIORITIZATION OF GOALS AND ACTIONS USING STAPLEE AND SIMPLE SCORES

The goal of each proposed mitigation action is to reduce or prevent damage from a hazard event. In order to determine the effectiveness in accomplishing this goal, Holmes County planning team members were asked to prioritize each mitigation action in accordance with FEMA Publication 386-5, Benefit-Cost Review. The costs and benefits of each action were determined using Review Tool 2 and 3, then placed on a matrix and evaluated using the STAPLEE criteria in a modified Simple Score method (Method C). The Benefit-Cost Review was emphasized in the prioritization process to maximize the benefits over the costs. This approach demonstrates the actions' evaluation in terms of their pros and cons, which are represented as costs and benefits.

EVALUATION OF 2014 STRATEGY

During the plan update, Holmes County's Mitigation Planning Team was required to review the hazard mitigation goals, objectives, and actions that were outlined in the 2014 Holmes County Hazard Mitigation Plan. Upon evaluation, team members determined that many of the original goals and objectives were either resolved shortly after the plan was generated, were unobtainable or were never real priorities for the jurisdictions. To remedy this oversight, one of the original 2014 goals were removed from the plan (see the table below).

#	Goal	Actions	Status	Reason
6	To minimize the loss of life and property damage during severe weather events.	Ensure proper manufactured home tie-down measures are in place (especially in *Knox Township, Washington Township, and Berlin Township*). • Review current regulations • Obtain model regulations from APA • Discuss changes needed to added measures • Inform public of ideas • Pass new regulations • Implement new regulations • Notify manufactured home parks and vendors of new rules • Notify public of new rules	Delete	Current regulations were compared to best-practices APA criteria. Was unable to reach consensus and move forward with new regulations

During that same evaluation, planning team members noted that four of the mitigation goals and their corresponding actions had been deemed ongoing or partially completed in the last 5 years and were to be carried over into the 2019-2020 mitigation strategy.

#	Goal	Actions	Status	Reason
3	To minimize the loss of life and property damage during flood events.	Elevate roads that are repetitively closed during flood events. • Raise the stream bed at several locations to slow the fall and speed of waters flow. • Add appropriate materials to the streams bed • Build up banks of the stream with material to stop sliding	Partially Completed • CR-1 and SR-60 were raised. • Stream banks of Sapps run were strengthened with fill materials, concrete, and pilings were installed in 2016. • Stream banks of paint creek were strengthened with fill materials in early 2019. • No stream banks were raised to slow the fall and speed of water. • No materials were added to the steam beds.	Some of the initial projects were not completed because of environmental concerns regarding alterations to the bed of the local streams.
4	To minimize the loss of life and property damage during flood events.	To clear log jams under bridges and in streams • Ask Township Trustees to identify which bridges are prone to debris collection • Decide on debris removal techniques • Do a cost-benefit analysis • Obtain funding • Carry out activities	Ongoing	Debris removal is an ongoing project that needs to be continually addressed due to foreign materials consistently entering local streams.

		• Review results		
5	To minimize the loss of life and property damage during flood events.	Acquire, retrofit, elevate, or relocate flood prone property (especially in Village of Millersburg, Glenmont, Holmesville, and Killbuck). • Identify properties in high risk flooding areas (critical facilities, repetitive loss) • Identify structures that can benefit from retrofit for each area • Detail activities and costs for each structure • Identify homeowners willing to participate • Determine the action (acquire, retrofit, elevate, or relocation) based on the cost/benefit for each property • Secure funding • Execute	Ongoing	Project were not completed due to insufficient funding and private properties could not be procured (i.e. landowners were unwilling to sell properties for fair market value). Not deemed viable at this time and will not pursue.
9	To minimize loss of life and property damages through education.	Develop a mitigation link on the Holmes County Government Website. • Obtain consensus on place for new site, develop ideas, hire a consultant, design the site, test and implement/maintain site.	Not completed	Unable to reach consensus. Would like to re-explore for 2019 plan.

Also, during that evaluation, planning team members noted that four of the mitigation goals and their corresponding actions had been completed in the last 5 years and were to be removed from the 2019-2020 mitigation strategy (see the table below).

#	Goal	Actions	Status
1	Minimize loss of life and damage to	Increase the number of communities that have severe weather warning devices.	Project was completed 2017.

	properties during severe weather events.	• Identify service areas • Find suitable location to broadcast to each service area • Perform a cost-benefit analysis • Package sites together as indicated by analysis • Find funding source • Secure locations • Install devices • Test and place in operation	
2	To minimize disruption of services during severe weather events.	Ensure that lift stations have power backup systems for severe weather events • Identify public utilities without generator backup capacity • Determine cost for adding generator backup capacity.	Project was completed in 2016.
7	To minimize property damage due to lightning strikes.	Minimize the effects of lightning on critical facilities. • Identify new and/or improved lightning suppression for the tower • Identify new and/or improved lightning suppression for the sheriff's office main building • Conduct cost/benefit analysis • Bid (if applicable) • Secure measure • Install • Test	Project was completed 2015.
8	To minimize losses due to drought.	Address drought concerns with "dry" hydrant adjacent to local farm ponds. • Promote local use of dry hydrants along with pond water sources • Have a public meeting with Crossroads Planning Group on local availability and funding	Project was completed in 2016.

2019-2020 MITIGATION STRATEGY

The Holmes County Mitigation Planning Team, based on completed projects, HIRA findings, and feedback from the local jurisdictions, determined new goals that they wanted to include in the plan update to reduce or avoid long-term vulnerability to flooding, drought, and severe weather events. The action plan clarifies the mitigation actions to be implemented, identifies the responsible entities to complete the action, defines potential funding sources available, and estimates project timelines.

2020 – 2025 HAZARD MITIGATION GOALS & OBJECTIVES

Stormwater Management Plan Initiative

Goal #1: To minimize loss of life and property damage during flooding events.

Objective #1: Reduce runoff and improve water quality through the development of a Stormwater Management Plan.

OBJECTIVE #1	
Mitigation Action	Local Plan and Regulation
Priority	1
Status	New
Estimated Cost	$ 25,000
Lead Organization	Village of Millersburg Village of Glenmont Village of Holmesville Village of Killbuck Village of Nashville Village of Baltic Village of Loudonville Berlin Township Clark Township Hardy Township Killbuck Township Knox Township Mechanic Township Monroe Township Paint Township Prairie Township Richland Township

	Ripley Township Salt Creek Township Walnut Creek Township Washington Township Holmes County Planning / Floodplain Administrator Holmes County Engineer Holmes County Soil & Water Conservation District
Start Date	November 1, 2020
End Date	November 30, 2021
Details	• Commissioners create Stormwater Management District IAW ORC 6117 • County Engineer along with Soil and Water District study and prepare regulations and present to Commissioners • Prepare a draft of the Stormwater Management Regulations • Solicit public input on Stormwater Management Regulations draft • Submit final draft to Holmes County Commissioners for plan adoption • Enforce Stormwater Management Regulations
Funding Source	Community Development Block Grant Local Funds

Killbuck Wildlife Area Expansion Initiative

Goal #2: To minimize damage and losses and restore the functions of natural systems during flooding events.

OBJECTIVE #2: Expand wetland areas by leveraging land which gets inundated during periods of significant precipitation.

OBJECTIVE #2	
Mitigation Action	Natural System Protection
Priority	2
Status	New
Estimated Cost	$ 2,000,000

OBJECTIVE #2	
Lead Organization	Village of Holmesville Village of Killbuck Village of Millersburg Hardy Township Prairie Township Holmes County Planning / Floodplain Administrator Holmes County Engineer Holmes County Soil & Water Conservation District Holmes County Park District
Start Date	April 1, 2020
End Date	October 31, 2021
Details	• Identify areas of habitual flooding caused by dysfunctio stream systems; • Survey existing conditions • Prepare preliminary engineering cost estimate • Prepare grant applications to all applicable funding sour • Apply for required permits from US Army Corps & Ohi EPA; • Conduct wetland delineation • Contact State Historic Preservation Office; • Review T&E species with ODNR & USF&W • Compile all water quality and flow data • Develop project plan to include engineering data • Removal of existing structures on property in question • Identify stable stream reaches as a reference for restoration design. • Bridge relocation and steam bed realignment (Sapps Run) • Wetland Construction • As-built survey
Funding Sources	EPA 319 Grant Community Development Block Grant Muskingum Watershed Conservancy District Local Funding Clean Ohio

Killbuck Streambank Restoration Initiative

Goal #3: To minimize loss of life, property damage, and restore the functions of natural systems during flooding events.

OBJECTIVE #3: Implement sediment and erosion control.

OBJECTIVE 3	
Mitigation Action	Natural System Protection
Priority	3
Status	New
Estimated Cost	$ 1,000,000
Lead Organization	Village of Killbuck Holmes County Planning / Floodplain Administrator
Start Date	April 1, 2022
End Date	April 30, 2023
Details	• Conduct streambank analysis • Drainage system maintenance / improvement • Sediment and erosion control (lining banks of stream with riprap) • Wetland preservation
Funding Sources	Muskingum Watershed Conservancy District ODNR NRAC Grant Community Development Block Grant

Killbuck Wildlife Area Debris Removal Initiative

Goal #4: To minimize loss of life and property damage during flooding events, and restore the functions of natural systems.

OBJECTIVE #4: Remove debris in and along the creek corridor.

OBJECTIVE 4	
Mitigation Action	Natural System Protection
Priority	4
Status	New
Estimated Cost	$ 500,000

OBJECTIVE 4	
Lead Organization	Village of Holmesville Village of Killbuck Village of Millersburg Hardy Township Killbuck Township Prairie Township Holmes County Engineer's Office Ohio Department of Natural Resources (Division of Wildlife)
Start Date	April 1, 2023
End Date	October 31, 2024
Details	• Conduct analysis of debris (log jams) and their locatior within the creek • Prioritize target areas for debris removal • Remove debris in targeted areas • Develop monitoring schedule to mitigate reoccurrence
Funding Sources	Muskingum Watershed Conservancy District Community Development Block Grant

Acquire, Retrofit, Elevate, or Relocate Flood Prone Properties Initiative

Goal #5: To minimize the loss of life and property damage during flood events.

OBJECTIVE #5: Acquire, retrofit, elevate, or relocate flood prone properties.

OBJECTIVE 5	
Mitigation Action	Mitigate structures in the 100-year floodplain
Priority	5
Status	Ongoing
Estimated Cost	$ 1,000,000
Lead Organization	Village of Millersburg Mayor Village of Glenmont Mayor Village of Holmesville Mayor Village of Killbuck Mayor Village of Nashville Mayor

OBJECTIVE 5	
	Berlin Township Trustee Clark Township Trustee Hardy Township Trustee Killbuck Township Trustee Knox Township Trustee Mechanic Township Trustee Monroe Township Trustee Paint Township Trustee Prairie Township Trustee Richland Township Trustee Ripley Township Trustee Saltcreek Township Trustee Walnut Creek Township Trustee Washington Township Trustee Holmes County Planning Director Holmes County EMA Director
Start Date	January 1, 2021
End Date	January 31, 2024
Details	Identify properties in high risk flood areas (including critical facilities and repetitive loss properties), detail activities and costs, identify owners willing to participate, determine action per structure, complete project.
Funding Sources	Flood Mitigation Assistance (FMA) Community Development Block Grant Rural Development Funding

Installation of Residential and Community Safe Rooms Initiative

Goal #6: To minimize the loss of life during severe weather events.

OBJECTIVE #6: Obtain funding for and assist in the installation of residential and community safe rooms.

OBJECTIVE 6	
Mitigation Action	Identify members of the commercial and residential community who desire safe rooms in their homes and assist these individuals in procuring funding toward that end.
Priority	6
Status	New
Estimated Cost	$2,000 - $5,000 each

OBJECTIVE 6	
Lead Organization	Holmes County EMA
Start Date	January 1, 2021
End Date	January 31, 2024
Details	Identify willing participants in the community who desire to, or have built, a safe room IAW FEMA guidelines. Work with community members throughout construction process to ensure that the project remains in compliance with FEMA 320 and FEMA 361 and the Ohio Safe Room Rebate Program rules and regulations. Assist participants in applying for the Safe Room Rebate Program.
Funding Sources	Ohio Safe Room Rebate Program

Inundation Mapping for all Holmes County Class I and Class II Dams Initiative

Goal #7: To minimize loss of life and property damage in a dam failure.

OBJECTIVE #7: Develop inundation maps for all Class I and Class II Dams in Holmes County.

OBJECTIVE 7	
Mitigation Action	Initiate new FEMA inundation mapping for all Holmes County Class I and Class II Dams using latest technology.
Priority	7
Status	New
Estimated Cost	$200,000
Lead Organization	Holmes County EMA Holmes County Planning Commission Ohio Department of Natural Resources Muskingum Watershed
Start Date	January 1, 2021
End Date	January 31, 2024
Details	The current FEMA inundation maps for Class I and Class II Dams in Holmes County are dated 12/1/2008. According to FEMA operating guidelines, any maps more than five years old are considered outdated and unreliable. This program would seek to have new inundation mapping performed for Class I and Class II Dams in Holmes

OBJECTIVE 7	
	County, thereby updating FEMA's National Flood Hazard Layer (NFHL) which will provide HCEMA and other local responders with a more accurate picture of what would occur if one of these dams failed.
Funding Sources	Grant Funding

Rehabilitate Holmes County High Hazard Potential Dams Initiative

Goal #8: To minimize loss of life and property damage during a dam failure.

OBJECTIVE #8: To obtain funding for restoration of at-risk dam structures.

OBJECTIVE 8	
Mitigation Action	Assist local dam owners/operators in procuring funding to restore at-risk dam structures.
Priority	8
Status	New
Estimated Cost	$ 1,000,000
Lead Organization	Holmes County EMA ODNR
Start Date	January 1, 2021
End Date	January 31, 2024
Details	Work with local dam owners/operators to procure funding pursuant to repairing at-risk dam structures using State/Federal grants.
Funding Sources	Grant Funding

POTENTIAL GRANT FUNDING SOURCES

Holmes County may be eligible to pursue funding for mitigation projects under the different mitigation grant programs. These grant programs could include the following:

HMGP: The Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Act, as amended. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of

life and property from future disasters is not lost during the reconstruction process following a disaster. HMGP is available, when authorized under the Presidential major disaster declaration, in areas of the State requested by the Governor.

PDM: The Pre-Disaster Mitigation (PDM) program is authorized by Section 203 of the Stafford Act, 42 USC 5133. The PDM program is designed to assist States and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding from future major disaster declarations.

FMA: The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of the National Flood Insurance Act (NFIA) of 1968, as amended with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).

SHARPP: The State Hazard Analysis Resource and Planning Portal (SHARPP) has additional resources listed in the Grants section under Other Mitigation Grants. Go to http://ohiosharpp.ema.state.oh.us/OhioSHARPP/Grants.aspx#otherMitigationGrants for more information.

SECTION SEVEN: EVALUATION, IMPLEMENTATION & PLAN UPDATE

In compliance with 201.6(c)(4)(i), this section describes how Holmes County will monitor, evaluate, and update the plan and its corresponding mitigation strategies within a 5-year cycle. This section also describes how key stakeholders and the general public will continue to be involved in the hazard mitigation planning process.

While Holmes County's methodology and schedule for monitoring, evaluating, and updating the plan is similar to 2014's process; minor modifications were made to the plan monitoring section to address lessons learned during the execution of the previous plan.

7.1 MONITORING

For Holmes County, the Holmes County EMA Director will serve as the Mitigation Plan point of contact and will oversee the implementation of the mitigation strategy and all corresponding actions. Individual departments and/or organizations with identified project responsibilities will those actions and provide updates to the EMA Director on an annual basis. The EMA Director will document project progress to share with the mitigation planning team at the annual meeting.

7.2 EVALUATION

The Holmes County EMA Director and the mitigation planning team will, at a minimum, conduct an annual meeting to evaluate the effectiveness of mitigation strategies. Strategies will be evaluated on the following criteria:

- If the action was completed, did it have the intended results?
  - Did it achieve the goals outlined in the plan?
  - What factors contributed to success?
- If the action was not completed, what were the barriers to implementation?
  - Was there a lack of political support, funding, staff availability, or other obstacle?
  - Should the action be included in the updated mitigation strategy?

The Holmes County EMA Director will document any changes identified during the annual meeting and incorporate the recommended alterations into the plan.

The annual meeting of the mitigation team will be open to the general public. The public will be notified of the meeting through advertisements in the local newspaper or by postings on local government websites. It is the EMA Director's responsibility for scheduling the annual meeting and notifying planning team members, stakeholders, and the general public.

7.3 PLAN UPDATE

Holmes County Emergency Management Agency, in coordination with the mitigation team, has developed the following maintenance schedule for the Hazard Mitigation Plan. It is the overall responsibility of the Holmes County Emergency Management Agency to maintain and update the planning document. The plan will be updated at a minimum of every five (5) years from its FEMA approval date. The plan may be required to be updated earlier to address any changes in mitigation strategies, in response to general public comments or recommendations, or as the result of organizational changes or changes in development.

This plan and all future plan updates will be distributed to each jurisdiction, made available at the local library, and posted on the Holmes County Government website and other local government websites.

7.4 CONTINUED PUBLIC INVOLVEMENT

Holmes EMA and the mitigation planning team will continue to reach out to the general public and encourage their participation in the planning or update process. The general public will be solicited utilizing all available means of communications including but not limited to advertisements in the local newspaper or by postings on local government websites.

The general public can submit comments regarding the plan at any time throughout the year. Comments regarding the plan should be directed to the Holmes County EMA Director.

Holmes County Mitigation Planning Team will review any relevant public comments at the next annual plan evaluation meeting.

7.5 PLAN INCORPORATION

The Holmes County EMA Director will incorporate the Hazard Identification & Risk Assessment and the Holmes County Hazard Mitigation Plan into the Holmes County Emergency Operations Plan at the next scheduled plan update.

Members of the planning team, local stakeholders, and participating jurisdictions will integrate appropriate information from this plan into other plans, codes, regulations, and administrative documents which were identified in Section 5.3.

APPENDIX A: PLAN ADOPTION

Upon receipt of Federal plan approval, the Holmes County EMA Director will submit the plan to all political subdivisions in the county for adoption and support. The Holmes County Board of Commissioners and the villages are required to put forth resolutions formally adopting the Holmes County Mitigation Plan within one year of receiving FEMA's "Approval Pending Adoption" designation.

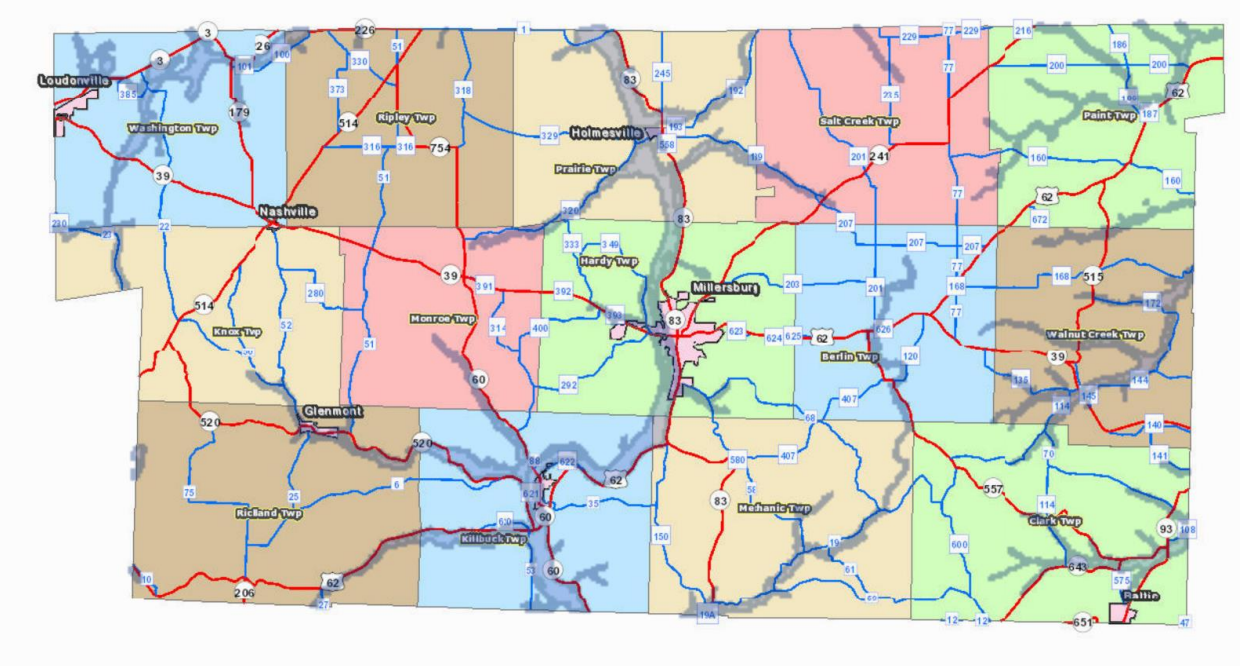
Once adoptions have been completed, a copy of the signed resolution is to be provided to the Holmes County EMA Director. The EMA Director will document in the chart below the dates for which each jurisdiction adopted the plan and enclose a hardcopy with the plan.

Jurisdiction	Date Adopted	Resolution on file
Holmes County Commissioners		
Village of Millersburg		
Village of Glenmont		
Village of Holmesville		
Village of Killbuck		
Village of Nashville		

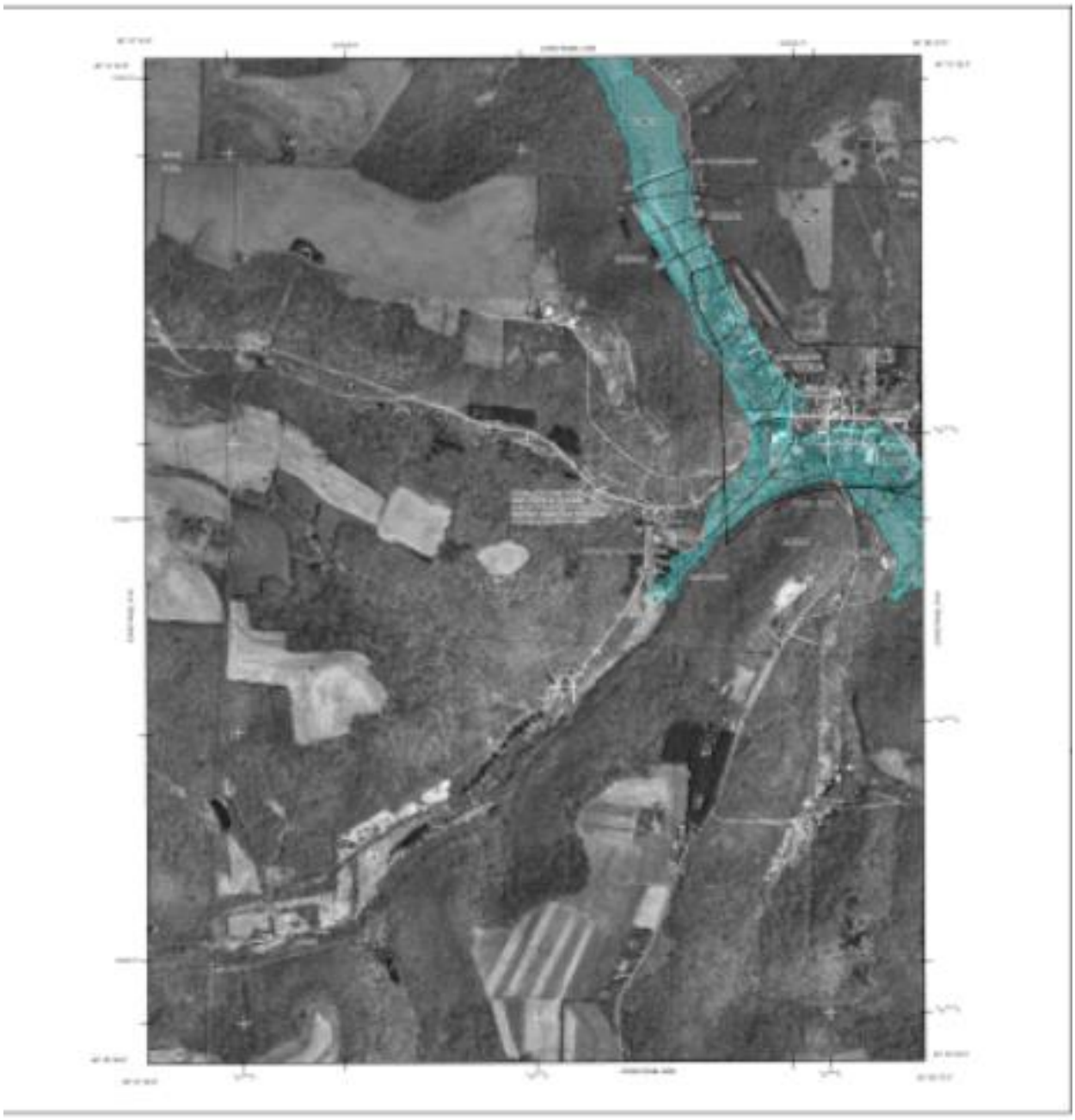
The EMA Director will then forward a copy of all resolutions to the Ohio Emergency Management Agency and FEMA as is required.

Appendix B: Floodplain Mapping

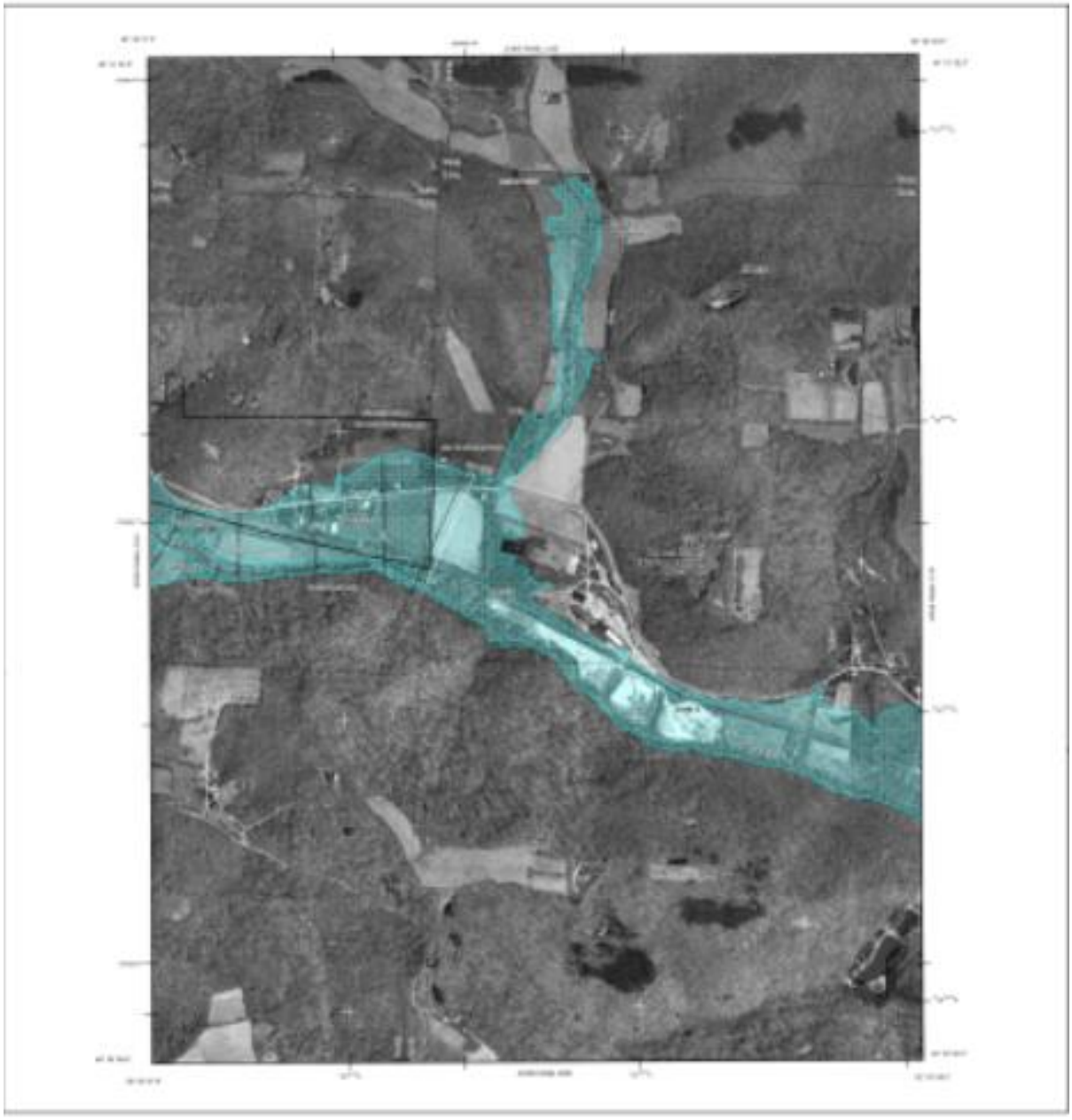
Holmes County Floodplains



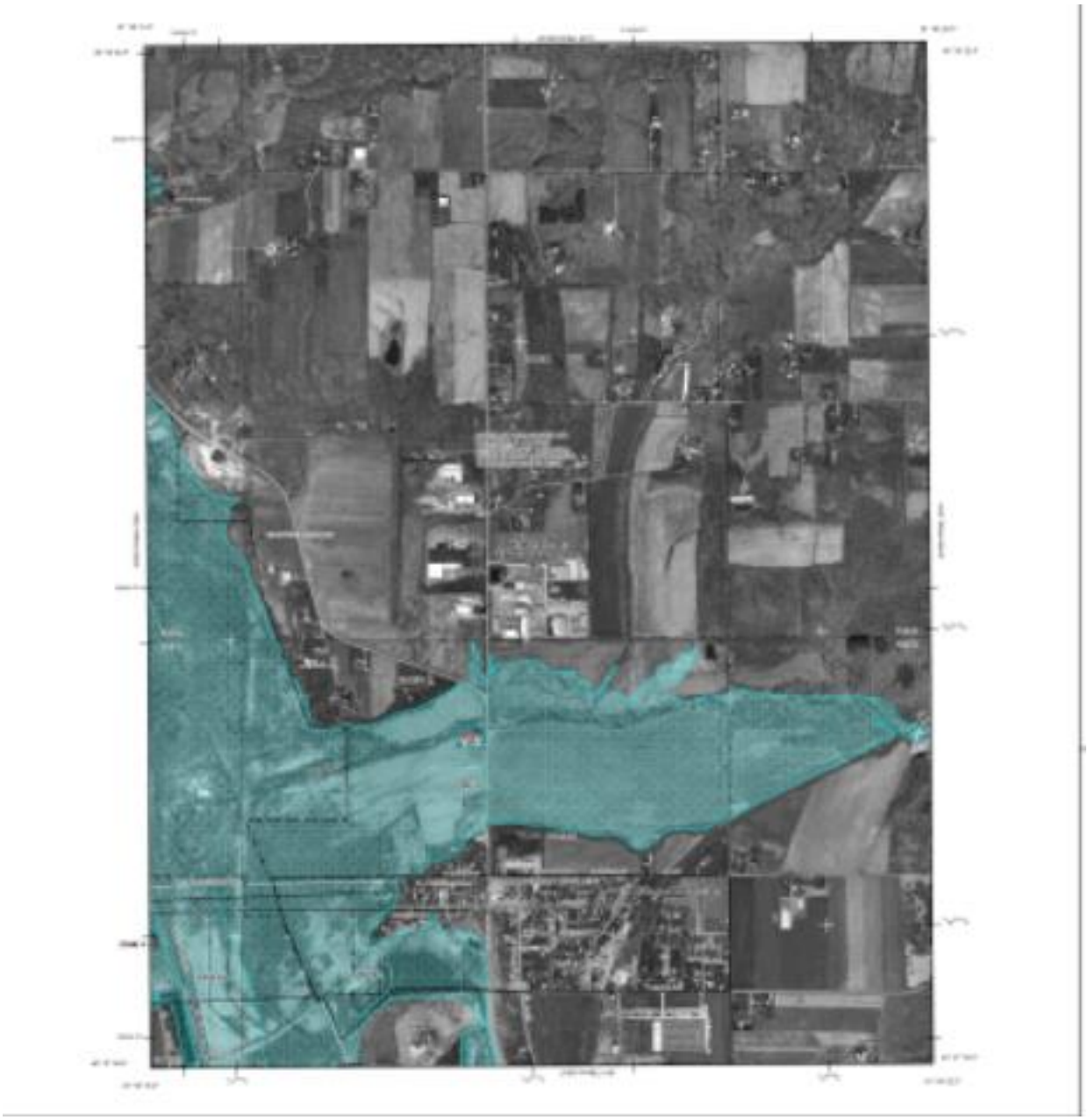
Village of Glenmont: Floodplain Map 39075C0163D



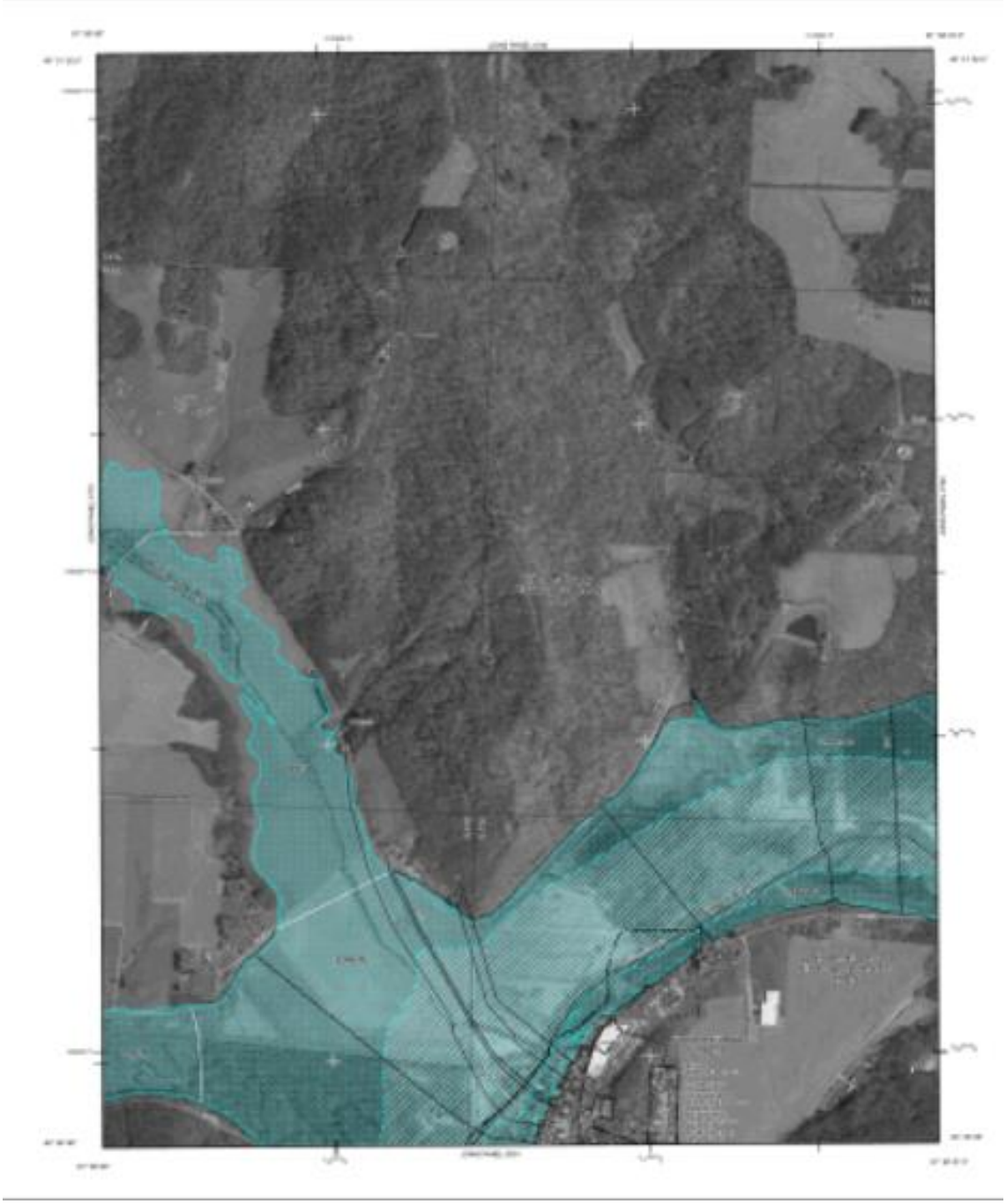
Village of Glenmont: Floodplain Map 39075C0164D



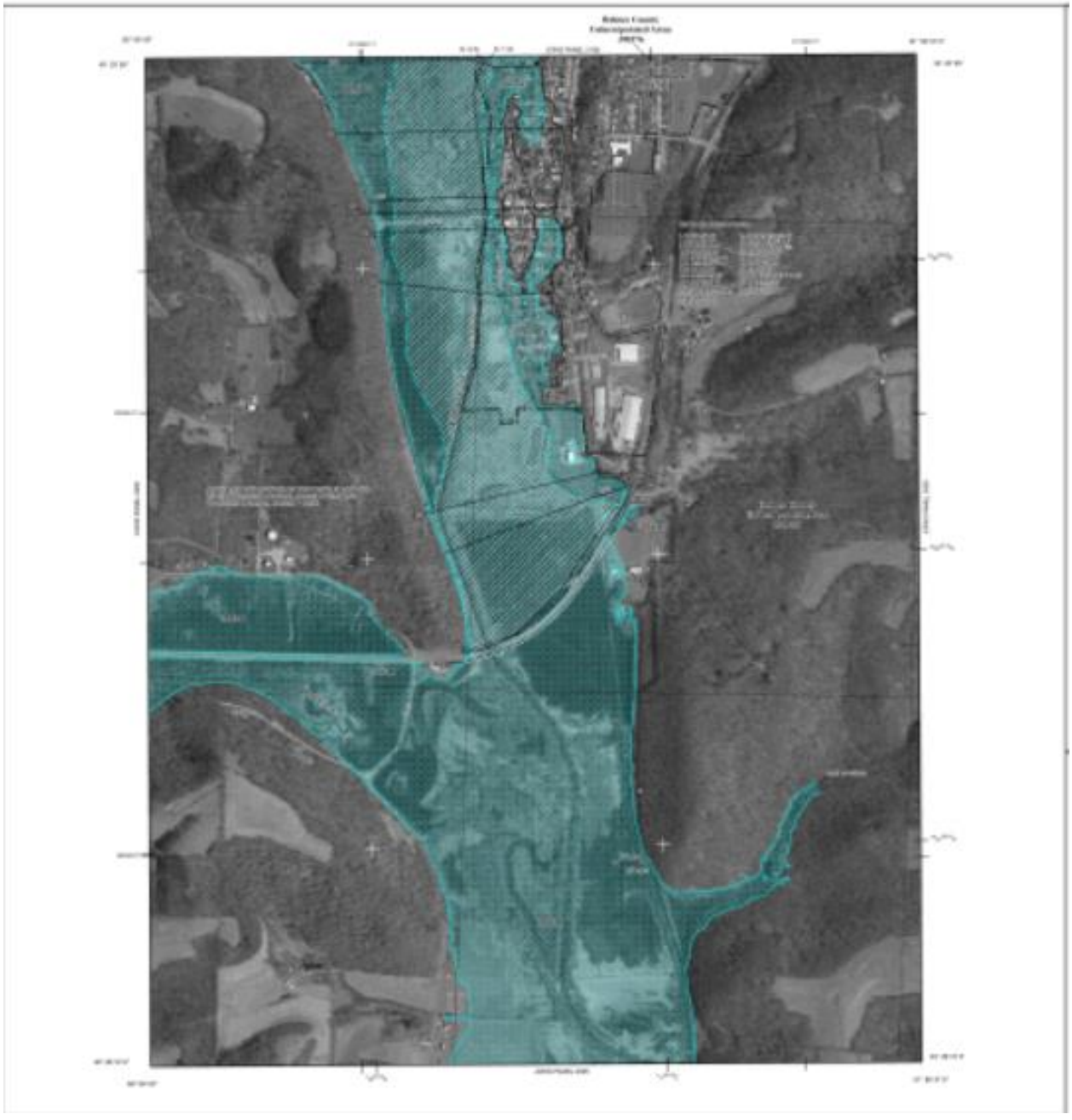
Village of Holmesville: Floodplain Map 39075C0068D



Village of Killbuck: Floodplain Map 39075C0188E



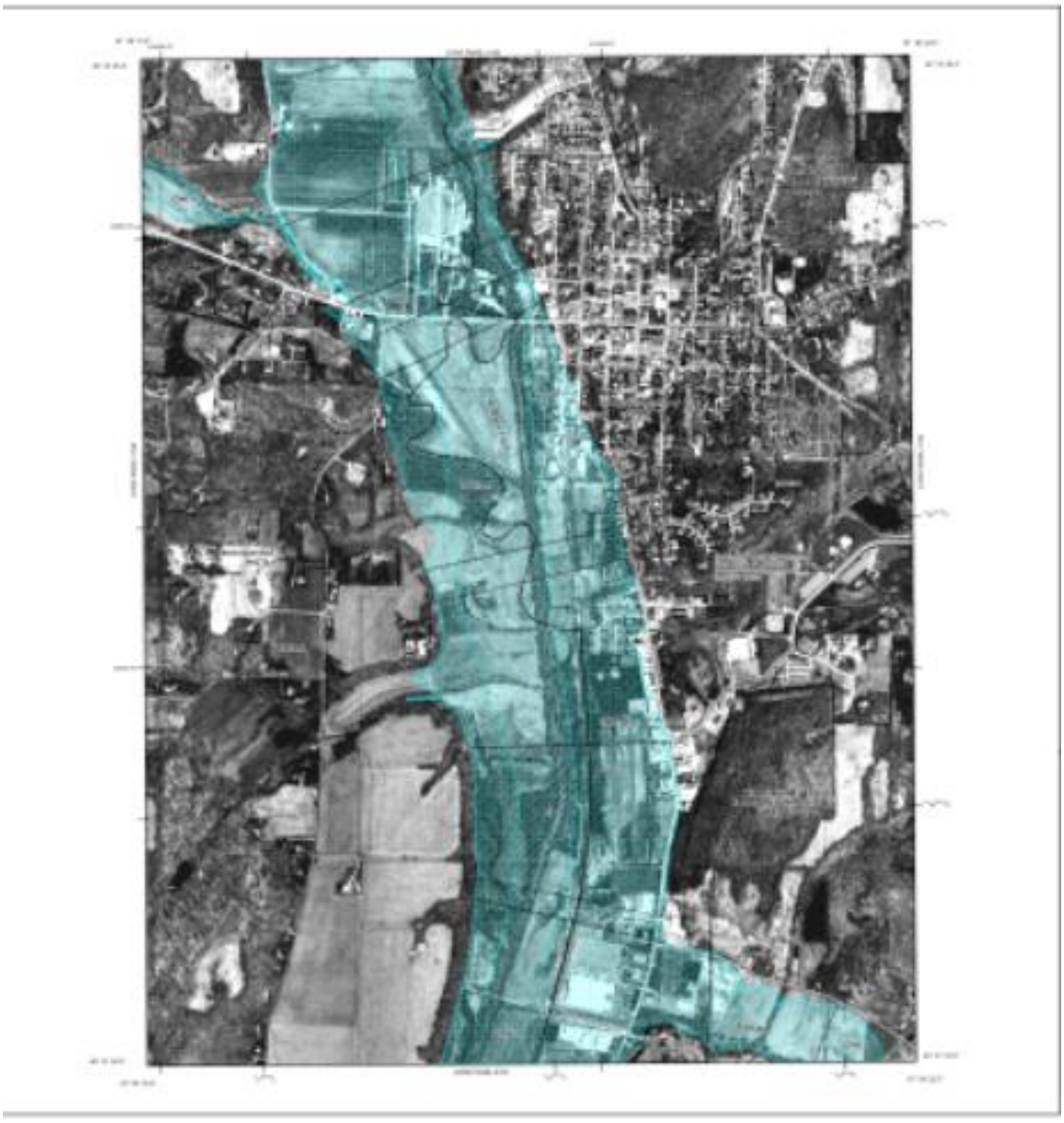
Village of Killbuck: Floodplain Map 39075C0301E



Village of Millersburg: Floodplain Map 39075C0183D

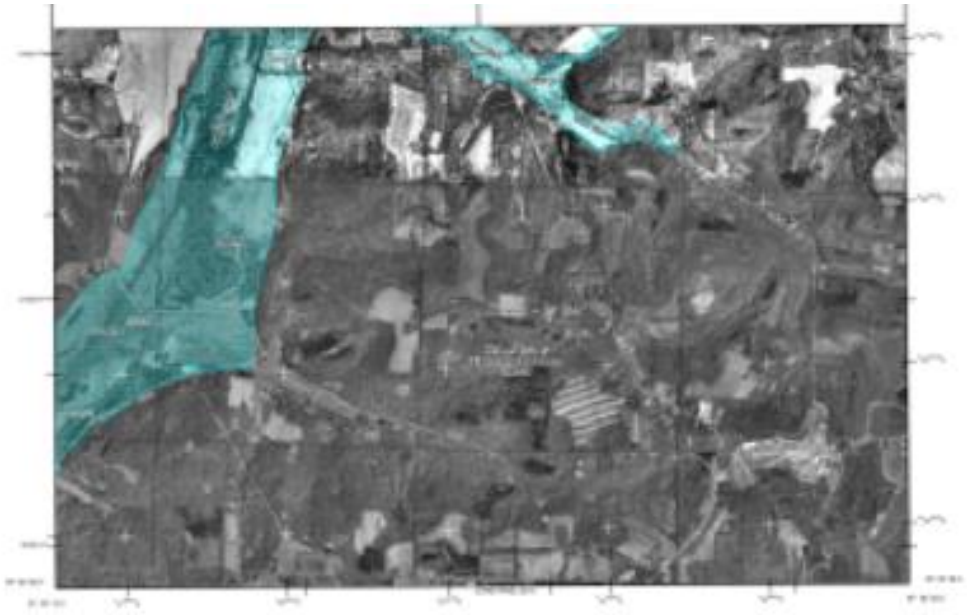
Village of Millersburg: Floodplain Map 39075C0184D

Village of Millersburg: Floodplain Map 39075C0191D



Village of Millersburg: Floodplain Map 39075C0192D

Village of Millersburg: Floodplain Map 39075C0195D



APPENDIX C:
LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdiction:	**Title of Plan:**	**Date of Plan:**
Local Point of Contact:	**Address:**	
Title:		
Agency:		
Phone Number:	**E-Mail:**	

State Reviewer:	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**

Date Received in FEMA Region *(insert #)*		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1:
REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))			
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))			
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))			
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))			
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))			
ELEMENT A: REQUIRED REVISIONS			
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))			
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))			
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))			
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))			
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))			
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))			
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))			
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))			
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))			
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))			
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))			
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))			
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))			
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))			
ELEMENT E: REQUIRED REVISIONS			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

Mitigation Plan Update Meeting | 2019

Sign-In Sheet

Date: 7/11/19

Member Name	Organization	Signature
Arnie Oliver	Holmes Planning / Floodplain Admin	
GARY MELLOR	Holmes Co. EMA	
LUKE HALL	Holmes Co. EMA	

Mitigation Plan Update Meeting | 2019

Sign-In Sheet

Date: 7/25/2019

Member Name	Organization	Signature
LUKE HALL	HCEMA	
GARY MELLOR	HCEMA	
Arnie Oliver	HCPC	
CHRIS YOUNG	HCE	

Mitigation Plan Update Meeting | 2019

Sign-In Sheet

Date:

Member Name	Organization	Signature
Amie Oliver	HCPC	
Michelle Wood	Soil & Water Cons.	
GARY MELLOR	HCEMA	
LUKE HALL	HCEMA	

Mitigation Plan Update Meeting | 2019

Sign-In Sheet

Date: 13 AUG 2019

Member Name	Organization	Signature
GARY MELLOR	Holmes Co. EMA	
NATE TEUFEL	VILLAGE OF MILLERSBURG	
MATTHEW SHANER	Village of Millersburg Police	
Arnie Oliver	Holmes County Planning	
CHRISTOPHER R. YOUNG	HOLMES CO. ENGINEER	
Michelle Wood	Holmes SWCD	Michelle Wood
LUKE HALL	HCEMA	