



2021 Licking Countywide All Natural Hazards Mitigation Plan (CANHMP)

Participating Jurisdictions

Licking County

Cities of Newark, Pataskala, and Heath

**Villages of Alexandria, Buckeye Lake, Granville, Hanover, Hartford
(Croton), Hebron, Johnstown, St. Louisville, and Utica**

Adoption Date

Month, Day Year

1 Executive Summary

Licking County has long been involved in the work of mitigation. Licking County was selected to be the first Project Impact Community in the State of Ohio. Project Impact, which was created in 1997, was an initiative that was designed to challenge the nation to undertake actions that protect families, businesses and communities by reducing the effects of natural disasters. Only a few communities in the State of Ohio were selected to participate in this program. The primary goal of Project Impact in Licking County was to combat the threat of natural disasters through public/private partnerships. Licking County has reduced the financial losses that result from natural disasters by proactively encouraging disaster mitigation before natural disasters can occur. The County completed several projects with Project Impact funds: including the revision of several of their floodplain maps and the creation of a low-interest loan program for retrofitting flood prone structures and creating the first Licking Countywide All Natural Hazards Mitigation Plan (CANHMP) in 2003.

Since the initial version of the CANHMP was completed, Licking County has continued to plan to address natural disasters that could affect Licking County, including flooding and dam/levee failure, tornadoes, high winds, winter storms, and others. By regularly updating this mitigation plan, Licking County has taken steps to identify areas of risk, assess the magnitude of the risk, and develop strategies and priorities to identify projects for reducing risk. All this work leads to ultimately saving lives and protecting property for residents of the county.

In order to assure continued compliance with the Disaster Mitigation Act of 2000, officials from various jurisdictions in Licking County have again worked to develop a mandatory five-year update to the CANHMP for Licking County, Ohio. This update will be referred to as the 2021 CANHMP. Leaders and residents from across the county participated in this update to provide the information necessary to effectively mitigate the risks from natural hazards in Licking County.

Key updates to the 2021 CANHMP are as follows:

- Each natural hazard section within this plan was updated to include occurrences since the previous update and any other factors impacting the risk. Invasive Species was added as a new hazard.
- **County Profile:** Demographics, social, and economic data, as well as existing and future land use descriptions are updated to reflect the current status of the county and its jurisdictions.
- **Planning description:** The new core planning group and updated planning process are described and documented.
- **Risk assessment:** The Risk Assessment for Licking County, which was first created in 2009, was updated again in 2019 during the mitigation plan update process.
- **Mitigation:** The mitigation section addresses the status of the previous plan's strategies in addition to new mitigation actions.

By participating in and adopting this plan by resolution, each participating jurisdiction is making a commitment to working with residents, private industry, and government partners to complete mitigation actions as feasible throughout the 5-year cycle.



Moving forward, the Licking Countywide All Natural Hazards Mitigation Plan will be referred to as the “CANHMP.”

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Countywide All Natural Hazards Mitigation



3 Introduction

The Licking CANMHP serves as a roadmap for mitigating the hazards and is a product of the hard work and dedication of agencies, volunteers, and others with a dedication to reducing the impact of hazards on Licking County's communities. This plan was first developed and adopted for implementation by Licking County, Ohio in 2003. The plan has subsequently been updated and adopted according to the 5 year federally mandated plan update cycle. The 2021 version represents the most up-to-date version of this plan and is essentially a complete rewrite of the plan. The new version is a comprehensive examination of the hazards and measures to reduce their impact across Licking County. A record of changes will not be provided as this is a completely new plan format and much of the content has changed.

Historically, Licking County has experienced damage from a variety of natural hazards: flooding and dam/levee failure, severe winter weather, tornadoes, wildfire, severe summer weather, earthquake, drought, and invasive species. This plan examines the historical and potential future effects of these natural hazards on the built environment and residents of Licking County. The heart of this plan is the mitigation strategy which is designed to detail measures to reduce the impact of a natural hazards which may lead to loss of life, property damage or loss, as well as disruption of business operations.

3.1 Purpose of the Plan

The purpose of the Licking CANHMP is to provide a roadmap for mitigating the impact of natural hazards facing Licking County. The plan includes strategies for reducing the impact of natural hazards on the population as well as the natural and built environment. These strategies are bolstered by tangible action items developed by the Licking County Core Planning Group to reduce risks from natural hazards through various means such as public education and outreach, construction projects, and preventative measures.

This plan is not intended as a regulatory document. The information and resources provided herein are to be used as a resource and guideline for determining strategies for mitigation efforts at the local level as the primary responsibility for development and land use policies occurs at this level.

Adoption of this plan by local participating jurisdictions allows each one to continue to remain eligible to apply for and receive Federal mitigation grant funds administered by the State of Ohio as received by the Federal Emergency Management Agency (FEMA). This plan was written and updated in compliance with the requirements set forth in the Disaster Mitigation Act of 2000 and its implementing regulations published in Title 44 of the Code of Federal Regulations (CFR) Section 201.6.

3.2 Organization of the Plan

This CANHMP was developed to serve as a blueprint for coordinating a countywide planning process, promoting participation from a wide variety of organizations, disciplines, and representatives of the community, while complying with federal and state regulations. The plan includes detailed profiles of each participating community and Licking County as a whole. It also includes a comprehensive examination of the hazards faced in the county as identified by a group of subject matter experts along with strategies for reducing the impacts of those hazards on the community. The supporting evidence for all the activities conducted throughout this plan update can be found following the plan in the appendices.

The major sections of the plan are as follows:

- **Introduction:** Identifies the purposes of this plan, provides a plan update overview as well as discussed jurisdiction participation.
- **Planning Process:** Details exactly how local jurisdictions updated the plan and the enhancements that were made.
- **Community Profile:** Discusses existing conditions, including development trends and current local government capabilities throughout Licking County.
- **Community Capability Assessment:** Summary of regulatory resources validated from the participating jurisdictions.
- **Hazard Identification:** Identifies the natural hazards that may affect Licking County and provides background for those hazards.
- **Summary of Risk Assessment Findings:** Provides a detailed look at the risks faced by Licking County and provides an analysis of those risks.
- **Mitigation Goals:** Defines the broad goals of the CANHMP under which mitigation actions are undertaken.
- **Proposed Mitigation Strategy and Actions:** Listing of actions identified by each jurisdiction to reduce the risk of each hazard identified.
- **Plan Maintenance:** Explains how mitigation actions will be monitored and how the plan will be evaluated and updated.
- **List of Sources and Acronyms:** Lists websites, publications, and acronyms used to develop this plan.
- **Appendices:** Include sample plan adoption resolutions, public notices about the planning process, and the survey created to solicit public input.

3.2.1 Original Plan Development and Updates

The CANHMP was originally completed and adopted in 2003 using Project Impact funds. The multi-jurisdictional 2003 CANHMP was submitted to the Federal Emergency Management Agency (FEMA) through the Ohio Emergency Management Agency (Ohio EMA) for review in November 2003. Participating jurisdictions in Licking County received notice of FEMA approval of the Plan on May 19, 2004. The original plan included the City of Pataskala, City of Heath, Village of Hebron, Village of Granville, City of Newark, and the Licking County Commissioners who represent those residents living in the unincorporated areas of the County. In order to ensure continued compliance with the Disaster Mitigation Act of 2000, officials from various jurisdictions in Licking County worked to develop a mandatory five-year update of the 2003 CANHMP.

In 2007, Licking County unincorporated areas along with the City of Newark cooperated on the creation of a Flood Mitigation Assistance (FMA) Plan. This plan was an annex to the 2003 CANHMP and served as an update to that document. It was submitted to FEMA via Ohio EMA on Aug.15, 2007. It was approved by FEMA on March 19, 2008.

In 2011 Licking County applied for and received Hazard Mitigation Grant Funding (FY2010) to prepare the FEMA required update of the CANHMP. Work began on this plan update in March of 2011 with the first Core Group Meeting. The FEMA Mitigation Crosswalk was utilized throughout this planning process to ensure that all the requirements were met. This update was completed in 2012. This version of the CANHMP was an update to make a comprehensive plan

resulting from the combining of the 2003 CANHMP and the 2007 FMA into one comprehensive plan. This document was the 2012 CANHMP and serves as the basis for the 2021 update. The Licking County Planning Department was previously responsible for the creation and implementation of the CANHMP. The Licking County EMA was given responsibility to update the plan for the current update process. The previous plan was integrated into this plan update as the foundation of the document. All jurisdictions were invited to participate in plan development and the creation of the mitigation strategy.

3.2.2 2021 Plan Update Development

The 2021 CANHMP constitutes the third update. This update is a full revision including a new format that ensures compliance with the current FEMA Mitigation Crosswalk. All sections were updated in this comprehensive rewrite. All jurisdictions in Licking County were invited to participate and were provided with information for the jurisdiction and the public on the mitigation effort.

3.2.3 Jurisdictions Represented in the Plan

The CANHMP is considered a multi-jurisdictional hazard mitigation plan. This simply indicates the participating jurisdictions collaborated in one or more planning efforts. The jurisdictions of Licking County, Village of Alexandria, Village of Buckeye Lake, City of Granville, Village of Hanover, Village of Hartford (Croton), City of Heath, Village of Hebron, Village of Johnstown, City of Newark, City of Pataskala, Village of St. Louisville, and Village of Utica participated in the development of this plan update and are considered throughout. Although the level of participation varied, each jurisdiction provided as much data as they were able to provide. Non-participating jurisdictions are still referenced throughout as those areas are still impacted by hazards and warrant mitigation actions in projects which could be carried countywide.

Of note, the City of Reynoldsburg and the City of New Albany currently have a cooperative working agreement with Franklin County and are accounted for in the Franklin County Natural Hazard Mitigation Plan. The City of New Albany was an active participant in this plan process, however their emergency management services are tied to Franklin County, so their mitigation actions and adoption activities will be conducted through Franklin County Emergency Management & Homeland Security. Also, Gratiot also has a working cooperative agreement with Muskingum County and is accounted for in the Muskingum County All-Natural Hazard Mitigation Plan. The Village of Kirkersville was the only jurisdiction which was unable to participate in this plan update. All other jurisdictions either participated or are participants in other county mitigation plans. All 25 townships are accounted for under the umbrella of Licking County government.

Licking County staff as well as the consultant made multiple attempts during the update process to involve all Licking County jurisdictions. A kick-off meeting was held to introduce all jurisdictions to the planning effort and solicit participation. Each jurisdiction which had not previously participated was invited to all planning meetings and contacted numerous times personally by contracted and LCEMA staff to participate. An invitation letter was sent out to each jurisdiction and all surrounding counties requesting participation in the update process. The invitation letter can be found in [Appendix B: Meeting Documentation](#). Each of the jurisdictions were asked to provide background information on their jurisdiction and to complete necessary



documentation required for the CANHMP update. Licking County will continually try to incorporate other non-participating jurisdictions in future updates as they are willing.

3.2.4 Plan Adoption

This plan must be adopted formally by each participating jurisdiction. The adoption phase will begin once the plan status is “Approved Pending Adoption” (APA) by FEMA. Once Licking County has received APA status, all jurisdictions will draft resolutions to be formally approved through jurisdiction governance structures. Multi-jurisdictional plans are allotted 1 year by FEMA for all jurisdictions to adopt the plan. Therefore, Licking County EMA will pursue adoption of these plans in a timely manner after receiving APA status. LCEMA will collect, submit and incorporate each adoption resolution.

A sample adoption resolution has been included as [Appendix F: Sample Resolution](#). This resolution can be modified for use by each jurisdiction to adopt the plan. Adoption by the local governing bodies within the County legitimizes the Plan and authorizes responsible agencies to implement mitigation responsibilities and activities. Completed adoption resolutions are included as [Appendix G: Participating Jurisdiction Plan Adoption](#).

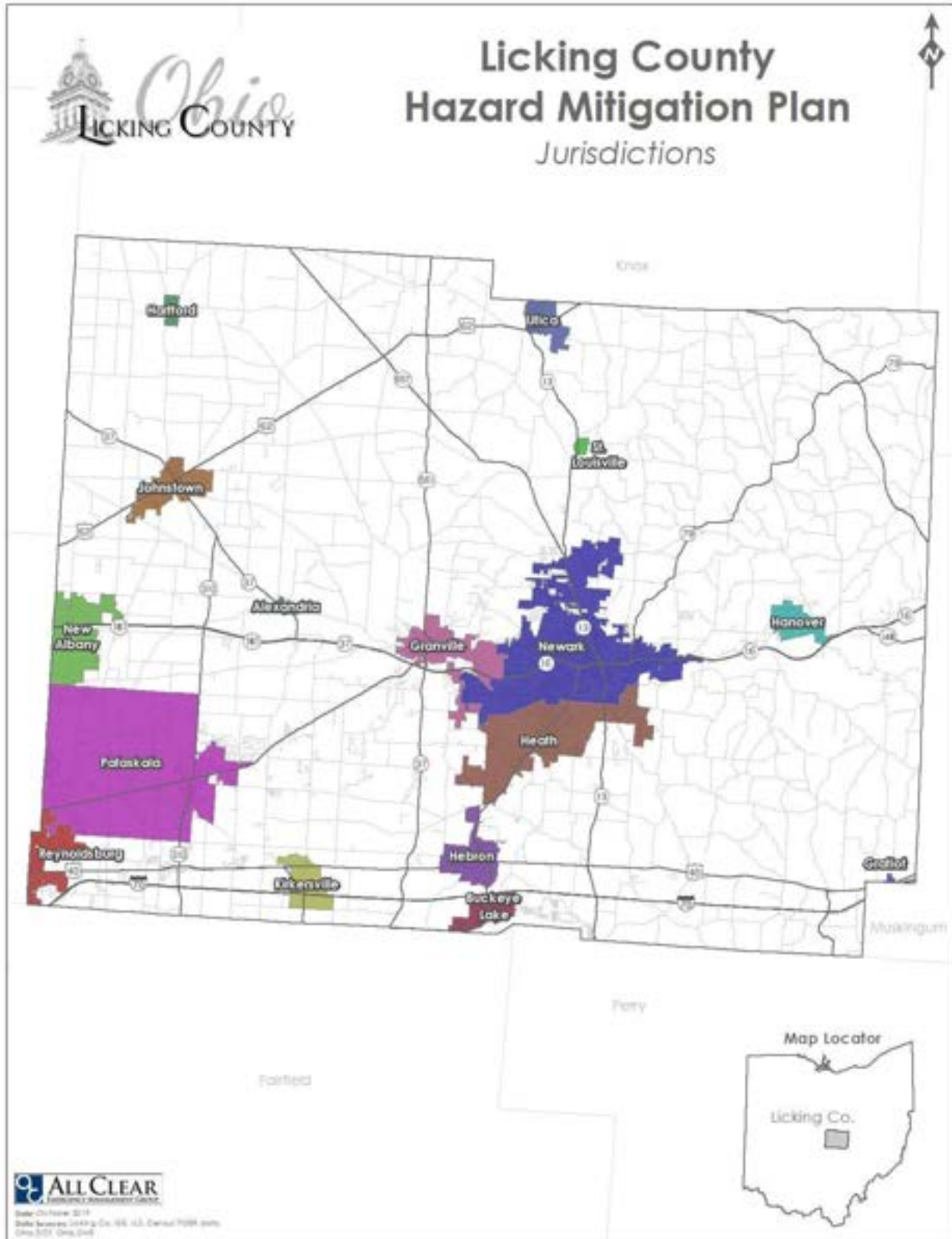


Figure 1: Jurisdictions of Licking County, Ohio

4 Planning Process

4.1 CANHMP Mission Statement

The mission of the CANHMP for Licking County is to develop a working document by researching and planning for future natural hazards and implementing appropriate mitigation techniques that all of Licking County can utilize to save lives, protect property, reduce the cost of disasters. Hazard mitigation planning also supports communities' efforts for rapid and efficient recovery by coordinating response efforts, as well as increasing the educational awareness of natural hazard events and their effects on the people, property, and resources of Licking County. The CANHMP for Licking County will fulfill the mandates of the Federal Disaster Mitigation Act of 2000, and satisfy the requirements of FEMA and Ohio EMA, as well as meets the needs of Licking County.

4.2 Plan Update Process Overview

Licking County followed the guidance made available by the FEMA regarding best practices in mitigation planning. The following were the key steps taken by the Licking County core planning committee during the update process. These steps are outlined throughout the document in detail.

- Determine the Planning Area and Resources
- Build the Planning Team
- Create an Outreach Strategy
- Review Community Capabilities
- Conduct a Risk Assessment
- Develop a Mitigation Strategy
- Keep the Plan Current
- Review and Adopt the Plan
- Create a Safe and Resilient Community

4.3 Planning Meetings Overview

In order to assure continued compliance with the Disaster Mitigation Act of 2000 and national best practices in mitigation, officials from various jurisdictions in Licking County worked to develop this plan update. Each jurisdiction which participated in the update sent representatives to a series of meetings held at the Licking County Administration Building and the Licking County Library in downtown Newark, Ohio.

Representatives from each jurisdiction engaged residents and staff in each community to discuss mitigation through each step of the process. Representatives of all participating jurisdictions were active participants and provided needed information as required. This entire plan was updated and new information incorporated and created through the work of the core planning group. (See [Appendix B: Meeting Documentation](#) for all meeting documentation.)

4.3.1 Notification Process

Every effort was made to invite as many stakeholders as possible to the meetings and to participate in the planning process. All meetings were open to the public and advertised as such. All jurisdictions in Licking County were invited to participate and had multiple opportunities to engage in the process. Each jurisdiction was contacted multiple times to provide information on mitigation as well as invite them to participate. Personal meetings were also offered for those jurisdictions that did not respond to earlier invitations. The core planning group also reached out

to representatives from adjacent counties to participate in the planning process, with limited success. Only one representative from outside the county participated in meetings, but the surrounding county emergency management agencies showed their full support for the mitigation plan through their interactions with LCEMA. The City of New Albany also participated throughout the planning process as a stakeholder in the plan due to their jurisdiction falling in Licking and Franklin counties. The currently participate in the Franklin County mitigation plan, however they shared their concerns and insight with the planning team throughout.

4.3.2 Meeting Notices

Meetings were advertised widely through email, postings on the Licking County website, through jurisdiction email and newsletter distributions, and through various social media accounts using platforms such as Twitter and Facebook. The participating jurisdictions played an important role in helping to distribute information regarding the meetings and inviting participation. It is important to note here all participants in the plan update process, regardless of their jurisdiction, agency, or affiliation, are citizens of the Licking County community, or surrounding communities, including the contractor hired to assist.

Below is the timeline followed when addressing the CANHMP update. The planning process consisted of 14 separate meetings. All meetings were open to the public from each of the participating jurisdictions.

Table 1: CANHMP Meeting Dates and Objectives

Date	Meeting Objective(s)
February 6, 2017	<ol style="list-style-type: none"> 1. CANHMP Kick Off Planning Meeting 2. Review of LCEMA Participation Letter
May 22, 2017	<ol style="list-style-type: none"> 1. Recap from last meeting 2. Plan update 3. Set meeting dates for future meetings 4. Reach out to Non-Participating Jurisdictions 5. Contact Steve Ferryman from OEMA about Core groups 6. Education committee for Non-participating jurisdictions 7. John will post upcoming meetings to various media outlets for public viewing 8. Get dates and information on small council meeting to present plan. 9. Add stream and river section to plan
September 7, 2017	<ol style="list-style-type: none"> 1. Discussion of Licking CANHMP and importance for jurisdictions participation. 2. How the CANHMP would be utilized to obtain hazard mitigation grants. 3. Planning for emergency response during a natural disaster.
September 21, 2017	<ol style="list-style-type: none"> 1. Recap from last meeting 2. Plan update- Jurisdiction return date 3. Set meeting dates for future meetings

	<ol style="list-style-type: none"> 4. Reach out to Non-Participating Jurisdictions- Letters sent out 5. Add Solar storms/cyber security threat to plan. Jurisdictions will need financial support for cyber security. 6. John will post upcoming meetings to various media outlets for public viewing- Meetings posted per ORC 7. Get dates and information on small council meeting to present plan. - John Attended last meeting. 4 people attended 8. Add stream and river section to plan- In plan, needs updated
<p>November 13, 2017</p>	<ol style="list-style-type: none"> 1. Recap from last meeting 2. Plan update- Retyping with new updates 3. All Jurisdictions will be included 4. Add Solar storms/cyber security threat to plan. Jurisdictions will need financial support for cyber security. 5. John will post upcoming meetings to various media outlets for public viewing 6. Get dates and information on small council meeting to present plan. John Attended meeting, 5 members present 7. Add stream and river section to plan 8. Turn in all new updates
<p>January 17, 2018</p>	<ol style="list-style-type: none"> 1. Mitigation Action Items 2. Critical Infrastructure Floodplain Map 3. Jurisdiction Participation 4. Health/ Building Code 5. Earthquake Update 6. Fire Department/ Equipment Book update 7. Breakout Meetings
<p>February 12, 2018</p>	<ol style="list-style-type: none"> 1. Planning Meeting 2. Jurisdiction Updates Due 3. Review of Hebron Community Profile
<p>April 24, 2018</p>	<ol style="list-style-type: none"> 1. Recap from last meeting 2. Plan update- Retyping with new updates All Jurisdictions will be included 3. Add Solar storms/cyber security threat to plan. Jurisdictions will LCEMA need financial support for cyber security. 4. Add stream and river section to plan 5. Turn in all new updates 6. Plan will be updated for preliminary review by August 2018

May 14, 2018	<ol style="list-style-type: none"> 1. Email to Mayors for Participation 2. Provide Guidance re: What the Plan Covers 3. Set Dates for Plan Review and Adoption 4. List of Updates
January 11, 2019	<ol style="list-style-type: none"> 1. Mitigation Overview 2. Participation 3. Outreach Strategy 4. Community Profile and Capability Assessment 5. Hazard, Vulnerability, and Risk Assessment
February 22, 2019	<ol style="list-style-type: none"> 1. Mitigation Overview 2. Information Gaps Discussion 3. Contact Information 4. Survey Results 5. Mitigation Strategy <ol style="list-style-type: none"> a. Goals b. Action Items c. Action Plan 6. Benefit Cost Review
June 10, 2019	<ol style="list-style-type: none"> 1. Process Review 2. Mitigation Strategy 3. Turning Goals into Actions 4. Action Plan
January 28, 2020	<ol style="list-style-type: none"> 1. Licking CANHMP Review Presentation 2. Licking CANHMP Draft for Public Comment 3. Licking CANHMP Public Comment Meeting Review 4. Project Management Plan Review
March 5, 2020	<ol style="list-style-type: none"> 1. Mitigation Overview 2. Mitigation Plan Draft Overview 3. Outreach Strategy <ol style="list-style-type: none"> a. Public Comment on Draft Plan b. Plan Adoption

4.3.3 Core Planning Group

The core planning group comprises individuals who actively engaged in the mitigation planning process and were committed to completing the work necessary for the CANHMP to be a success. The update of the plan was led by this core planning group. The group was developed from the original core planning group members with additional members added as needed. For example, Licking County Soil and Water Conservation District was added to the current team after the core group decided to add Invasive Species as a new hazard this year. The core planning group has met at least annually since the previous update was completed. See [Appendix B: Meeting Documentation](#) for additional information.

The previous update was coordinated by the Licking County Planning Commission. After the previous version was complete, the plan was turned over to the LCEMA. This update was coordinated and led by the LCEMA. Other members of the committee included representatives



from various county departments, cities and villages, and other key emergency management partners. All members of the core planning group were actively involved in attending the CANHMP meetings, provided historical hazard information, reviewed and provided comments on the draft plan components, coordinated and participated in the public input process, and coordinated the county's formal adoption of the plan.

The following table outlines the 2021 Core Planning Group members.

Table 2: 2021 Core Planning Group Members

Jurisdiction	Agency	Title	Name
Licking County	LCEMA	Director	Sean Grady
Licking County	LCEMA	Deputy Director	John Wieber
Licking County	Licking County	Planning Manager	Brad Mercer
Licking County	Licking County Planning Commission	Planner II	Jay Fisher
Licking County	Engineers' Office	LCEO	Jared Knerr
Licking County	Licking County Health Department	Epidemiologist	Adam Masters
Licking County	Soil and Water Conservation	Program Administrator	Denise Brooks
Licking County	West Licking Fire District	Fire Chief	Todd Magos
City of Heath	Zoning		Eddie Hunt
City of New Albany	City of New Albany	Supervisor	Steve Kidwell
City of Newark	Newark City Engineer's Office	City Engineer	Brian Morehead
City of Newark	Newark Police Dept.	Sergeant	Clint Eskins
City of Pataskala	Public Services	Director	Alan Haines
Muskingum County	EMA	Deputy Director	Travis Reach
St. Albans and Harrison Townships	St. Albans and Harrison Township	Zoning Inspector	Tom Frederick
Village of Granville	Village of Granville	Village Planner	Deb Yost
Village of Granville	Village of Granville	Clerk of Council	Mollie Prasher
Village of Granville	Village of Granville	Planner	Steven Smedley
Village of Hanover	Village of Hanover	Clerk/Treasurer	Nicole Gieseler
Village of Hebron	Fire Department	Fire Chief	Clifford Mason
Village of Hebron/ South Licking Watershed Conservancy District	Village of Hebron/ South Licking Watershed Conservancy District	Community Development and Storm Water Coordinator	Linda Nicodemus
Village of Hebron	Village of Hebron	Village Administrator	Ralph Wise
Village of Johnstown	Village of Johnstown	Village Planner	Bailey Klimchak
Village of Utica	Village of Utica	Village Administrator	Glen Richards
Village of Utica	Village of Utica	Utilities Supervisor	MaryAnn Figgins
Consultant	All Clear Emergency Management Group	Senior Planning Specialist	Jamie Stout

Table 3: 2012 Core Planning Group Members

Jurisdiction	Agency	Title	Name
Licking County	HS/EMA/911	Director	Jeff Walker
Licking County	HS/EMA/911	Deputy Director	Terri Coe
Licking County	Licking County Planning	Director	Jerry Newton
Licking County	Licking County Planning	Manager	Brad Mercer
Licking County	Licking County Planning Commission	Environmental Planner	Jarrod Hittle
Village of Granville	Village of Granville	Planning Director	Allison Terry

4.3.4 County Group Participation

The County Group includes all others involved in the planning process. They will be indirectly impacted and provided input and review. The members of this group include:

Table 4: 2021 County Group Members

Jurisdiction	Agency	Title	Name
Licking County	LCEMA	Director	Sean Grady
Licking County	LCEMA	Deputy Director	John Wieber
Licking County	Licking County	Planning Manager	Brad Mercer
Licking County	Licking County Planning Commission	Planner II	Jay Fisher
Licking County	Engineers' Office	LCEO	Jared Knerr
Licking County	Engineers' Office	Assistant Highway Supervisor Maintenance Management	Kurt Simross
Licking County	Licking County Health Department	Epidemiologist	Adam Masters
Licking County	Licking County Health Department	Environmental Health Director	Chad Brown
Licking County	Licking County Health Department	Public Information Officer	Olivia Biggs
Licking County	Soil and Water Conservation	Program Administrator	Denise Brooks
Licking County	Southwest Licking County Water and Sewer Department	General Manager	Lee Conkel
Licking County	West Licking Fire District	Fire Chief	Todd Magos
City of Heath	Zoning		Eddie Hunt
City of New Albany	City of New Albany	Operations Manager	Brian Strayer
City of New Albany	City of New Albany	Public Information Officer	Scott McAfee

Jurisdiction	Agency	Title	Name
City of New Albany	City of New Albany	Supervisor	Steve Kidwell
City of Newark	Newark Police Dept.	Chief	Barry Connell
City of Newark	Newark City Engineer's Office	City Engineer	Brian Morehead
City of Newark	Newark Police Dept.	Sergeant	Clint Eskins
City of Newark	City of Newark	Mayor	Jeff Hall
City of Newark	Fire Department	Chief	Patrick Connor
City of Newark	City of Newark	Safety Director	Steven A Baum
City of Pataskala	Public Services	Director	Alan Haines
Granville Township	Granville Township	Trustee	Kevin Bennett
Licking Township	Board of Trustees	Trustee	Dave Miller
Muskingum County	EMA	Deputy Director	Travis Reach
St. Albans and Harrison Townships	St. Albans and Harrison Township	Zoning Inspector	Tom Frederick
Village of Alexandria	Village of Alexandria	Village Administrator	Linda Propster
Village of Buckeye Lake	Village of Buckeye Lake	Planning Commission Chairperson	Karen Cookston
Village of Buckeye Lake	Village of Buckeye Lake	Planning Commission	Sherry Powell
Village of Buckeye Lake	Village of Buckeye Lake	Water Supervisor	Toby Miller
Village of Granville	Village of Granville	Village Planner	Deb Yost
Village of Granville	Village of Granville	Clerk of Council	Mollie Prasher
Village of Granville	Village of Granville	Planner	Steven Smedley
Village of Hanover	Village of Hanover	Clerk/Treasurer	Nicole Gieseler
Village of Hartford (Croton)	Village of Hartford	Village Administrator	Teri Wise
Village of Hebron	Fire Department	Fire Chief	Clifford Mason
Village of Hebron/South Licking Watershed Conservancy District	Village of Hebron/South Licking Watershed Conservancy District	Community Development and Storm Water Coordinator	Linda Nicodemus
Village of Hebron	Village of Hebron	Village Administrator	Ralph Wise
Village of Hebron	Fire Department	Captain	Ryan Wyse
Village of Johnstown	Village of Johnstown	Village Planner	Bailey Klimchak
Village of Johnstown	Village of Johnstown	Assistant Manager	Jack Liggett
Village of Johnstown	Village of Johnstown	Village Manager	Jim Lenner
Village of Johnstown	Village of Johnstown	Service Director	Newt Long
Village of Kirkersville	Village of Kirkersville	Zoning Inspector	John Thomas
Village of St. Louisville	N/A	Private Citizen Representing Village	Tom Smith



Countywide All Natural Hazards Mitigation



Jurisdiction	Agency	Title	Name
Village of Utica	Village of Utica	Village Administrator	Glen Richards
Village of Utica	Village of Utica	Utilities Supervisor	MaryAnn Figgins
Consultant	All Clear Emergency Management Group	Senior Planning Specialist	Jamie Stout

Table 5: 2012 County Group Members

Jurisdiction	Agency	Title	Name
Licking County	Licking County Planning Department		Ryan Edwards
Licking County	Licking County Engineer's Office		Kurt Simross
Licking County	Sheriff's Office		Darryl Evans
Licking County	Sheriff's Office		Tim Tyo
Licking County	Health Department		Jonathan Dye
Licking County	Pathways of Central Ohio, Licking County 211 System		Kristin McCloud
Licking County	Licking County Water and Waste Water		Kevin Eby
City of Heath	City of Heath		John Groff
City of Heath	City of Heath		Eddie Hunt
City of Newark	The Ohio State University Newark and COTC		Mike Demko
City of Newark			Kathleen Barch
City of Newark	City of Newark		Judith Carr
City of Newark		City Engineer	Brian Morehead
City of Pataskala	City of Pataskala		Diane Harris
City of Pataskala	Police Department		Steve Garavus
Fairfield County	Emergency Management Agency		Bob Clark
St. Albans and Harrison Township	St. Albans and Harrison Township	Zoning Inspector	Tom Frederick
State of Ohio	OSU Extension Service		Howard Siegrist
State of Ohio	Ohio Department of Natural Resources, Parks and Recreation		Bob Pidakos
State of Ohio	Ohio Department of Transportation		Julie Brogan
State of Ohio	Ohio Department of Natural Resources, Forestry		Aaron Kloss
State of Ohio	Ohio Department of Natural Resources, Buckeye Lake State Park		Chuck Wadley
State of Ohio	Ohio Department of Transportation		Julie Gwinn

Jurisdiction	Agency	Title	Name
State of Ohio	Ohio Department of Natural Resources, Forestry		Lisa Bowers
State of Ohio	Ohio EMA		Dean Ervin Sr.
Village of Buckeye Lake	Village of Buckeye Lake		Valerie Hans
Village of Granville	Village of Granville		Molly Roberts
Village of Granville		Trustee	Bill Mason
Village of Hanover	Village of Hanover		Duane Flowers
Village of Hartford (Croton)	Village of Hartford (Croton)		Winston Sayers
Village of Hebron	Village of Hebron		Andy Meyers
Village of Johnstown	Village of Johnstown		Jim Lenner
Hospital System	Licking Memorial Health Systems	Emergency Coordinator	Terri LoPresti
Natural Resources	The Dawes Arboretum		Tim Mason
Collegiate Representative	Denison University		John Principe

4.3.5 Planning Consultant: All Clear Emergency Management Group

To aid in the development of the plan, the County contracted the services of All Clear Emergency Management Group, a consulting firm with staff living in Licking County and extensive expertise in hazard mitigation planning. The role of the consultant was to guide the core planning group and each participating jurisdiction through the mitigation process, and compile the information provided, along with meticulous research, to the planning group in the updated plan.

4.4 Outreach Strategy in Action

All Licking County jurisdictions are committed to the whole community approach for developing, maintaining, and implementing the CANHMP. The core planning group created an outreach strategy during the kick-off meeting and committed to completing as many of the items in the strategy as they were able.

To accomplish the goals of public outreach, each jurisdiction completed the below actions in the way most appropriate for their jurisdiction. Below is a summary of some of the outreach items that were conducted by Licking County jurisdictions. See [Appendix A: Outreach Strategy Documentation](#) for evidence of the CANHMP outreach.

4.4.1 Goals of Outreach Strategy

The following four goals were developed by the core planning group to guide the efforts to involve the public throughout the mitigation update process. The table below details the outreach methods and implementation ideas for each method.

1. To encourage public involvement and buy-in to the plan and plan process.
2. To solicit and incorporate stakeholder and public input into mitigation objectives, goals and action items.

3. To facilitate stakeholder and public input into the assessment and mitigation of the risks facing Licking County.
4. To allow for public and stakeholder review and comment of draft plan.

Table 6: 2021 Outreach Methods

Outreach Method	Implementation
Community Events	Community events, booth at any public events.
Interviews	Targeted discussions with County officials, municipal officials, affected stakeholders, schools, universities, and the general public to identify hazards of concern and potential mitigation measures.
News Media	Local television, radio and print media partners promote widespread public involvement, post to the community’s online public events calendar, local news media coverage of public meetings, assist with notifying the public of meetings and the opportunity to comment.
Presentations to Governing Bodies	Presentations about the plan and plan process during County Commissioner General Sessions, City Council meetings. Communications from Cities/ Licking County to all employees to solicit feedback.
Questionnaires/ Surveys	Distribution of survey online via the Licking County EMA website, and the websites of participating jurisdictions. Copies of the survey distributed by local officials and made available for residents to complete at local county and municipal offices and community events, and an electronic version was posted on local websites.
Public Meetings/ Existing Committees	Distribution of mitigation information at exiting public meetings, LEPC, other.
Social Media	Promoted via any jurisdictional social media accounts in the county.
Area-specific Meetings	Participate in regional meetings and local township trustee meetings and other area specific meetings to distribute mitigation information.
Letter to Adjacent Counties	Invitation letter sent to all adjacent counties in order to invite them to participate.
Business/ Private Sector	Distribute survey, solicit feedback on draft planning document.

4.4.2 Mitigation Factsheet

An informational flyer was created to educate the public about mitigation, to advertise the community outreach survey, and to detail how all residents, businesses, and agencies in Licking County can participate in the planning process. This factsheet was printed and placed in lobbies and other public venues, it was advertised online and through social media. See [Appendix A: Outreach Strategy Documentation](#) for a copy of the Mitigation Factsheet.

4.4.3 Licking County Community Preparedness and Mitigation Survey

An online survey was created to solicit information about the hazards present in Licking County as well as the perspective of Licking County residents about those hazards. The survey was available online through Survey Monkey as well as in paper copy at numerous public locations throughout the county.

Surveys were distributed through a variety of methods beginning on January 2019, in both hardcopy and electronically. The public was notified using different methods including utilizing

social media such as Facebook and Twitter. Community organizations were critical in connecting county and city residents with the survey, and LCEMA utilized their broad-based distribution lists of community stakeholders and partners to disseminate the survey to residents.

Survey results were compiled upon the close of the survey in March 2019. A total of 49 respondents participated in the survey with a 100% completion rate. The survey instrument utilized a combination of descriptive and exploratory questions to gain an understanding of general preparedness intentions and behavior, as well as personal and demographic factors influencing decision making (e.g., information sources, risk perception, age, and socioeconomic status).

The survey was a combination of multiple choice, Likert-scale rating (degree of agreement/disagreement style questions), and open-ended questions. It totaled 22 questions, and respondents took an average of seven minutes to complete the questionnaire.

The survey instrument contained questions that fall into several broad categories: general preparedness; emergency information sources; hazard risk perception; hazard mitigation priorities; disaster experience; evacuation; functional and access needs; and demographics. See [Appendix D: Community Preparedness Survey](#) to review the survey. See [Appendix D: Community Preparedness Survey- Survey Results and Data Analysis](#) to view the summary of survey results.

4.4.4 Radio Interview

Director Sean Grady of LCEMA was interviewed on WNKO by Dave Doney on January 28th, 2019. Director Grady referenced the mitigation plan, the importance of community involvement, as well as all of the ways the public could be involved in the process.

4.4.5 Public Meetings

All meetings conducted were open to the public and advertised as such. The meetings were held in public buildings (County Administration Building and the local library) and included signage pointing those in attendance to the meetings. The final public meeting was an in-person public comment meeting held on March 5, 2020 and was advertised on the County's website and social media accounts. As well, other participating jurisdictions promoted this meeting through their social media accounts and posting flyers created to advertise the meeting.

4.4.6 Neighboring Communities

LCEMA sent an email to the emergency management officials of Franklin, Delaware, Knox, Coshocton, Muskingum, Perry, and Fairfield counties to notify them that the Licking County CANHMP was being updated, and to invite their participation in the planning process. Licking County has existing mutual aid agreements with each of these adjacent counties and works with representatives regularly. The plan update was also discussed at sector meetings with regional contacts by LCEMA staff. A copy of the letter attached to the email can be found in [Section 14.1 Appendix A](#).

4.4.7 Public Participation: Forums & Outreach

A notice about updating the Licking County CANHMP was posted on LCEMA's website throughout the planning process which is included in [Appendix A: Outreach Strategy Documentation](#). Residents of Licking County and neighboring communities with an interest in the process were invited to contact the LCEMA and were asked to participate in the process through commenting on the draft plan or attendance at meetings. The draft document was open for public review beginning on December 23, 2019 and ending with a public hearing at the Licking

County Administration building on March 5, 2020. The March 5th, 2020 meeting included a presentation on the basics of mitigation and the update itself, as well as an opportunity to review and electronic as well as hard copy version of the 2021 CANHMP. See [Appendix C: Public Comment Documentation & Feedback](#) for Draft Review and Comment Sign-in Sheets.

Local jurisdictions and the overall Licking County community have solicited public input throughout this process. They each have formally and informally requested residents ask questions about the mitigation plan, provide comments on the draft plan, and complete the community survey. These efforts have been met with moderate success. Licking County jurisdictions will continue to solicit input and educate the public on the importance of mitigation through the planning cycle leading to the next update of this plan. The 2021 CANHMP will remain on the Licking County EMA website, <https://lickingcounty.gov/depts/ema/default.htm>, through the next update.

4.5 Data Collection

This update was created by utilizing local, state, and federal documents which impact mitigation along with the invaluable subject matter experts in Licking County. The 2021 CANHMP is a comprehensive rewrite of this plan, accounting for new data points which have occurred since the 2012 update, but also incorporating a wider variety of data and information designed to provide the core planning group with the best data possible to make decisions on how mitigation should occur in Licking County.

4.6 Review of Technical Resources

This plan utilizes several different references to provide a thorough analysis of natural hazards in Licking County. Real estate parcels located in floodplains and floodways were identified by the Licking County Auditor, repetitive flood loss data in Licking County was obtained from the Federal Emergency Management Agency (FEMA) through the Ohio EMA, and maps were created using the data publicly available from government sources and non-public data made available from Licking County. Several regional development plans served as resources, as well as local jurisdiction floodplain management and zoning standard guidelines. Finally, historical information provided by the National Weather Service, Licking County publications, and subject matter expertise were included in the final document. Below is a listing of some of the sources referenced to create this plan:

- 2019 State of Ohio Enhanced Mitigation Plan
- Franklin County Natural Hazard Mitigation Plan
- FEMA Local Mitigation Planning Handbook
- FEMA Mitigation Ideas
- Muskingum County Natural Hazard Mitigation Plan
- Jurisdiction and Agency Websites
- Licking County Subdivision Regulations
- Licking County Comprehensive Plan
- Licking County and Local Floodplain Regulations
- State of Ohio Department of Natural Resources
- National Oceanic and Atmospheric Administration's Storm Event Database
- United States Census Bureau
- United States Geological Survey Earthquake Hazards Program

- United States Drought Monitor
- Licking County Emergency Operations Plan
- Licking County Planning Disaster Assistance Plan
- Local Subject Matter Expertise
- Buckeye Lake Land Use and Transportation Plan
- Planning for the Future
- Buckeye Lake Emergency Action Plan
- www.buckeyelakedamsafety.com
- Alexandria Area Focus Plan
- Eastern Gateway Planning Review
- Hebron/Luray Area Plan
- Jacksontown Area Focus Plan
- Utica Community Focused Area Plan
- South Fork Licking River Park Concepts, An Improvement Plan
- South Fork Licking River Watershed Land Use Evaluation and Woody Debris Mapping 2020

4.7 Finalization

The final draft of this plan incorporates all feedback provided by the core planning group as well as any public input received. This final draft version must be submitted to Ohio EMA for approval. Once approved by Ohio EMA, the plan will then be submitted to FEMA for final approval. Once FEMA approves the plan, they will issue a letter stating the 2021 CANHMP is Approved Pending Adoption (APA). Once the 2021 CANHMP has APA status, LCEMA will request that the Licking County Board of Commissioners formally adopt the plan by resolution. Once the county adopts the plan, each participating jurisdiction will also need to present this plan to their local government, and formally adopt the plan by passing a resolution. These completed resolutions must be sent to LCEMA who will forward them to Ohio EMA for approval. Signed resolutions will be included in [Appendix G: Participating Jurisdiction Plan Adoptions](#). Sample resolution language can be found in [Appendix F: Sample Resolution Language](#).

Implementation of the CANHMP is crucial. The 2021 core planning group strategized to effectively to put the CANHMP into action, and Licking County must follow through to translate the goals and objectives developed during the planning process into action steps.

5 Community Profile

5.1 Licking County Background

The inevitability of natural hazards creates an urgent need to develop strategies, coordinate resources, increase public awareness to reduce risk, and prevent loss from future natural hazard events. Developing strategies to reduce the impact of a hazard event can assist in protecting life and property of citizens and businesses. To that end, Licking County stakeholders have chosen to engage in the process of formal natural hazards mitigation since 2003.

Licking County is located east of the city of Columbus (Franklin County) in Central Ohio. Although all 88 counties in Ohio are relatively the same size, Licking County is the third largest county in Ohio by land area with approximately 687 square miles of area within its borders. Licking county is bordered by Franklin, Delaware, Knox, Coshocton, Muskingum, Perry and Fairfield counties.



Figure 2: Licking County and Adjacent Counties

Licking County jurisdictions include 25 townships, 5 cities, and 11 villages. Of the 25 townships in Licking County, 19 of them have enacted township zoning, and seventeen 17 of those have completed comprehensive plans. Six townships in eastern Licking County have no zoning.

All the unincorporated areas in Licking County are subject to the Licking County Subdivision Regulations, which were first adopted in 1969 and most recently revised in 2016. Section 711 of the Ohio Revised Code enables the Licking County Commissioners and the Licking County Planning Commission to adopt regulations governing plats and subdivisions of land within their jurisdiction. The subdivision regulations consist of six articles, and outline procedures such as minor/major land divisions, subdivision design standards, pollution control, and congestion prevention.

The cities of Newark, Heath, and Granville combine to form the county’s largest metropolitan area, with almost sixty-seven thousand combined residents in the year 2018. The three other cities in Licking County are Pataskala, New Albany, and Reynoldsburg. Pataskala merged with Lima Township to become a city in 1996. Just south of Pataskala, the City of Reynoldsburg has annexed portions of Etna Township in Licking County. Reynoldsburg and New Albany both are centered primarily in Franklin County and participate largely with Franklin County for emergency planning and mitigation.

Table 7: Licking County Jurisdictions

Cities	Villages	Townships	
1. Newark	1. Alexandria	1. Bennington	14. Liberty
2. Heath	2. Buckeye Lake	2. Bowling Green	15. Licking
3. Pataskala	3. Granville	3. Burlington	16. Madison
4. New Albany	4. Gratiot	4. Eden	17. Mary Ann
5. Reynoldsburg	5. Hanover	5. Etna	18. McKean
	6. Hartford	6. Fallsbury	19. Monroe
	7. Hebron	7. Franklin	20. Newark
	8. Johnstown	8. Granville	21. Newton
	9. Kirkersville	9. Hanover	22. Perry

	10. St. Louisville	10. Harrison	23. St. Albans
	11. Utica	11. Hartford	24. Union
		12. Hopewell	25. Washington
		13. Jersey	

5.2 Demographics and Population

Licking County is in the central part of the State of Ohio. Interstate Highway 70 and U.S. Route 40 (National Road), and State Routes 16 and 161 cross the county east to west.

Licking County has experienced a 6.2% growth in population from 2010-2019 with an estimated total of 176,862 residents in 2019 according to estimates provided by the United States Census Bureau.¹ Comparatively, the net population change over the same period of time for the State of Ohio was a 1.3% increase². The results indicate that Licking County experienced a percentage growth more than four times that of the State, as well as higher percent changes reported each census year.



Figure 3: I-70/S.R. 79 Interchange, North of the Village of Buckeye Lake

Licking County has been growing at a steady rate for the last several decades. The pace of growth can only be expected to increase due to the continued development and expansion of the City of Columbus and its suburbs. The population projections for the year 2030 are estimated to be 196,570, approximately an 11% increase according to data from the Ohio Department of Development. Easy access, good schools, and upscale housing contributed toward Delaware County’s population explosion of over 100% in the last twenty years. Licking County could experience a similar trend, especially with the upscale and popular development of New Albany spilling over into the County’s western townships. Since the Optimum Land Use Plan was completed in the County in 1975, the population has increased by approximately 54%.

Table 8: Population Projections by Age and Sex, 2015 to 2050³

	2010 Census	2015 Projection	2020 Projection	2025 Projection	2030 Projection	2035 Projection	2040 Projection
Licking County	166,492	173,520	180,860	188,810	196,570	204,220	212,370

¹ Source: U.S. Census Bureau QuickFacts: Licking County, Ohio 2019, <https://www.census.gov/quickfacts/fact/table/lickingcountyohio/PST045219>

² Source: Source: U.S. Census Bureau QuickFacts: Ohio 2019, <https://www.census.gov/quickfacts/fact/table/lickingcountyohio/PST045219>

³ Source: Ohio Development Services Agency, Licking County, Ohio, Population Projections by Age and Sex, 2015 to 2050, <https://development.ohio.gov/files/research/P6046.pdf>

Table 9: Annual Estimates of the Resident Population for Counties: April 1, 2010 to July 1, 2019

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Licking County	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Population Estimates	166,705	167,164	167,589	168,461	169,410	170,611	171,993	173,617	175,666	176,862

Table 10: Cities: Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2018⁵

Licking County - Cities	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heath	10,301	10,329	10,345	10,401	10,465	10,540	10,627	10,730	10,861
New Albany	7,918	8,317	8,682	8,997	9,386	9,975	10,453	10,742	10,889
Newark	47,614	47,718	47,807	48,033	48,286	48,591	48,944	49,485	50,029
Pataskala	14,947	14,991	15,017	15,101	15,194	15,307	15,436	15,588	15,780
Reynoldsburg	35,959	36,140	36,394	36,655	36,896	37,310	37,622	37,953	38,278

⁴ Source: U.S. Census Bureau, Annual Estimates of the Resident Population for Counties: April 1, 2010 to July 1, 2019, <https://www.census.gov/data/datasets/time-series/demo/popest/2010s-counties-total.html>

⁵ Source: U.S. Census Bureau, Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2018, <https://www.census.gov/data/datasets/time-series/demo/popest/2010s-total-cities-and-towns.html>

Table 11: Licking County Villages - Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2018 ⁶

Licking County - Village	2010	2011	2012	2013	2014	2015	2016	2017	2018
Alexandria	515	514	518	520	524	526	532	535	542
Buckeye Lake	2,746	2,744	2,737	2,752	2,769	2,783	2,801	2,820	2,851
Granville	5,677	5,657	5,730	5,711	5,698	5,710	5,770	5,785	5,890
Gratiot	878	874	870	865	861	857	856	855	850
Hanover	931	955	1,003	1,075	1,124	1,154	1,167	1,182	1,198
Hartford	397	397	394	398	399	401	403	405	409
Hebron	2,338	2,345	2,350	2,363	2,377	2,394	2,415	2,438	2,469
Johnstown	4,655	4,745	4,842	4,867	4,893	4,926	4,965	5,009	5,065
Kirkersville	525	525	527	528	532	534	539	542	549
St. Louisville	371	371	371	372	375	374	376	381	385
Utica	2,147	2,143	2,145	2,155	2,166	2,180	2,196	2,214	2,241

⁶ Source: U.S. Census Bureau, Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2018, <https://www.census.gov/data/datasets/time-series/demo/popest/2010s-total-cities-and-towns.html>

Table 12: Licking County Townships: 2013-2017 American Community Survey 5-Year Estimates⁷

Licking County - Township	2013 Population	2015 Population	2017 Population
Bennington	1,347	1,228	1,720
Bowling Green	1,328	1,542	1,335
Burlington	1,471	1,280	1,624
Eden	1,196	1,035	846
Etna	16,345	16,555	16,719
Fallsbury	1,146	1,034	748
Franklin	2,263	2,667	2,590
Granville	9,832	9,918	9,938
Hanover	2,776	2,875	2,988
Harrison	7,642	7,759	7,796
Hartford	1,225	1,360	1,285
Hopewell	1,395	1,545	1,207
Jersey	2,775	2,809	2,847
Liberty	2,771	2,667	2,732
Licking	4,658	4,732	4,766
Madison	3,233	3,258	3,287
Mary Ann	2,787	2,816	2,860
McKean	1,330	1,416	1,656
Monroe	7,033	7,189	7,293
Newark	2,170	1,753	1,860
Newton	3,236	3,292	3,294
Perry	1,380	1,508	1,634
St. Albans	2,292	2,471	2,493
Union	8,783	8,901	8,985
Washington	3,118	3,138	3,152

5.3 Participating Jurisdiction Profiles

The following sections provide a brief overview of each of the participating jurisdictions.

5.3.1 Licking County

Known as the "Land of Legend", Licking County, located at the geographic center of Ohio, is a microcosm of the state, with its eastern portion consisting of hilly and rough terrain, and the western portion flattening out as the beginning of the mid-western plains.

The history of the Licking County area began over 2,000 years ago when an ancient people occupied the area. These early Native Americans were not identified as one specific tribe, but

⁷ Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

rather a broad culture of natives who lived similarly across the Midwest, and whose epicenter converged in Licking County. Hopewell communities were marked by their strategic settlements near waterways, elaborate trading system which reached as far as Florida, temporary housing structures which could be easily transported, and most importantly, the incredible earthworks they left behind. These earthworks were of varying shapes built mostly near streams and valleys and included mounds which were used for burials or religious ceremonies. The Newark Earthworks in Licking County were labeled the “official prehistoric monument of the state” in 2006 by the State of Ohio. Another hallmark of the Hopewell was the emergence of an artisan class; their long-reaching trading routes made it possible for artists to ⁸use a variety of materials from other areas of the country, and many of these pieces were found inside earthworks across Licking County. The Hopewell culture died out around 400 A.D. for ambiguous reasons; historians surmise the invention of the bow and arrow, which shaped new hunting tactics, and the growth of larger, permanent settlements contributed to the dissolution of the Hopewell communities. The native presence in Licking County following the Hopewell are labeled by historians as the late woodland culture (A.D. 600-A.D. 1200). Tribes began diversifying, forming isolated and permanent settlements, and dug defensive trenches or created walls, signifying that war with other tribes was expected.

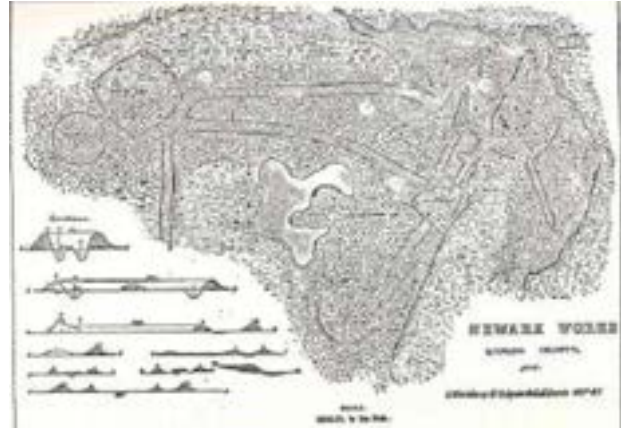


Figure 4: Map of Newark Earthworks, made by the Hopewell Indians

The tribes that resided in the area now known as Licking County were likely the Wyandotte, Shawnee and Delaware tribes. Prior to 1800, several Indian villages occupied the limits of the county. One of these Wyandotte villages, located near the Village of Johnstown, was called "Raccoon Town," by European settlers in 1807. Other small villages were located a mile or two below the junction of the north and south forks of the Licking River. The “Centennial History of the City of Newark and Licking County, Ohio (Vol. I)”, by Edwin M. P. Brister in 1909, stated that Licking received its name due to the salt banks along the river, but others speculate it has its roots in Delaware language. “Licking” may be an adaptation of a Delaware word “W’li/ik’/nk” meaning “where there is/at a given point/receding floodwater,” a term used to help navigate the Licking River. The north fork was called “Pataskala.”

The early pioneers of Licking County were largely from New England, Virginia, Pennsylvania, and Maryland. The first permanent settlement in Licking County was made in 1798 on what was called the “Bowling Green,” a clearing on the banks of the Licking River east of Newark (Madison Township). The families of John Ratliff and Elias Hughes, initially numbering 21 people, made up the settlement. In 1800, several more families settled in Licking County, including the families of Benjamin Green, Richard Pitzer, John Van Buskirk, Isaac Stadden, and Captain Samuel Elliot. The first European child born in Licking County was a son to Elias Hughes in 1799. John Stadden and Elizabeth Green were the first settlers to be married in Licking County in late 1800. Isaac

⁸ Source: http://wiki.lickingcountylibrary.info/Prehistory_of_Licking_County#Earthworks

Stadden was rumored to be the first farm in Ohio granting permission to John Chapman (Johnny Appleseed) to sow an apple orchard.

By an act of legislature in 1808, Licking County was established.

5.3.2 Village of Alexandria⁹

The founder of Alexandria came in a covered wagon from Frederick County, Maryland with his family in 1815. Alexander Devilbiss purchased 300 acres of land in St. Albans Township and built a mill in 1817. In 1830 he platted the village and created a business center where the community's needs could be better served. Mr. Devilbiss also platted the Old Cemetery at Alexandria (Maple Grove), where two of his nephews are buried. The town continued to grow with churches, including some that gave shelter to the anti-slavery movement (the Congregational Church and several local farms are known to be stops on the underground railroad); a hotel called the "Old Tavern," whose Bar Room provided a meeting place for arbitration and the occasional lawsuit; a post office that collected 25 cents from the recipient of a letter; a dry goods store selling flour for four dollars a barrel; a bank that survived while thirty-nine others in the state failed; and even a tobacco factory. Known for its fast running creeks (especially Lobdell and Raccoon), St. Albans Township had as many as 50 mills (grist and sawmills) running at one time or another.

Over the years Alexandria and St. Albans Township have been home to a clock factory, rope factory, concrete block factory, livery stable, harness factory, and a creamery, to serve the many prosperous dairy farms in the area. In the last century there were three gas stations, a hardware store, grocery stores, hotels, three barber shops, a veterinarian, and several physicians. The village has survived three bank robberies, numerous fires, and maintained its rural character. Currently, the village and surrounding township are home to many vital business concerns, including a veterinary hospital, doctor and dental practices, three gravel quarries, golf courses, automobile repair shops, many farms (including three Century Farms), beauty shops, woodworking shops, and many other small and home businesses.

According to the history of the area, as recorded in the book *Alexandria and St. Albans Township, Licking County, Ohio*, "The Alexandria Centennial celebration of 1930 inspired a maturity of cooperative effort and a degree of community pride that made it the outstanding achievement in the history of the village and township." Alexandria is known as the home of the first Community Council. As a result of the community interest in the planning and executing of the village's centennial celebration, the Community Council was formed to promote community welfare. It was the brainchild of William E. Huffman, then superintendent of Alexandria schools.

The establishment of the Alexandria Library and the Alexandria Museum are just two of the many accomplishments of this group. In 2007 and 2008, the Community Council was responsible for saving and moving the Captain Scott House, a historic home in the path of the route 161/16-highway expansion.

The Community Council was active in running the Alexandria Fun Days celebrations, a four-day community fair and homecoming held in the schoolyard each summer (the fire department now runs this celebration). The Council gave out scholarships and later founded the Alexandria Museum during the 1960s. Historic displays were housed in the Alexandria Library and in the small building next to the current museum until it was purchased in 1985.

⁹ Confirmed: Personal Communication, Linda Propster, Village Administrator, Village of Alexandria, June 18, 2020.

There are many historic and pre-historic sites throughout the township and village, including Indian mounds, an Indian trail known as Buffalo Trail, houses, churches, and stores. The mission of the Alexandria Museum is to preserve the history of the area for future generations. Most recently the Museum was instrumental in setting up an Ohio historic marker to Willoughby Dayton Miller, the father of modern dentistry, who was born in Alexandria. The marker is located in front of the library on State Route 37. The museum is located on West Main Street in Alexandria and is open every Sunday from 2-4 p.m. and by appointment.

Alexandria is also fortunate to have a progressive and active public library. With 200 books borrowed from the Columbus Library, Robert Price and others founded the Alexandria Public Library in 1935. The current building was erected in 1962 and has been expanded four times, most recently in the 1990s. The Alexandria Public Library is a school district library and functions as the library for the Northridge Primary School, and prior to that the Northridge Alexandria Elementary School. It has a full schedule of programming for all ages.

Four active churches give evidence to the spiritual life of the community. In addition to a full range of Sunday services, Vacation Bible School, Bible studies, Sunday school, and men's and women's groups, church buildings are open for civic and club activities. These include after school clubs, 4-H, Boy Scouts, Girl Scouts, quilt groups, and a senior citizen club called the Alexandria Buckeyes. Religious life is at the heart of the community, and pastors take an active role in helping with many village and township events and activities.

Alexandria had a two-story brick secondary school from 1894 until 1955. It was a well-respected academy, and students from the surrounding one-room schoolhouses fed into it, many boarding during the week with village residents due to transportation issues. Teachers also boarded with village residents. The current school building was erected in 1923 and was expanded in 1954. Currently, consolidation is changing the organization of local schools, but each weekday 400 primary-age students attend the Northridge Primary School. Though the community was not counted in the 2000 census (due to political and logistic issues), the village has been growing through annexation and new home building. Evidence of this is found in village records which indicate a population nearing 600 that has been relatively steady since the Civil War, when the population was over 500.

Completed in 2007, the village built a self-contained sewage treatment plant and all homes were connected to it. In the last five years a new subdivision has been constructed and several homes were annexed in conjunction with the sewer plant project. Another huge undertaking, this time by the township trustees, was the enlargement and modernization of the St. Albans Township Fire Department. Completed in 2008, this state-of-the-art facility offers EMT and fire department services to the entire village and surrounding townships.

The Parker Community Park was created through the efforts of siblings J. Howard Parker and Miss Ollie Mae Parker, and a dedicated group of citizens. The six-acre plot of land was purchased by Mr. Parker and was designed and built by the publicly steered Park Development Committee and many township/village volunteers. The park was officially deeded to the Village of Alexandria in September 1957 during a ceremony that drew hundreds of people. Parker Community Park has been a recipient in recent years of two Ohio Department of Natural Resources grants, which have provided funds for a new play structure, a park walking path, and a scenic deck overlooking the site of Alexander Devilbiss's original gristmill.

Sports have always been a major interest in the community and school, and early photographs show a men's village baseball team in the early 1900's. A full range of youth sports activities

continues to be offered through the Northridge Youth Athletic Association in conjunction with Parker Community Park.

Alexandria has a rich heritage and is still an active and vibrant community. There are many stories of volunteerism which is a hallmark of the village and township. Their planning, beautification, and care are what make Alexandria what it is today. As a village and township, residents are looking forward to the coming years of change and managed expansion. Alexandrians are proud of their rural heritage, as without active farms the area would not exist as a community. The mayor, village council, police force, township trustees, and award-winning fire department are working hard to insure a safe and high quality of life for all the citizens of the village and township.

5.3.3 Village of Buckeye Lake¹⁰

Buckeye Lake was created through several periods of glacial inundation. The most recent glacier, which covered a large part of the North American continent, receded more than 14,000 years ago. It pushed its way over the valley of the Newark River, an ancient river that was part of the Teays River drainage system. The Wisconsin glacier brought with it a mass of earth, rocks, and ice, which scoured the landscape.

The Newark River was buried beneath an incomprehensible volume of glacial till. The Licking Hills, at what is now the east end of Buckeye Lake, checked and diverted the glacial flow. As the ice receded, the melt water formed a great swamp and the beginnings of Buckeye Lake. The continual outwash of glacial till and sediment caused constant change to the pond. Over 7,000 years would pass and many changes would occur before the first man would discover this area. By the mid-1700s, the Native Americans in the region referred to Buckeye Lake as what could be translated to “Big Swamp” or “Big Pond.” Near the Lake was a salt spring that attracted deer and bison, which gave the area another name: “Buffalo Lick.”



Figure 5: Historical Marker for Buckeye Lake

Christopher Gist, the first white man known to have seen Buckeye Lake, arrived in 1751 and named it “Buffalo Swamp.” What he found at that time was essentially a large pond approximately five miles long with an average width of 880 feet. Gist camped on the Lake's shores, fished its waters, and trapped in its dense marshes and swamp forests.

Following the Revolutionary War, Elnathan Schofield surveyed the lake region. The survey encompassed what was known as the Refugee Tract, a narrow strip of land approximately four and a half miles wide that extended about 40 miles east from the Scioto River. The fledgling federal government had set aside the tract for settlement by refugees from Canada and Nova Scotia as a reward for their volunteered aid to the Colonies against the British. It didn't take long for the refugees to start moving into the Tract. Most settled in the highlands, but a few settled in the Big Swamp region, braving the mosquitoes and the ague.

¹⁰ Source: <http://buckeyelakevillage.com/history/>

By the time Ohio gained statehood in 1803, much of the land around the lake had been cleared. Produce from newly cleared fields, forests, marshes, and waters far exceeded the needs of the sparsely populated region. The lack of reliable transportation routes to move its products to eastern markets, however, prevented the produce from becoming commerce. At the time, the National Road was completed only from Cumberland to Wheeling and was an expensive method of transportation. The Ohio-Mississippi river route was long and dangerous. Outcries from early Ohio settlers wanting to buy and sell goods prompted state legislators to seek better trade routes.

In 1816, New York Governor Dewitt Clinton sent a letter to the Ohio Legislature indicating his state's willingness to construct the Erie Canal without national help and asked the State of Ohio to join in the endeavor. Ohio's Governor at the time, Thomas Worthington, attempted to negotiate a deal. However, due to the cost, no agreement could be reached. It wasn't until 1822 that the Ohio legislature realized the importance of internal improvements and created a new Ohio Canal Commission. The Commission hired James Geddes, an engineer who had worked on the Erie Canal in New York, to determine the best routes available for a canal from the Ohio River to Lake Erie. Geddes proposed three routes. The first ran along the Miami and Maumee Rivers in western Ohio; the second included the Scioto and Sandusky Rivers in central Ohio; and the final route included the Muskingum and Cuyahoga Rivers in eastern Ohio. The Canal Commission eventually recommended a route starting at Lake Erie, passing through the Cuyahoga Valley, the Muskingum Valley, the Licking Valley, and then to the Ohio River along the Scioto Valley. This proposed route was a combination of the central and eastern Ohio routes proposed by Geddes and became the Ohio and Erie Canal. The Commission also recommended a western route along the Miami and Maumee Valleys, which was known as the Miami and Erie Canal. In 1825, the Ohio legislature approved both routes. On July 4, 1825, at Licking Summit just south of Newark, Ohio, Governor Jeremiah Morrow and New York Governor De Witt Clinton, the man most responsible for New York's Erie Canal, turned over the first shovels of dirt of what would become the Ohio and Erie Canal.



Figure 6: Canals of Ohio, 1829-1913

The building of the canal was a tremendous undertaking and its urgency demanded a speedy completion. The job was far beyond the capacity and resources of any single construction organization, so contracts were granted competitively and separately to many organizations and individuals, each accepting responsibility for clearing a site, constructing a lock, or building a section of canal. The first contract covered the section extending from Taylor's Locks southward to Millersport, including the embankments to raise the "Big Pond" for water storage. In rapid succession, contracts were awarded for other sections, and within a year of the groundbreaking at Licking Summit, thousands of men, mules, and oxen were engaged in the project from Lake Erie to the Ohio River.

In digging channels and raising embankments, most of the earth was loosened by plows and moved by slip-scrapers dragged by mule teams or oxen. Much of the canal was dug with picks and shovels and hauled in wheelbarrows. Laborers worked from sun-up to sundown and earned 30 cents a day plus board and lodging. In addition, each worker received a generous dispersion of five jiggers of

whiskey a day: one at sunrise, 10 o'clock, noon, 4 o'clock, and the last before supper. When the Canal Commission saw the negative effects of the whiskey, the five jiggers a day policy was discontinued and the wages per day were raised a few cents. While thirty cents per day seems a poor wage in modern money, it was attractive to numerous people. Many recent immigrants to the United States, especially the Irish, survived thanks to jobs on the canals. Other people like the residents of the communal society at Zoar also helped construct canals to ensure the survival of their community.

Weather permitting, meals were prepared and eaten outdoors in iron kettles. Dishes such as meat, potatoes, dumplings and green corn were typical for breakfast, lunch, and dinner. For lodging, the State provided a large log cabin furnished with ample straw for beds. Blankets were the sole responsibility of the lodgers. The Deep Cut Canal is the most discernible part of the Ohio and Erie Canal in the area, approximately four miles in length and up to 60 feet deep. The Deep Cut portion of the Canal was made specifically to get water in the lake to flow southwest towards Baltimore, Canal Winchester, and Circleville.

During the construction of Deep Cut, the distance from the channel bed to the top of the earthen piles along the sides of the canal could reach heights in excess of 80 feet. Oxen had to be used when the elevation became too high and steep for mules and scrapers. A long rope was hitched to a team of oxen; plodding down the slope, the oxen would pull a loaded wagon to the top aided by their own weight and gravity. Upon their ascent, the wagon would be lowered for another load. Far too often the rope would break, letting the wagon and oxen roll down opposing sides of the slope. Due to difficulties such as these, the Deep Cut took seven years to complete. Construction of the dike blocking drainage into the South Fork of the Licking River began in 1826 and was completed in 1830. This formed the Licking Summit Reservoir, which would eventually be named Buckeye Lake. The completion of the dike enlarged the lake to over seven miles in length and over one mile at its widest point, which are the dimensions of the lake as known today.

As the waters backed up behind the dike, the swamp was inundated and destroyed, except for the youngest and therefore most buoyant segment of the bog mat. Instead of disappearing beneath the water, a 50-acre upper segment of bog along the north shore rose eight feet with the new water level, forming the only known floating island of its kind. Today it continues to exist as an island conducive to the growing of cranberry plants and has produced a crop every year. The island, now known as the Cranberry Bog, encompasses an area of less than 19 acres and is the State of Ohio's smallest nature preserve. Many interesting and rare plants exist on the island, including Pink Orchids, Marshfield, Cinnamon and Royal Fern, Ground Nut, Winter Holly, and Arctic Cotton Grass, which is otherwise found only in northern Canada. It is also covered in Pitcher Plants and Sundew Plants, both of which are carnivorous.

Around 1840, Thomas Minthorn, an early pioneer in the Buckeye Lake area, built a tavern that is now the V.F.W. The downstairs of the tavern was one big room with a kitchen in the back, while the upstairs featured 10 tiny rooms that were rented for the night, making the tavern the first hotel in Buckeye Lake. In 1875, the first railroad came to Buckeye Lake when Straitsville Railroad laid track along the Lake's northeastern shore. Trains carrying coal came from Perry County into Thornport, past Avondale and on to Newark. In 1881, another line came from Toledo through Granville and Hebron, running along the west shore of the Lake to Millersport and on into Thurston. This line was built by the Atlantic and Lake Erie Railroad Company. The name of the lake changed from Licking Summit Reservoir to Buckeye Lake in 1894 via legislation passed down from the State of Ohio.

The Columbus, Buckeye Lake, and Newark Traction Company built an interurban line to Buckeye Lake in 1904, which resulted in an influx of people to the area. In order to get people to ride the interurban, the traction company put an “electric park” at the end of the lines. People poured onto the trains, which were essentially giant streetcars that weighed approximately 50 tons and could reach speeds of 75 miles per hour, to go to the park for the day. The school board gave children from Buckeye Lake, who went to school in nearby Hebron, tickets so they could ride the interurban to school.

In 1906, a group of recreation-minded men met to address the hazards to boats caused by the skeletons of trees left in the former reservoir. A result of this meeting was the formation of the Buckeye Lake Yacht Club that officially organized on May 6, 1906. At the time, annual dues were set at \$4.00 with an initiation fee of \$2.00. By July 1, the Club grew to 80 members. In December of 1906, the Buckeye Lake Yacht Club applied for membership to the Inland Lake Yachting Association at the regular fall meeting in Toledo. The Inland Lake Yachting Association had a rule not to accept any club off the Great Lakes, so the Club from Buckeye Lake was not eligible. The Inland Lake Yachting Association's Commodore, George Worthington, defended the “upstart” by displaying an Ohio map indicating Buckeye Lake was connected to Lake Erie by way of the Ohio and Erie Canal. Thus, the Buckeye Lake Yacht Club was admitted and further cemented the importance of the Canal in Buckeye Lake's history. A Tar Social was held in Columbus on Jan. 15, 1907 to drum up support for the construction of a clubhouse, and subscription papers were circulated for signatures of those present that would agree to take “stock” in a clubhouse at \$5.00 per share.

The Club was able to garner enough support, and construction for a clubhouse began in June and having been completed in November, provided a meeting place for the Club's 110 members. The clubhouse was completed at a cost of \$1,811. The new Buckeye Lake Yacht Club successfully lobbied the Ohio State Legislature for assistance in clearing the lake of navigational obstacles in 1908. During the autumn and winter of that year, state authorities removed tree stumps, constructed a new concrete waste-weir, and rebuilt and repaired considerable portions of the north bank. By 1909, the lake was free of obstructions and Club members no longer had to refer to themselves as “stump skippers.” Women guests were permitted in the club for the first time in 1909. In 1910, the Buckeye Lake Yacht Club decided that the welfare and progress of the Club depended on the construction of a new clubhouse. The new clubhouse was built at a cost of \$5,000 on Watkins Island and was connected to the north bank by a bridge. The clubhouse was officially dedicated on May 4, 1913 and is the headquarters of the Buckeye Lake Yacht Club today.

By 1911, the Buckeye Lake area boasted two dance pavilions, a swimming beach and bathhouse, arcade, picnic area and ballpark, boat excursions, and power boat races. Taverns, restaurants, hotels, and rental cottages sprung up all along the lakeshore to accommodate out-of-town guests. In 1912, the traveling Chautauqua Assembly came to the west side of Buckeye Lake in the area known today as Millersport. Speakers included Emery Hunt, president of Denison University in nearby Granville; Senator Warren G. Harding, who would later become President of the United States; and the great orator William Jennings Bryant. The circuit peaked from 1913 to 1918. The 1920s were a chapter in the Buckeye Lake Amusement Park's history highlighted by rapid growth. John J. Carlin, a well-known amusement park developer, leased the park from the Ohio Electric Railway Company in 1924, and bought it from its new owner, the Ohio Power Company, in 1929. The excellent reputation the park established in these early, carefree days helped it weather the more difficult times ahead.

In August 1928, when the Muskingum Valley Colored Elks #82 held its annual family day at the park, the romance of the waterfront Pier dance hall turned to heartbreak. A portion of the crowded

dance floor collapsed into the lake late that evening, and seven people drowned. The Great Depression, which began with the Stock Market Crash of 1929, forever changed the dynamic of the entire Buckeye Lake region. Many families who enjoyed the modest lake cottages as summer resort homes became year-round residents as they lost their homes in the city. The interurban rail line went out of business, taking with it the easy, cheap transportation that made the amusement park a regular destination for city dwellers.

In the 1930s, new management rose to the challenge of keeping the Buckeye Lake Amusement Park vital. The "Dips" roller coaster, built in 1930, quickly became a favorite attraction and top moneymaker. The Skateland roller rink began to hold races in addition to offering open skating. With the repeal of prohibition in 1933, the merry-go-round building was transformed into a nightclub. Perhaps the crowning achievement of this era was the addition of the fabulous Crystal Ballroom and Pool. The ballroom overlooked the lake as well as the pool, and fountains in the pool added an elegant touch. In addition to welcoming swimmers daily, even offering bathing suits for rental for those who came to the park unprepared to swim, the Crystal Pool hosted water shows by Olympic gold medalist Johnny Weismuller, Hollywood's original Tarzan; and actor and Olympian Buster Crabbe. The Crystal Ballroom and its competitor, the Pier Ballroom, hosted such big-name orchestras and entertainers as Guy Lombardo, Artie Shaw, Count Basie, Glen Miller, Benny Goodman, Frank Sinatra, Lawrence Welk, Louis Armstrong, Cab Calloway, Gene Krupa, Duke Ellington, and the Dorsey Brothers. To keep the excitement at a fever pitch, free outdoor acts were featured in the 1940s as a promotional tool to attract people to the park and keep them there all evening. The acts were diverse and highly entertaining, including the famous Flying Wallendos family, along with other aerialists and acrobats; the Barton horseback acrobats (later known as the Hannefords); parachute jumpers, and trained animal acts. The park was in its heyday, entertaining as many as 50,000 visitors a day. The Buckeye Lake Amusement Park Company owned the major rides, but individuals from the surrounding community owned the smaller rides and concessions. Buckeye Lake was officially designated a state park in 1949 with the creation of the Ohio Department of Natural Resources. The park office was originally located within the amusement park, although ownership and operation of the amusement park rides and attractions remained in the hands of private companies and individuals.

By the end of the 1950s, the Buckeye Lake Amusement Park was in decline and conditions worsened each year. In 1958, a cable on the Dips roller coaster snapped and three cars slipped backward from the top of the big hill, injuring several riders. The aging Crystal Pool developed sizable cracks and was no longer able to hold water. A last gasp effort to revive the park in 1969 with a country/western music amphitheater and a dozen rides met with lukewarm public response that put a halt on further investments. The Pier dance hall, silent since 1968, burned along with an abandoned dodgem car ride in a fire in the early 1970s. Today, all that is left of the Buckeye Lake Amusement Park, once known as the Playground of Ohio, is a fountain that served as the centerpiece of the midway.

For years, Buckeye Lake had no local rule, as seven landowners owned all the land in town. As a result, all the land was leased to the cottage owners and there was not enough "freeholders" to allow Buckeye Lake to incorporate. The Union Township Trustees controlled the village until 1980, as the landowners began to sell their property. On July 9, 1980, the Village of Buckeye Lake was incorporated, making it the newest village in Ohio. Later that year, on November 4, the village elected its first mayor and village council.

5.3.4 Village of Granville

Settlers migrating westward from Granville, Massachusetts, founded Granville in 1805. Granville would later become incorporated as a village in 1832. Throughout the 19th and 20th centuries, this quaint New England style village flourished primarily as the home of Denison University, which is still a thriving private college today.

In 1964, the Village of Granville adopted a municipal charter choosing the council/manager form of government, by which Granville is still governed today. Granville Village Council consists of seven elected citizens at-large, each serving four-year terms. The mayor, an appointed member of council, serves as the official and ceremonial head of the municipal government, presiding over meetings of council and exercising judicial powers. The Village of Granville consists of approximately 4,300 acres in about 6.2 square miles. Today the Granville Service Department maintains approximately 23.5 road miles. Within the current village boundaries are 10 miles of piped storm sewer, although much of the land annexed in recent years is served by storm ditches rather than enclosed sewers.

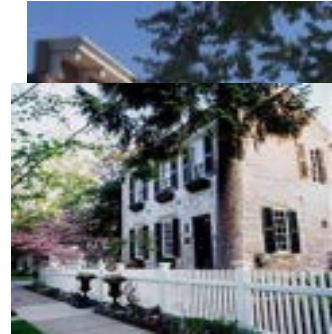


Figure 7: Downtown Granville

The Village of Granville water and sewer systems include a treatment plant capacity of 2.0 MGD which serves the incorporated areas of the village and the incorporated areas of Alexandria. The system also serves Owen Corning, the Kendal Community, as well as some areas within Granville Twp. There are no current plans for expansion of the service area or treatment plant capacity, which is adequate for the near future. *Granville Village Water Department: 445 Palmer Street, PO Box 514, Granville OH 43023, 740-587-1400*

Figure 8: Downtown Granville

5.3.5 Village of Hanover

On Sept. 1, 1800, President Adams granted 4,000 acres to David Galbreath and Thomas Elmes for their military service in the Revolutionary War. This land was to become the northwest quarter of Hanover Township. The warrant was granted over 17 years after the official end of the war, and many soldiers had given up on receiving any land. Those who didn't still had to apply for it under regulations set forth in 1796, 1799, and earlier in 1800; these regulations included that the applicants had to "propagate the gospel among the Heathen."

The delay was due to several factors, such as the need to make the land safe for settling, the need to get it surveyed, and years of legal entanglements between the new federal government and the original 13 states. Times were volatile for a new government that had to find a way to repay large debts to Europe for financing the war. The most reasonable way to raise money in many minds was to sell off the western lands between the original 13 states and the Mississippi River.

A large portion of this real estate was Ohio. The process of convincing the original states to give up their claims to the land was known as ceding. It was complicated by the fact that most of these states had already promised the same land to their own soldiers for military service. Therefore, part of the deals had to include granting large portions of Ohio lands for those soldiers. Some of these areas become the Virginia Military District, the Connecticut Western Reserve, and the United States Military Reserve. The latter area includes parts of present-day Franklin, Licking, Guernsey, Muskingum, Coshocton, and several other counties.

Another complication was that the Ohio Land Company and other groups had been scouting in Ohio since 1750 for prime real estate with which to speculate and profit. This was one of the

reasons for Christopher Gist's famous trek through Ohio. He had to travel with his compass hidden from view while learning the lay of the land, surveying, and appeasing the natives.

The opposing viewpoints of giving land away for service and for the sake of getting it populated, versus allowing speculators to reap huge profits from sales became one of the first lasting differences between the early political parties. Although it was technically not legal to go west and squat on a piece of land, many in government turned their backs to it and even encouraged it. Men of that mind would rather see this wide-open land taken by good honest hard-working farmers than to be used for the added profit of already wealthy landowners.

In any case, Galbreath and Homes sold the 4,000 acres in Hanover Township on Sept. 18, 1801 to William Wells. The land at that time was still in Fairfield County, since Licking County was formed out of Fairfield in 1808. This information is all given in a later deed found in Licking County dated 1813, when William sold 800 acres of this land to his grandson Chester, and many other parcels to other people. Chester Wells had already arrived in this area in 1806, along with his brother-in-law John Hollister, according to early Licking County histories. Meanwhile, Phillip Barrick and his wife, Annie (Harvey) Barrick of Frederick County, Maryland traveled west around 1796, stopping for a couple of years at Marietta.

Not satisfied there, the Barricks loaded their belongings into a canoe and paddled up the Muskingum River and then the Licking River (sometimes called the Licking Creek in this area). They squatted on some land in 1798 near an area called Claypool Mills, which was just a few miles south of Licking County along the river. Then in the spring of 1801 they came into present day Hanover Township. This area was located along the Licking Narrows just west of Toboso, but not on the Galbreath/Wells 4,000 acres. The Barricks became the first known settlers of Hanover Township. Settlers began coming in rapidly over the next few years, enough for Phillip Barrick to justify setting up a distillery and a tavern. Below is a brief chronology of the area since that time:

- 1808 Licking County was organized from Fairfield County
- 1808 Hanover Township was organized
- 1849 Town of Fleming laid out by John Hollister, named after John M. Fleming
- 1852 Toboso was laid out
- 1873 Village of Hanover incorporated
- 1950 Covered bridge on Route 668 was replaced
- 1957 Licking Valley School System emerges
- 1959 Hanover residents forced to move due to flooding and the Dillon Dam Project
- 1999 Longaberger Golf Course opened
- 2000 New Licking Valley High School opened
- 2001 Bicentennial celebrated
- 2007 Licking Valley Elementary school opened & sewage treatment plant installed

5.3.6 Village of Hartford (Croton)¹¹

The Village of Hartford was officially incorporated on March 6, 1866, but its history began in 1824 when the land was first platted by Ezekiel Wells and Elijah Dufrey. The first post office opened in 1833 under the name “Granby”, but the name was changed ten years later to Croton, as there was

¹¹ Source: <http://www.villageofhartford.org/village-history.html>

already an existing Hartford, Ohio. The county fair, operated by an independent fair board, is located in the Village of Hartford.

5.3.7 City of Heath

The history of the area which the City of Heath, Ohio now occupies can be traced back some 20 centuries, when the region was populated by the Hopewell people. Their presence can be evidenced by ancient burial mounds at Moundbuilders State Memorial on the north side of Heath. While most historians associate the name of Heath with the Pure Oil Refinery located within the city's boundaries, few provide knowledge of the man whose name the city bears. Fletcher Heath (1863-1936) had a brilliant financial mind, devoting most of his life to the study and practice of banking and finance. He also served as a leader in the organization and management of larger corporations within Ohio for forty years.



Figure 9: Map drawn by the Archeological Founders

Canals that once ran throughout much of Ohio also left their mark in Heath. Occupying much the same route as the current State Route 79 was the Ohio Erie Canal. Physical evidence of this once popular mode of travel and shipping is plentiful along Hebron Road in Heath.



Figure 10: Ohio Erie Canal Historical Marker in Heath

The City of Heath was originally known as Newark Township South. In 1952, the township became the Village of Heath, and in 1965, the village became the City of Heath. Currently, the city has a population of 8,200, covers 10.5 square miles, and has a road network encompassing 90 miles. The City also passed a charter, which established a mayor/council form of government, with both the mayor and council members serving four years.

Topographically, the western half of the city is relatively flat, while the eastern half is dominated by hills. Two relatively large streams, the South Fork Licking River and Ramp Creek, intersect in Heath, with the South Fork eventually joining the Licking River in Newark.

Because the city is located on State Route 79 and lies between State Route 16 and Interstate 70, it has become a major shopping area for Licking County and the surrounding counties. Over 350 businesses operate in the city and attract an estimated average of over 30,000 shoppers per day. Industry also dominates Heath, with national employers such as Arvin Meritor, Kaiser and Boeing located within the city limits.

The City of Heath has both water and sewer systems and a treatment plant capacity of 4.0mgd, which serves the incorporated areas of the village and a few service areas lying outside of the city. The system capacity was recently expanded and should be adequate to serve the projected service area. The 20-year service area, which includes a planned extension along a section of SR 79 near the Mid-Ohio Industrial Park that is slated for widening, will probably not exceed a 2-3 mile radius around the City

5.3.8 Village of Hebron

The sixth town laid out in Licking County, is located on US Route 40, also known the "Old National Trail". This trail became an extension in 1834 of the historic "Zane's Trace", an early

and important road petitioned by Ebenezer Zane to Congress in 1797 to encourage trading and settlement of the Northwest Territory.

Laid out in 1827 by John Smith, Hebron became an important link in the Ohio Canal System. This sometimes-raucous canal town, with its tanneries, sawmills, warehouses, and distilleries, was for a time a busy marketplace and was known to pioneers of the day as a center of agriculture and industry. It became in reality “Hebron – Historic Crossroads of Ohio,” today’s slogan for the Village of Hebron, which is even truer with the advent of Interstate 70 to its south and the Ohio 79 by-pass that bisects the newer commercial and industrial parts of the village.

In 1935, negotiations for the water system began, and pumping to 84 customers started in 1937. Legislation for sewers and enlarged water facilities began in 1952, becoming operative in 1964. The system was enlarged again in 1983, 1989, and 2002 to serve well over 800 users in both the village and Union Township.

The Village is governed over the statutory plan of a Mayor and Council and operates with a full-time Village Administrator to oversee Public Works, Water and Water Reclamation Departments. Protection services for the community are provided by the Hebron Police Department and the Hebron Fire Department provides fire suppression and emergency response services for the village and much of Union Township. The community is served daily by the Newark Advocate, and weekly by the Buckeye Lake Shopper and the Buckeye Lake Beacon.

Hebron’s population in the 2010 Census was 2,336 and is now estimated by the U.S. Census Bureau to be 2,402 as of 2016. Strategic location, adequate water and sewer services, churches, schools, library, banking, and shopping facilities are all proving attractive to large corporate occupants of the Newark Ohio Industrial Park, which is home to the industrial sites of three Fortune 500 companies and several multinational corporations. Four other Fortune 500 companies have stores in the community.

The water and sewer treatment plants have a design capacity of more than 1.5 million gallons a day.

Canal Park was completed in the 1970s and has two lighted softball fields, picnic shelters, a gazebo, and a playground. In 1996, the Evans Foundation provided land for the village to use as a public park under a long-term lease. Over the past 20 years, Evans Park has been developed through grants from the Ohio Department of Natural Resources, village general funds, and volunteer and private donations. There are three Little League fields, one baseball field, football and soccer fields, a 9-hole disc golf course, and basketball courts. A natural wetland is a prominent feature of the park as well as the Veterans Memorial. A family picnic and playground area has been established and 1.5 miles of multi-purpose trails circle most of the park.

Founded as a prominent Canal town, Hebron has historically endured the natural hazards of being a good site for a canal – i.e. periodic flooding. Hebron has also been pro-active in trying to make the community as resilient to flooding as it can.

The village joined the National Flood Insurance Program (NFIP) in 1982. In recent years, the Village of Hebron has experienced several flooding events, the most recent ones in March 2012, that resulted in extensive damage to private and public infrastructure. The village has taken numerous steps to mitigate the damage of any future flooding events in the community. They include adopting Flood Damage Prevention Regulations and partnering with Licking County Planning to administer and enforce those. In addition to those efforts, a Flood Mitigation Plan has been completed to help the village and qualified residents to deal with repetitive loss structures.

The village has purchased three homes considered repetitive loss structures through this Flood Mitigation Plan.

In 2014, the Village of Hebron experienced four straight months of more than seven inches of rain. The village had never recorded more than one month of 7 inches of rainfall in all the years of keeping records at the wastewater treatment plant. In the first eight months of 2014, the village received more rain than it did in any of the years 2009, 2010, 2013 and 2012, the year of the most recent flood.

Eight times in six months, Hebron recorded rainfall in excess of 1 ½ inches and in four of those events, the rainfall exceeded 2 inches.

The repeated rainfall events that summer spurred action by village officials and residents alike. A work session was organized as teams of volunteers walked various parts of the tributaries and ditches to view their conditions and see if there were major obstructions.

A comprehensive flood study was commissioned in 2015. The \$20,000 engineering study was paid partly from the Muskingum Watershed Conservancy District. The study outlined three multi-million-dollar remedies that included a diversion channel around the village and/or a detention area west of the village. Other items cited by the study included less costly projects such as removing obstructions and improving flow capacity through the ditch and tributary.

Hebron has applied to FEMA for a Community Rating Survey in an effort to improve its resiliency to flood events, educate its residents, and even reduce premiums for those required to purchase flood insurance. The Community Assessment visit was completed in August 2017.

In 2016, the village removed an unneeded culvert that spanned a tributary for an abandoned railway. That project followed a Community Development Block Grant in the amount of \$65,000 to replace a culvert on N. 6th Street that was prone to flooding. Looking ahead, the village is looking for funding to help replace the culvert on North Street and on U.S. 40, two other flood prone areas.

The Hebron Police, Administration, and Licking County Library branch are housed in a Municipal Complex built in 2001. In 2017, the Village Council authorized more than \$100,000 to install a stand-by generator at the site on 934 W. Main Street. It will allow the Police Department to remain fully functional in the event of a power outage which has occurred often in the past five years.

The village also installed back-up power for the traffic lights in town. This will help eliminate confusion among motorists if the power is out. It also allows the police and public works employees to focus on other tasks in a power outage.

5.3.9 Village of Johnstown

Johnstown lies in a section of Ohio originally designated as the U.S. Military Tract. This area was set aside as a means of paying Revolutionary War soldiers for their service. The land on which Johnstown sits was originally deeded to John Brown, a veteran from Kentucky; in 1810 Mr. Brown sold it to a New Yorker, Dr. Oliver Bigelow. Bigelow laid out the village in 1813, donating the streets and town square.

The first pioneers in the vicinity were a couple from Virginia, George and Diadema Green, who arrived in 1806. Another pioneer, George W. Evans, built the first cabin before the Greens were able to do so. The area was part of Fairfield County until 1808, when Licking County was formed.

The early settlers in Johnstown and Monroe Township were primarily from south-central and southwestern Pennsylvania, the northern Blue Ridge section of Virginia and present-day West Virginia, the Mohawk Valley of New York, and Vermont, though smaller numbers came from other areas, such as western Maryland. The makeup of settlers in Bennington, Hartford, and Liberty Townships was similar, but Jersey Township included a large group from northern New Jersey, and Vermont and New York natives dominated St. Albans Township. Some of the streets in Johnstown bear the names of these settlers.

Johnstown grew slowly from its founding until 1880. It came to function as the hub of Monroe, Liberty and Jersey Townships. The economy of the area was based on agriculture, and thus many of the businesses in the village at that time served agricultural needs. Schools were established early on, both in the village and in the outlying territory. Residents laid out local roads throughout the countryside. The earliest churches established in Johnstown were the Methodist Episcopal, Presbyterian, and Baptist churches.

Toward the end of the nineteenth century, several important changes occurred. Foremost was the construction of a railroad in 1880. Other developments included the establishment of a newspaper, the Johnstown Independent, the construction of the town hall, and the installation of telephone lines. After the advent of the railroad, growth accelerated. The town's population more than tripled between 1880 and 1920, increasing from 278 to 906. Most of this influx seems to have come from the surrounding rural areas.

The first half of the twentieth century saw several important events. Electric lights were installed in 1901. A major fire destroyed the business section along Main Street in 1904, and as a result, new buildings were constructed of bricks. A town water system was established in 1904. The school systems of Johnstown and Monroe Township merged, and in the 1930s a town sewage system was created.

The most celebrated event during this period was the discovery of a nearly complete mastodon skeleton in 1926 on the farm of Friend Butt; this discovery was made east of town near the current bike path entrance. Numerous people came to view the excavation of the skeleton. A Newark businessman bought the skeleton and subsequently sold it to the Cleveland Museum of Natural History, where it remains on display today.

Growth in the area leveled off after 1920, but increased dramatically after World War II, and the construction of Edwards Road spurred growth on the north end of town. This growth largely consisted of young war veterans of local origin who were seeking new homes, but a significant portion was also due to migration from West Virginia and Kentucky. However, the largest boost came in the late 1950s, when Courtesy Homes, Inc. built the Rolling Meadows development on the west side of the Village. Johnstown's population more than doubled from 1,220 in 1950 to 2,881 in 1960.

Several industries located in Johnstown after World War II, the most notable of which is the Technical Rubber Co., now Tech International, on East Coshocton Street. New industries, together with the availability of automobiles and the improvement of roads (which permitted commuting to jobs in other locales), initiated another important change in Johnstown: a movement away from its earlier economic dependence on agriculture.

Johnstown produced two U.S. Congressmen during the twentieth century, including William Ashbrook (served 1907-1921 and 1935-1940) and John M. Ashbrook (served 1961-1982). The former is remembered most for his opposition to President Franklin Roosevelt's New Deal policies, and the latter for his anti-Communist stances.

Since 1970, rapid growth in the area has continued, but some of the growth has shifted from the village itself to Monroe and the adjacent townships. There has been some growth within the village, such as the Concord Crossing and Leafy Dell subdivisions, and the development of a new business district on the "Hill" on West Coshocton Street. The origins of newcomers have changed as well, as most new residents who are not from neighboring communities now come from Columbus (especially the north end and northeastern suburbs such as Westerville and Gahanna), or from northern Ohio. A variety of new churches and service-oriented businesses have appeared in the area, and with these changes, the economic transformation of the community is virtually complete. Agriculture has faded considerably, especially as many former farms have been converted to residential land, and Johnstown can now be characterized as a bedroom community for Columbus.

5.3.10 Village of Kirkersville¹²

Kirkersville is a small village in Licking County. It was officially incorporated in 1911 as part of Harrison Township, but got its start in 1815 when the former governor, Thomas Kirker, bought the land for his grandson. Kirkersville began to have access to affordable and reliable electricity in 1902 when an interurban light rail line was built through the village. Kirkersville was unable to participate in this update.

5.3.11 City of Newark

The City of Newark is a community known for its friendliness and diversity and is located less than an hour east of Ohio's capital city, Columbus. Newark's heritage is steeped in tradition and is home to the headquarters of the Longaberger Company, the National Heisey Glass Museum, the Newark Earthworks, The Ohio State University-Newark Campus, Central Ohio Technical College, and the Newark and Licking County Bicycle and Pedestrian Transportation Corridor.

In 1801, a few settlers came from Zanesville, over "roads" they constructed. During this year, Samuel Parr settled just below the junction of the North and South Forks of the Licking River. James Macauly and James Danner settled near the mouth of Ramp Creek in the southern part of the township. Here James Macauly built a "tub mill," or "corn cracker": the first water-powered mill in the county.

According to the laws governing the Northwest Territory at the time, a "settlement" had to have 4,000 acres or more. On Feb. 11, 1800, Baum and Schenck, as agents, registered in the Register of Army Land Grants in Washington, D. C. for John N. Cummings, John Burnet, and G. W. Burnet tract of "the fourth quarter of the second township in the twelfth range" (now Licking County, Newark, Ohio). They had purchased 4,220 acres of land from soldiers and officers of the revolutionary war for \$2.00 an acre.

In 1801-02, John N. Cummings, hired William Schenck to survey the land purchase. Schenck arrived in Licking County and began surveying the area. He discovered that John Van Buskirk was the only settler in the county that was living on his own land. All other settlers were squatters. Schenck must have been a man of great tact and diplomacy, for he was able to convince the settlers they did not have title to the land they were living on.

¹² Source: Village of Kirkersville Facebook Page: <https://www.facebook.com/pages/category/Nonprofit-Organization/Village-of-Kirkersville-376700762736493/>

Schneck felt that the area west of the North Fork of the Licking River would be the best area for the center of town. There were small ponds around the "commons" that would provide water for livestock. Newark was named and laid out after Newark, New Jersey, where Cumming and the Burnets were from. The Plat of Newark was recorded at the county seat (Lancaster) on March 16, 1803. The agents of Cumming and the Burnets sold the land to pioneers who were coming west to settle. Samuel Elliott and Samuel Parr built the first hewed-log homes on the Square in 1802. James Black built the first "tavern", a hewed-log structure with a stone chimney. By 1804, there were 15 to 20 families in Newark. By 1808, these businesses were around the square: a grocer, a hat shop, two general stores, two taverns, and a print shop. Today there are over ninety well preserved late 19th and 20th century structures, which comprise the downtown Newark National Register Historic District. *American City & County Magazine* also recognized Newark as one of America's Crown Communities.

Newark has 47,573 residents (2010 U.S. Census) and is the center of government for Licking County. Platted in 1802 at the forks of the Licking River, Newark became known for its hat business and woolen mills in the early nineteenth century. Economic development gained strength with construction of the Ohio Canal in 1825. Newark became the hub of the canal system between Lake Erie and the Ohio River. The arrival of the railroad in 1852 further spurred the development of commerce and industry in Newark.

Voters approved the Newark City Charter in November 1997. A mayor and an 11-member city council consisting of seven ward representatives, three at large council members, and a council president perform the executive and legislative functions of government.

Newark's major employers include Owens Corning, ArvinMeritor, Boeing, Anomatic, Holophane, State Farm, Licking Memorial Hospital, and the Newark Schools.

Since 1997, there have been 15 annexations totaling 838.012 acres, bringing the city's incorporated area to approximately 21 square miles. The three largest annexations include River Road, the north side of the Keny Tract and the south side of Park Trails, Horns Hill Road, the east side of the Watson Property, and the west side of Thornwood Drive.



Figure 11: Newark Water Treatment Plant

The City of Newark has both water and sewer systems, and a treatment plant capacity of 15.0 mgd that serves only the incorporated areas of the city. The present capacity should be adequate for future expansion of the service area, since the current water usage is at approximately 9.0 mgd. *City of Newark, Division of Water and Wastewater: 34 South 5th Street, Newark OH 43055, 740-349-6730.*¹³

¹³ Source: <http://www.newarkohiowater.net>

5.3.12 City of Pataskala

The first settler to the area that was to become known as Pataskala was David Heron, who was living here in 1805 when Richard Conine and his wife Sarah visited the region. Richard Conine, who was to become known as the "Father of Pataskala," liked what he saw, and when he returned home to New Jersey, he arranged to purchase 2,000 acres of land in the Pataskala area. Mr. Conine returned to the area in 1821 to live and built the first gristmill at the south end of town, and prior to 1850 he platted a village that he called Conine. However, by the end of 1850, he had sold most of his land, much of it to Jess Stoneman Green, and it was Green who put the village of Pataskala on the map. Green laid out lots and sold them, built buildings for businesses, and donated land for schools and churches.



Figure 12: Aerial View of Pataskala, Ohio

The City of Pataskala was created when separate jurisdictions merged: The Village of Pataskala, Lima Township, which included Columbia Center and Summit Station.

Village of Pataskala. In 1851, Pataskala was given its first Post Office. The citizens debated over a name for the town, which up to that point was Conine Town. "Pataskala," an Indian word meaning "Licking," was the name selected. The Village of Pataskala was incorporated in 1891, and among the local businesses were four general goods stores, a hotel, a meat market, a hardware store, and a drug store.

Lima Township. Lima Township's roots extend back to 1805, when settlers arrived from the eastern states to settle this area.

Columbia Center. In 1850, John Reese, Stephen Childs, and Mark Richey laid out the town and decided to call it "Columbia." The Columbia Center School was built in 1866 and served the area until 1935. Electricity came to Columbia Center in the mid-1920s, but gas lines were not laid until the late 1930s.

Summit Station. On the western edge of Pataskala is Summit Station, which derives its name from the fact that it is located on the highest point of the railroad land between Newark and Columbus.



Figure 13: Pataskala City Hall

In 1994, the voters of the Village of Pataskala and the adjacent Township of Lima (from which Pataskala was originally platted) voted to establish a merger commission. In 1995, the citizens voted to accept the merger proposal, and it became effective on Jan. 1, 1996, making the new municipality of Pataskala the largest geographic municipality in Licking County. On Jan. 19, 1997, the Ohio Secretary of State, Robert A. Taft, declared Pataskala to be a city. According to census information, the city had approximately 10,250 residents in

the year 2000, and in 2017, that number grew to 15,780.

The City of Pataskala encompasses 39 square miles of territory. Its boundaries begin at the Franklin/Licking County lines on the west and extend past Watkins Road on the east. The northern boundary is south of County Road 25, Morse Road, and Jersey Township.

The City of Pataskala has both water and sewer systems, with a treatment plant capacity of 1.3 million gallons a day (mgd), which serves the original village and several subdivisions throughout what used to be Lima Township. Present demands for water and sewer services in Pataskala are high. *Pataskala Water Department: 7024 Hazelton Etna Rd SW, Pataskala OH 43062, 740-927-7739.*

5.3.13 Village of St. Louisville

St. Louisville, Ohio is five miles north of Newark, Ohio on State Route 13. The Licking River runs along the south end of town, along the west side of State Route 13, and across the north end of town. In the early 1800s, John Wagoner operated a gristmill and sawmill at the south end of the present Village of St. Louisville. The mill and four or five houses comprised what was called Newton Mills. In the 1830s and 1840s, the mill was owned by two men, John Bell and Stephen Ritter. They plotted and established the Village of St. Louisville in 1839. The Village was incorporated in 1871.

The Village was made up of houses, a hotel, Post Office, grocery/general store, tavern, blacksmith shop, shoe store, sawmill/gristmill, barber, two physicians, churches, and a school. In 1939, the school was absorbed by the new Newton Elementary School just south of St. Louisville where it is today.

In 1850, the tracks of the Sandusky Division of the Baltimore/Ohio Railroad were installed with a train station along Main Street that provided transportation for people, mail, and freight from one town to another, creating an on-the-map effect in the village. Three trail derailments occurred in the Village over the years. The first in 1879 caused by a switch being left open causing the train to leave the tracks sliding down Main Street and damaging some buildings. The second derailment was in 1951 due to poor maintenance. The third derailment was in 1981, the train was loaded with coal that ended up on Main Street, blocking the street. There have been three floods in St. Louisville, the first on August 15, 1909. The second in April 1910 when high water took out the south end bridge. The third flood was in 1959 and this caused damage to the north end bridge near Dog Hollow Road.

In 1950, a ball field was constructed in St. Louisville and is one of the oldest in Licking County. The ballpark has added 4 ball diamonds, a playground, basketball court, and horseshoe court. Today there are tee ball, Little League, girls' softball, and men's softball games played there all summer long. A community center was built in 1981 next to the ballpark, which is open to the people from St. Louisville and surrounding areas.

A municipal building was built in 1951 and the Newton Township Fire Department operated out of it and it was used to house their equipment. In 1971, a squad was added to the Fire Service. In 1984, the Fire Department moved to its present location at the south end of the village in Newton Township. The municipal building as of 2017 houses the Mayor's Office, Clerk Office, Treasurers Office, Police Department, Water Department, and Councils Offices. The Mayors Court and Police Cruiser are in the municipal building also.

In 1980, the Village received a federal grant to build the water system and it was finished in September 1984. The water comes from two wells and is filtered with two filter systems then stored in a tower and pumped throughout the village.

In 2014, the Village received a grant to install the sewer system, which consists of six-inch main lines, a grinder, and a pump that pumps sewage to the Newark wastewater treatment plant.

The Village of St. Louisville's population (in the 2010 census) was 373 people with 143 households in a .25 sq. mile area. The 2015 Census Bureau estimated there are 379 people and 150 households. Hazard areas in the village are the water plant, the sewer system, the railroad that carries freight and hazardous materials through town, and State Route 13 with all the cars and trucks traveling north and south that may carry any type of hazardous items.

5.3.14 Village of Utica

Utica was founded by Major William Robertson in 1810. It is located along State Route 13 and US 62 along the bank of the North Fork of the Licking River. It was the 4th town in Licking County to be laid out. Utica Glass factory was opened in 1904 and became the largest producer of window glass.

There was a flooding on January 21, 1952 that was a combination of heavy rains and melting snow. The quick rising flood waters took heroic effects to save lives and properties. In recent month of February 2018, the Village has seen a lot of rain that has caused minor flooding in town. In 2012 Utica adopted Licking County Flood Plan Policy which allows us to turn over the management of the flood plain to Licking County Planning Commission.

The current population is 2,235. The Village had its first public water system in 1910 and sewer system was operating in 1938. The current number of water and sewer taps in the Village is 900. The water plant has two wells at 150' depth drawing from the North Fork aquifer and can be treated at 540 gallons a minute. There is 450,000 gallons of potable water stored at two different locations. The wastewater treatment plant can treat 427,000 gallons a day.

Village Hall and the Police Department are located at 39 Spring Street that was built in 1936. A stand-by generator was installed in 2010 which allows the Police Department to remain operational during power outages.

Back-up power was installed for the traffic lights located at US 62 and State Route 13 which allows employees to work on other issues.

5.4 Land Use and Development Trends

The purpose of including an analysis of land use and development trends in this mitigation plan is to identify the potential for future structures and infrastructure which may be at risk of damage due to natural hazards.

5.4.1 Land and Development

Cities and villages in Licking County are subject to planning and zoning requirements set forth by each local jurisdiction. These ordinances are enforced at the local level. Unincorporated areas are subject to zoning regulations adopted by the local township trustees or the Licking County Board of Commissioners through work done by the Licking County Planning Commission or township zoning officials.

Licking County’s current land use maps are created strictly on a township-by-township basis and are not countywide assessments. Of the 25 townships within the County, only 17 have comprehensive plans. Some of these plans are quite similar and compatible with neighboring townships, while others have serious contradictions. Etna and Harrison Townships are the fastest growing in Licking County.

Prior to starting mitigation planning, Licking County had not produced a new a Countywide Comprehensive Plan since 1976, which was titled Licking County Optimum Land Use Policy and Plan. The 1976 Plan contained county survey results, a planning survey data section (including land use, soils, transportation, infrastructure and natural features), identification of conflicts, and a future land use proposal. In 2002, Licking County worked on updating the comprehensive plan including updating the general data gathered in the 1976 Land Use Plan (including current information on population, lot splits, subdivisions, transportation, natural resources, farmland, and infrastructure). The 2002 plan used the existing township comprehensive plans as a basis for identifying missing information and contradictions. A countywide Future Land Use Map was generated in 2002 using this information but has not been updated since. However, some individual jurisdictions have their own maps, which are included at the end of this section. The Villages of Hebron and Kirkersville did not have any future land use maps available. It is anticipated that the County Comprehensive Plan will encourage interaction, dialogue, and cooperation among the various political entities in Licking County in the future as it is updated.

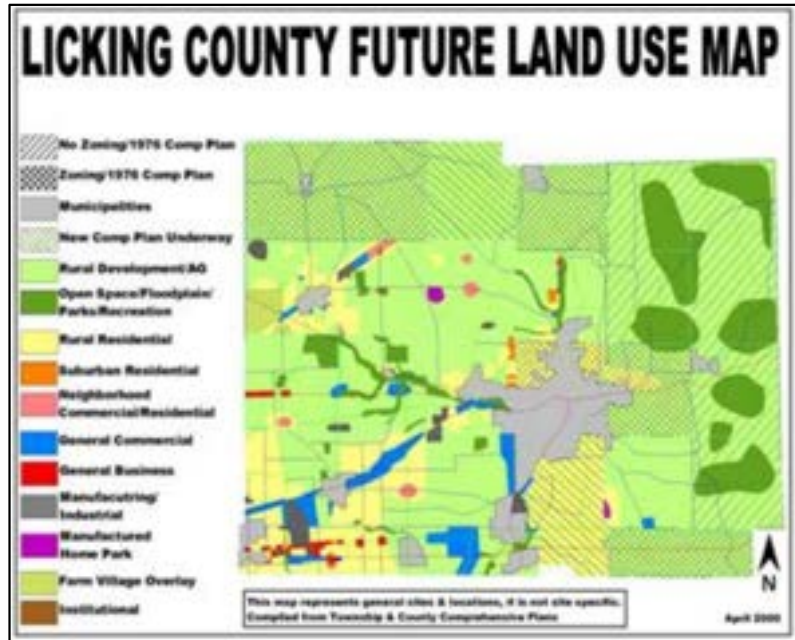


Figure 14: LCPC Comprehensive Plan April 2002

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Licking County has seen a significant increase in the manufacturing and technology industries in the recent past. There are two areas where growth in these areas has boomed. The western portion of Licking County near the City of New Albany and Etna Township have seen significant growth. Facebook has established a datacenter in this area and Google is underway to also construct a datacenter in the area as well. The New Albany International Business Park’s Personal Care and Beauty Innovation Campus is one of the country’s most dramatic examples of collaboration driving innovation, revolutionizing the concept of speed to market in consumer product development, design, manufacturing, packaging and logistics. This area is also home to major corporate headquarters such as Abercrombie and Fitch and Bob Evans. This area is projected to see additional growth in these sectors in the next 10 years.

The second area of significant development is along the Interstate 70 corridor, including the Business Park located on State Route 40. This area is now the home of a major Amazon distribution center and Petco, a major pet product manufacturing company. Kohl’s department store has also constructed a major distribution center in the Pataskala area off Interstate 70. There is a business Park located on State Route 40 where additional development is also occurring. There

are many additional warehouse and manufacturing projects coming and in development in the area. This area is projected to see additional growth along the I-70 and State Route 40 corridors.

As these previously undeveloped areas were primarily farmland, it is expected that hazards due to flooding and flash flooding are likely to increase in these areas and further down in the watersheds due to increased runoff. The other hazards that Licking County faces are less geographically dependent, so the hazards themselves are unlikely to be any more dangerous than before, however, more damage could be done, financially, due to larger exposure costs.

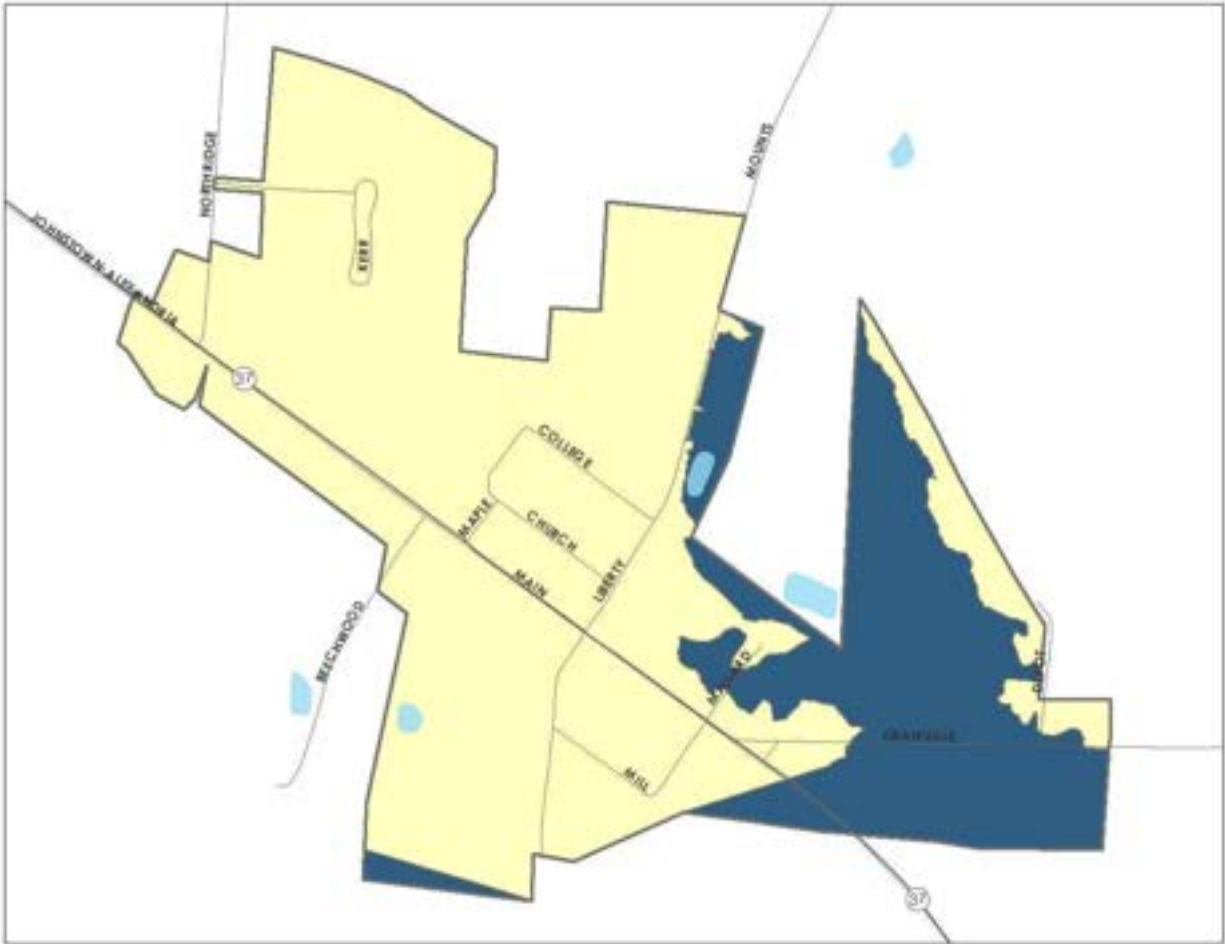
Finally, Licking County continues to see an increase in the natural gas industry which has the potential to reshape future land use tremendously. While Licking County welcomes the additional revenue and jobs this industry creates, it would be wise to consider the long-term environmental impacts that this industry could have on our county's natural resources. The county could see additional zoning restrictions or advocate for stricter drinking water and air pollution regulations.

5.4.2 Land Use Comprehensive Plans and Maps for Participating Jurisdictions

Licking County's current land use maps are created strictly on a township-by-township basis and are not countywide assessments. Of the 25 townships in Licking County, 19 of them have enacted township zoning, and seventeen 17 of those have completed comprehensive plans. Six townships in eastern Licking County have no zoning. Some of these plans are quite similar and compatible with neighboring townships, while others have serious contradictions.¹⁴

¹⁴ LCATs Long Range Multi-Modal Transportation Plan, Transportation Vision 2030, Published May 2008,p. 11

Licking County Hazard Mitigation Plan Village of Alexandria Future Land Use



**Village of Alexandria
Future Land Use Classifications**

- ◆ Conservatory/Open Space
- ◆ Rural Residential

**Map
Locator**



Licking County, OH

Figure 15: Village of Alexandria Future Land Use Map

Licking County Hazard Mitigation Plan Village of Buckeye Lake Future Land Use



**Village of Buckeye Lake
Future Land Use Classifications**

- Residential
- Park/Open Space

**Map
Locator**



Licking County, OH

Figure 16: Village of Buckeye Lake Future Land Use Map



Licking County Hazard Mitigation Plan Village of Granville Future Land Use



- Village of Granville
Future Land Use Classifications**
- ◆ Mixed Use Neighborhood Center
 - ◆ Neighborhood Commercial
 - ◆ Village Open Space



Figure 17: Village of Granville Future Land Use Map

Licking County Hazard Mitigation Plan Village of Hanover Future Land Use



Village of Hanover
Future Land Use Classifications

◆ Residential

Map
Locator



Licking County, OH

Figure 18: Village of Hanover Future Land Use Map

Licking County Hazard Mitigation Plan

Village of Hartford Future Land Use



Village of Hartford
Future Land Use Classifications

Parks/Recreation

Map
Locator



Licking County, OH

Figure 19: Village of Hartford Future Land Use Map

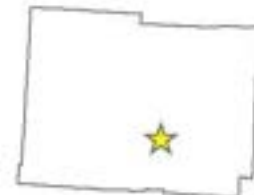
Licking County Hazard Mitigation Plan City of Heath Future Land Use



City of Heath
Future Land Use Classifications

◆ Business General

Map
Locator

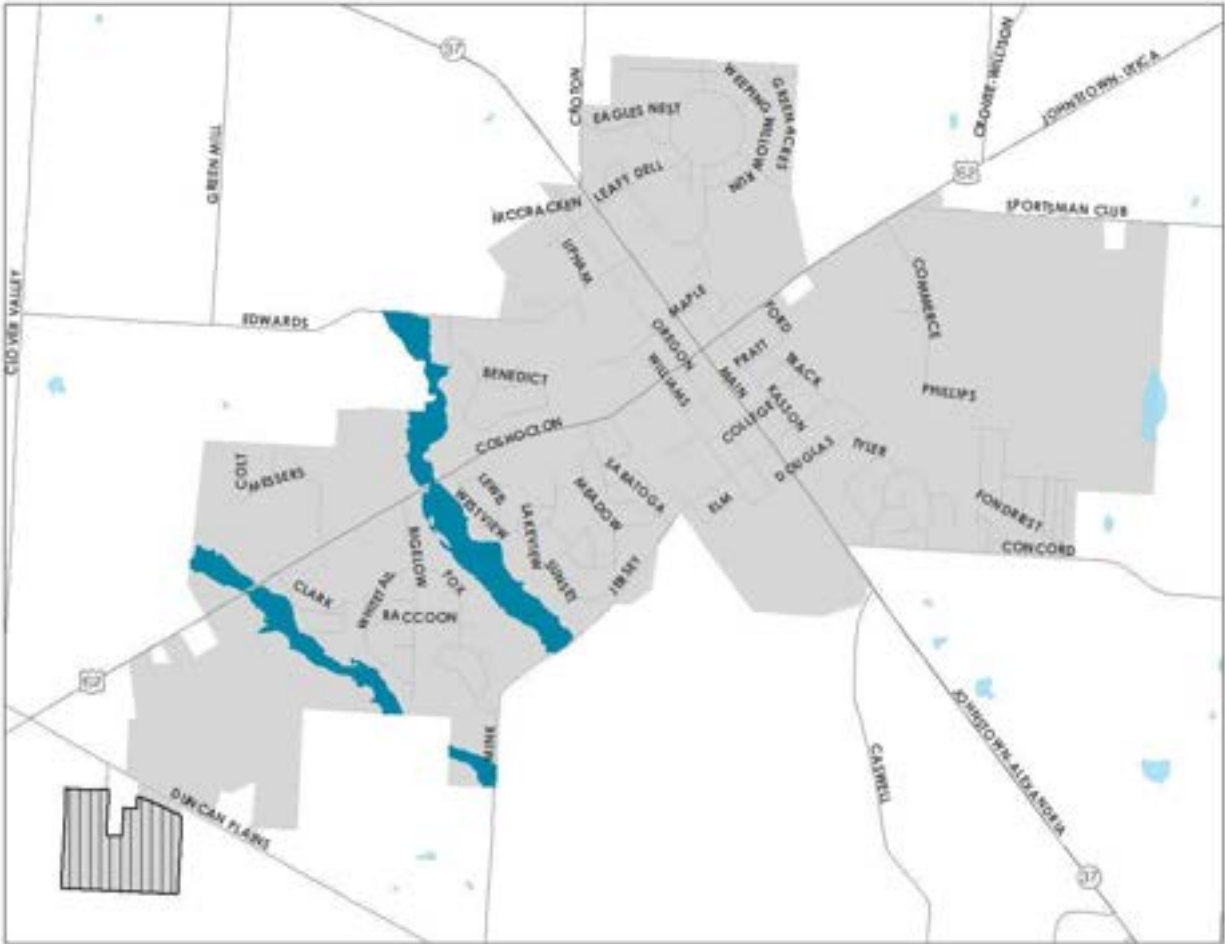


Licking County, OH

ALL CLEAR
EMERGENCY RESPONSE CENTER
Date: 11/17/2020
Data Source: 11/17/2020, U.S. Census 2010 pop.
GIS 2017

Figure 20: City of Heath Future Land Use Map

Licking County Hazard Mitigation Plan Village of Johnstown Future Land Use



**Village of Johnstown
Future Land Use Classifications**

- Farm Village Overlay
- Flood Plain Overlay

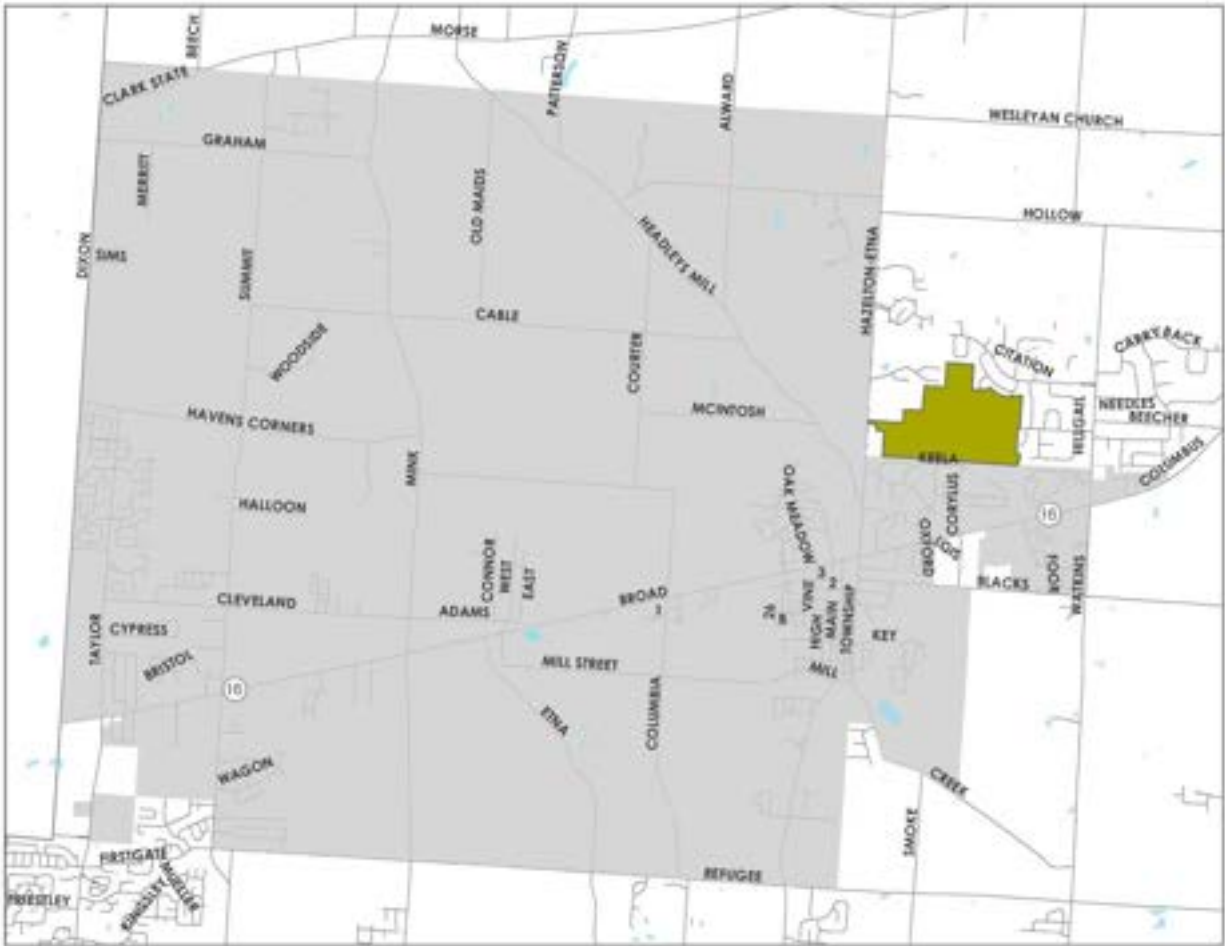
**Map
Locator**



Licking County, OH

Figure 21: Village of Johnstown Future Land Use Map

Licking County Hazard Mitigation Plan City of Pataskala Future Land Use



City of Pataskala
Future Land Use Classifications

- Residential



Figure 22: City of Pataskala Future Land Use Map

Licking County Hazard Mitigation Plan Village of St. Louisville Future Land Use



Village of St. Louisville
Future Land Use Classifications

- AG
- Business General
- St. Louisville

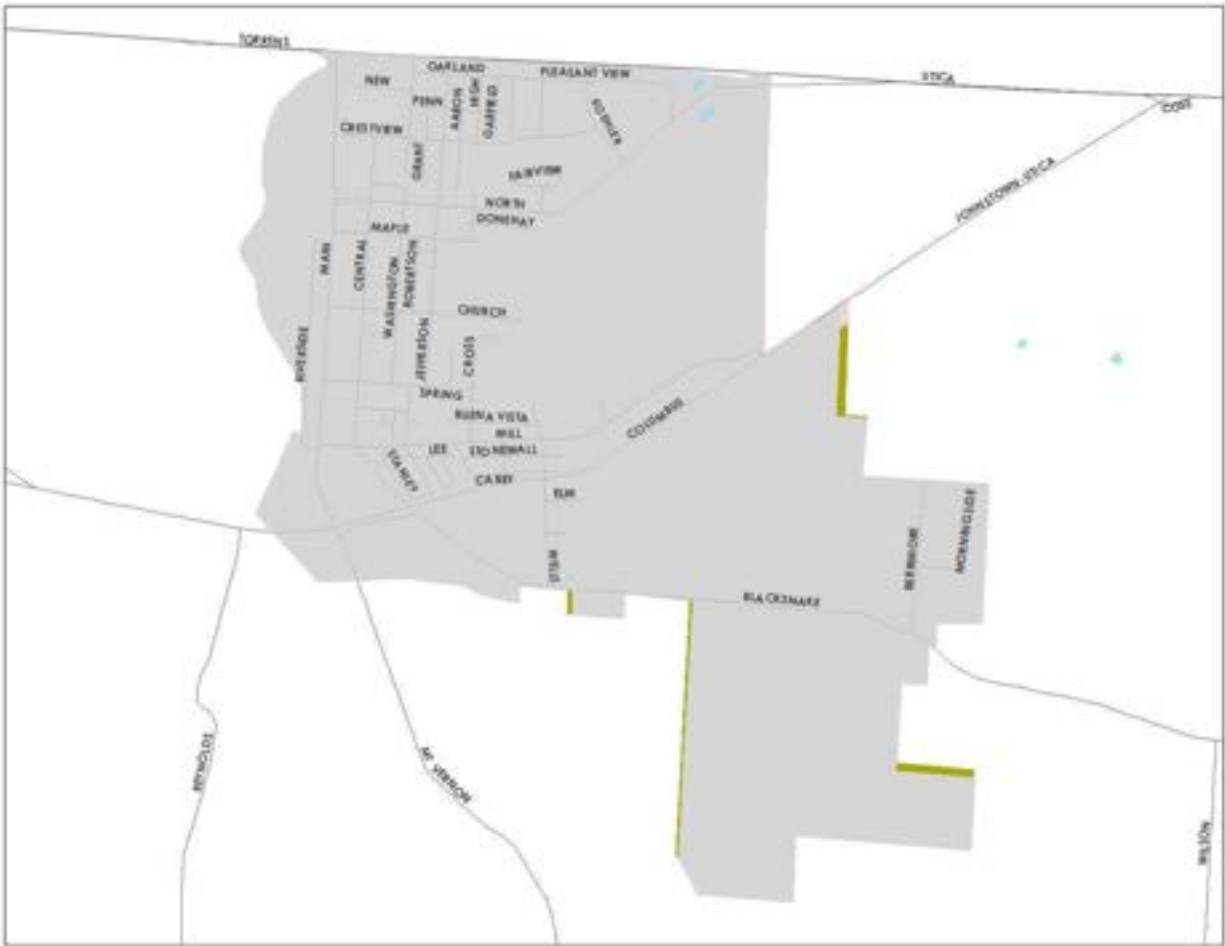
Map
Locator



Licking County, OH

Figure 23: Village of St. Louisville Future Land Use Map

Licking County Hazard Mitigation Plan Village of Utica Future Land Use



**Village of Utica
Future Land Use Classifications**

- ◆ Res
- ◆ Small/Local Business

**Map
Locator**

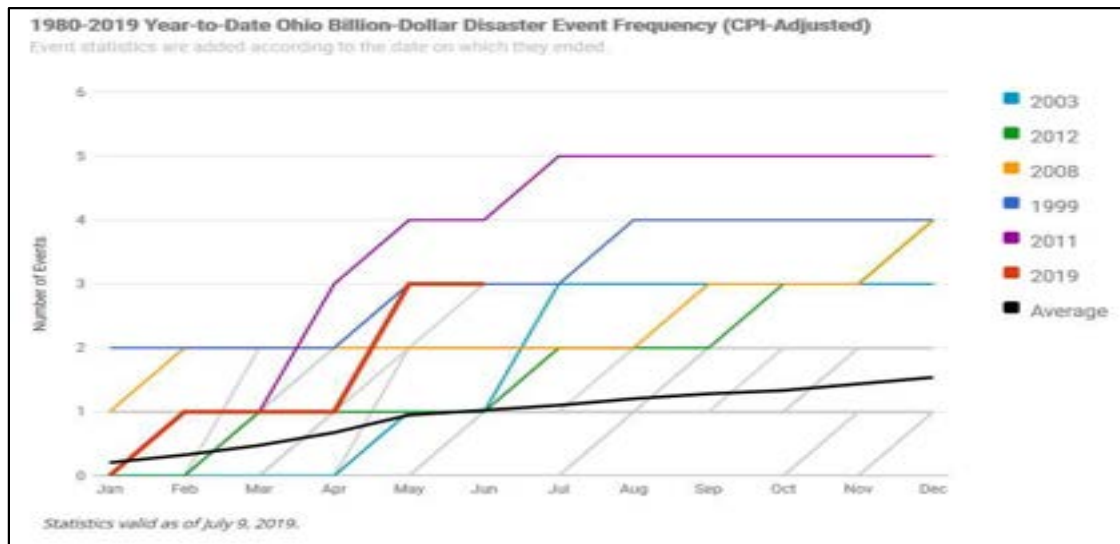


Licking County, OH

Figure 24: Village of Utica Future Land Use Map

5.5 County Historical Hazard Events

Licking County is susceptible to many natural hazards. Flooding, severe winter storms, severe summer storms, tornadoes, droughts, invasive species, and wildfire have all left their mark on the County. The primary natural hazard risk in Licking County is flooding. The main sources of flooding are the South Fork Licking River and its tributaries. Just like most of the United States, disaster costs are continuing to rise. The State of Ohio has had 38 federally declared major disasters or emergencies in the past 38 years. The chart below details the billion-dollar disasters for the State of Ohio from 1980-2019. In the US, severe storms are the most frequent cause of billion-dollar disasters, followed by tropical cyclones and flooding. In Licking County and its jurisdictions, severe storms and flooding are both frequent hazards.



The

Figure 25: 1980-2019 Year-to-Date Ohio Billion-Dollar Disaster Event Frequency

following table details the past Presidential Disaster Declarations for Licking County. These declarations confirm the susceptibility of Licking County to multiple types of natural hazards as seen in the table below. Planning and community involvement through this mitigation planning process are a good way to minimize the impacts of natural hazards. Although it is impossible to predict when these disasters may occur, planning and community cooperation make it possible to minimize the effects of natural disasters and facilitate the best recovery outcomes possible.

Table 13: Past Presidential Declarations of Major Disasters in Licking County 2003-2019

Date	Hazard
August 2012	Severe Storms and Straight-Line Winds
June 2012	Severe Storm- Derecho
October 2008	Severe Windstorm associated with Tropical Depression Ike
April 2008	Severe Winter Storm, Snow
July 2006	Severe Storms, Tornadoes, Straight Line Winds, and Flooding
September 2005	Hurricane Katrina Evacuation
February 2005	Severe Winter Storms, Flooding and Mudslides
June 2004	Severe Storms and Flooding
January 2004	Severe Storms, Flooding, Mudslides, and Landslides



Date	Hazard
March 2003	Severe Winter Storm ¹⁵

The worst flood in Licking County history occurred in Newark of January 1929. The combination of a snowstorm and then a rainstorm resulted in the southside dike failing requiring an evacuation of the entire south side of the city. More than 2,500 people were displaced from their homes and 16 people lost their lives.

The late spring and summer are when Licking County traditionally experiences severe weather, to include severe thunderstorms, high winds and tornado activity. From 1950 to 2019 there have been 23 recorded tornados, resulting in one death and 26 injuries and over 30 million dollars of damage. Since 1950, more accurate information regarding deaths, injuries to citizens and damage to property has been recorded. Twenty injuries and one death were reported from a category F3 tornado in Licking County on May 31, 1985, and four injuries and two deaths were reported from a thunderstorm/ high wind event occurring August 8, 2010.

¹⁵ NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2019). <https://www.ncdc.noaa.gov/billions/>

6 Community Capability Assessment

An important step in understanding the ability of Licking County's stakeholders to mitigate the impacts of disasters on the community is to assess current mitigation capabilities in existence. The sections below provide details on some of the mitigation capabilities currently in place in Licking County. These capabilities are varied in their content and application.

Each jurisdiction in Licking County was also asked to complete a Community Capability Assessment spreadsheet. The purpose of the assessment is to examine the types of mitigation measures which are in place in various forms such as regulatory authorities, existing planning mechanisms, NFIP policies, and floodplain ordinances. This assessment allows the community to identify strengths and weaknesses that may affect Licking County's ability to successfully enact the mitigation measures set forth in this document. The Community Capability Assessment results can be found in Table 19.

6.1 Regulatory Capabilities

6.1.1 Zoning Ordinances

Zoning Ordinances regulate development by dividing the community into zones or districts and establishing the type of development allowed within each district. The floodplain can be designated as one or more separate zoning districts in which development is prohibited or allowed only if it is not susceptible to flood damage. Some districts that are appropriate for floodplains are those designated for public use, conservation or agriculture. Zoning works best in conjunction with a comprehensive plan or "road map" for future development and building codes.

6.1.2 Development Regulations

Development Regulations further specify how development can occur. Subdivision Regulations govern how land will be broken up into individual lots. These regulations set construction and location standards for the infrastructure built by the developer, including roads, sidewalks, utility lines, storm sewers, stormwater retention or detention basins, and drainage ways.

6.1.3 National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) is a voluntary program which requires the development of a floodplain ordinance. Licking County has an approved floodplain management ordinance.

6.1.4 Stormwater Management Regulations

Stormwater Management Regulations provide for the conveyance of stormwater to decrease flooding. Licking County currently has drainage regulations in place.

6.1.5 Building Codes

Adoption and enforcement of building codes ensure that both residential and non-residential structures are safe. Building codes provide some of the best methods of addressing all the hazards in this plan. They are the prime measure to protect new property from damage by high winds, tornadoes, earthquakes, hail, and winter storms. When properly designed and constructed according to code, the average building can withstand the impact of most of these forces.

6.2 Floodplain Management¹⁶

Like most counties in Ohio, Licking County utilizes the Flood Insurance Rate Maps (FIRM) that are produced by the Federal Emergency Management Agency (FEMA). These maps were created as a tool for communities to use when managing Special Flood Hazard Areas. These areas typically have a one percent chance of flooding in any given year or a 25% chance of flooding over the life of a 30-year mortgage. The FIRMs are, at best, conservative interpretations of the existing Special Flood Hazard Areas. The Licking County Planning Commission adapted the Flood Damage Prevention Regulations from the National Flood Insurance Program (NFIP) minimum standards to complement the existing Flood Insurance Rate Maps. The differences between Licking County's Flood Damage Prevention Regulations and the Standard Regulations that FEMA requires are quite significant. An example would be the requirement dealing with useable ground. For a new lot to be created in Licking County, there must be enough ground where natural elevation is above the Base Flood Elevation for house, well, and septic. The Licking County Health Department, County Engineers, and the Natural Resource Conservation Service support this requirement. Another difference is that the Licking County Regulations require the placement of permanent benchmarks when creating a subdivision. All residents of Licking County will benefit from this requirement, since establishing these permanent benchmarks makes determining property elevations much easier and less expensive.

Licking County also participates in the Community Rating System Program (CRS). This program was developed through the National Flood Insurance Program to give communities the incentive to do more than just regulate building in the flood hazard area. If communities such as Licking County decide to implement CRS into their floodplain management activities, they work toward accumulating points based on more comprehensive floodplain management activities. The more points communities receive for their activities, the greater the reduction in flood insurance premiums residents are required to pay. This program is strictly voluntary. Licking County joined the program in 1993 and based on their efforts that first year, the county residents received a five percent discount on flood insurance premiums. In 1997, Licking County was approved for an additional five percent discount, bringing the total to ten percent off the premium rate for residents requiring flood insurance. Currently residents requiring flood insurance receive a 15% discount on their premiums. Residents who are not required to purchase flood insurance but do so to protect their home and/or possessions, receive a 5% discount.

Licking County assisted the Village of Hebron implement a Flood Mitigation Assistance Grant provided through the Federal Emergency Management Agency. FEMA's Flood Mitigation Assistance (FMA) provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). The Village of Hebron's program was successful in removing four homes from the floodplain, which had repeatedly suffered from flood damages. Similar assistance from Licking County enabled the city of Pataskala to remove one home from repeated flood damages.

Table 14: Licking County City and Village Floodplain Management Information¹⁷

¹⁶ Source: <https://lickingcounty.gov/depts/planning/planning/floodplain/default.htm>

¹⁷ Source: <https://lickingcounty.gov/depts/planning/planning/floodplain/default.htm>

Jurisdiction	Floodplain Administrator	Contact Information	Link(s)
Alexandria	Village of Alexandria Zoning Inspector	(740) 924-2539	Alexandria Regulations
Buckeye Lake	Licking County Planning Commission	(740) 928-7100	Buckeye Lake Regulations
	Mayor	(740) 928-7100	
Granville	Village Planner	(740) 587-0707	Granville Regulations
Hanover	Keith Marinik	(740) 973-1206	N/A
Hartford	Village Mayor	N/A	Hartford Regulations
Heath	Director of Building and Zoning	(740) 522-1420 x210	Heath Regulations
Hebron	Licking County Planning Commission	(740) 670-5200	Hebron Regulations
	Community Development Coordinator	(740) 928-2261	
Johnstown	Village Manager	(740) 967-3177, ext. 2	Johnstown Regulations
Kirkersville	Mayor	(740) 927-2030	Kirkersville Regulations
Newark	City of Newark	(740) 670-7729	Newark Regulations
Pataskala	Planning Director	(740) 927-2168	Pataskala Regulations
Reynoldsburg	Chief Building Official	(614) 322-6828	Reynoldsburg Regulations
St. Louisville	Licking County Planning Commission	(740) 670-5200	St. Louisville Regulations
	Zoning Inspector	(740) 745-5694	
Utica	Licking County Planning Commission	(740) 670-5200	Utica Regulations
	Village Administrator	(740) 892-2696	

6.2.1 Flood Damage Prevention Regulations (FDPR) for Licking County

The FDPR for Licking County is a resolution adopted pursuant to authorization contained in Sections 307.37 and 307.85 of the Ohio Revised Code. This resolution adopts regulations for areas of special flood hazard that are necessary for participation in the NFIP. The purpose of these regulations is to promote public health, safety and general welfare for the good of the whole community.

6.3 National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners, renters and businesses and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase

and retention of general risk insurance, but also of flood insurance, specifically. The land area covered by the floodwaters of the base flood is called the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The SFHA includes Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V. (Source: FEMA).

All Licking County jurisdictions have adopted floodplain management ordinances to regulate development in the floodplain. These jurisdictions have prioritized continued participation in the NFIP and recognize the need to continue to meet compliance metrics. Table 15 below indicates the overall participation in the NFIP by Licking County communities.

Table 15: Licking County NFIP Participation as of July 31, 2019

Jurisdiction	Policies In-Force	Insurance In-Force Whole \$	Written Premium In-Force	Total Losses	Total Payments \$
Licking County (Unincorporated)	101	\$21,674,700	\$85,985	83	\$535,295
Alexandria	10	\$1,064,200	\$12,064	3	\$7,979
Buckeye Lake	80	\$10,965,400	\$83,670	15	\$64,189
Granville	11	\$3,442,000	\$27,494	4	\$14,600
Hanover	2	\$525,000	\$744	1	\$21,422
Hartford	No data	No data	No data	No data	No data
Heath	44	\$8,892,400	\$35,036	16	\$63,296
Hebron	33	\$4,665,500	\$31,524	42	\$501,952
Johnstown	2	\$392,000	\$605	2	\$1,535
Kirkersville	1	\$280,000	\$415	2	\$2,536
Newark	221	\$27,849,400	\$241,130	1,263	\$262,644
Pataskala	29	\$6,588,200	\$15,620	15	\$221,716
St. Louisville	No data	No data	No data	No data	No data
Utica	8	\$1,242,500	\$7,270	4	\$13,779

6.3.1 Repetitive Loss Properties

Properties which have repetitive loss claims to the NFIP are of particular concern as a result of the strain they can place on the funds available through the NFIP. The National Flood Insurance Program defines buildings that have two or more claims of more than \$1,000 in any ten-year period as Repetitive Loss (RL) properties and properties that have either had four claims for the building or contents more than \$5,000 or at least two building only payments that exceeded the cost of the building as Severe Repetitive Loss (SRL) properties. Licking County and its jurisdictions have 17 Repetitive Loss properties and 4 Severe Repetitive Loss properties all of which are single family homes. Of those 17 RL and 4 SRL properties only 5 RL and 1 SRL properties have been mitigated. Table 16 shows the breakdown of these properties by jurisdiction. Addresses and other identifying information regarding RL and SRL properties are considered confidential and are not available for public disclosure. Therefore, the data below includes the jurisdiction in which the property lies as the only identifying information. Licking County has placed a priority on mitigating properties considered RL or SRL through buy-outs when funding and property owner desire are both available.

Table 16: Repetitive and Severe Repetitive Loss Properties in Licking County as of August 2020.

Jurisdiction	Mitigated Repetitive Loss Properties	Unmitigated Repetitive Loss Properties	Mitigated Severe Repetitive Loss Properties	Unmitigated Severe Repetitive Loss Properties	Total Payments \$
Licking County (Unincorporated)	5	2	1	1	\$252,078.30
Alexandria	0	1	0	0	\$3,879.92
Buckeye Lake	0	0	0	0	\$0
Granville	0	0	0	0	\$0
Hanover	0	0	0	0	\$0
Hartford	No data	No data	No data	No data	No data
Heath	0	2	0	0	\$42,471.98
Hebron	0	5	0	2	\$374,074.48
Johnstown	0	0	0	0	\$0
Kirkersville	0	0	0	0	\$0
Newark	0	1	0	0	\$2,492.20
Pataskala	0	1	0	0	\$68,045.38
St. Louisville	No data	No data	No data	No data	No data
Utica	0	0	0	0	\$0

6.3.2 Community Rating System (CRS)

A key component of the NFIP is a program called the Community Rating System (CRS). This program was implemented in 1990 to recognize and encourage community floodplain management activities that exceed the minimum NFIP standards. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS:

1. Reduce flood losses;
2. Facilitate accurate insurance rating; and
3. Promote the awareness of flood insurance.

Discounts on flood insurance premiums may range from 5% to 45% based on the actions taken in each community. CRS provides credit for adopting, implementing, evaluating, and updating a comprehensive floodplain management plan. Currently, all of Licking County is identified as a CRS participating community as shown in the table below.

Table 17: Licking County CRS Participation

State	Community Number	Community Name	CRS Entry Date	Current Effective Date	Current Class	% Discount for SFHA	% Discount for Non-SFHA	Status
OH	390328	Licking County	10/1/93	5/1/09	7	15	5	C

6.4 Critical Facilities & Infrastructure

Critical Facilities are defined as locations which must be operational for daily life or which are specifically necessary for response to a specific incident. These include emergency operations centers, 911 communication centers, police and fire stations, public works facilities, sewer and water plants, and hospitals. These are facilities that, if damaged, could cause serious secondary impacts.

Critical Infrastructure generally refers to services necessary to respond to and recover from the hazard such as power lines, gas lines, bridges, highways, roads, railroads and airports. In some of the unincorporated areas of Licking County where no central water and sewer is available, the Licking County Health Department reviews sites for suitability for on-site septic and well systems as follows:

- **Single-Family Residential Construction: Water and Wastewater reviewed.**
- **Multi-Family Residential Construction: Water and Wastewater reviewed.**
- **Commercial and Industrial Construction: Wastewater is reviewed up to and including 1000 gallons per hour, and water is reviewed up to 15 service connections. The Ohio Environmental Protection Agency (OEPA) reviews anything above these values.**

Generally, areas with on-site septic systems and drinking water wells have less density than areas with public water and wastewater services. Therefore, areas that have centralized water and wastewater service tend to develop more quickly and at a higher density than those areas without such services. These more rural areas often are not as heavily impacted by traditional outages of gas, water, and wastewater due to services such as water wells, septic systems, and propane gas being located on each individual homeowner's property.

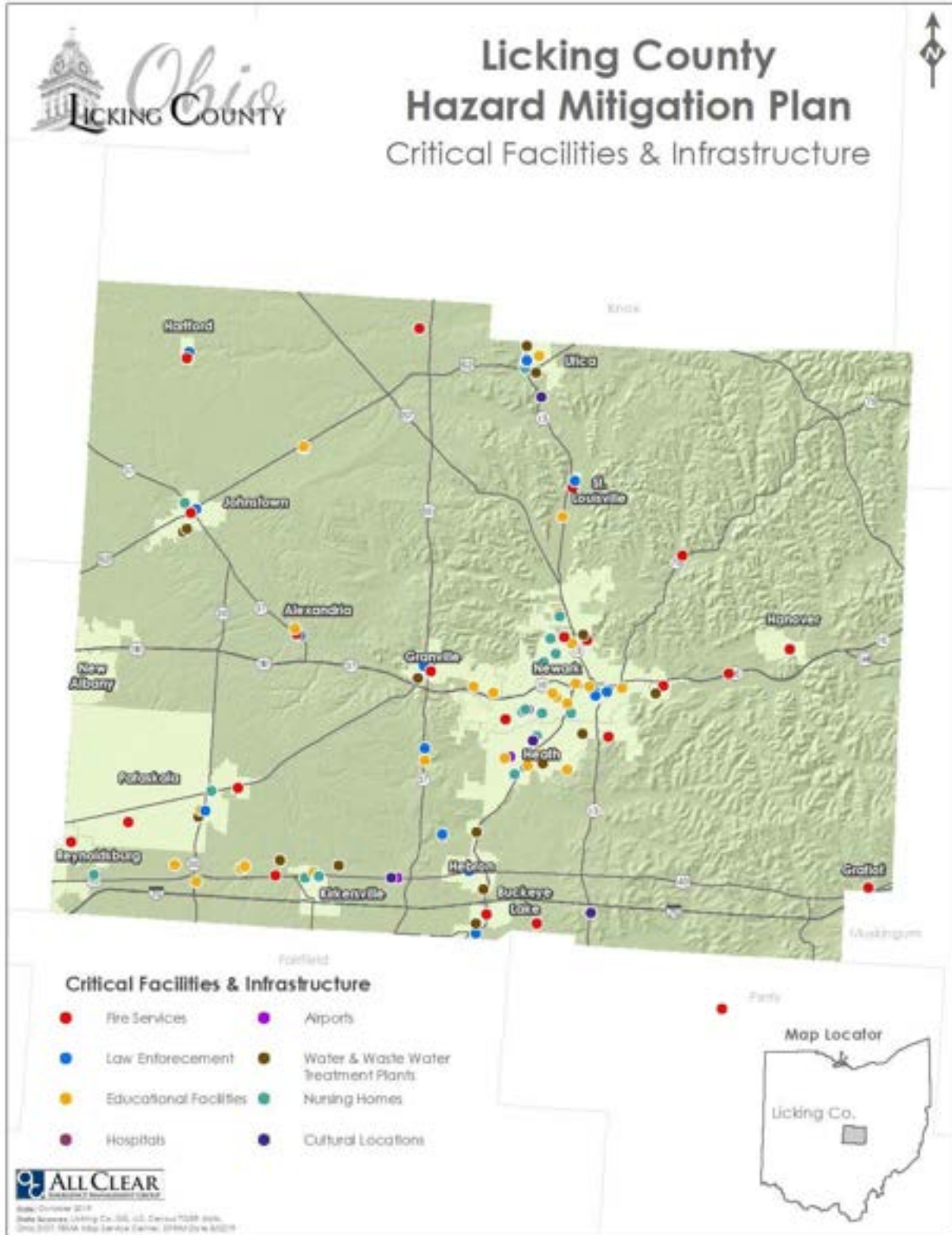


Figure 26: Licking County Critical Facilities and Infrastructure

Table 18: Critical Facilities in Licking County

Critical Facility Type	Number in County
Airports	2
Educational Facilities	26
Fire Stations	20
Hospitals	1
Law Enforcement Facilities	12
Nursing Facilities	16
Water and Waste Water Treatment Plants	15

6.5 Planning Capabilities

Licking County jurisdictions have a variety of planning mechanisms in place across all sectors and disciplines. Throughout the mitigation process, jurisdictions were asked to consider where the CANHMP could be integrated into other planning mechanisms and where other planning mechanisms could be integrated into the CANHMP. There are existing plans which clearly support the goals of this hazard mitigation plan and naturally integrate into the mitigation process. Those agencies involved in this type of planning were invited to participate and encouraged to establish links between the mitigation plan and existing planning documents. A long-term goal of those agencies on the Mitigation Core Group is to continually reassess existing plans to see where links to the mitigation plan can be developed and cross-sector planning can occur.

Listed below are descriptions of some of the plans which have been identified as linked to the CANHMP. The documents below may reference the CANHMP, have complimentary themes, or reference hazards presented in the CANHMP. For example, some local comprehensive plans identify the use of floodplains as “conservation or open space”, which is in line with the goal to reduce food losses found in the CANHMP. Other plans include references to the CANHMP for installation of tornado shelters and sirens, location of critical facilities, improving county emergency alert systems, and preventing certain types of development in areas at greater risk from flooding. In order to ensure the CANHMP was integrated as much as possible, as these plans have come up for renewal, staff from Licking County Emergency Management Agency and Planning and Development Department have participated in the update process. These staff have been instrumental during the CANHMP planning process and will continue to advocate for its inclusion into updated plans. The next plan to be updated will be the Licking County Emergency Operations Plan in 2021, with Licking County Emergency Management Agency taking the lead role in the update process.

- Licking County Emergency Operations Plan**
 The Licking County Emergency Operations Plan (EOP) is the guiding document for emergency operations for Licking County. It is updated on a 4-year cycle, with the Hazardous Materials section updated on a yearly basis. This plan is a comprehensive analysis of potential hazards that could affect Licking County, and the actions which need to be taken by various government entities, the private sector, volunteers, and others to prevent and reduce the deleterious effects of disasters. This plan focuses on all four elements of emergency management – mitigation, preparedness, response, and recovery, with the primary emphasis on response.

- **Licking County Planning Disaster Assistance Plan**
The Licking County Planning Disaster Assistance Plan was created to assist County employees in emergency or disaster situations. The document includes chapters on general procedures, including chain of command; LCPC procedures; media policy; state/federal/local representatives; resource list/contacts/phone numbers; forms; sample flyers; sample letters; motel information; FEMA information; SBA information, agency brochures/information; internet resources; basic insurance information, etc.
It is designed to be used from the office, from the scene of an incident, or from a remote location. While this plan has some elements of all four emergency management principles above, the primary focus is recovery operations.

- **2019 State of Ohio Hazard Mitigation Plan**
The State of Ohio Hazard Mitigation Plan (SOHMP) is a valuable resource to all Licking County jurisdictions for providing regional and statewide hazard identification, risk assessment, and vulnerability analysis. The SOHMP contains information on natural hazards that could impact Ohio and the state's blueprint for reducing risk posed by those hazards. The highest priority hazards in Ohio include: riverine flooding, tornadoes, winter storms, landslides, dam/levee failure, wildfire, coastal flooding/seiche, earthquakes, coastal erosion, drought, severe summer storms, invasive species, and land subsidence. The plan identifies actions that the State of Ohio will undertake to help protect people and property from natural hazards and their effects.

- **Licking County Subdivision Regulations**
Licking County Subdivision Regulations provide regulations on all development in the unincorporated areas of the County. Factors considered in these regulations include the character of Licking County, conservation of building values, providing the best possible environment for human habitation, and encouraging the most appropriate and sustainable uses for land throughout Licking County.

These regulations will support future mitigation efforts because of the stringent requirements that have been implemented through proper development of the 100-year floodplain. One such requirement states that total 100-year floodplain land cannot be split. In addition to this regulation, the Licking County Planning Commission also requires that a 100-year floodplain boundary lying within a proposed lot must be located and established in the field on the lot by the surveyor. For non-detailed study streams (i.e. unmapped floodplains) the surveyor shall establish the floodplain by horizontal control.

- **Flood Damage Prevention Regulations for Licking County Ohio (FDPR)**
The FDPR for Licking County was adopted by the Licking County Board of Commissioners for compliance alongside the adoption of the 2007 Flood Insurance Rate Maps (FIRM) and the Flood Insurance Study (FIS). This was developed as a Cooperating Technical Partnership between Licking County, various jurisdictions within the County, the Ohio Department of Natural Resources, FEMA, and the FEMA Map Modernization Contractor, which was at the time Fuller, Mossbarger, Scott, and May (FMSM), who evolved into Stantec. Each village and city first developed their own version of Flood Regulations in 2007, due to the need to be compliant with the new FIRM and FIS, and also to continue participation in the National Flood Insurance Program (NFIP) for each jurisdiction.

- **Licking County Floodplain Regulations and Planning Process**
Floodplains are an important planning consideration. A floodplain is any land area susceptible to inundation by floodwaters from any source. Floodplains are measured in terms of the amount of storm water that it takes to cover a given area of land. These storm events are measured in frequency of occurrence, such as five-year, 100-year and 500-year, with the standard measurement being the 100-year storm or floodplain. The 100-year floodplain is the land area having a 1 in 100 chance of flooding in any given year, but the statistics can be misleading. In reality, the 100-year storm or flood could occur two, three, or several years in a row (unlikely but possible), because the 100-year flood is a statistical probability and not a predictable recurrence. Statistically, the 100-year flood has a 26% chance of occurring during the typical 30-year lifespan of a home mortgage.

Any development within floodplains can impact the direction, flow and level of the watercourse during periods of high water or flooding. In other words, if fill material is placed or a house constructed is in a floodplain, it will alter the boundaries of the floodplain downstream. This is because structures or fill utilize valuable space that would otherwise act as a natural retaining area for floodwaters to spread and slow. Not only does development in the floodplain increase dangers downstream, developments within the floodplain are at higher risk of damage due to flooding. This damage includes fill material and debris from destroyed structures upstream colliding with structures in the floodplain downstream. Many bridges are washed out in floods because river borne debris clog their free-flow area.

Because of the potential for loss of life, damage to public and private property, and financial considerations such as loans and insurance, permits must be obtained from the Licking County Planning Commission before any land development (including construction, filling, and excavating) can occur in any identified 100-year floodplain. In addition, no new lots can be created in the unincorporated areas of the county unless there is a minimum of 1.6 acres of useable ground that exists above the 100-year flood elevation (“useable” is defined as land above the 100-year floodplain, and free of easements, right-of ways, etc.). Further protection of floodplains through township zoning protects residents and property owners from personal danger and loss of property.

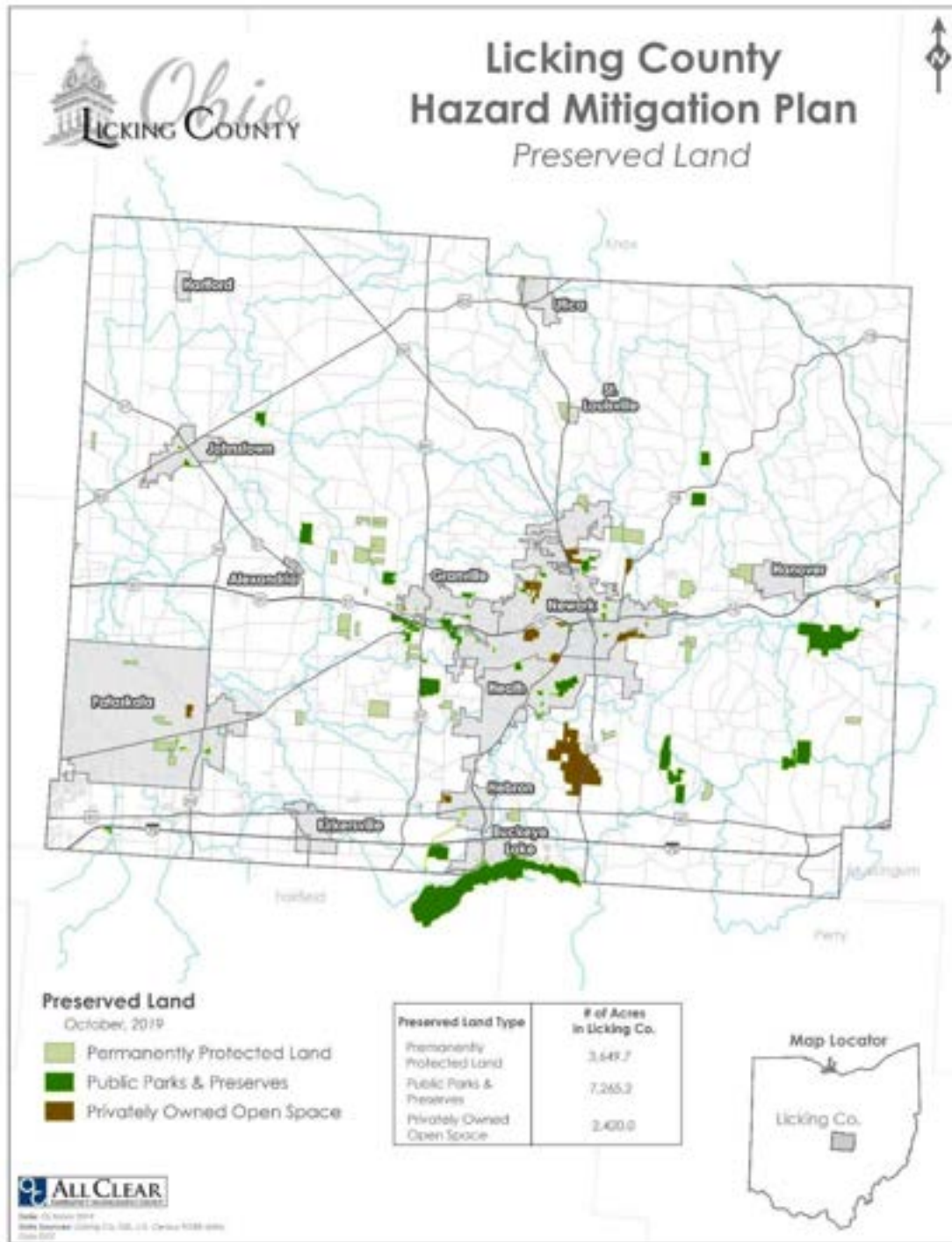
In the early to mid-1970s, a nationwide effort was begun by the federal government, in cooperation with state and local governments, to develop a series of flood hazard maps for the entire country. Licking County government officials were proactive in their approach to floodplain concerns and issues. Floodplain management in Licking County began on April 15, 1977, when the County joined the emergency phase of the National Flood Insurance Program (NFIP), which was initially a program within the Federal Department of Housing and Urban Development (HUD). Approximate flood data for the county was available as preliminary maps with no elevations listed. Some of the first “final flood hazard identification maps” were available for selected areas of the nation on March 10, 1978. The NFIP program was transitioned to the Federal Emergency Management Agency (FEMA), where it is administered on a federal level to this day. On Dec. 1, 1983, with the first series of final detailed flood hazard identification maps available for Licking County, the County joined the Regular Phase of the NFIP. With the digitization and updating of the Flood Insurance Rate Maps (FIRMS), current Digital Flood Insurance Rate Maps (DFIRMS) are available for Licking County and its jurisdictions with effective dates ranging from 2007 - 2018.

- **Licking County Agricultural Preservation Plan**
The Licking County Agricultural Preservation Plan, which was adopted in May of 2002, is an effort supported by the County Commissioners to assess Licking County's agricultural base and look at more detailed information specific to agriculture and the preservation of valuable agricultural land. This document is a compliment document to the Comprehensive Plans adopted by individual townships. This plan also supports the CANHMP because of its evaluation of farmland/land use and preservation of open space. Farmland and open space conservation put far less structures, facilities, and utilities at risk of damage or destruction due to natural hazard events.

- **Buckeye Lake Dam Emergency Action Plan**
Per Ohio regulations, Buckeye Lake Dam has a completed Emergency Action Plan. This plan details the action plan to effectively respond when an issue with the dam arises. This plan includes evacuation plans and monitoring procedures.

- **Licking County Comprehensive Plan and area specific plans:**
 - **Buckeye Lake Land Use and Transportation Plan**
 - **Planning for the Future**
 - **Alexandria Area Focus Plan**
 - **Eastern Gateway Planning Review**
 - **Hebron/Luray Area Plan**
 - **Jacksontown Area Focus Plan**
 - **Utica Community Focused Area Plan**

Figure 27: Licking County Preserved Land Map



During the process of updating the plan, the consultant coordinated with LCEMA and the core planning group by reviewing the existing planning mechanisms to ascertain community capabilities and identify opportunities for implementing mitigation actions. Documents consulted included existing municipal and county zoning and subdivision regulations and flood damage prevention ordinances; the existing comprehensive plans; county building code; and Flood



Insurance Rate Maps, which were revised starting in 2008 during FEMA's Map Modernization Program.

The CANHMP identifies the potential impacts of natural hazards in Licking County and makes recommendations that can be included in existing and future programs. Upon adoption of the CANHMP, LCEMA will continue to work with local municipalities to incorporate natural hazard mitigation goals and actions into their local planning objectives.

7 Community Capability Matrix

The purpose of the Community Capability Assessment is to identify strengths and weaknesses that will affect the ability of the county and participating jurisdictions to implement mitigation actions. Capabilities include a variety of regulations, existing planning mechanisms, programs, policies, resources, and administrative capabilities provided through established agencies or authorities as discussed in the preceding sections.

The following table summarizes the tools used in Licking County and participating jurisdictions. These capabilities support the goals of this hazard mitigation plan and provide opportunities for further mitigating the potentially negative effects of natural hazards through regulation. When prudent, these capabilities can be modified to include current mitigation goals and actions to continue the coordinated work of this plan.

Table 19: Community Capability Matrix for Licking County

	Comprehensive Plan?	Land Use Plan?	Subdivision Ordinance?	Zoning Ordinance?	Hazard Mitigation Plan?	Floodplain Management Ordinance?	Subs Damage/Improvements?	Administrator?
Licking County	On a township basis - Eden, Fallsbury, MaryAnn, Perry, Hanover, Hopewell, and Newark Townships do not have a Comprehensive Plan. No Countywide Plan.	On a township basis	Licking County Subdivision Regulations	On a township basis - Eden, Fallsbury, MaryAnn, Perry, Hanover, and Hopewell Townships are unzoned. No Countywide Zoning.	Yes	Flood Damage Prevention Regulations for Licking County, Ohio	Section 3.12 Substantial Damage, Section 4.4 Substantial Improvement Residential, Section 4.5 Substantial Improvement non residential	Licking County Planning Director
Alexandria	No Data	No Data	No Data	No Data	Yes	No Data	No Data	No Data
Buckeye Lake	No Data	Yes	Yes	Yes	Yes	Yes	No Data	No Data
Granville	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hanover	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Heath	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Hebron	Yes	Yes	Yes	Yes	Yes	Yes, with Licking County	Yes	Yes
Johnstown	Yes—updated in 2012	Yes—updated in 2012	Yes	Yes—currently being completely rewritten	Yes	No	No	No
Newark	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pataskala	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
St. Louisville	No	No	No	Yes	Yes	Yes	No	Licking County Planning Director



Countywide All-Natural Hazards Mitigation



Utica	No	No	Yes	Yes	Current Plan	Yes	No	Yes



Table 19: Community Capability Matrix for Licking County, Continued

	# buildings in floodplain?	# NIFIP policies?	# Repetitive loss buildings?	CRS rating?	Storm Water Management Program?	Building Code	Building Official?	Inspections?	Building Code Effectiveness Grading Schedule (BCEGS) rating?
Licking County	4,163	101	3	Class 7	Licking County Soil Erosion and Stormwater Regulations	Ohio Building Code (OBC) & Residential Code of Ohio (RCO)	Troy Warnock, Director	Yes, Multiple as listed in Section 108 in the OBC & RCO.	Commercial = CL Class 2, and Residential = PL Class 4.
Alexandria	No Data	10	1	No Data	No Data	No Data	No Data	No Data	No Data
Buckeye Lake	No Data	80	0	No Data	Yes	No Data	No Data	No Data	No Data
Granville	Yes	11	Yes	No	Yes	Licking County	Licking County	Licking County	Licking County
Hanover	8	2	No	No Data	Yes	Yes-commercial; No-residential	No	Yes-Commercial and Health; No- Sewer	No
Heath	Yes	44	2	No	Yes	Yes	Yes	Yes	County
Hebron	Yes	33	7	In process	Yes	With county	With county	With county	No Data
Johnstown	N/A	2	0	No Data	Draft ordinance to council in Feb 2019	Uses Licking County	Uses Licking County	Uses Licking County	Uses Licking County
Newark	No	221	1	No	Yes	Yes	Yes	Yes	No Data
Pataskala	No	29	1	No	Yes	No	No	No	No
St. Louisville	No	No Data	0	No	No Data	No Data	No Data	No Data	No Data
Utica	20	8	0	No Data	No	Yes	Yes	No	No



Table 19: Community Capability Matrix for Licking County, Continued

	Warning System?	Sirens?	NOAA W. Radio?	Cable Override?	Reverse 911?	Other?	Warning Lead time?
Licking County	Multiple	Yes	Yes	No Data	RAVE	No Data	No Data
Alexandria	Yes	Yes	No Data	No Data	No Data	No Data	No Data
Buckeye Lake	Yes	Yes	No Data	No Data	No Data	No Data	No Data
Granville	Yes	Yes	Yes	No LC	Yes	Yes - Email System	Yes - weather, immediate
Hanover	Yes	Yes	Yes	No	Yes	No	Yes
Heath	Yes	Yes	No	No	Yes	Yes	Immediate
Hebron	Yes	Yes	No Data	Yes	RAVE	No Data	No Data
Johnstown	Yes	Yes - 3	No	No	No	No	No
Newark	No	Tornado	No	No	Yes		No
Pataskala	No	Yes	No	No	No	No	No
St. Louisville	Not in Village at Firehouse - on village limits	No - Firehouse	No Data	No Data	No Data	No Data	No Data
Utica	Yes	Yes	Yes	No	No	No Data	No

Table 19: Community Capability Matrix for Licking County, Continued

	Structural Protection Projects?	Property Protection Projects?	Critical Facility Protection?	Cultural or Natural Resource Inventory?	Erosion/Sediment Control?	Public Info/Educational Program?	Structural Protection Projects?	Property Protection Projects?
Licking County	No Data	No Data	No Data	No Data	Licking County Soil Erosion and Stormwater Regulations	No	No Data	No Data
Alexandria	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Buckeye Lake	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
Granville	Yes – river stream gauge	Yes	Yes - generators	Yes – alligator mound historic district	Yes	Yes	Yes – river stream gauge	Yes
Hanover	No	No	No	No	Yes	Yes	No	No
Heath	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hebron	No Data	No Data	Yes	Yes	Yes	Yes	No Data	No Data
Johnstown	No	No	No	No	Draft ordinance to council in Feb 2019	No	No	No
Newark	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Pataskala	No	No	No	No	Yes	No	No	No
St. Louisville	No	No	No	No	No	No	No	No
Utica	No	No	No	No Data	Yes	No	No	No

8 Hazard Identification

In the 2003 version of the CANHMP, the following hazards were included: flooding and dam/levee failure, severe weather, tornadoes, earthquakes, and droughts. In 2012, the threat of wildfires was split from drought and given its own hazard section. During the 2021 planning process, Licking County and community representatives considered only natural hazards for inclusion in the plan which have occurred in the past or have a potential to occur in the future. Per FEMA's mandate to address all natural hazards, Licking County subject matter experts examined past historical incidents as well as the hazards addressed in the State of Ohio Emergency Management Agency Hazard Identification and Risk Assessment.

Licking County has experienced many natural disasters in the past 100 years. These disasters have ranged from tornadoes and blizzards, to flooding and droughts. For residents, three major disasters are often brought up for discussion: the flood of 1959, the blizzard of 1978, and the windstorm of 2008. Other disasters that will be discussed in this document may not have had such a broad sweeping impact, but they were just as difficult for those impacted by the event.

The following chart details the past major disaster declarations in Licking County. There have been no additional major disaster declarations including Licking County since the last plan update.

Table 20: Major Disaster Declarations Which Included Licking County 2002- 2019

Number	Declared	State	Description
4077	8/20/2012	Ohio	Severe Storms and Straight-line Winds associated with derecho
1805	10/24/2008	Ohio	Severe Windstorm associated with Tropical Depression Ike
3286	04/24/2008	Ohio	Snow
1651	07/02/2006	Ohio	Severe Storms, Tornadoes, Straight Line Winds, and Flooding
3250	09/13/2005	Ohio	Hurricane Katrina Evacuation
1580	02/15/2005	Ohio	Severe Winter Storms, Flooding and Mudslides
1519	06/03/2004	Ohio	Severe Storms and Flooding
1507	01/26/2004	Ohio	Severe Storms, Flooding, Mudslides, and Landslides
1453	03/14/2003	Ohio	Severe Winter Storm

The following table outlines the cost analysis per hazard in Licking County. This is a cumulative cost analysis of the events listed in the NOAA Storm Prediction Database.

Table 21: Licking Severe Weather Cost Analysis Summary for Select Hazards¹⁸

Type of Event	Number of Events	Property Damage \$
Flooding	72	\$2,164,000
Hail (1955-2019)	97	\$100,107,000
High Winds (1996-2019)	13	\$18,512,000
Lightning (1996-2019)	2	\$40,000
Snow/Ice/Winter Storms (1996-2019)	92	\$546,000
T-Storm Winds (1955-2019)	262	\$2,461,500
Tornados (1950-2019)	23	\$30,632,500
Total	353	\$206,164,000

¹⁸ Source: NOAA's Storm Prediction Database

Based on all of the information above, the following natural hazards were identified to be assessed for inclusion in the CANHMP. These hazards were presented and discussed at a Core Planning Group meeting where subject matter experts across Licking County were asked to consider whether the below hazards posed a threat to Licking County.

Table 22: Natural Hazards Considered by the Core Planning Group

Hazards to be Considered for the Licking County CANHMP		
Coastal Erosion	Natural Biohazards (Invasive species)	Wildfire
Droughts	Severe Thunderstorms- partial	Snow Avalanches
Earthquakes	Windstorms- partial	Extreme Summer Weather
Floods	Hailstorms	Expansive Soils
Storm Surges	Severe Winter/Ice Storms- partial	Tsunami
Landslides	Tornadoes	Volcano
Land Subsidence		

The Core Planning Group identified the following hazards as posing a risk to Licking County and have been included in this plan.

Table 23: 2021 Licking Hazards

Hazards
Drought
Earthquake
Flooding and Dam/Levee Failure
Invasive Species* new
Severe Summer Weather* modified from Severe Weather
Severe Winter Weather* modified from Severe Weather
Tornado
Wildfire

The table below compares the hazards identified for the initial plan, six natural hazards identified and analyzed in the 2012 update, and eight natural hazards identified and analyzed for the 2021 update.

Table 24: Identified Hazards 2002, 2012 and 2021

Hazards Identified for 2002 Plan	Hazards Identified for the 2012 Plan	Hazards Identified for the 2021 Plan
Flooding	Flooding	Flooding and Dam/Levee Failure
Severe Storms	Severe Storms	Severe Winter Weather
Tornadoes	Tornadoes	Severe Summer Weather
Drought	Drought	Drought
Earthquake	Earthquake	Earthquake
	Wildfires	Tornado



Wildfire
Invasive Species

During the assessment process, some hazards identified in the State of Ohio plan were not determined to pose a threat specifically to Licking County. Those hazards which the Core Planning Group felt did not pose a risk to Licking County were coastal erosion, snow avalanches, expansive soils, tsunami, storm surges, volcano, landslides, and land subsidence. For various reasons including geography and terrain those hazards have not occurred in the past and are not likely to occur in the future. The group also felt that categorizing Severe Summer Weather and Severe Winter Weather separately would more accurately capture the threats of those types of weather phenomena. The Core Planning Group also identified Invasive Species as a concern in Licking County for the first time. This hazard was included in this update and partners with subject matter expertise in this area were included in the Core Planning Group.

9 Risk Assessment

The Licking County Core Group undertook a risk assessment process for the purpose of analyzing the level of risk posed by each hazard identified in order to provide data to elected officials, government leaders, residents, and others regarding the risks and how to best mitigate those risks. All risks are not equal related to the impacts they cause in Licking County and the costs required to mitigate those risks. Completing a risk assessment allows stakeholders to determine the actual level of risk.

The overall findings of the risk assessment determined that the greatest damage is likely to occur as a result of flooding and tornadoes. This is not to suggest that other hazards do not pose a threat, and possibly a very significant threat. However, based on historical incidents and their impacts and the likelihood of future occurrences, tornado and flooding pose a substantial risk. These hazards also offer many opportunities for mitigation.

9.1 Risk Methodology and Scoring

The Licking County Core Planning Group underwent a risk assessment process to determine how each of the identified hazards impacted Licking County. The desire was for a simple methodology which would allow residents to easily understand how the risk was calculated and what the results would mean for each resident. The following process was used to meet those goals:

- Identify Natural Hazards- The hazards identified for the assessment can be found in the previous section.
- Identify Community Assets- The following categories of assets were discussed and identified in relation to the hazards. The Core Planning Group examined where the assets intersected with the risk faced by each hazard.
 - People
 - Vulnerable Populations
 - Economy
 - Physical Damage
 - Downtime losses
 - Built Environment
 - Existing Structures
 - Infrastructure
 - Critical Facilities
 - Cultural Resources
 - Future Development
 - Natural Environment
- Analyze Risk- The Core Planning Group utilized a set of criteria to determine the extent of the risk facing the community. Background information for each hazard was provided to the Core Planning Group in order to allow them to examine historical instances of each hazard as a means to make decisions regarding the risk.

Vulnerability Factor

In order to assess the vulnerability of communities to the identified natural hazards, the Core Planning Group examined the percentage of Licking County which would be impacted by a certain event. The percentage of the county impacted was ranked along the criteria High, Medium, Low.

- High- 75-100% of county impacted
- Medium- 26-74% of the county impacted
- Low- 25% or less of the county impacted

Consequence Factor

In order to assess the consequences from an event, natural hazards were examined along four criteria: severity of injuries, number of deaths, business and government closures, and extent of physical damage and losses. The impact of the hazards on those three criteria were ranked along High, Medium, Low.

- High- severe injuries, multiple deaths, business and government closures in excess of 3 weeks, major damage and losses
- Medium- severe injuries, minimal loss of life, business and government closures 1-3 weeks, extensive damage and losses
- Low- minimal injuries, no loss of life, minimal closures less than 1-week, minimal damage to property

Frequency Factor

To assess the frequency of occurrence of each hazard, the Core Planning Group was provided with historical instances of each hazard. These were used to guide their decisions on the occurrence of each event in the future. The impacts of the hazards were ranked along High, Medium, Low.

- High: 60-100 Percent probability in any given year.
 - Possible: Between 15 and 59 percent probability in any given year.
 - Low: Less than 15 percent probability in any given year.
- Summarize Vulnerability- Provide an overall summary of the problem presented by the hazard. This information is found in each hazard section.

The above process was chosen in order to balance the use of a defensible scientific methodology with using a method simple enough for the public to easily understand and find to be a useful tool. It is crucial that this methodology be based on history and predictive modeling, however subject matter expertise and discretion also play a critical role in determining the true level of risk. After the data regarding the extent, location, occurrence, and vulnerability of each hazard was provided to subject matter experts for review, the Core Planning Group, subject matter experts for Licking County, met to rank each hazard analyzed in terms of Licking County's vulnerability to that hazard, the degree of consequence from that hazard, and how frequently the hazards occur. This was the chosen method to marry the scientific process with the invaluable resources brought to the table by subject matter experts.

The Core Planning Group was asked to assign values of High, Medium, or Low to each of the assessment categories defined above. The results of the rankings are found below. These rankings were then calculated to determine which hazards presented the overall highest risk, thus warranting the highest priority for conducting mitigation measures. The hazards are listed from highest risk to lowest in the table below with the overall priority ranking found in the far-right



column. These rankings served as a guide to the prioritization of mitigation actions found in this plan.

9.2 Licking County Natural Hazards Risk Scores

Table 25: 2021 Licking County Risk Assessment Ranking

Hazard	Vulnerability	Consequence	Frequency	Overall Priority
Flooding/Dam Failure	High	Medium	High	High
Severe Winter Weather	High	Medium	High	High
Severe Summer Weather	High	Medium	High	High
Wildfire	High	Medium	Low	Medium
Tornado	High	Low	Medium	Medium
Invasive Species	High	Low	Medium	Medium
Earthquake	High	Low	Low	Low
Drought	Low	Low	Low	Low

9.3 Hazard Profiles

9.3.1 Drought

A drought is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance (i.e., crop damage, water supply shortage, etc.). The severity of the drought depends upon the degree of moisture deficiency, the duration, and the size of the affected area. Unlike other natural hazards, droughts are more difficult to delineate, as they do not typically have definitive geographic or temporal boundaries. As such, climatologists define four different types of drought - meteorological drought, hydrological drought, agricultural drought and socioeconomic drought - based on different measurable metrics. Meteorological drought is what many people recognize as a drought, when dry weather conditions are sustained over a certain area, resulting in less precipitation than usual. Hydrological drought occurs when the water supply in rivers, lakes and groundwater is noticeably lower than normal. It typically happens after long periods of meteorological drought. Agricultural drought is defined when crops are affected by either the low water supply or the dry weather conditions. Socioeconomic drought occurs when commodities, such as water, food, hydroelectric power are affected to the degree that supply is unable to meet the demand.¹⁹

9.3.1.1 Location and Extent

Droughts are caused by climatic factors so their effects are widespread; as such, all portions of Licking County are equally susceptible to drought. While it is possible for the severity of a drought to vary across the County and its jurisdictions at any given time, any portion might experience any severity of drought. Therefore, it is appropriate to analyze the hazard of drought as being possible to occur anywhere within the county and to any severity.

9.3.1.2 Previous Occurrences

According to the Palmer Drought Severity Index (PDSI) there have been 20 periods of moderate to extreme drought events in Licking County between November 1934 and December 2018. This includes times where the index is less than or equal to -2.0. The average drought lasted eight weeks, with the longest drought lasting 42 months. Licking County has been in moderate to severe drought conditions 16.67% of the time. More recently, Figure 29 shows the drought severity since 2000 in Licking County. With this time series data, moderate to severe drought is indicated by any

¹⁹ Source: <https://drought.unl.edu/Education/DroughtIn-depth/TypesofDrought.aspx>

area of the graph, under the curve, that is higher than the first tick mark on the vertical axis. There has not been a moderate to severe drought in Licking County since 2012.

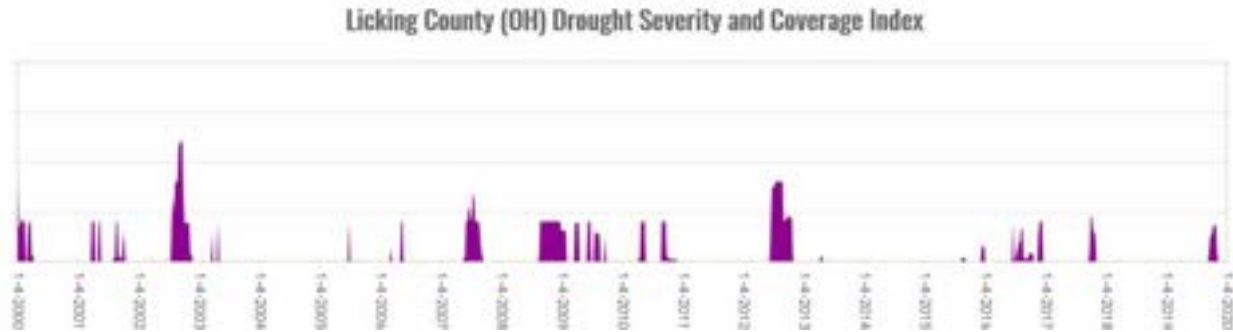


Figure 28: Licking County Drought Severity and Coverage Index

The last significant drought which incurred economic losses in Licking County started in 1999, when dry conditions that began in the spring and early summer continued into August, and eventually endured until March 2000. Excessive heat contributed to substantial crop loss across much of the State of Ohio, including Licking County. Rainfall was widely scattered and did little to help farmers. Most counties in Ohio received well below normal rainfall for several months. In some areas, around 50% of crops were considered total losses. Most of the counties in Ohio were declared Federal Disaster Areas by the U.S. Department of Agriculture. The financial impact of this drought for Licking County was not provided in available sources.

9.3.1.3 Probability of Future Events

The current U.S. Drought Monitor for the Midwest shows very limited areas of abnormally dry conditions in Licking County, and the U.S. Seasonal Drought Outlook map shows that it is unlikely that drought will affect Licking County through at least October 31, 2020.

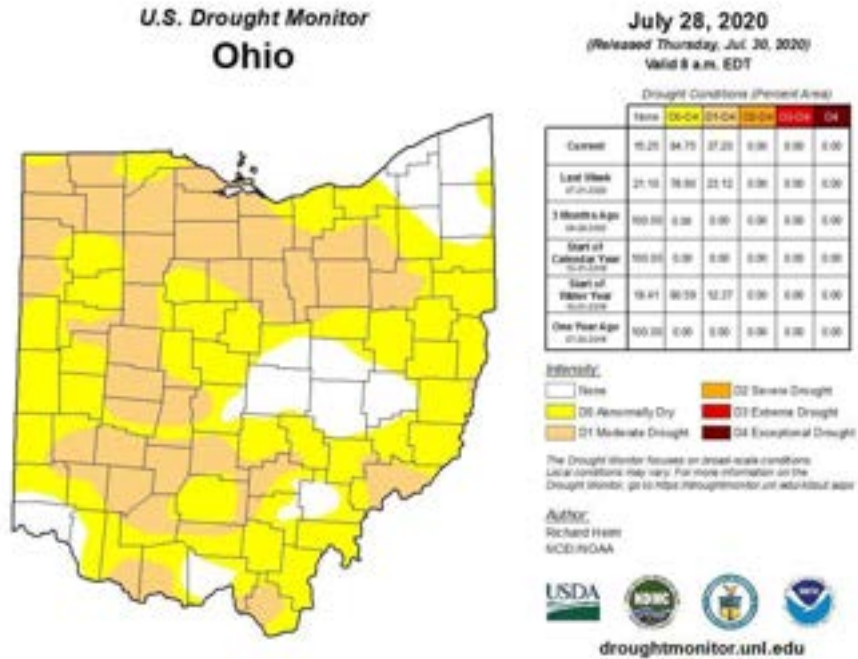


Figure 29: U.S. Drought Monitor for the Midwest as of July 28, 2020²⁰

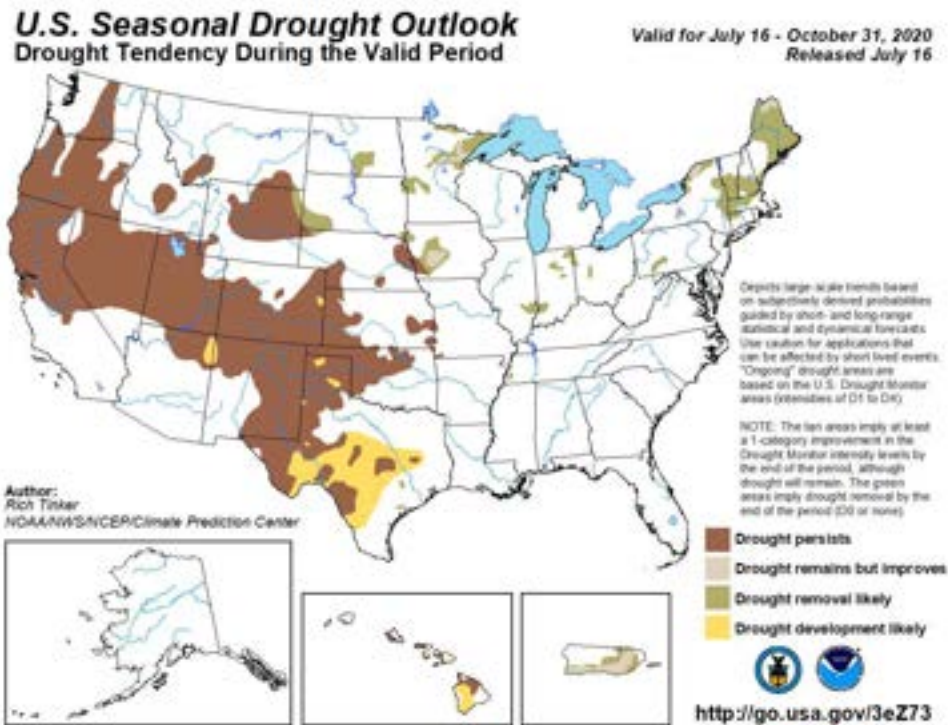


Figure 30: U.S. Seasonal Drought Outlook²¹

²⁰ Source: <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?OH>

²¹ https://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php

While there is no current drought in Licking County and none are predicted to occur before October 2020, it can be expected that periods of moderate to extreme drought can occur in Licking County at the same frequency as in the previous 84 years, or roughly 16.67% of the time. However, due to climate change, that frequency may change. Climate change tends to make weather patterns more extreme, meaning periods of drought could be more severe or less severe.

9.3.1.4 Current Development Trends

Current development trends in Licking County suggest that the population will continue to increase. An increase in residents could have ramifications on drought conditions that the community would have to deal with. The 2002 Licking County Comprehensive Plan assesses water supply sources within Licking County and considers contingency plans if the need were to arise.

9.3.1.5 Current Codes and Regulations

There are no current codes or regulations in place that protect structures from drought hazards in Licking County, except for fire suppression systems in commercial buildings. A potential exists if future revisions of the Ohio Building Code (last revised in 2017) and the Residential Building Code of Ohio (last revised in 2019) were to include drought protection measures. Since drought hazards are considered non-site specific, any code or regulation affecting this hazard would have to be implemented countywide.

9.3.1.6 Drought Vulnerability in Licking County

Critical Facilities Impacts

All the critical facilities within Licking County (schools, hospitals, water treatment plants, airports, police and fire stations, nursing homes, and entertainment facilities) are charted on the map in Figure 26. Droughts are considered a non-site-specific hazard. The hazard of droughts should be evaluated countywide and not in “defined” areas, as in the case of floodplains. Droughts are typically a long-term problem that can exacerbate other problems, such as wildland fires. There are no documented critical facilities that are considered at risk as it relates to droughts. The infrastructure that would be affected most by the droughts is the water supply. During droughts the demand for water goes up and farmers begin to irrigate their crops, which puts a strain on local aquifer systems. Surface water begins to dry up, pulling even more water away from the aquifer system. Residents could potentially be without water because the recharge rate is too slow to keep up with the demand.

9.3.1.7 Potential Impacts and Estimation of Losses

Licking County’s vulnerability to droughts has increased over the years and will continue to increase as water consumption and population multiplies. Unlike most hazards, the threat of a drought tends to be dismissed because of the relatively long time a drought takes to have damaging effects. Historical news reports from the 1999 drought estimated that 50% of all crops in Licking County were lost as a direct result from the drought. According to the 2017 AG census, Licking County had \$83,598,000 of crop sales²². If 50% of the crops were lost from drought, this would be a loss of \$41,799,000. When livestock are factored in, this loss grows tremendously. Droughts

²² Source:

https://www.nass.usda.gov/Publications/AgCensus/2012/Online_Resources/County_Profiles/Ohio/cp39089.pdf

can have a significant impact on the region as a whole and can cause millions of dollars in losses in Licking County.

9.3.2 Earthquakes

The Earth's crust is made up of solid tectonic plates that are on top of the liquid mantle which causes the plates to be in constant motion. In areas where two plates converge, energy can be built up due to friction between the two plates. Earthquakes happen when the force of the movement overcomes the friction, and the two plates slip past each other. The release of the stored energy causes waves that travel through the earth's crust and cause the shaking that can be felt if the earthquake is powerful enough.²³

Scientists use seismographs to record information about earthquakes, which help determine the location and strength of the earthquake. Most commonly, earthquakes are measured using magnitude or the Modified Mercalli Intensity Scale. Magnitude comes directly from the seismogram produced by the seismograph, and is a measure of the amplitude of the seismic waves, and is a logarithmic scale. Earthquakes below M2.0 are not typically felt by people and earthquakes between M2.0 and M3.0 usually can only be felt by people near the epicenter under favorable conditions. The Modified Mercalli Intensity (MMI) Scale is a measure of how much the ground shook at a specific location and is based on damage observed and the effects felt by people²⁴. The following figure shows the MMI Scale with descriptions of the effects of earthquakes.

²³ Source: https://www.usgs.gov/natural-hazards/earthquake-hazards/science/science-earthquakes?qt-science_center_objects=0#qt-science_center_objects

²⁴ Source: https://ohiodnr.gov/wps/wcm/connect/gov/5dc770e3-bde7-4122-9cbb-003ceaacb3db/EL+9-Earthquakes+in+Ohio_WEB_rev+2020-Final.pdf?MOD=AJPERES&CVID=n8UZuZW

CIIM Intensity	People's Reaction	Furnishings	Built Environment	Natural Environment
I	Not felt			Changes in level and clarity of well water are occasionally associated with great earthquakes at distances beyond which the earthquakes felt by people.
II	Felt by a few.	Delicately suspended objects may swing.		
III	Felt by several; vibration like passing of truck.	Hanging objects may swing appreciably.		
IV	Felt by many; sensation like heavy body striking building.	Dishes rattle.	Walls creak; window rattle.	
V	Felt by nearly all; frightens a few.	Pictures swing out of place; small objects move; a few objects fall from shelves within the community.	A few instances of cracked plaster and cracked windows with the community.	Trees and bushes shaken noticeably.
VI	Frightens many; people move unsteadily.	Many objects fall from shelves.	A few instances of fallen plaster, broken windows, and damaged chimneys within the community.	Some fall of tree limbs and tops, isolated rockfalls and landslides, and isolated liquefaction.
VII	Frightens most; some lose balance.	Heavy furniture overturned.	Damage negligible in buildings of good design and construction, but considerable in some poorly built or badly designed structures; weak chimneys broken at roof line, fall of unbraced parapets.	Tree damage, rockfalls, landslides, and liquefaction are more severe and widespread with increasing intensity.
VIII	Many find it difficult to stand.	Very heavy furniture moves conspicuously.	Damage slight in buildings designed to be earthquake resistant, but severe in some poorly built structures. Widespread fall of chimneys and monuments.	
IX	Some forcibly thrown to the ground.		Damage considerable in some buildings designed to be earthquake resistant; buildings shift off foundations if not bolted to them.	
X			Most ordinary masonry structures collapse; damage moderate to severe in many buildings designed to be earthquake resistant.	

Figure 31: Modified Mercalli Intensity Scale²⁵

9.3.2.1 Location and Extent

Earthquakes in Ohio are not as rare as many might expect. Since 1776, there have been over 200 earthquakes M2.0 or greater with epicenters in Ohio. The vast majority of these earthquakes have caused little to no damage. To date, there have only been 15 earthquakes with more than minor damage in Ohio, with no reported deaths, and only a few minor injuries. The largest earthquake in Ohio occurred in 1937 with an epicenter in Shelby County. This earthquake had an estimated magnitude of 5.4 and caused chimneys to topple, organ pipes to crack, and cemetery monuments to rotate. Most recently a series of earthquakes in 2019 occurred near Lake Erie, ranging from M1.8 - M4.2. Earthquakes with epicenters located outside of Ohio can also impact Licking County. The New Madrid Seismic Zone is centered in New Madrid, Missouri, but earthquakes there have had measurable effects in Ohio. Earthquakes in this region in 1811 and 1812 were the largest ever recorded in the continental United States, and were felt over two million square miles, including Ohio, resulting in damage in the Cincinnati area. It is believed that if another earthquake of similar intensity strikes the New Madrid Seismic Zone again, there would be considerable damage in Southwest Ohio²⁶.

Due to the proximity to the New Madrid Line, all parts of Licking County are equally likely to feel the effects of an earthquake. While theoretically any area on Earth may experience any

²⁵ Source: <https://www.usgs.gov/media/images/modified-mercalli-intensity-mmi-scale-assigns-intensities>

²⁶ Source: https://ohiodnr.gov/wps/wcm/connect/gov/5dc770e3-bde7-4122-9cbb-003ceaacb3db/EL+9-Earthquakes+in+Ohio_WEB_rev+2020-Final.pdf?MOD=AJPERES&CVID=n8UZuZW

magnitude of earthquakes, historically, in Ohio, the largest magnitude earthquake has been 5.4, with most earthquakes being significantly smaller.

The Division of Geological Survey of the Ohio Department of Natural Resources coordinates a 16 station seismograph network, replacing the older OhioSeis program. The stations are distributed across the state but are concentrated in areas that provide optimal conditions for detecting and locating very small earthquakes that are below the threshold of human awareness. These small micro-earthquakes are important because they occur more frequently and help to identify the location of faults that may periodically produce larger, potentially damaging earthquakes. The closest monitoring stations to Licking County are in Knox and Perry Counties.

Table 26: Seismic Stations Near Licking County

Station MFOH Location: Malabar Farm State Park Lat: 40.65° North Long: -82.38° West Seismometer: Guralp CMG-3T Broadband	Station P52A Location: Corning Lat: 39.6° North Long: -82.1° West Seismometer: Streckeisen STS-2 Broadband
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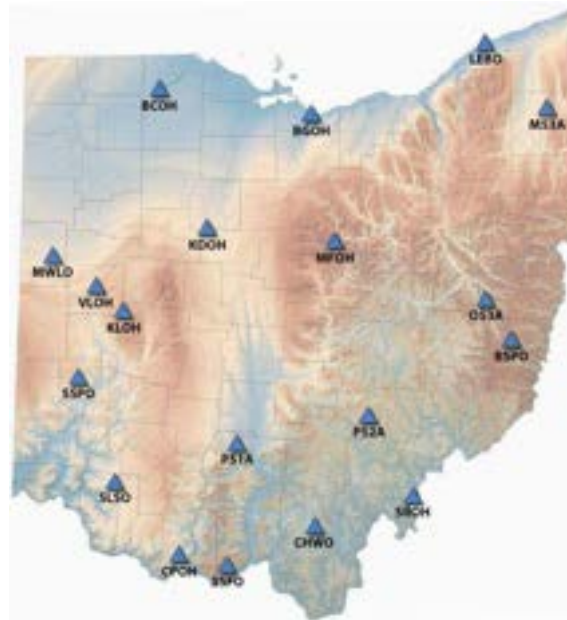


Figure 32: Map of Ohio Seismic Network Stations

9.3.2.2 Previous Occurrences

Licking County has never had a recorded earthquake epicenter within its boundaries, as can be seen from Figure 34. With this information in mind, the Core Group has decided that earthquakes rank at the bottom of their rating scale compared to other hazards that could affect the county. The problem with earthquakes is that, as quoted by well-known seismologist Robin McGuire, “major earthquakes are a low probability, high consequence event.” It is because of the potential high consequences that geologists, emergency planners, and other government officials have taken a greater interest in understanding the potential for earthquakes in some of

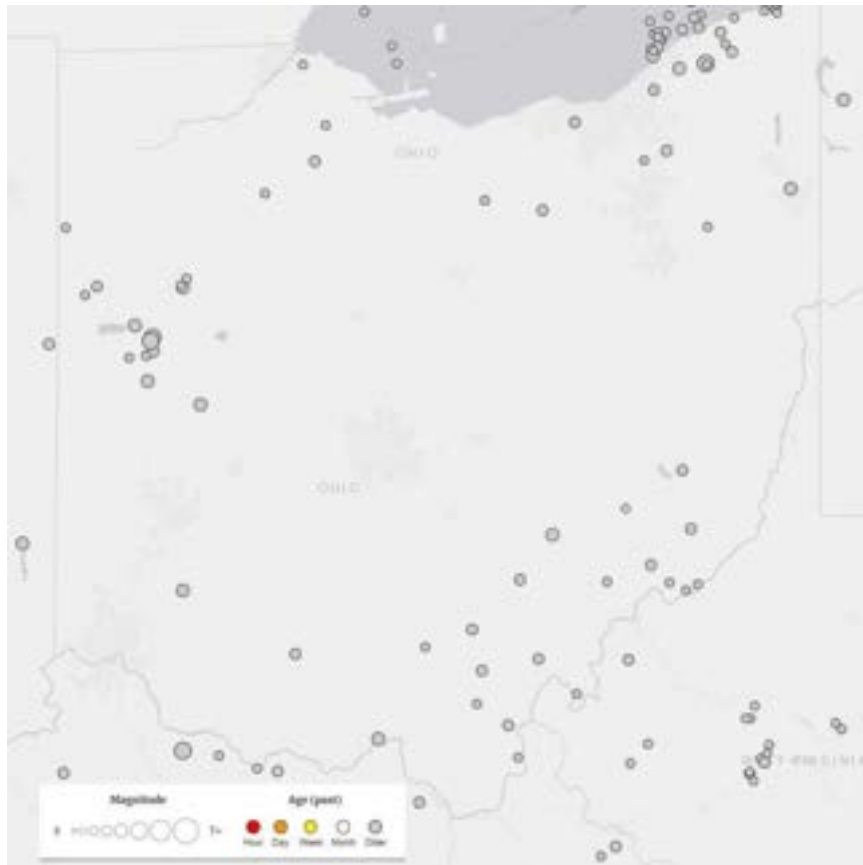


Figure 33: Earthquake Epicenters in Ohio, 1812-2019

the areas of the eastern United States and educating the population as to the risks in their areas. Although there have been great strides in increased earthquake awareness in the eastern United States, the low probability of such events makes it difficult to convince most people that they should be prepared.

9.3.2.3 Probability of Future Events

According to the Ohio Earthquake Program Manager, the risk in Licking County is low, as can be seen on the Long-term National Seismic Hazard Map from the United States Geological Survey in Figure 35. Though Licking County has had earthquake tremors in the past, the natural geology in the area lends itself to a very stable condition if an earthquake were to occur. Though rare, earthquakes are still an all-county hazard capable of hitting anywhere. Figure 35 shows that the probability of an earthquake in the next 50 years to be nearly the lowest in the United States. In the past 144 years, only 40 earthquakes have been felt in Ohio, which calculates to a probability of feeling an earthquake in Ohio to be 28% per year. Based on Figure 35, it is more likely that these earthquakes will be felt in the southwestern portion of the state, rather than Licking County.

2018 Long-term National Seismic Hazard Map

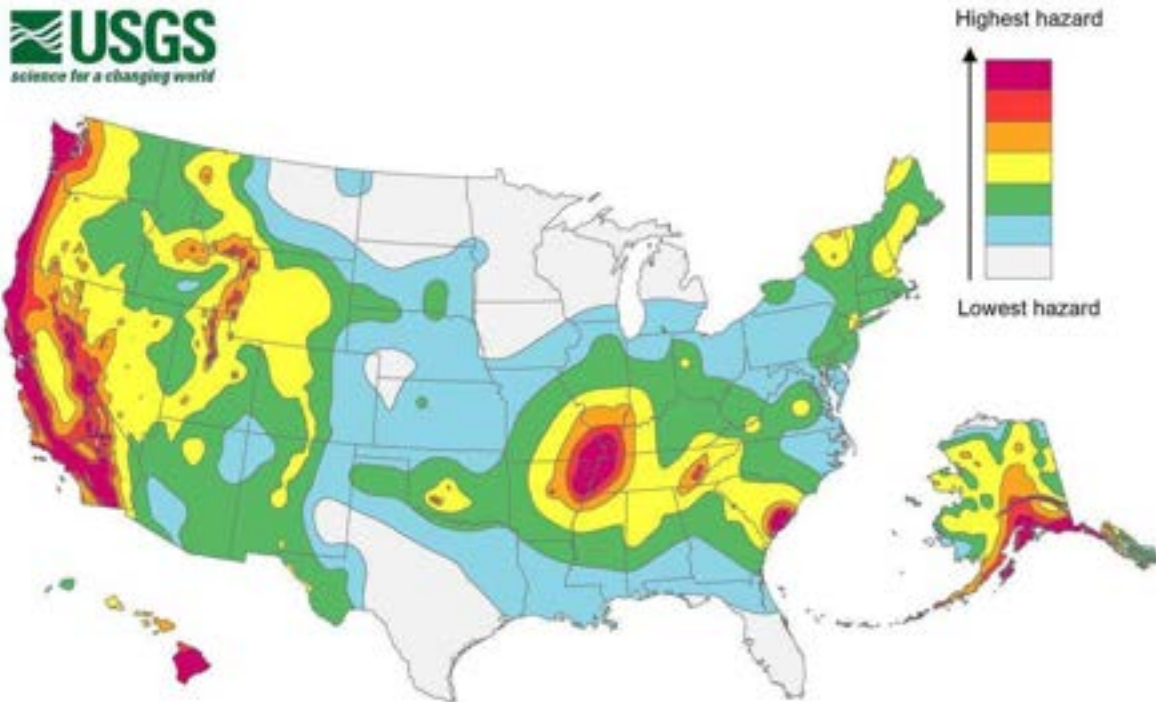


Figure 34: Long-term Earthquake Risk for the US

9.3.2.4 Current Development Trends

Since earthquakes are a non-site-specific hazard, current development trends have no affect other than the increased population that would be susceptible to earthquakes within Licking County’s boundaries. Due to Licking County’s population growth, the hypothesis is that there will be more damage from an earthquake in the county, solely based on the increased housing stock.

9.3.2.5 Current Codes and Regulations

There are no current codes or regulations in place that protect structures from earthquake hazards in Licking County other than the Ohio Building Code (commercial) 2017 and the Residential Building Code of Ohio (residential) 2019.

9.3.2.6 Earthquake Vulnerability in Licking County

Licking County and its jurisdictions are equally likely to experience an earthquake. According to the HAZUS model, single family homes are the most vulnerable to damages associated with earthquakes.

9.3.2.7 Potential Impacts and Estimation of Losses

Although Licking County has never experienced an epicenter of an earthquake, the potential effect to infrastructure is great. Much like a tornado, the impact can affect multiple infrastructures depending on the location and severity of the earthquake. Structures would be damaged, electricity would be knocked out, and sanitary facilities could be damaged during an event. Since they are so

rare in this area, anything done regarding earthquakes would be strictly reactionary to fix any problems that should arise.

Due to the non-site-specific nature of this hazard, the best way to deal with preparing for future events is to consider historical occurrences. Licking County has never had a recorded epicenter within its boundaries, although tremors have been felt as recently as 2011. To assess the potential impact of an earthquake in Licking County a model was developed using the HAZUS model that was developed by FEMA. Modeling the M5.4 earthquake from March 9, 1937 we would expect damage to 366 buildings in the county (see Table 27) with 87 buildings sustaining at least moderate damage. Of 262 hospital beds available before the model earthquake, 258 are expected to be available after the earthquake. No critical facilities are expected to have moderate or worse damage. Total economic losses in Licking County are estimated to be \$4.45 million dollars, with most losses coming from buildings. Although earthquakes have never happened in Licking County before they can happen in other locations that result in very significant damage in Licking County.

Table 27: HAZUS Arbitrary Earthquake Model M5.4

Structure	Damage				
	None	Slight	Moderate	Extensive	Complete
Agriculture	502.39	4.8	1.6	.19	.01
Commercial	3866.75	22.56	6.84	.81	.05
Education	213.65	.99	.32	.04	0
Government	158.75	.93	.28	.03	0
Industrial	1311.1	8.83	2.74	.32	.02
Other residential	5680.12	38.64	10.93	.3	.01
Religion	472.61	2.46	.82	.1	.01
Single Family	54509.13	198.79	55.09	6.38	.61
Total	66714	278	79	8	1

9.3.3 Flood and Dam/Levee Failure

Flooding in the county causes many problems for residents. This includes disruptions to transportation, utility service and business activities; damage to homes, businesses and infrastructure; loss of crops and loss of life. Flooding in the Licking County area can be contributed to four factors, three of which are non-controllable: Heavy rains in a short period of time, quick thaws, and the topography of the region. The fourth is the intentional flooding in the backwater region of Dillon Dam. Dillon is a flood control project located in Muskingum County along the Licking River.

Licking County currently takes a very proactive approach to addressing the potential of flooding and seeking responsible ways for floodplain use. In the Licking County unincorporated areas, no new lots are to be created in the total flood hazard area without a minimum of 1.6 acres of useable ground that exists above the 100-year flood elevation. In addition to that standard, development within the 100-year floodplain is closely scrutinized, and a minimum of a two-foot freeboard is required with any structure. Each jurisdiction currently follows the minimum NFIP standards. Several of these incorporated areas have completed mitigation projects in the past and are open to additional mitigation projects in the future.

Flash Flooding

Flash Flooding is defined as a flood that follows a period of heavy rain, and usually occurs within six hours of the rain event. There are several different types of storms that may produce a six-hour heavy rain event, therefore the accuracy of predicting a flash flood event is difficult. Factors that can contribute to causing flash floods are dam or levee failures and the sudden release of water blocked by an ice jam. Flash flooding can occur anywhere, but the most frequently affected are low-lying areas in and around rivers, streams, and floodplains (the low land bordering a river, which is usually dry but is subject to flooding, and the portion of river valleys that have been flooded during past historic flood events). There are five basic types of storms that can produce a continuous six-hour heavy rain event: Multicell Convection, Supercell Convection, Squall lines, Mesoscale Convective Systems, and Nonconvective Precipitation Systems. All these storm systems can create a flash flood under certain conditions. The factors surrounding the possibility of these systems to produce a flash flood event makes them hard to forecast, which is why flash flooding causes more deaths in the United States than any other naturally occurring disaster.

Part of the danger with flash flooding is that a flash flood can occur at any time. Although peak rainfall times for the types of storms that produce flash floods corresponds with peak times for most events, the one variation to consider is that rivers rise at different rates than rain falls. The rain may stop, but the river will still be rising. Flash flooding that occurs at night claims the most victims because of low visibility. If flooding has advanced over a roadway, drivers are unable to see the water due to darkness and are likely to enter the floodwaters. Flash Floods are the number one weather related killer in the U.S., recording around 140 deaths each year.

Riverine Flooding

There are three major rivers in Licking County: The North Fork Licking River (NFLR), the South Fork Licking River (SFLR) and the Licking River. NFLR and SFLR join in the City of Newark to create the Licking River. The North Fork Licking River is primarily surrounded by rural farmland and little development, so there tends to be less damage during flood events. The river flows from north of Utica, south to the City of Newark. The South Fork Licking River starts in the Pataskala area and runs through the flat farmland areas near Buckeye Lake before turning north and flowing through Heath and into Newark. The largest tributary of the SFLR is Raccoon Creek, which drains the areas of Johnstown, Alexandria and Granville before joining the SFLR in Newark, just

upstream of its confluence with the North Fork. The SFLR has a history of flooding problems. The highest population increase in Licking County has occurred in the western parts of the SFLR watershed. The changing landscape from rural farm community to a suburb of the City of Columbus has caused the SFLR to be under scrutiny and may lead to increased runoff and flooding.

The Licking River leaves Newark after receiving flows from the NFLR and SFLR, and travels east through relatively undeveloped areas. There are only a few houses near the river in this area. Losses due to flooding along the Licking River are small in comparison with those on the SFLR. The Licking River drains into the Muskingum River in Zanesville.

The SFLR has been the subject of study recently in Licking County due to extensive logjams present in the river.²⁷ A project has been identified as a solution to the issues caused by this river with the following objectives²⁸:

- Design and construct restoration on the reformed channel along South Fork Licking Run that is reconnected to its floodplain, supports biodiversity and recreation options
- Aquatic habitat improvement
- Re-establish an appropriate hydraulic grade line and flows
- Reduced sediment loadings downstream that will provide biological lift
- Potentially contributes to the overtopping of I-70 by allowing flood flows to access the river’s floodplains

Non-Flood Zone Flooding

The area of Marne, located just east of central Licking County, has experienced flooding on a regular basis since the 1960s. The area of most concern is just north of the Ohio Central railroad tracks and east of Montgomery Road. It has long been assumed that twin 48” culverts that cross beneath the railroad tracks are undersized and have been the primary cause of the flooding for decades. Other assumptions have been made but no definite solutions have been developed. There were no officially documented NFIP floodplain associated with it, even on the updated FIRMS, yet it meets the definition of repetitive loss.

In 2000, the owners of the railroad filed a Ditch Petition with the Licking County Commissioners to move toward identifying and rectifying the problem. A study was conducted to identify the most cost-effective solution, or combination of solutions, to reduce the risk of flooding in the study area for storm events up to and including the 100-year storm. Some additional goals included minimizing impacts on existing properties and property owners in terms of cost,



Figure 35: 2000 Flood Study Area

²⁷ *South Fork Licking River Watershed Land Use and Evaluation and Woody Debris Mapping*, Licking County Soil and Water Conservation District, 2020.

²⁸ *South Fork Licking River Park Concepts, An Improvement Project*, 2019.

property impacts, and inconvenience; minimizing or eliminating the down time for the railroad during construction; and possibly recommend funding options for completion of this project.

Findings of the Study

The results from the flood study, along with the computer modeling, indicate that a multi-stage alternative is necessary to accomplish a reduction of flooding events in the area of Marne. The preferred alternative to alleviate the flooding problems includes a three-staged approach. The first stage would be to create a retention pond with approximately 40 acre-feet of storage. The second stage would be to replace both existing 48" culverts at the railroad and the existing 9'x4' box at Marne Road with 16'x5' box culverts, or equivalent. The third stage would be to reconstruct the channel shape and profile from the railroad to the entrance of the State Route 16 culvert.

These three items in combination will provide the highest level of protection for the area at the least cost. Unfortunately, the model shows that during the 50-year design storm, some existing properties will still be flooded. It was recommended that those four properties either be purchased or be assisted in flood-proofing their structures to mitigate potential damage from flooding.

Dam Failure

According to the State of Ohio Mitigation Plan, a dam is defined as an artificial barrier that does or may impound water or other liquefied material. Most commonly, a dam is constructed across a stream channel to impound water for recreation, flood control, or other uses. A dam failure is defined as an uncontrolled release of impounded water. The most common causes of dam failures include dam overtopping, excessive seepage, and structural failure of a component. Despite efforts to provide sufficient structural integrity and to perform inspection and maintenance, problems can develop that can lead to failure. While most dams have storage volumes small enough that failures would have little or no consequences, dams with large storage amounts could cause significant flooding downstream.

Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding;
- Inadequate spillway capacity, resulting in excess overtopping flows;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross section of the dam and abutments, or maintain gates, valves, and other operational components;
- Improper design, including the use of improper construction materials and construction practices;
- Improper operation, including the failure to remove or open gates or valves during high flow periods;
- Failure of upstream dams on the same waterway that release water to a downstream dam;
- Earthquakes, which typically cause longitudinal cracks at the tops of the embankments that can weaken entire structures.

The Buckeye Lake Dam is the only Class I high hazard dam in Licking County. It sits on the border of Licking and Fairfield Counties. The dam was recently reconstructed and has an approved Emergency Action Plan per the regulations set forth through the State of Ohio. Licking County

also has seven Class II dams, eleven Class III dams, and thirty-nine Class IV dams. The table below was taken from the State of Ohio Mitigation Plan and details the Dam Classification system.

Table 28: Ohio and Federal Dam Classification Systems

Ohio and Federal Dam Classification Systems				
Ohio Dam Classification	Hazard Description	Height (ft)	Storage (ac-ft)	Corresponding NID Classification
Class I	Probable loss of life, serious hazard to health, structural damage to high value property (i.e., homes, industries, major public utilities)	>60	>5,000	High
Class II	Flood water damage to homes, businesses, industrial structures (no loss of life envisioned), damage to state and interstate highways, railroads, only access to residential areas	>40	>500	Significant
Class III	Damage to low value non- residential structures, local roads, agricultural crops and livestock	>25	>50	Low
Class IV	Losses restricted mainly to the dam	£25	£50	Other
Exempt	N/A	< 6	15 ac-ft. OR <10 ft & ≤50 ac-ft.	N/A

Levee Failure

A levee is any artificial barrier together with appurtenant works that will divert or restrain the flow of a stream or other body of water for the purpose of protecting an area from inundation by flood waters. Generally, a levee is subjected to water loading during a few days or weeks each year; unlike most dams that retain water most of the time.

A levee breach results when a portion of the levee breaks away, providing an opening for water to flood the landward side of the structure. Such breaches can be caused by surface erosion due to water velocities, or they can be the result of subsurface actions. Subsurface actions usually involve sand boils whereby the upward pressure of water flowing through porous soil under the levee

exceeds the static pressure of the soil weight above it (i.e., under-seepage). These boils can indicate instability of the levee foundation given the liquefied substrate below it, leading way to breaching. Levee overtopping is similar to dam overtopping in that the flood waters simply exceed the design capacity of the structure, thus flowing over the lowest crest of the system. Such overtopping can lead to erosion on the landward side which, subsequently, can lead to breaching. In order to prevent this type landward erosion, many levees are reinforced or armored with rocks or concrete.

The State of Ohio classifies levees as Class I, II, or III. The table below details this classification system.

Table 29: Ohio Levee Classification System

Hazard Classification	Description
Class I	Probably loss of human life, structural collapse of at least one residence or one commercial or industrial business
Class II	Disruption of a public water supply or wastewater treatment facility, or other health hazards; flooding of residential, commercial, industrial, or publically owned structures; flooding of high-value property; damage or disruption to major roads including but not limited to interstate and state highways, and the only access to residential or other critical areas such as hospitals, nursing homes, or correctional facilities as determined by the chief; damage or disruption to railroads or public utilities
Class III	Property losses including but not limited to rural buildings not otherwise described in this rule; damage or disruption to local roads including but not limited to roads not otherwise listed as major roads in this rule

Source: <http://water.ohiodnr.gov/safety/dam-safety>

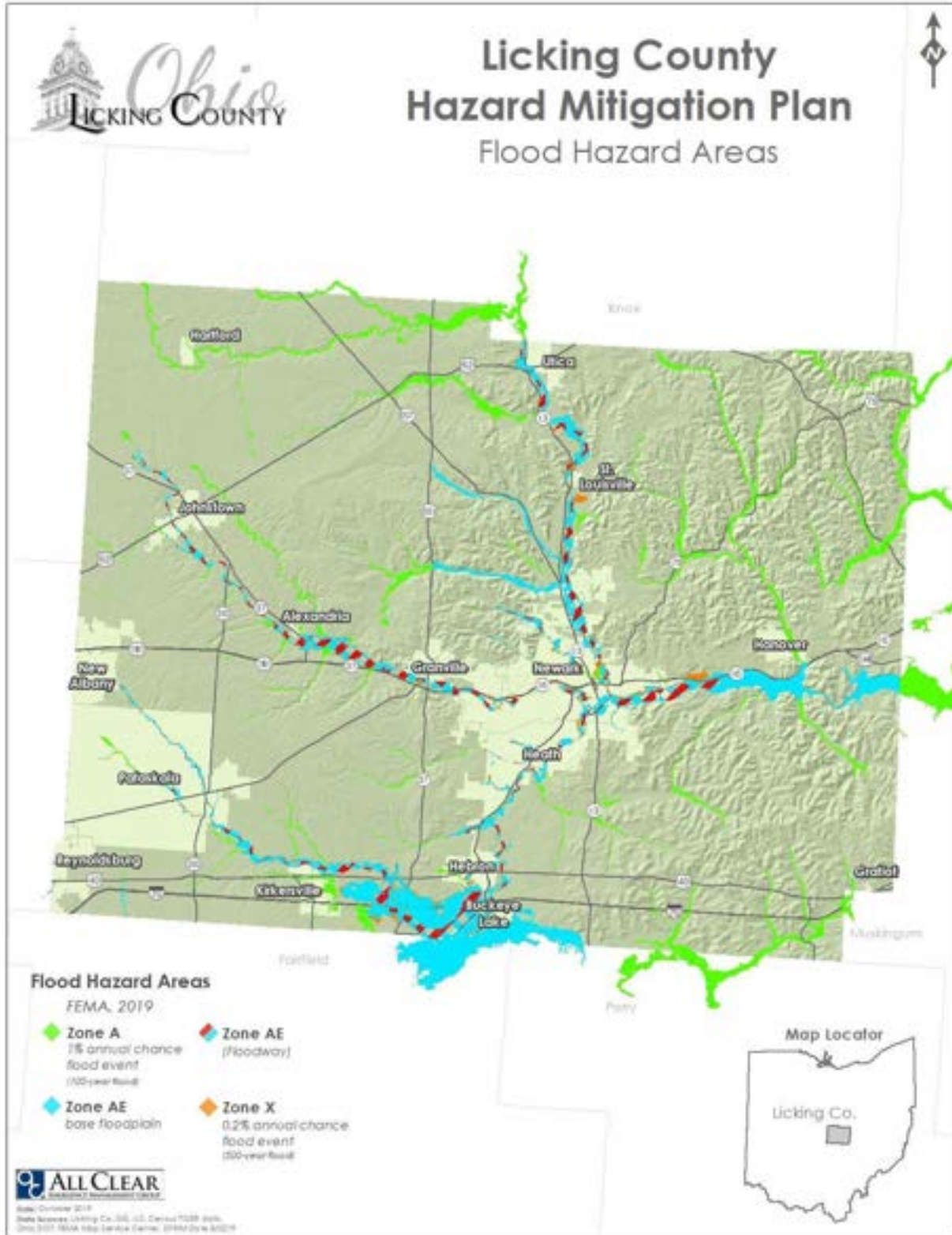


Figure 36: Flood Hazard Areas of Licking County

9.3.3.1 Location and Extent

The threat of riverine flooding, unlike many of the hazards faced by Licking County, is highest in specific locations along water ways and drainages. Figure 37 shows the flood hazard areas of the county and the specific flood zones. As is shown, the 100-year floodplain affects multiple areas of the county and each jurisdiction is impacted to varying degrees. During the 1959 flood, which is the worst in Licking County history, the Fyrepel Products, Inc. building, located just south of East Main Street in Newark, along the North Fork of the Licking River was filled with four feet of flood water. While a river depth at this specific location is not available from the 1959 flood, the one just downstream has a provisional crest of 23.50 feet that day. The stream gage that is now located near East Main Street on the North Fork of the Licking River classifies flood depth of just 15 feet to be Flood Stage, whereas Moderate Flood Stage is 19 feet and Major Flood Stage is 22 feet. The 1959 flood is likely to have been classified as Major Flood Stage.

Riverine flooding is a site-specific hazard, and the following maps show the Flood Hazard Areas for the jurisdictions of Licking County. Flash floods, however, do not necessarily have a predefined geographic extent. Roadways and low laying areas can quickly fill with water during heavy rain events. The flash flood of 1997 caused two million dollars' worth of damage after five to eight inches of rain fell in less than six hours across the county.

Dam and levee related flooding are specific to the location of each dam or levee. These impacts are estimated and recorded in this plan.

Licking County Hazard Mitigation Plan

Village of Alexandria

Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- **Zone A**
1% annual chance flood event (100-year flood)
- **Zone AE**
base floodplain
- **Zone X**
0.2% annual chance flood event (500-year flood)
- **Zone AE**
(Floodway)



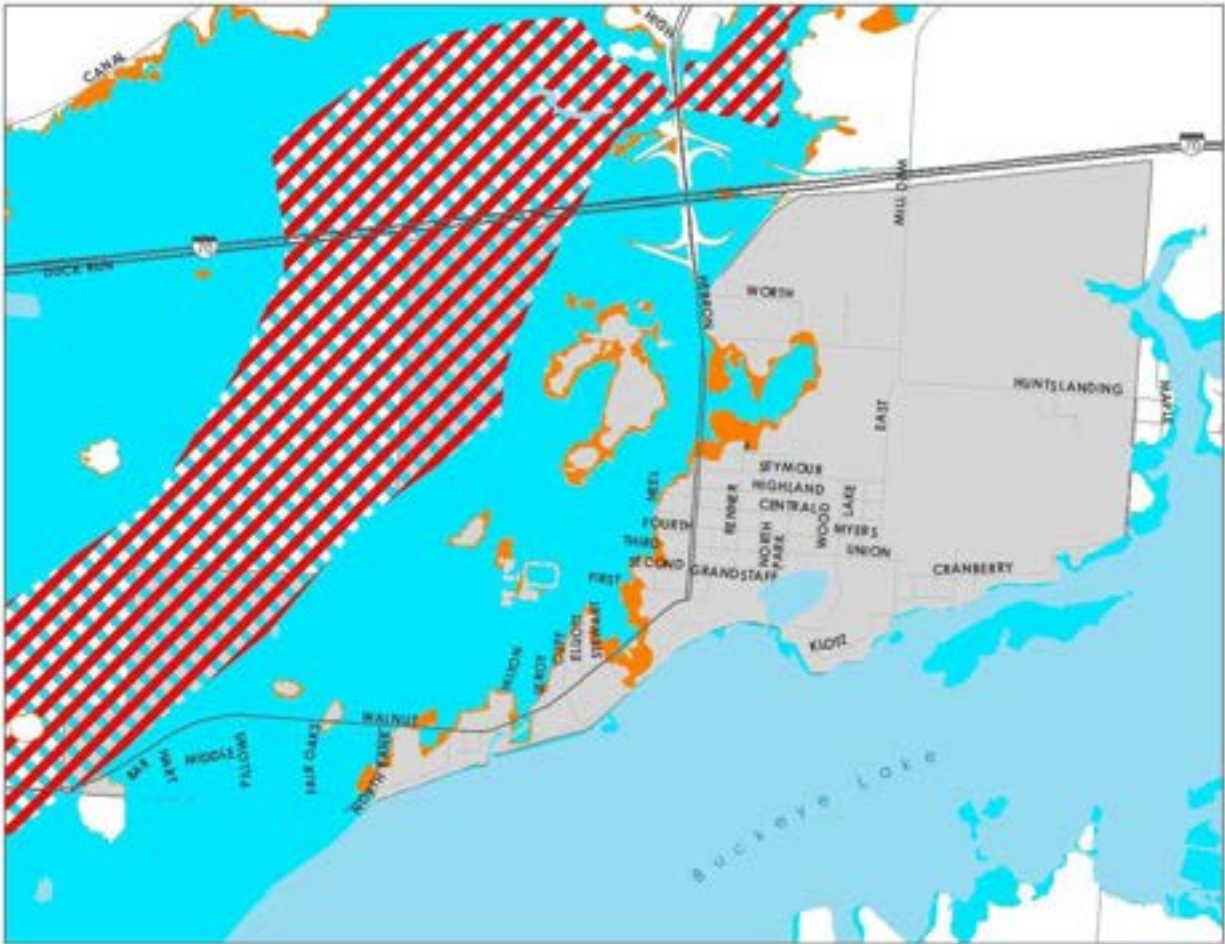
Map Locator



Licking County, OH

Figure 37: Flood Hazard Areas of Alexandria

Licking County Hazard Mitigation Plan Village of Buckeye Lake Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- Zone A**
1% annual chance flood event
(100-year flood)
- Zone AE**
base floodplain
- Zone AE**
(Floodway)
- Zone X**
0.2% annual chance flood event
(500-year flood)

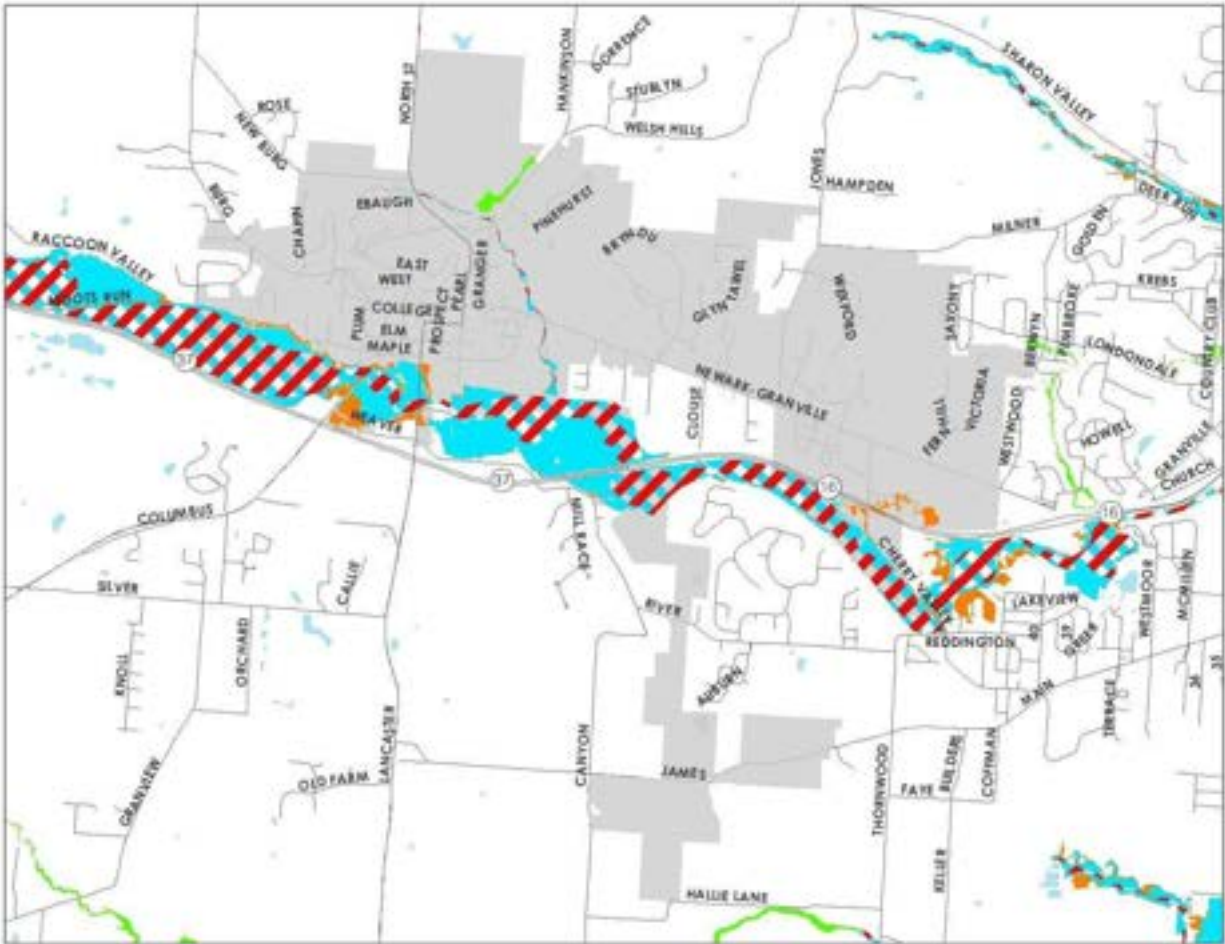


Map Locator



Figure 38: Flood Hazard Area of Buckeye Lake

Licking County Hazard Mitigation Plan Village of Granville Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- ◆ **Zone A**
1% annual chance
flood event
(100-year flood)
- ◆ **Zone AE**
base floodplain
- ◆ **Zone AE**
[floodway]
- ◆ **Zone X**
0.2% annual chance
flood event
(500-year flood)

Map
Locator



Licking County, OH



Figure 39: Flood Hazard Areas of Granville

Licking County Hazard Mitigation Plan Village of Hanover Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- ◆ **Zone A**
1% annual chance
flood event
(100-year flood)
- ◆ **Zone AE**
base floodplain
- ◆ **Zone X**
0.2% annual chance
flood event
(100-year flood)
- ◆ **Zone AE**
(Floodway)

ALL CLEAR
All Hazards Assessment Center
Date: 11/17/2020
Data Source: USFEMA Co. 08, U.S. Census 2000 pop.
GIS 3.07

Map Locator



Licking County, OH

Figure 40: Flood Hazard Areas of Hanover

Licking County Hazard Mitigation Plan Village of Hartford Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- ◆ **Zone A**
1% annual chance
flood event
(100-year flood)
- ◆ **Zone AE**
base floodplain
- ◆ **Zone AE**
(Floodway)
- ◆ **Zone X**
0.2% annual chance
flood event
(500-year flood)



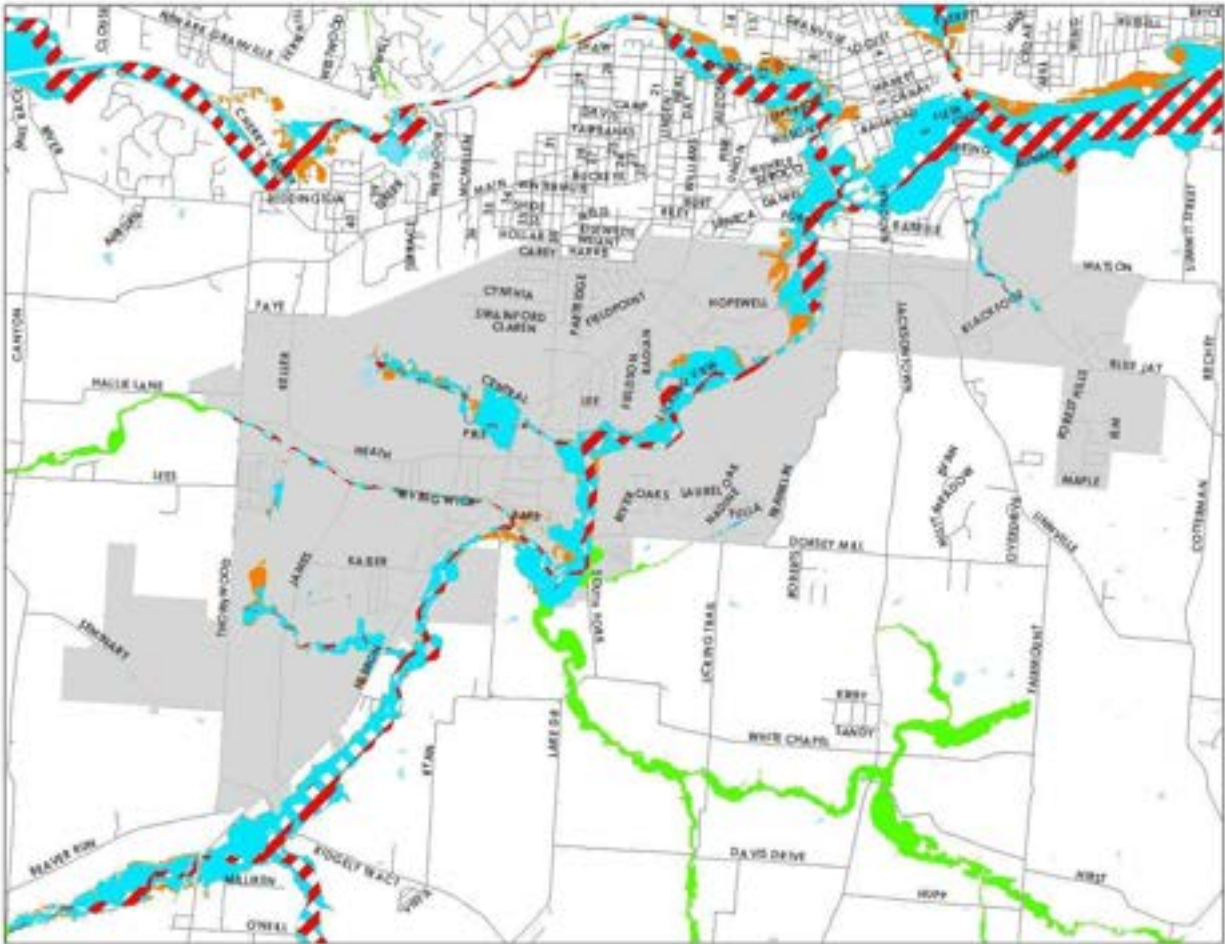
Map Locator



Licking County, OH

Figure 41: Flood Hazard Areas of Hartford

Licking County Hazard Mitigation Plan City of Heath Flood Hazard Areas

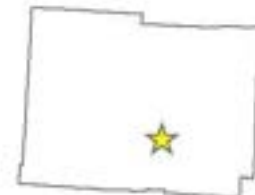


Flood Hazard Areas

FEMA, 2019

- Zone A
1% annual chance
flood event
100-year flood
- Zone AE
base floodplain
- Zone AE
(Foodway)
- Zone X
0.2% annual chance
flood event
500-year flood

Map
Locator



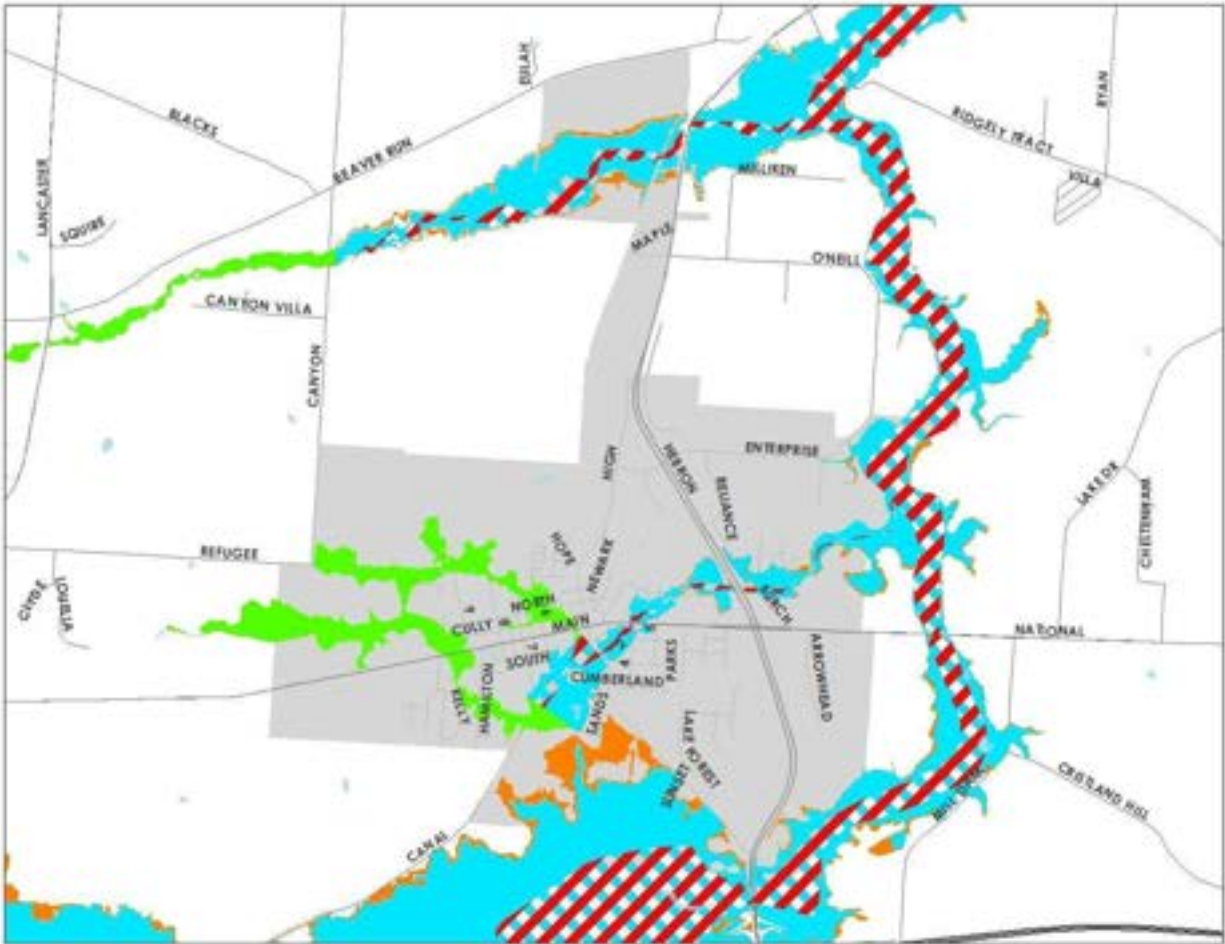
Licking County, OH



Figure 42: Flood Hazard Areas of Heath

Licking County Hazard Mitigation Plan

Village of Hebron Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- Zone A
1% annual chance flood event
(100-year flood)
- Zone AE
base floodplain
- Zone AE
(Floodway)
- Zone X
0.2% annual chance flood event
(100-year flood)

ALL CLEAR
AN EMERGENCY MANAGEMENT SERVICE
 Date: 11/17/2020
 Data Source: USFWS Co. 05, U.S. Census 1990 pop., GIS 2017

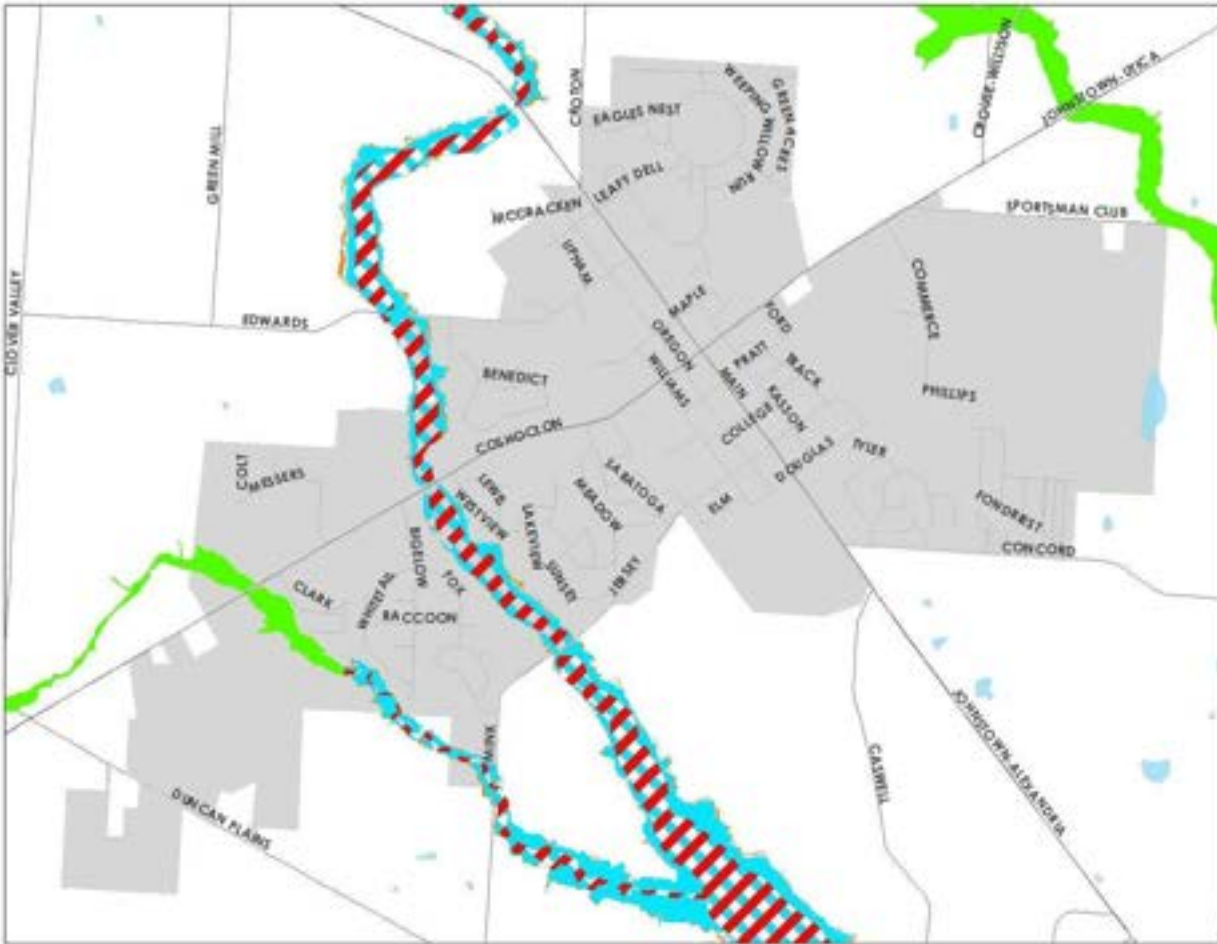
Map Locator



Licking County, OH

Figure 43: Flood Hazard Areas of Hebron

Licking County Hazard Mitigation Plan Village of Johnstown Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- Zone A
1% annual chance
flood event
(100-year flood)
- Zone AE
base floodplain
- Zone AE
(Floodway)
- Zone X
0.2% annual chance
flood event
(500-year flood)



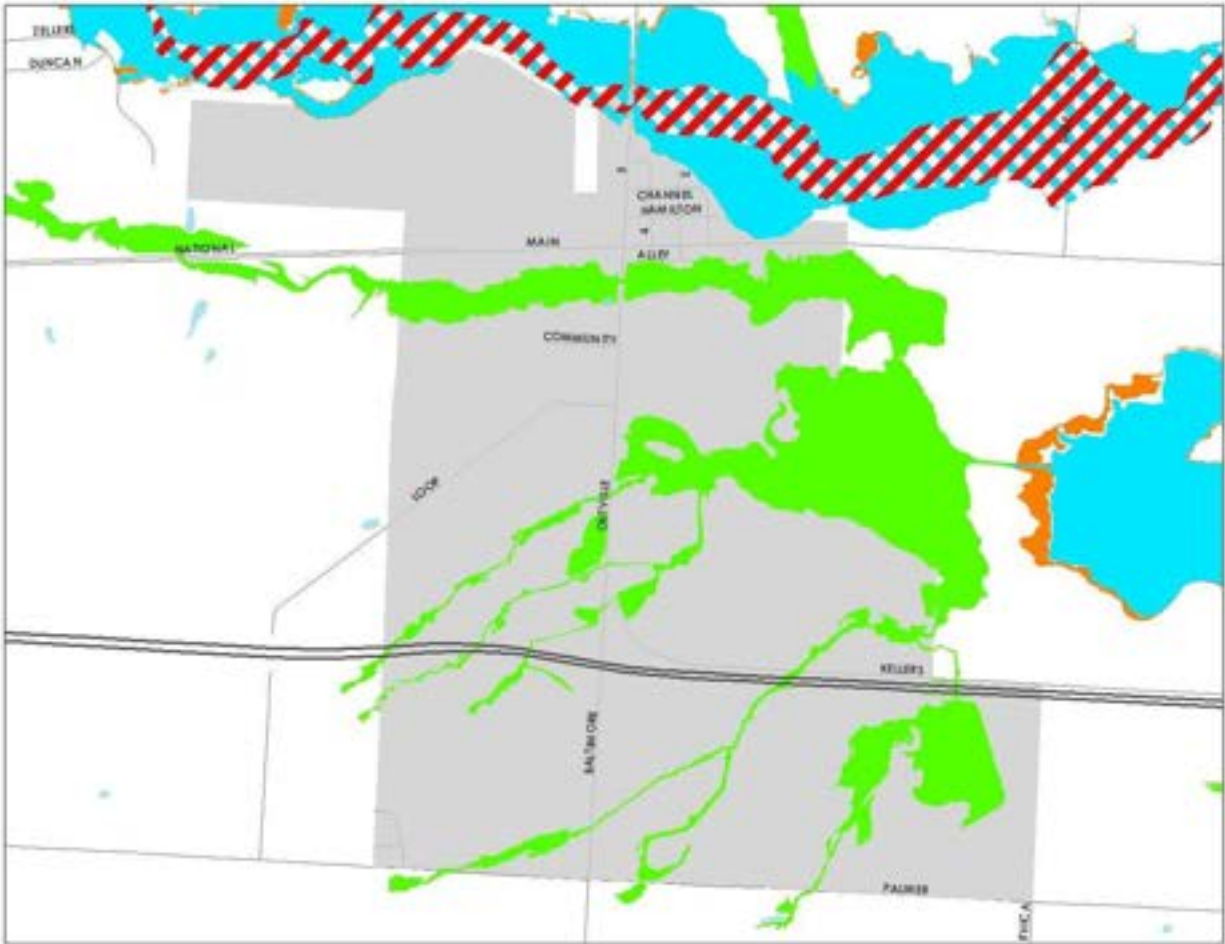
Map
Locator



Licking County, OH

Figure 44: Flood Hazard Areas of Johnstown

Licking County Hazard Mitigation Plan Village of Kirkersville Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- Zone A
1% annual chance
flood event
(100-year flood)
- Zone AE
base floodplain
- Zone AE
(Floodway)
- Zone X
0.2% annual chance
flood event
(500-year flood)



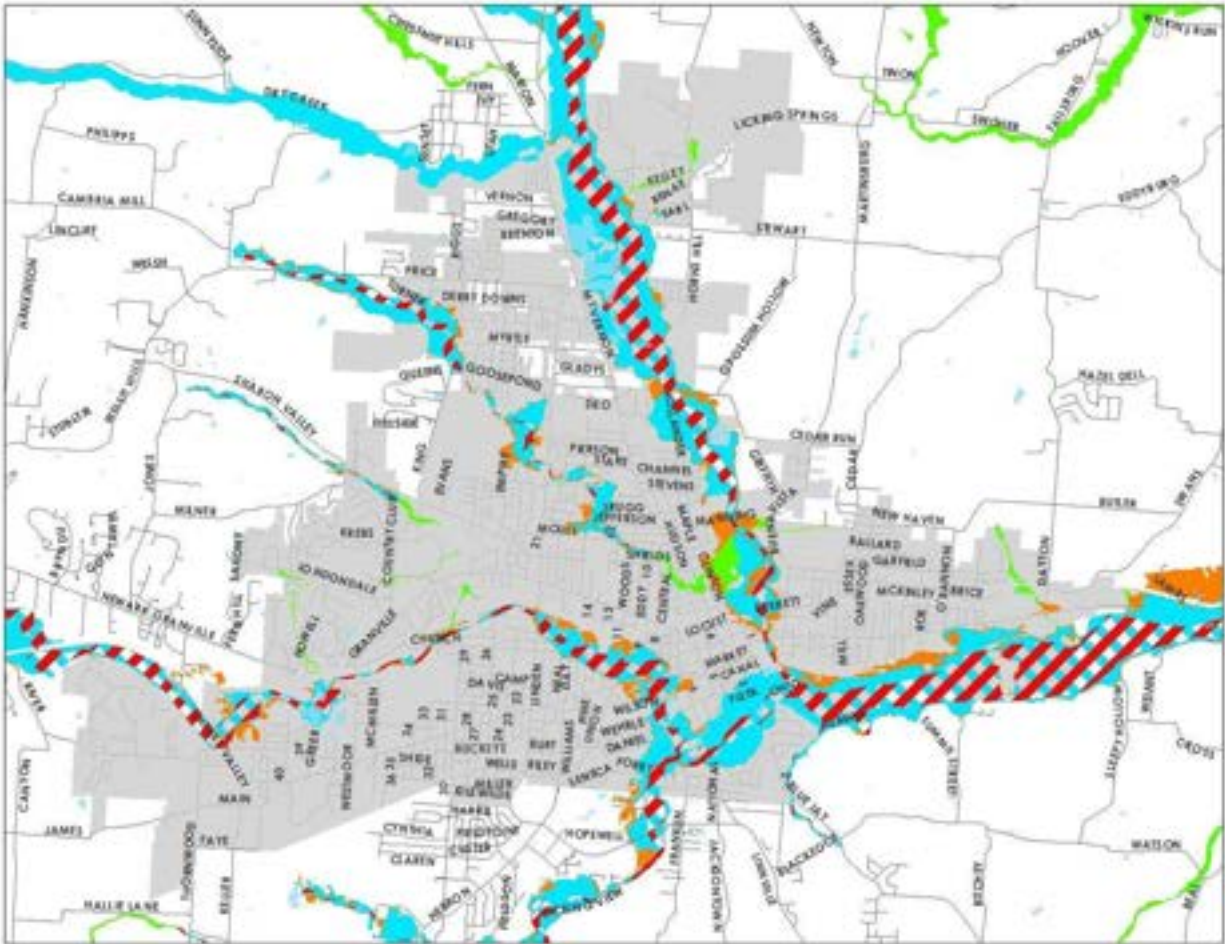
Map Locator



Licking County, OH

Figure 45: Flood Hazard Areas of Kirkersville

Licking County Hazard Mitigation Plan City of Newark Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- ◆ **Zone A**
1% annual chance
flood event
100-year flood
- ◆ **Zone AE**
base floodplain
- ◆ **Zone X**
0.2% annual chance
flood event
100-year flood
- ◆ **Zone AE**
(Foodway)

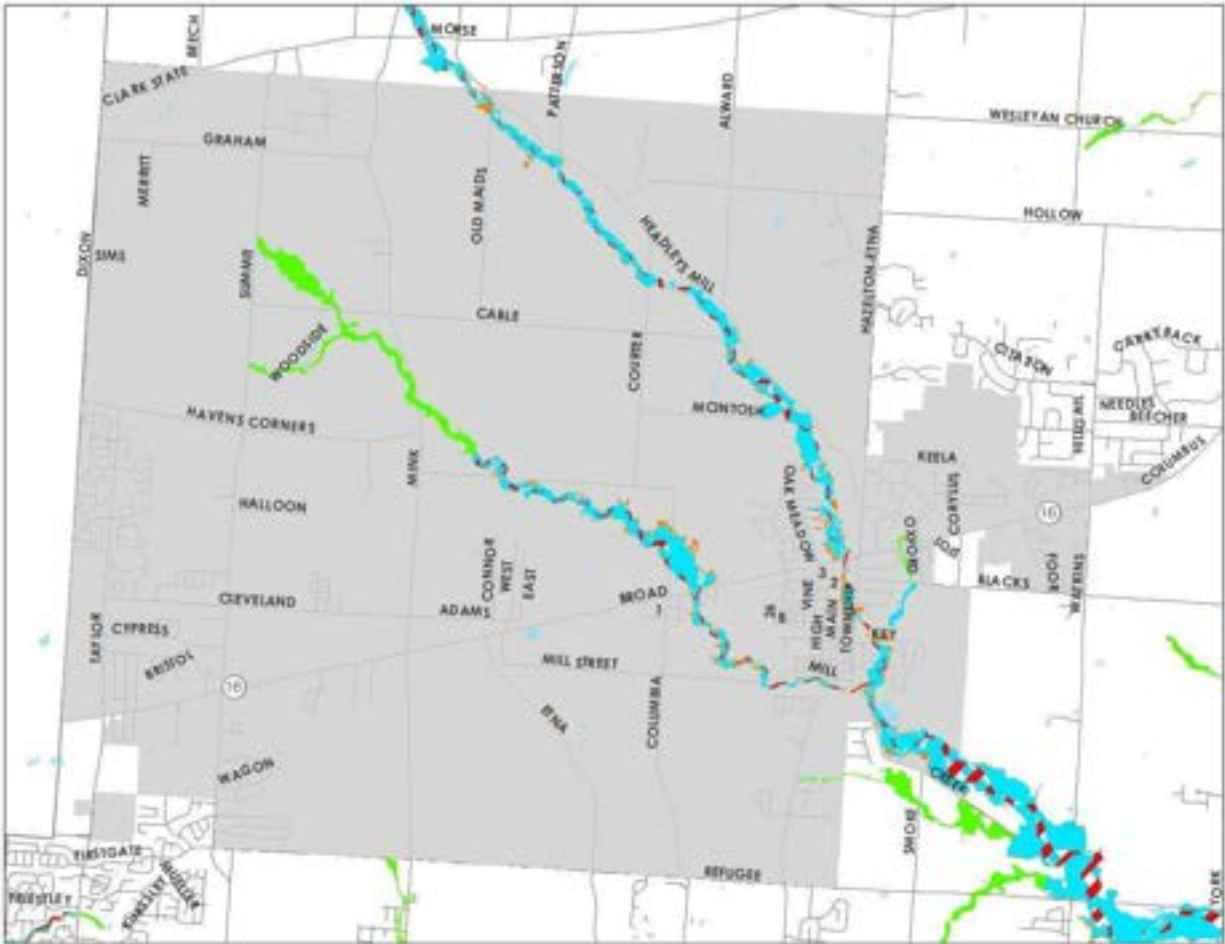
Map
Locator



Licking County, OH

Figure 46: Flood Hazard Areas of Newark

Licking County Hazard Mitigation Plan City of Pataskala Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- ◆ **Zone A**
1% annual chance
flood event
(100-year flood)
- ◆ **Zone AE**
base floodplain
- ◆ **Zone AE**
(Floodway)
- ◆ **Zone X**
0.2% annual chance
flood event
(100-year flood)

Map
Locator



Licking County, OH

Figure 47: Flood Hazard Areas of Pataskala

Licking County Hazard Mitigation Plan Village of St. Louisville Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- Zone A**
1% annual chance flood event
(100-year flood)
- Zone AE**
base floodplain
- Zone AE**
(Floodway)
- Zone X**
0.2% annual chance flood event
(500-year flood)

ALL CLEAR
All Hazards Assessment Center
July 11/14/17/2020
Data Sources: US Map Co. 66, U.S. Census 1990 pop., Ohio 2017

Map Locator

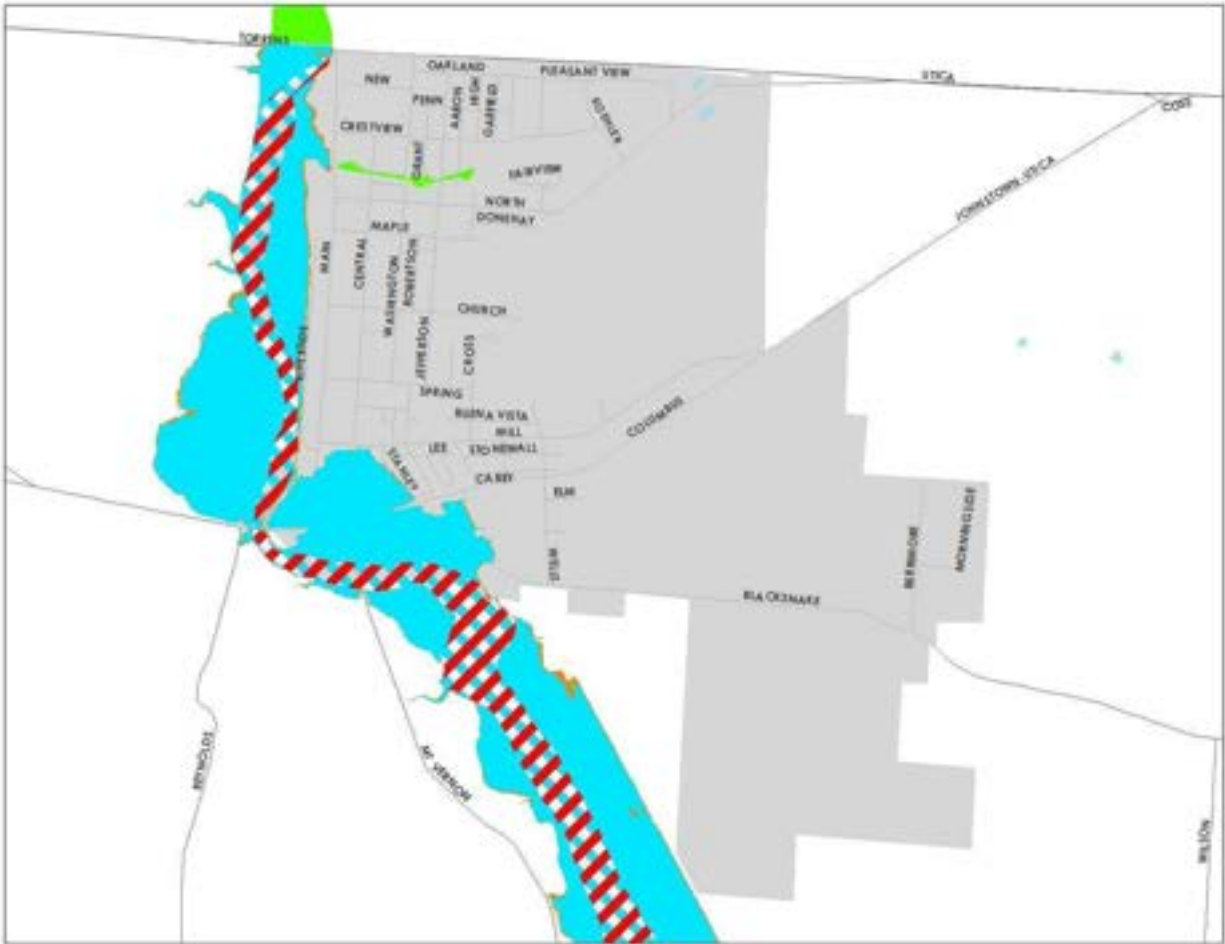


Licking County, OH

Figure 48: Flood Hazard Areas of St. Louisville



Licking County Hazard Mitigation Plan Village of Utica Flood Hazard Areas



Flood Hazard Areas

FEMA, 2019

- ◆ **Zone A**
1% annual chance flood event
(100-year flood)
- ◆ **Zone AE**
base floodplain
- Zone AE**
(Floodway)
- ◆ **Zone X**
0.2% annual chance flood event
(500-year flood)



Map Locator



Licking County, OH

Figure 49: Flood Hazard Areas of Utica

9.3.3.2 Previous Occurrences

Licking County (unincorporated)

The history of flooding in Licking County is extensive. Whether due to a major flood distinguished by large areas of flooding, or a minor flood that includes only small streams and low-lying areas, the result is the destruction of property and the disruption of peoples' lives. Flooding is the number one disaster in frequency of events and disaster dollars associated with each event. Flooding, to some extent, affects all participating communities in the CANHMP. Flooding in Licking County is typically confined to stream corridors and adjacent lands. Areas around Buckeye Lake can receive extensive flooding due to the Lake and South Fork of the Licking River.

1898

The 1898 flood was one of the worst floods of the time period. Heavy rains caused this flood in a short time period, and drainage from the Raccoon Creek into the South Fork of the Licking River. One person lost his life due to the flooding, and many more suffered property damages. Damage estimates of \$150,000 were reported; in today's dollars, this would equate to over \$4,000,000.

1913

Flooding was particularly heavy in the Newark area and along small streams during the 1913 flood, which was the result of heavy rains over a short period. The flooding killed one person. A mayor's proclamation was issued declaring severe damage and the need for assistance.

1929

The Feb. 26, 1929 flood was severe. Water rose close to the second floor of some homes and caused widespread property damage. Flooding resulted when temperatures rose quickly, causing a quick thaw, followed by a quick downpour. Many areas of Newark were flooded, causing several streets and bridges to be inundated by water and making them impassable. This flood was considered to be "equal in height and perhaps exceeding the flood of 1913." (*The Newark Advocate*, Tuesday, Feb. 26, 1929.)

1937

On Jan. 25, 1937, Licking County experienced another severe flood. This flood was compared to the flood of 1913 and was considered worse than the 1913 flood in some areas of the county. More than 100 families were evacuated from the south Newark area alone. Flooding was the result of heavy rains on already saturated soil from two less severe flooding events in the previous two weeks. The additional precipitation simply became runoff that filled the already congested streams. As a result, many roads were closed or reduced to one lane, causing transportation problems and hampering rescue efforts.

1959

The 1959 flood caused damage throughout the State of Ohio at an estimated 100 million dollars statewide. As one of the harder hit areas, Licking County was included in this estimate due to extensive damages, and was declared a disaster area by a federal agency. A combination of heavy rains in a short period of time, a quick thaw and ice jams caused areas of the county to be covered by an average of two to seven feet of water. The county suffered damage to residential, business, industrial properties, and infrastructure. The damage to infrastructure caused transportation to be halted in some areas because roadways and railways were washed out. The damage to property left an estimated 2,500 people displaced, thus many emergency shelters were established and pickup locations were set up to hand out food and medicine to those in need. The hardest hit areas

in the county were Newark, the Claylick area, the Denison University central heating plant, and State Route 16 near Marne. These areas were some of the last to have floodwaters recede and had the most damage. This flood is the worst flood in Licking County.

1968

Though not one of the more destructive floods in the county's history, the flood of 1968 did cause property damage to some areas. Most of this was small stream flooding and affected low-lying areas. The North Fork and South Fork of the Licking River crested two feet above flood stage, causing flood damage to adjacent streets and homes. Buckeye Lake had to open its floodgates to relieve flooding occurring in the area. In the Licking County area, more than 50 roads and bridges were closed from Monday, May 27, to Tuesday, May 28. Included in these closings were portions of Interstate 70 between Ohio 310 and Ohio 79. With this incident, flooding occurred as the result of four inches of rain in a 48-hour period falling on frozen ground that was unable to absorb this amount of moisture. Governor James A. Rhodes gave an estimate of \$40,000 in damages to the county, however, most residents in the area felt this was below the actual cost.

1975

The flood of 1975 occurred late in the evening on Saturday, Feb. 24, and continued into Sunday. The flood was the result of 2 ³/₄ inches of rain in a short time period. The Licking River rose above the 17' flood stage and crested at 17.4 feet. This caused damage to adjacent properties and roadways. Several roads, including portions of US Route 40, were closed due to flooding.

1979

The flood of 1979 occurred on February 26. It was the result of a combination of heavy rains and frozen ground limiting the amount of precipitation that was absorbed, in addition to storm drains clogged with ice. These factors created runoff that had few places to go, thus it collected in low lying areas and forced small streams and rivers to swell to above or near flood stage. Although the flooding was minor, it did cause two families to be forced to evacuate whose homes were in low-lying areas, in addition to property damage and inhibited traffic flow in some areas.

1990

Flooding in June of 1990 affected the Buckeye Lake region and the Newark east side/Marne area of the county the hardest. In the Buckeye Lake area, between two to six inches of rain fell in a twelve-hour period on June 8, causing between 1,000 and 1,500 of the approximately 3,500 village residents to be evacuated. Two area people were killed in flood-related accidents. Some area highways, including portions of Interstate 70, were shut down. On Monday, June 11, President George Bush declared Licking County a disaster area, allowing residents to receive federal aid. In the Newark east side/Marne flood that occurred on June 14, 3.1 inches of rain fell in ninety minutes, causing extensive flooding. Between 30 and 40 homes were washed off their foundations and considered uninhabitable. The eastbound lane of State Route 16 from east Newark to Ohio 146 was flooded, causing transportation problems. County Commissioners issued a State of Emergency Declaration. This was the worst flood for the Marne area, which suffered flooding from heavy rains again on June 14, 1995.

1995

The June 1995 flood hit the Marne area (located between Newark and Hanover) the hardest, with a flooding depth of 12 feet in places. The flooding was the result of up to eight inches of rain in a 48-hour period, and a culvert that passes under the railroad bed that was too small to handle sudden

rain bursts. The railroad bed was acting as a flow restriction and holding back water, thus adding to the extent of the flooding. As a result, President Clinton declared Licking County a disaster area. This flood was the second in five years, and although it was not as bad as the 1990 flood, there was still a tremendous amount of damage, as well as discouragement among residents who were just getting their lives back together after the previous flood, and now faced the same task again.

1997

June 8, 1997 - This flood hit the Marne area as the result of four inches of rain in a two-hour period. The Federal Emergency Management Agency (FEMA) reviewed 58 homes that were affected by the flood. Damages were minor to severe. On July 26, 1997, a warm front spread across Central Ohio and became the focus for a strong thunderstorm system that lasted well into the early morning hours on the 27th. The Licking County area received five to eight inches of rain in less than six hours, with the southern and western portions of the county experiencing the worst of the flooding. Portions of the area had to be evacuated due to rising water, and portions of State Route 79 and Interstate 70 were closed due to water over the roadway. I-70 was closed between SR 13 and 79, with three to four inches of water over the roadway. Over 400 homes and businesses were damaged by floodwaters as severe thunderstorms moved repeatedly over the same areas. Subdivisions that were affected include Buckeye Lake Estates, Green Briar Mobile Home Park (Hebron), Happy Homes subdivision (located on Blacks Road in Harrison Township) and Sunny Acres (Hebron). The County Commissioners declared the county a disaster area on July 28, making way for state and federal aid. Due to the extent of the damages to the area from the July floods, Governor George Voinovich declared Licking County a disaster area, and on August 6 the Small Business Administration (SBA) declared Licking County a disaster area.

2005

January 2005 - Many locations received two to four inches of rain in a 24-hour period during this flood event, which increased flood problems as the ground was already saturated from recent snowmelt. Widespread flooding of roads and low-lying areas occurred across the region, with numerous creeks and streams rising out of their banks. Several evacuations occurred near Buckeye Lake, and Interstate 70 was closed as the lake spilled across the eastbound lanes near the State Route 79 interchange in southern Licking County. Dillon Lake flooded to capacity, causing extended road closures in both Muskingum and Licking County, and Interstate 70 was shut down for a few days, resulting in traffic congestion in other areas of Licking County. In total, the storms associated with that flood event caused over a million dollars in damage.

Additional Historic Flood Data

The National Climatic Data Center (NCDC) has comprehensive information available back to 1996 for flood events. There were over 72 events documented between 1996 and 2019, as shown in the following table.

Table 30: Licking County Flood Events 1996 - 2019

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Buckeye Lake	6/2/1997	1750	Flash Flood	No Data	No Data	No Data	5000	No Data
Countywide	6/18/1997	1200	Flash Flood	No Data	No Data	No Data	5000	No Data

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Countywide	7/26/1997	2130	Flash Flood	No Data	No Data	No Data	2000000	No Data
Countywide	7/27/1997	2000	Flash Flood	No Data	No Data	No Data	5000	No Data
Fallsburg	6/27/1998	400	Flash Flood	No Data	No Data	No Data	0	No Data
Countywide	5/28/2000	1440	Flash Flood	No Data	No Data	No Data	5000	No Data
Wagram	8/18/2000	130	Flash Flood	No Data	No Data	No Data	5000	No Data
Countywide	12/16/2000	2200	Flash Flood	No Data	No Data	No Data	5000	No Data
Southwest Portion	5/18/2001	1530	Flash Flood	No Data	No Data	No Data	5000	No Data
Pataskala	5/21/2001	1730	Flash Flood	No Data	No Data	No Data	3000	No Data
Croton	7/19/2001	1835	Flash Flood	No Data	No Data	No Data	2000	No Data
Countywide	5/28/2002	630	Flood	No Data	No Data	No Data	0	No Data
Countywide	6/5/2002	1645	Flood	No Data	No Data	No Data	0	No Data
Countywide	6/6/2002	900	Flood	No Data	No Data	No Data	0	No Data
Granville	7/10/2002	200	Flash Flood	No Data	No Data	No Data	0	No Data
Countywide	7/23/2002	1415	Flood	No Data	No Data	No Data	2000	No Data
Countywide	5/6/2003	2105	Flood	No Data	No Data	No Data	0	No Data
Countywide	5/9/2003	1000	Flood	No Data	No Data	No Data	0	No Data
Countywide	5/15/2003	1900	Flood	No Data	No Data	No Data	0	No Data
Pataskala	6/13/2003	2230	Flash Flood	No Data	No Data	No Data	0	No Data
Countywide	8/15/2003	1530	Flood	No Data	No Data	No Data	0	No Data
Countywide	1/4/2004	1530	Flood	No Data	No Data	No Data	0	No Data
Countywide	1/4/2004	1936	Flood	No Data	No Data	No Data	0	No Data
Countywide	5/11/2004	1715	Flood	No Data	No Data	No Data	0	No Data

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)									
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD	
Countywide	6/11/2004	1032	Flood	No Data	No Data	No Data	0	No Data	
Countywide	6/13/2004	2330	Flood	No Data	0	0	0	0	
Countywide	6/15/2004	1400	Flood	No Data	0	0	0	0	
Countywide	8/28/2004	745	Flood	No Data	0	0	0	0	
Countywide	1/5/2005	1300	Flood	No Data	0	0	30000	0	
Countywide	1/11/2005	1800	Flood	No Data	0	0	10000	0	
Countywide	1/13/2005	2100	Flood	No Data	0	0	0	0	
Countywide	8/30/2005	1915	Flood	No Data	0	0	0	0	
Pataskala	5/31/2006	1730	Flash Flood	No Data	0	0	0	0	
Pataskala	6/1/2006	1750	Flash Flood	No Data	0	0	1000	0	
Pataskala	3/14/2007	727	Flood	No Data	0	0	8000	0	
Fleatown	3/4/2008	1300	Flood	No Data	0	0	2000	0	
Columbia Center	3/19/2008	1200	Flood	No Data	0	0	5000	0	
Granville	3/15/2012	510	Flash Flood	No Data	0	0	5000	0	
Hebron	3/15/2012	711	Flood	No Data	0	0	0	0	
Newark	3/18/2012	1827	Flood	No Data	0	0	0	0	
Newark	7/9/2013	1543	Flood	No Data	0	0	0	0	
Newark	7/22/2013	1053	Flood	No Data	0	0	0	0	
Summit Station	12/21/2013	1535	Flood	No Data	0	0	0	0	
Purity	6/20/2014	1550	Flood	No Data	0	0	0	0	
Croton	6/24/2014	1740	Flood	No Data	0	0	0	0	
Homer	6/25/2014	330	Flood	No Data	0	0	0	0	

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Summit Station	6/28/2014	1546	Flood	No Data	0	0	0	0
Columbia Center	6/28/2014	1720	Flood	No Data	0	0	0	0
Summit Station	6/28/2014	1731	Flood	No Data	0	0	0	0
Buckeye Lake	7/1/2014	2125	Flood	No Data	0	0	0	0
Buckeye Lake	7/1/2014	2350	Flash Flood	No Data	0	0	20000	0
Buckeye Lake	7/2/2014	50	Flash Flood	No Data	0	0	1000	0
Fleatown	7/2/2014	100	Flood	No Data	0	0	0	0
Gratiot Cloudnine AR	7/13/2014	2030	Flood	No Data	0	0	0	0
Wagram	7/12/2015	2030	Flash Flood	No Data	0	0	0	0
Newark	9/18/2016	1845	Flash Flood	No Data	0	0	0	0
Fleatown	9/18/2016	1900	Flash Flood	No Data	0	0	0	0
Johnstown	7/13/2017	1045	Flood	No Data	0	0	0	0
Buckeye Lake	7/13/2017	1100	Flash Flood	No Data	0	0	0	0
Heath	7/13/2017	1130	Flash Flood	No Data	0	0	0	0
Etna	7/13/2017	1200	Flash Flood	No Data	0	0	0	0
Jersey	7/13/2017	1215	Flood	No Data	0	0	0	0
Hebron	7/13/2017	1415	Flash Flood	No Data	0	0	0	0
Fleatown	7/13/2017	1415	Flash Flood	No Data	0	0	0	0
Heath	7/13/2017	1800	Flood	No Data	0	0	0	0
Newark	4/15/2018	1830	Flood	No Data	0	0	0	0
Croton	6/22/2018	2049	Flood	No Data	0	0	0	0
Union Station	6/19/2019	300	Flood	No Data	0	0	40000	0

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)									
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD	
Outville	6/19/2019	2318	Flood	No Data	0	0	0	0	0
Vanatta	7/6/2019	1745	Flood	No Data	0	0	0	0	0
Purity	7/6/2019	1800	Flood	No Data	0	0	0	0	0
Johnstown	8/7/2019	1341	Flash Flood	No Data	0	0	0	0	0
TOTALS:					0	0	\$2,164,000	0	

Much of Licking County’s terrain supports flash floods. By looking at past historical events, the Core Group was able to see what areas of the county were most susceptible to flash flooding. One of the most prevalent areas in Licking County susceptible to flash flooding is the Marne area just east of Newark.

Dillon is a flood control project located in Muskingum County along the Licking River. When the reservoir fills to capacity it floods adjacent areas along the Licking River stretching from the county line nine miles west to Newark. The Dam was designed to protect downstream municipalities, such as Zanesville, Philo, Gaysport, McConnellsville, and Marietta. The Army Corp of Engineers holds flooding easements on properties from Newark to Hanover that allows them to flood these properties. The rights were purchased in the late 1950s and early 1960s homes and even some towns were moved to keep them out of harm’s way in the event of flooding. Although most structures were removed there are multiple roads that are impacted when the lake is at capacity. See Figure 52 for impassable roadways during highwater events.

According to dam inventory sheets, there have been two incidents at two separate dams, the Newark low-head dam and Goss Lake dam. The Newark dam washed out in the flood of January 1959, but the damage as a result of the dam failure was very minimal because Newark was experiencing widespread flooding. The dam was re-built in 1960 and built higher. Goss Lake experienced a partial failure in July of 1991. The partial failure was to the principal spillway as a result of floodwaters. No record of injuries or damage was found.

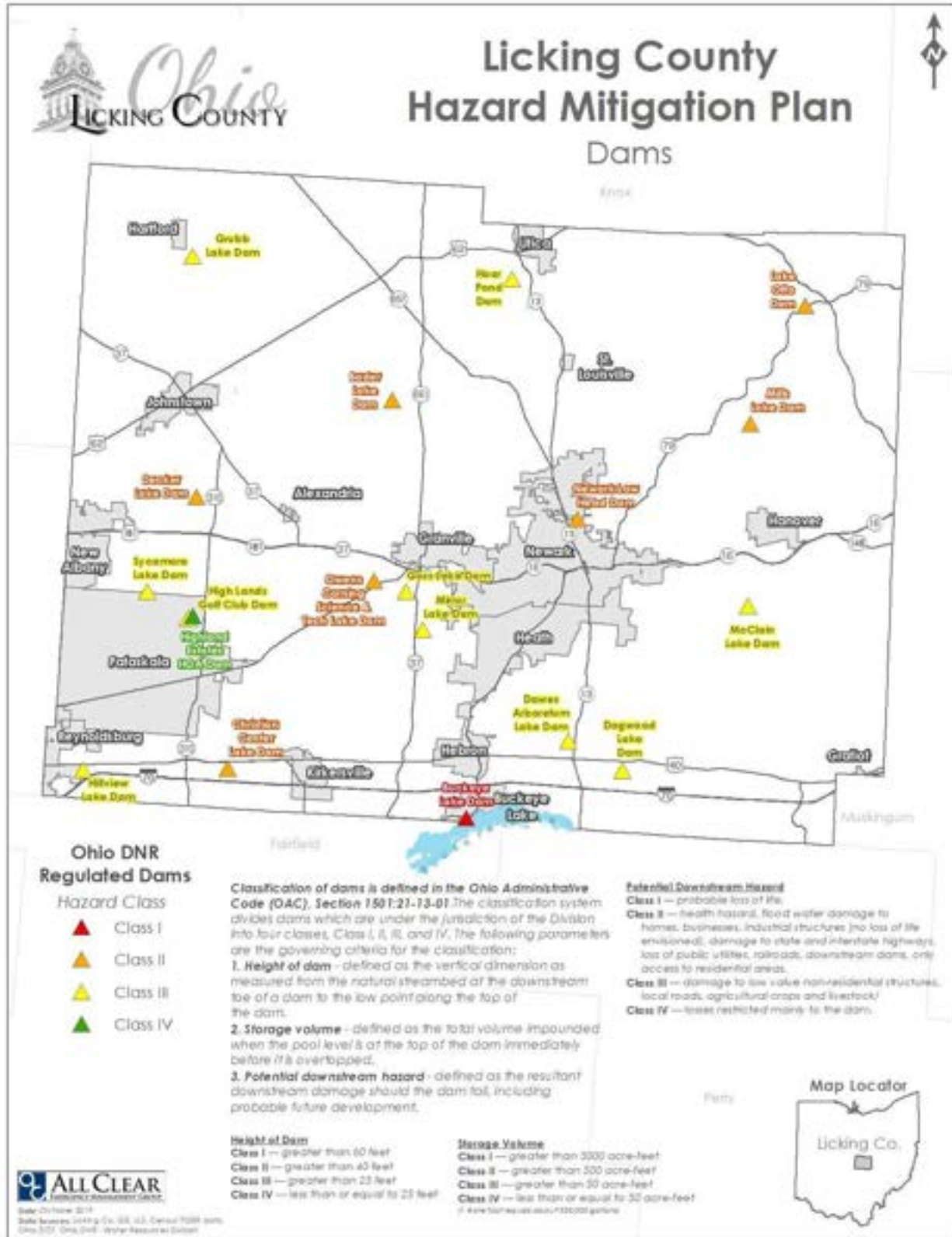


Figure 50: Licking County Dam Locations



Figure 51: Impassable Roadways During Highwater Events

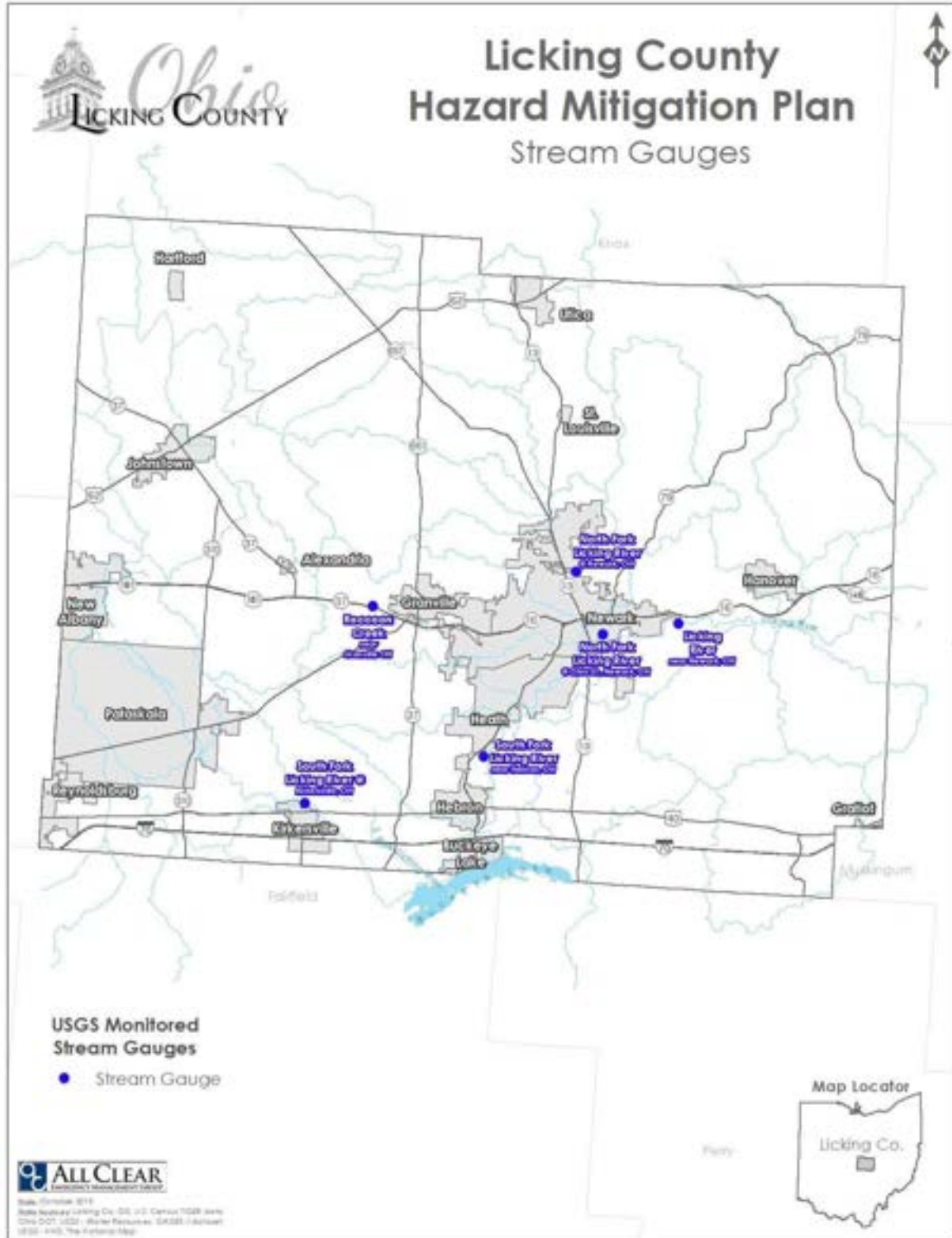


Figure 52: Stream Gauges in Licking County

9.3.3.3 Probability of Future Events

Recurrence interval, or frequency of occurrence, is defined as the average number of years between storms of a given intensity. These high intensity storms can be expected infrequently, around every 10, 20, 50 or 100 years. Recurrence interval addresses how often a flood of a specific depth will be expected to occur. Structures located within areas considered at higher risk should be prioritized higher as it relates to mitigation. The flood maps that are in effect for Licking County only display the 100-year and 500-year floodplains, and though information on other interval events is available in the flood profiles, it is cost prohibitive to do any further studies at this time. In cooperation with FEMA, Licking County underwent extensive updating of the floodplains in the years since the last mitigation plan. The flood data reviewed from the NCDC website only shows records on floods dated from 1993-2019. The data shows that floods range in occurrence from a couple of weeks to as far out as three years per recorded events. Even though floods seem less common based on the data, there are many more problems from localized flooding with some of the smaller rain events. There were 72 recorded flooding events in 23 years according to the NCDC website. On average Licking County experiences 3 floods per year with a recurrence interval of 0.32 years per event.

Licking County can also be impacted by flooding as a result of the Buckeye Lake dam. The following website details evacuation routes and public warning methods in place for flooding related to this dam <http://buckeyelakedamsafety.com/index.html>. The Buckeye Lake Dam recently underwent significant repairs and upgrades to address safety concerns with the dam. Additionally, there have been two dam failure events in Licking County in the past 60 years, both of which resulted in no record of property damage or injuries. This computes to a 3% chance of a dam failure in any given year. The Buckeye Lake Dam has an Emergency Action Plan in place. The map below details the approximate impact area for a failure of the dam.



Figure 53: Buckeye Lake Dam Failure Impact Area

The impacts of a dam failure are contingent on many factors and, therefore, cannot be concisely described. In the mid the 2000’s the Dam Safety Program (DSP) incorporated an assessment to estimate a dam’s risk to infrastructure and population at risk. The assessment looks at sunny day and rainy-day failures to categorize if infrastructure (roads, structures, water treatment facilities, etc.) would be damaged. Infrastructure damage categorization is as follows: “low” 1-3 facilities impacted, “medium” 10-50 impacted, “high” 51-150 impacted, and “very high” over 150 impacted. This assessment also estimates a PAR (Population At Risk) that ranges from 0 – 10,000. PAR is categorized in the following way: “low” is less than 100 people, “medium” is 101-200 people, and “high” is more than 200 people. This assessment is revisited when a dam is inspected as part of the 5-year inspection cycle. The table below contains rough estimates of the downstream impacts of a dam failure for the Buckeye Lake dam. The condition of the dam is not a factor of the estimated damage or PAR levels. Because of the uncertainty of determining precisely who and what will be impacted by a dam failure, a scale was developed by the DSP to categorize dams based on their estimated impact to lives and structures downstream. The “Very high, high, medium, and low” scale is based on the PAR and was developed using experience with flood modeling, aerial photographs, field observations, and engineering judgment. The Damage and PAR levels are periodically updated by DSP staff as new data is obtained.

Table 31: Estimates of Downstream Impacts of Buckeye Lake Dam Failure

County	Dam	Sunny Day Infrastructure Damage Level	Sunny Day PAR Level	Rainy Day Infrastructure Damage Level	Rainy Day PAR Level
Licking	Buckeye Lake Dam – Extensive dam repairs were completed in 2019.	Very High	High	Very High	Medium

Another man-made flood control structure in Licking County is the Newark LLP levee. The following information is included for reference and was obtained from the National Levee Database²⁹. The project is located along the North and South Forks of the Licking River and along Raccoon Creek in the City of Newark. The earthen levee is located along the right descending bank of the North Fork and the left descending bank of the South Fork. Construction of the Newark LPP began in 1940 and was completed in 1941. The project provides flood protection to the downtown area of the City as well as adjacent residential and commercial sections of Newark.

²⁹ National Levee Database: <https://levees.sec.usace.army.mil/#/levees/system/3305000018/summary>



Figure 54: Newark LLP Levee and Potential Impact Area due to Failure

The levee generally has a top width of 12 feet with side slopes that vary from 2.0 horizontal to 1 vertical (2.0H:1V) to 3.5 horizontal to 1 vertical (3.5H:1V). The riverward side is protected at critical locations with an 18 to 30-inch layer of stone over filter cloth. The levee crest elevation ranges from 819.5 to 815.0 along the South Fork, and from 817.6 to 815.0 along the North Fork of the Licking River. The main levee is approximately 6,350 feet long. A total of 31,500 feet of the North Fork, South Fork, and Raccoon Creek channels were improved and relocated during the original construction of the levee. Additional improvements to the channel were performed since 1943.

The risk associated with the Newark, OH, LPP - South (South Fork) is considered to be Low for Prior to Overtopping based on uncertain performance with a high annual likelihood of breach and the associated consequences to have a low life safety risk and with moderate property damage during flood events. The major concerns driving this risk classification include levee seepage and stability as well as evacuation effectiveness. However, these concerns are offset by the fact that the levee has performed well during significant loading up to 90% of the levee height and there are shallow inundation depths in the levee area with short evacuation routes to high ground.

According to the National Levee Database, the population behind the levee is 671, there are 283 structures behind the levee valued at approximately \$63.4 million.

9.3.3.4 Current Development Trends

The current development trends suggest that Licking County is continuing to grow at a fast rate. The population has doubled over the last fifty years and statistics are not showing any slow-down of growth any time soon. The Licking County Commissioners and the Licking County Planning

Commission are aware of this and are leading the charge on the development of key documents to help their community grow responsibly.

Any development within floodplains can impact the direction, flow and level of the watercourse during periods of high water or flooding. If fill material or a house is placed or constructed in a floodplain, the boundaries of the floodplain downstream will be altered. This occurs because structures or fill utilize valuable space that would otherwise act as a natural retaining area for floodwaters to spread and slow. As dangers in the floodplain increase downstream, developments within the floodplain are at higher risk of damage due to flooding. This damage includes upstream fill material and debris from destroyed structures colliding with edifices in the floodplain downstream. Many bridges are washed out during floods because river borne debris clog their free-flow area.

Because of the potential for loss of life, damage to public and private property, and financial considerations such as loans and insurance, permits must be obtained from the Licking County Planning Commission before any land development (including construction, filling, and excavating) can occur in any identified 100-year floodplain. In addition, no new lots can be created in the unincorporated areas of the county unless there is a minimum of 1.6 acres of useable ground that exists above the 100-year flood elevation (“useable” is defined as land above the 100-year floodplain, and free of easements, rights-of-way, etc.). Further protection of floodplains through township zoning protects residents and property owners from personal danger and loss of property.

Licking County adopted regulations for flood hazard areas based on the Ohio Revised Code, Sections 307.37 and 307.85. These regulations are contained in the Licking County Flood Damage Prevention Regulations and are necessary for participation in the National Flood Insurance Program (NFIP), a FEMA program.

The existing comprehensive plans of communities that participated in the CANHMP were reviewed for any specific information on the control and movement of development into hazardous areas. The following information was obtained:

Village of Granville

The Village of Granville’s 1998 Land Use Plan divides the planning area into nine functional categories, each representing a land use. Specific development within each category is managed by the zoning and subdivision regulations and ordinances of the township and village. One of these development categories is Conservation Land Use. There are approximately 1,400 acres of ground in Granville that FEMA identifies as 100-year floodplain land. This includes the Griffin Run floodplain between Loudon Street and Burg Street, a small area south of Sharon Valley Road, and the Raccoon Creek floodplain that runs parallel to State Routes 16 and 37. The Conservation category protects water storage and recharging, protects wildlife that exists in the floodplains, and protects against potential flooding that could threaten property and human life. Usage in the Conservation category is limited to agricultural and recreational purposes.

Village of Hebron

One step that the Village of Hebron has taken to improve floodplain management is the adoption of an ordinance restricting activity within the floodplain. Hebron has also adopted a Flood Mitigation Plan to help deal with repetitive loss areas within village limits. The Village of Hebron Comprehensive Plan states the goal of delineating repetitive loss floodplains as “green space.” Green space is defined in the plan as “land used solely for undeveloped purposes, excluding agriculture, commercial, residential, or industrial uses; and is either maintained for aesthetic,

health, and/or recreational purposes, such as grassed parks; or left undisturbed in a natural state, such as wetlands.” The village will designate all acquired properties located in the floodplain as “C-1 Conservation District.”

City of Pataskala

According to the Pataskala Comprehensive Master Plan, zoning controls development in the 100-year floodplain by limiting permitted uses to agriculture, recreation, and similar non-intensive activities. This plan encourages floodplain management through land acquisition by the city, and incorporation of floodplain maintenance via path and bikeways connecting all parts of the city. It also recommends that the city preserve the most unique and sensitive land portions by designating area for agriculture and open space conservation uses such as parks, open space, green space, agriculture, and low-density residential areas.

The plan also includes information on wetlands, due to Pataskala’s proximity to two watersheds. Recommendations formalize a process of ensuring a U.S. Army Corps of Engineers review of any sites slated for development within the city boundaries. At a minimum, this includes a requirement that zoning change applicants provide the city with written proof of a U.S. Army Corps of Engineers determination that there are no jurisdictional wetlands on the subject site. The city may establish routine contact with the U.S. Army Corps of Engineers when reviewing zoning changes or development plans.

9.3.3.5 *Flood Vulnerability in Licking County*

Licking County’s vulnerability to flooding is particularly significant. In the areas of Licking County that have converted from undeveloped ground to subdivisions and business uses, the susceptibility to flooding and flood related damage tends to be higher than in rural areas. The Licking County Commissioners have taken steps in the unincorporated areas of Licking County to deter development within the floodplain. The incorporated jurisdictions should follow the Licking County Commissioners lead in mitigation for future floods by not allowing new construction in high hazard areas, such as floodplains. Each of the participating communities, including Heath, Hebron, Granville, Pataskala, Newark, Hanover, Alexandria, Johnstown, Hartford, and Buckeye Lake will be responsible for administering each aspect of the plan according to how it affects their community.

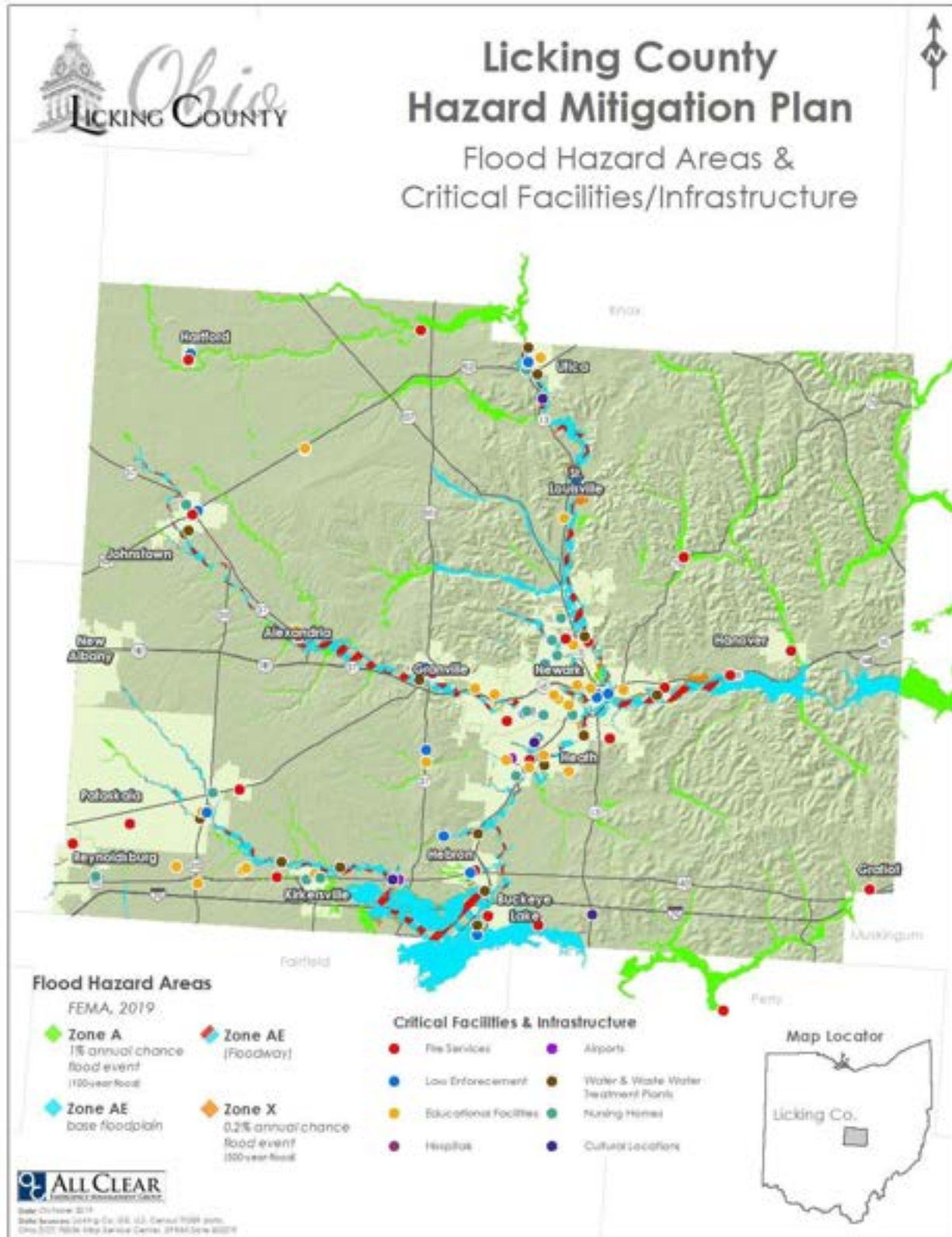


Figure 55: Flood Hazard Areas in Licking County and Critical Facilities

9.3.3.6 Critical Facilities Impacts

The Flood Hazard Areas and critical facilities maps were overlain to create the map depicted in Figure 56. This map shows that many of the critical facilities in Licking County and its jurisdictions are located in flood hazard areas.

9.3.3.7 Potential Impacts and Estimation of Losses

There are several roadways that become impassable during flood events in Licking County. Figure 52 shows a map of locations of roads that interest the 100-year flood plain. In addition, Licking County Engineer’s Office has placed signs on roadways that become impassable during high water events to warn drivers to the danger.

At-Risk Structures

In order to provide additional data on the risk of flooding in Licking County and its jurisdictions, a Hazus analysis for flooding was run. Because of limitations in data available to Licking County and with the Hazus software, Level 1 analysis was performed using general building stock. Because of the aggregated data used due to these limitations, it was not possible to estimate the number of structures at risk of damage for each individual jurisdiction. Therefore, the structures listed below are for the whole of Licking County. About 700 structures are expected to be at least moderately damaged during a 100 year flood scenario in Licking County, with 29 residential structures completely destroyed. Of critical facilities within Hazus, the Emergency Operations Center is expected to sustain moderate damage, resulting in the loss of its use as are two fire stations, two police stations, and two schools.

Table 32: Expected Building Damage by Occupancy From Hazus Flood Model

Occupancy Type	Damage Level					
	1-10	11-20	21-30	31-40	41-40	>50
	Slight	Moderate				Substantial
Agriculture	0	0	0	0	0	0
Commercial	13	5	0	0	0	0
Education	0	0	0	0	0	0
Government	1	0	0	0	0	0
Industrial	0	0	0	1	0	0
Religion	0	0	0	0	0	0
Residential	271	407	165	65	29	29
Total	285	412	165	66	29	29

The total economic loss estimated for this flood scenario is 593.82 million dollars, which represents 11.82% of the total replacement value of the scenario buildings. Table 33 shows the breakdown of direct building losses and business interruption losses. Residential occupancies made up 33.36% of the total loss.

Table 33: Building Related Losses from Hazus Flood Model (Millions of Dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss	Building	96.43	30.95	8.18	4.46	140.01
	Content	46.38	88.20	15.29	25.25	175.12
	Inventory	0.00	2.46	2.50	0.33	5.29
	Subtotal	142.81	121.61	25.97	30.03	320.42
Business Interruption	Income	1.80	59.94	0.34	8.40	70.48
	Relocation	33.47	16.91	0.34	3.53	54.25
	Rental Income	15.74	10.99	0.05	0.42	27.19
	Wage	4.26	76.88	0.62	39.73	121.49

	Subtotal	55.27	164.71	1.34	52.08	273.40
All	Total	198.08	286.32	27.31	82.11	593.82

While the data and model limitations were not able to provide quantitative values for numbers and types of structures at risk of flooding by jurisdiction, the flood hazard maps for each jurisdiction (Figures 37- 50) show the different areas of the jurisdictions that are at risk for flooding.

- Alexandria** Large area of the village is within Zone A (1% annual chance of a flood), but this area is mostly park or field land. To the south of the village along Raccoon Creek, there are some residential areas within Zone Z (0.2% annual chance of a flood).
- Buckeye Lake** Most of the west side of the village is within Zone AE (base floodplain and floodway) and Zone X. This includes residential and commercial properties.
- Granville** On the south side of the village, along Raccoon Creek, are areas within Zone X. These include commercial and residential. There is another smaller area on the north side of the village, that is within Zone A, along a drainage. This area is residential.
- Hanover** Zone A extends from north to south within the borders of the village, along Rocky Fork. Most of this area is fields or parks, but there is one manufacturing area.
- Hartford** There is a small area within Zone A on the northeast corner of the village, along a drainage. There are a few residential structures in this area.
- Heath** There are limited areas of Zone A within the city limits, however there are areas of Zone X along the South Fork Licking River.
- Hebron** Some areas of the village are within Zone X, primarily along the southern part and on the eastern side, along drainages. These areas are mostly agricultural fields. On the west side of the village, one area of Zone A is present along a drainage, which is primarily residential and fields.
- Johnstown** There are minimal areas of Zone X along Raccoon Creek within the village borders. However, in the southwest part of the village, along Kiber Run, there is an area within Zone A, which contains a commercial property.
- Kirkersville** There are large areas of Zone A within the village borders, but it is primarily agricultural land.
- Licking County** Many areas of unincorporated Licking County are within Zone A. While some of these areas have structures in place (residential, commercial, etc.) most of the area is woodlands or agriculture fields. There are lesser areas of Zone X in unincorporated Licking County.
- Newark** There are many areas of Zone A and Zone X within the city, primarily in the center of the city, where the rivers merge. There are many residential and commercial properties in these areas.



- Pataskala** **There are some areas of Zone X along the Muddy Fork and the South Fork Licking River. There is also an area of Zone A in the northeast portion of the city, which includes land around the Licking Heights High School and the Licking Heights Middle School.**
- St. Louisville** **There are areas of Zone X along the North Fork Licking River, and a residential area west of N. Sugar Street.**
- Utica** **There are minimal areas of Zone A along a drainage ditch in the northeast portion of the village and some Zone X along the North Fork Licking River.**

9.3.4 Invasive Species

Invasive Species are organisms that are not native to a region, and that when introduced, cause economic or ecological harm. These organisms can be a plant, animal, parasite or a disease, and they can be introduced to an area by accident or on purpose. As non-native species, they often have no natural controls in terms of predators, and therefore often spread quickly, and can quickly overwhelm native species by out competing them for scarce resources. The two invasive species most commonly associated with Ohio are the emerald ash borer and the zebra mussel, but they are by far the only ones that have the potential to cause harm to Licking County and its jurisdictions.

There are currently more than 6,500 nonindigenous species of plants, animals and microorganisms established in the United States, posing risks to native species, valued ecosystems, and human and wildlife health. Many invading organisms and diseases cause substantial losses in agriculture, livestock, fisheries, and other resource production systems. Some significantly alter ecosystems, resulting in costly damages due to increases in fire, flooding, and erosion. A few are vectors, or carriers, of human diseases.

9.3.4.1 Location and Extent

Invasive plant species are quickly taking over the landscape in Central Ohio creating hazardous natural resources situations. In the U.S. alone, invasive plants cause more than \$120 billion a year in damages to agriculture, industry, recreation, forestry, human health and the environment. Though there are more than 50 species on the ODNR Invasive Species list, the main species of concern in Central Ohio are:

- Bush and vine honeysuckles (*Lonicera japonica*, *L. maackii*, *L. morrowii*, *L. tartarica*)
- Wintercreeper and Winged Euonymous (*Euonymous alatus*, *E. fortunei*)
- Japanese Knotweed (*Polygonum cuspidatum*)
- Pragmites/Common Reed Grass (*Phragmites australis*)
- Bradford Pear (*Pyrus calleryana*)
- English Ivy, Myrtle and Asiatic Bittersweet (*Hedera helix*, *Vinca minor*, *Celastrus orbiculatus*)
- Japanese Barberry and Privet (*Berberis thunbergii*, *Ligustrum* sp.)
- Tree of Heaven (*Ailanthus altissima*)
- Garlic Mustard (*Alliaria petiolata*)

9.3.4.2 Previous Occurrences

According to the Center for Invasive Species and Ecosystem Health at the University of Georgia, Licking County has had 245 separate invasive species reported within its boundaries³⁰. This puts Licking County in the top third for number of species in a county in Ohio.

9.3.4.3 Probability of Future Events

As invasive species as a hazard is just only beginning to be understood, it is not possible to quantify the likelihood of future probability of a future invasive species event due to past events not being well defined. However, qualitatively, it is highly likely that invasive species continue to pose a threat to Licking County as they become more common and difficult to treat. Climate change is also likely to accelerate the rate at which invasive species can spread and take root in Licking County. Adjacent counties such as Franklin, Knox, and Fairfield have all reported more invasive

³⁰ Source: https://www.eddmaps.org/tools/statereport.cfm?id=us_oh

species than Licking County, so it is very likely that species identified in those counties will soon be identified in Licking County too.

9.3.4.4 Current Development Trends

As Licking County's population increases and more urbanization occurs, it is likely that invasive species will be identified sooner. If appropriate treatment and removal of the invasive species happens sooner, the spread will be more easily controlled.

9.3.4.5 Invasive Species Vulnerability in Licking County

Licking County is particularly vulnerable to invasive species. Ohio has long been a hub of interstate transportation and commerce. The extensive highway network, railroads, airports and waterways all provide avenues to introduce new invasive species and increase the spread of existing ones. The expansive rural areas of Licking County are more susceptible to invasive species plants than developed, urban areas, as the invasive species would grow unnoticed for longer.

9.3.4.6 Critical Facilities Impacts

It is not thought that invasive species would have an immediate impact on critical facilities in Licking County.

9.3.4.7 Potential Impacts and Estimation of Losses

Invasive species can increase a region's ecosystem vulnerability through land use changes and environmental pollution. This in turn can result in economic losses either through loss of income due to changes to agriculture or from costs associated with managing and mitigating the invasive species and their effects. Land use changes may also impact Licking County's important cultural heritage. Other invasive species can impact human health directly by spreading disease and parasite. Invasive organisms can also out compete native flora and fauna, resulting in devastating ecological changes.

No direct costs of invasive species for Licking County are available. However, studies that have attempted to quantify economic costs associated with invasive species are widely varying for a single species, and are highly theoretical. Marbuah et al. 2014 provides an updated review of many of these studies, and found that in the United States, invasive species cause an estimated 121 - 220 billion dollars in damage costs per year.³¹ These costs vary depending on when interventions are initiated. If an invasive species is caught before it has been able to spread far, it is much easier to apply treatment or mitigation strategies, than if a greater area is affected, and therefore, costs would be more limited.

³¹ Source: Marbuah, G., Gren, I., Mckie, B. (2014). Economics of Harmful Invasive Species: A Review. Diversity, 6(3), 500-523. doi:10.3390/d6030500

9.3.5 Severe Summer Weather

Severe summer weather encompasses thunderstorm, lightning, hail and damaging wind events. Despite the name, severe summer weather can happen any time of year, but is more typical during the summer months.

A severe thunderstorm watch is issued by the National Weather Service when the weather conditions are such that damaging winds of 58 mph or more, or hail three-fourths of an inch in diameter or greater, is likely to develop. Citizens should locate a safe place in the home and tell family members to watch the sky and listen to the radio or television for more information. A severe thunderstorm warning is issued when a severe thunderstorm has been sighted or indicated by weather radar. At this point, danger is immediate and citizens should move to a safe place, turn on a battery-operated radio or television, and wait for the "all clear" by the authorities.

Tornadoes, high winds and flash flooding can also be spawned by thunderstorms. When thunderstorms bring heavy rains (which can cause flash flooding), strong winds, hail, lightning, and tornadoes, people should get inside a sturdy building and stay tuned to a battery-operated radio for weather information. These weather phenomena have the potential to cause severe damage to property and even injury and death to people.

Lightning is also a major threat during thunderstorms. In the United States, 75 to 100 Americans are hit and killed each year by lightning. The myth that lightning never strikes twice in the same place needs to be replaced by the fact that lightning will strike several times in the same place during just one discharge. Lightning may also cause structure or wildfires.

Hail forms when a storm causes air currents to rise high enough that water droplets freeze. When the droplets become too heavy, they fall to the earth. Damaging hail is considered hail greater or equal to $\frac{3}{4}$ inch in diameter. Every year hail causes \$1 billion in damages to property and crops in the United State.³²

Damaging winds can accompany thunderstorms or they can occur on their own. There are several different types of damaging winds including straight-line winds, downdrafts, macrobursts, microbursts, downbursts, gust fronts, derechos, and haboobs. These are all different than tornadoes. Winds speeds can exceed 100 miles per hour and cause damage for hundreds of miles.³³

9.3.5.1 Location and Extent

Severe summer weather is a widespread phenomenon and can occur anywhere in the county and its jurisdictions. Some storms will affect only a small portion of the county while others may affect the whole. In particular, hailstorms are more localized than thunderstorms and lightning, with the size of hail varying widely by location.

9.3.5.2 Previous Occurrences

Severe summer weather is a common occurrence in Licking County and its jurisdictions. The tables below list the past occurrences of thunderstorms, hail, lightning and damaging winds in the county. The NCDC's Storm Events Database lists both thunderstorm wind and high/strong winds separately, and as such, are listed separately in the tables.

³² Source: <https://www.weather.gov/mhx/HailHazards>

³³ Source: <https://www.nssl.noaa.gov/education/svrwx101/wind/faq/>

Table 34: Summary of Thunderstorm Wind Events in Licking County 1950-2019 by Decade

Decade	#of Storms	Max Windspeed	Total Death	Total Injuries	Total Property Damage	Total Crop Damage
1950-1959	2	N/A	0	0	0	0
1960-1969	4	62 mph	0	0	0	0
1970-1979	7	N/A	0	0	0	0
1980-1989	22	54 mph	0	4	0	0
1990-1999	46	70 mph	1	2	\$1,246,000	0
2000-2009	51	60 mph	0	0	\$441,000	0
2010-2019	130	89 mph	2	4	\$744,500	0
Totals	262		3	10	\$2,431,500	0

Table 35: Summary of Hail Events in Licking County 1960-2019 by Decade

Decade	#of Storms	Max Hail Size	Total Death	Total Injuries	Total Property Damage	Total Crop Damage
1960-1969	3	1.75 in	0	0	0	0
1970-1979	1	1.75 in	0	0	0	0
1980-1989	11	2.75 in	0	0	0	0
1990-1999	13	2 in	0	0	0	0
2000-2009	30	2.75 in	0	0	\$100,107,000	0
2010-2019	39	1.75 in	0	0	0	0
Totals	97		0	0	\$100,107,000	0

Table 36: Lightning Events in Licking County 1996-2019

Location	Date	Total Death	Total Injuries	Total Property Damage	Total Crop Damage
Newark	6/18/1997	0	0	\$20,000	0
Newark	7/26/1997	0	0	\$20,000	0
Totals		0	0	\$40,000	0

Table 37: Damaging Wind Events in Licking County 1996-2019

Location	Date	Magnitude (mph)	Total Death	Total Injuries	Total Property Damage	Total Crop Damage
Licking County	12/11/2000	58	0	0	0	0
Licking County	12/14/2001	57	0	1	\$60,000	0
Licking County	3/9/2002	56	0	0	\$30,000	0
Licking County	5/11/2003	50	0	0	0	0
Licking County	12/1/2006	38	0	0	\$10,000	0
Licking County	1/29/2008	54	0	0	0	0
Licking County	9/14/2008	50	0	0	\$18,400,000	0

Location	Date	Magnitude (mph)	Total Death	Total Injuries	Total Property Damage	Total Crop Damage
Licking County	2/11/2009	51	0	0	0	0
Licking County	12/9/2009	53	0	0	\$4,000	0
Licking County	10/30/2012	50	0	0	\$2,000	0
Licking County	11/24/2014	50	0	0	0	0
Licking County	4/3/2016	50	0	0	\$1,000	0
Licking County	10/20/2018	43	0	0	\$5,000	0
Licking County	2/24/2019	50	0	0	0	0
Totals					\$18,512,000	0

Grand Total for Property Damage Across All Four Hazards	\$121,090,500
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Licking County had a storm called a “derecho” in June of 2012. A derecho is a widespread long-lived windstorm associated with a band rapidly moving showers and thunderstorms. The storm cause widespread power outages across Licking County and the surrounding areas. News outlets estimated that over 312,000 homes and businesses were without power. Some were without power for up to 10 days. Causing losses of income, food, and water. According to the Ohio Insurance Institute (OII) this was the third costliest natural disaster to hit Ohio in recent times. A survey conducted by OII polled 27 property/causality insurance companies in Ohio claim estimates where above 96,000 with damages totaling \$433.5 million for the state of Ohio. The survey respondents represent 76% of Ohio’s auto market, 73% of Ohio’s homeowners insurance, and 30% of Ohio’s commercial lines. Final dollar losses will be higher once all estimates are in. Local governments in 37 Ohio counties were eligible for federal funds to help pay for damage repair and extra costs they incurred as a result of the June 29 severe storms that caused massive power outages across much of Ohio. The federal funds had been made available as a result of President Barack Obama granting Gov. John R. Kasich’s request for a federal disaster declaration. Thanks to the disaster declaration by the county, local governments received over \$900,000 in federal disaster assistance for cost incurred during and after the storm.

9.3.5.3 Probability of Future Events

One problem with the statistics of severe summer weather listed above, obtained from the Storm Event Database is that over time, it appears that hail and thunderstorm wind events have grown exponentially more common. This is misleading because of changes in reporting criteria and the availability of technology has changed how storms are observed and classified. It can be expected however, that storms with winds up to 89 miles per hour and hail up to 2.75 inches can occur again.

The 262 instances of thunderstorm wind events since 1950 leads to a recurrence interval of 0.27 years. However, if we only consider the last 20 years due to having more standardized reporting

criteria, there were 181 reported instances, resulting in a recurrence interval of 0.11 years, which is a more realistic number. This means that on average over the last 20 years, there are about 9 thunderstorm wind events every year that impact Licking County.

Similarly, with hail events, the last 20 years have had 69 reported instances. This is a recurrence interval of 0.29 or an average of 3.5 hail events occurring in Licking County every year.

There were only two reports of lightning in Licking County since 1996, both of which occurred in 1997. The low number is likely due to changes in reporting criteria and it is not appropriate to calculate a recurrence interval or probability based on just two instances from the same year. However, according to the 2018 Annual Lightning Report by VIASALA, the National Lightning Detector Network shows that Licking County receives one to four flashes of cloud to ground lightning per square kilometer per year. It is expected that lightning would continue to occur at similar rates in the future.

Damaging wind events have occurred 14 times since 1997 in Licking County. This is a recurrence interval of 1.79 years or a 56% chance of occurring any given year.

9.3.5.4 Current Development Trends

Since winter severe storms are a non-site-specific hazard, current development trends have no affect other than the potential of increased population that would be susceptible to severe winter storms within Licking County's boundaries.

9.3.5.5 Current Codes and Regulations

There are no current codes or regulations in place that protect structures from severe winter storm hazards in Licking County other than the Ohio Building Code (commercial) 2017 and the Residential Building Code of Ohio (residential) 2019. Since severe winter storm hazards are considered non-site specific, any code or regulation affecting this hazard would have to be implemented countywide to have any impact.

9.3.5.6 Severe Summer Weather Vulnerability in Licking County

Typically, mobile homes are the most vulnerable structures when it comes to severe summer weather, in particularly, the winds associated with thunderstorms or strong winds on their own.

9.3.5.7 Critical Facilities Impacts

Critical facilities maybe impacted by severe summer storms; however, their vulnerability is not geographic dependent. Hail may cause damage to buildings including breaking windows, strong winds can cause trees to fall either on to buildings or on to roads and blocking them. Lightning can also impact critical facilities as it can disrupt power supplies and communications. This is particularly important for facilities such as an EOC or dispatch center.

9.3.5.8 Potential Impacts and Estimation of Losses

Damage from severe thunderstorm winds account for half of all severe reports in the lower 48 states and is more common than damage from tornados. Wind speeds can reach up to 100 miles per hour and damage paths can extend hundreds of miles. People living in mobile home parks are especially at risk for injury or death from these winds. Anchored mobile homes can be seriously damaged when gusts over 80 miles per hour. Hail can break windows, dent cars, damage roofs and can damage crops. Hail has accounted for extensive damage to roofs in Licking County previously, as noted in the next section. Lightning can cause damage to buildings, electronics and communication systems, utility systems, grassland, forests, and crops, either from direct hits or

through fires caused by lightning strikes. Lightning can also cause severe injuries and death to people and animals. On average in the US, lightning accounts for 27 deaths and 243 injuries to people every year.

The impact that severe storms have on infrastructure can be significant. Summer storms can cause severe flooding that can shut down roadways and can also flood sanitary and drinking water systems. With areas outside of the flood zone it gets difficult to predict what might happen. Storms have knocked out power in the county for days; this is typically caused by blown down trees, lightning, or heavy ice and snow. Downed power lines and trees will shut down roads as well. The problem is planning for such events; mitigation activities typically happen after the fact with severe storms because it is difficult to predict when and where a storm will hit, and its impact on infrastructure.

In the past, thunderstorm wind events have caused at least \$2,431,500 worth of property damage since 1993, which averages to be over \$93,500 per year of damage. The single most destructive storm, in terms of property damage, occurred on June 21, 1994. \$500,000 worth of property damage was sustained in Licking County with downed trees, and roof damage. Two homes near Alexandria had their roofs removed by the storm causing significant damage.

Hail has been even more costly in Licking County; however detailed records are sparse. The only reported damages from hail occurred between 2004 and 2009. In that time period, an estimated \$100,107,000 of damages have occurred in Licking County, averaging \$16,684,500 of damages per year. If we factor in the total duration of the record, despite no reported figures for hail, it averages over \$1,750,000 per year. The single most expensive storm occurred on October 4, 2006, when large hail to golf ball size fell for an extended period across the far western portion of the county, causing widespread significant damage. Thirty to forty mobile homes and numerous vehicles were severely damaged. A few subdivisions in the Pataskala area had homes that sustained extensive roof and siding damage.

From the historical record, lightning has caused \$20,000 worth of damage in two separate storms. While it isn't appropriate to calculate average yearly damage from the incomplete record, it can be stated that lightning has the possibility of causing that much damage or more in the future. In both those instances, a lightning strike to a building caused a fire.

Strong winds have caused more than \$18 million dollars of damage in the past 25 years in Licking County, with the worst storm occurring on September 14, 2008. This storm caused \$18.4 million dollars in damage alone. This was associated with the remnants of Hurricane Ike, which traveled up the Ohio River Valley after making landfall in the Gulf of Mexico.

Across all four hazards of Severe Summer Weather, the total damage across all timeframes where accounting is available is \$121,090,500.

9.3.6 Severe Winter Weather

Winter storms are a common occurrence in Licking County during the winter months, however blizzards are not as common. Licking County has had a handful of blizzards over the past 100 years. For the most part, these storms bring the county to a standstill due to heavy snows, blowing snow, and extremely cold temperatures. Ice storms may also occur.

A winter storm watch indicates that severe winter weather may affect your area. A winter storm warning indicates that severe winter weather conditions are on the way. A blizzard warning signifies that large amounts of falling or blowing snow and sustained winds of at least 35 mph are expected for several hours.

Another factor in severe winter weather is the wind chill, which can dramatically affect the temperature outside, causing frostbite in a matter of minutes. Wind chill is a calculation of how cold it feels outside when the effects of temperature and wind speed are combined. A strong wind combined with a temperature of just below freezing can have the same effect as a still air temperature 35°F colder.

9.3.6.1 Location and Extent

Severe winter weather is a hazard that can affect all portions of Licking County, as it is a widespread meteorological event. In Licking County, temperatures can drop below freezing; when factoring in wind chill, it can feel as low as -20 to -40 °F or lower. Most commonly, snowstorms result in just a few inches of snow at a time, but some storms can produce more than a foot of snow. In 1959, snow drifts after a blizzard that followed subsequent snowstorms resulted in drifts up to 15 feet.

9.3.6.2 Previous Occurrences of Severe Winter Weather

1978

The blizzard of 1978 was a finale of sorts to a month-long battle with heavy snows. The snow began on Jan. 9, 1978 with an initial accumulation of five inches of snow; another six-inch snowfall occurred on January 18. On January 26, a blizzard hit that produced winds up to 70 mph and snowdrifts up to 15 feet in some areas, thus creating a travel nightmare. Most roads were closed along with some major arteries; State Routes 16 and 79 were only open in one lane. Snow removal crews could not keep up with drifting snow, as roadways would blow shut again shortly after they were cleared. Snow removal was also hampered when drivers abandoned their vehicles in and along roadways because they were stuck or their cars stalled due to the extreme cold. Most property damage that occurred was due to traffic accidents because motorists were crashing into each other, as well as into power line poles and ditches.

The snow and wind were not the only conditions that caused headaches. Temperatures dipped below zero and coupled with the wind chill to produce bitterly cold conditions. Many residents without heat were evacuated to local shelters. Many critical facilities such as the local hospital and fire departments were without power and operated on emergency backup systems. Fire department efforts were hampered by buried fire hydrants and blocked roadways, which greatly reduced response time. The National Guard was called in to aid local fire, police and street crews in their efforts.

1994

The blizzard of 1994 brought eight to 12 inches of snow and 24° below zero temperatures. The cold temperatures caused power lines to snap, leaving approximately 3,000 residents without power; snow accumulations closed roads as snow removal crews were unable to keep up with the rate of

snowfall; and winds caused drifting, primarily on roads stretching north and south. The main problem facing police and rescue crews was traffic accidents. Snow removal crews had to deal with abandoned cars left by those who were stuck, and fire crews were hampered because of buried hydrants, snow covered roadways, and freezing temperatures. Along with area schools, businesses were closed, causing loss in profits. Property damage and injuries were at a minimum, and there were no storm-related deaths reported.

The main problems associated with winter storms are power outages, cold temperatures, and heavy snowfalls. Cold temperatures and snowfall pose problems for local motorists and rescue workers, mainly because automobiles will not run properly or can end up in accidents. The leading cause of death during winter storms is transportation accidents. Preparing vehicles for the winter season, and knowing how to react if stranded or lost on the road are vital to safe winter driving. Fire crews especially have difficulties, because their equipment tends to freeze up in colder temperatures, while fire hydrants buried in snow, hamper their efforts. During a winter storm, most individuals end up stranded in their homes until road crews clear the roadways for safe travel. However, for those who must venture out for work, food, or emergency purposes, conditions are treacherous.

Table 38: Severe Winter Weather in Licking County 1996-2019

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Countywide	1/2/1996	1400	Winter Storm	No Data	0	0	\$25,000	0
Countywide	1/6/1996	1500	Winter Storm	No Data	0	0	\$500,000	0
Countywide	1/11/1996	1500	Heavy Snow	No Data	0	0	\$1,000	0
Countywide	2/1/1996	1800	Cold/Wind Chill	No Data	0	0	\$20,000	0
Countywide	3/6/1996	100	Ice Storm	No Data	0	0	0	0
Countywide	3/19/1996	1600	Winter Storm	No Data	0	0	0	0
Countywide	1/24/1997	700	Ice Storm	No Data	0	0	0	0
Countywide	1/1/1999	2200	Winter Storm	No Data	0	0	0	0
Countywide	1/7/1999	2200	Winter Storm	No Data	0	0	0	0
Countywide	1/13/1999	300	Winter Storm	No Data	0	0	0	0
Countywide	3/9/1999	0	Heavy Snow	No Data	0	0	0	0
Countywide	1/19/2000	2000	Heavy Snow	No Data	0	0	0	0
Countywide	12/13/2000	1800	Ice Storm	No Data	0	0	0	0
Countywide	2/15/2003	423	Winter Storm	No Data	0	0	0	0

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Countywide	1/25/2004	2300	Winter Storm	No Data	0	0	0	0
Countywide	3/16/2004	1315	Winter Storm	No Data	0	0	0	0
Countywide	12/23/2004	0	Winter Storm	No Data	0	0	0	0
Countywide	1/22/2005	1215	Winter Storm	No Data	0	0	0	0
Countywide	2/13/2007	300	Heavy Snow	No Data	0	0	0	0
Countywide	12/5/2007	0	Heavy Snow	No Data	0	0	0	0
Countywide	12/7/2007	0	Winter Weather	No Data	0	0	0	0
Countywide	2/22/2008	400	Winter Weather	No Data	0	0	0	0
Countywide	3/7/2008	1200	Winter Storm	No Data	0	0	0	0
Countywide	1/14/2009	800	Heavy Snow	No Data	0	0	0	0
Countywide	1/27/2009	0	Heavy Snow	No Data	0	0	0	0
Countywide	12/19/2009	200	Winter Weather	No Data	0	0	0	0
Countywide	1/7/2010	500	Winter Weather	No Data	0	0	0	0
Countywide	2/5/2010	800	Heavy Snow	No Data	0	0	0	0
Countywide	2/9/2010	200	Winter Weather	No Data	0	0	0	0
Countywide	2/15/2010	200	Heavy Snow	No Data	0	0	0	0
Countywide	2/26/2010	1400	Winter Weather	No Data	0	0	0	0
Countywide	3/25/2010	2100	Winter Weather	No Data	0	0	0	0
Countywide	12/12/2010	800	Winter Weather	No Data	0	0	0	0
Countywide	12/16/2010	0	Winter Weather	No Data	0	0	0	0
Countywide	1/11/2011	500	Winter Weather	No Data	0	0	0	0
Countywide	1/20/2011	600	Winter Weather	No Data	0	0	0	0
Countywide	2/1/2011	0	Ice Storm	No Data	0	0	0	0

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Countywide	1/13/2012	0	Winter Weather	No Data	0	0	0	0
Countywide	1/20/2012	2000	Winter Weather	No Data	0	0	0	0
Countywide	2/10/2012	1500	Winter Weather	No Data	0	0	0	0
Countywide	12/28/2012	2200	Winter Weather	No Data	0	0	0	0
Countywide	2/21/2013	2100	Winter Weather	No Data	0	0	0	0
Countywide	3/5/2013	2000	Winter Weather	No Data	0	0	0	0
Countywide	3/24/2013	2200	Winter Weather	No Data	0	0	0	0
Countywide	11/26/2013	1800	Winter Weather	No Data	0	0	0	0
Countywide	12/6/2013	100	Winter Weather	No Data	0	0	0	0
Countywide	12/10/2013	200	Winter Weather	No Data	0	0	0	0
Countywide	12/14/2013	100	Winter Weather	No Data	0	0	0	0
Countywide	12/16/2013	0	Winter Weather	No Data	0	0	0	0
Countywide	1/2/2014	100	Winter Weather	No Data	0	0	0	0
Countywide	1/18/2014	1500	Winter Weather	No Data	0	0	0	0
Countywide	1/20/2014	2100	Winter Weather	No Data	0	0	0	0
Countywide	2/4/2014	1600	Winter Storm	No Data	0	0	0	0
Countywide	2/14/2014	1700	Winter Weather	No Data	0	0	0	0
Countywide	11/16/2014	2100	Winter Weather	No Data	0	0	0	0
Countywide	11/22/2014	400	Winter Weather	No Data	0	0	0	0
Countywide	1/5/2015	2200	Winter Weather	No Data	0	0	0	0
Countywide	1/25/2015	1000	Winter Weather	No Data	0	0	0	0
Countywide	2/4/2015	1200	Winter Weather	No Data	0	0	0	0
Countywide	2/14/2015	1000	Winter Weather	No Data	0	0	0	0

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Countywide	2/15/2015	2200	Winter Weather	No Data	0	0	0	0
Countywide	2/21/2015	0	Winter Storm	No Data	0	0	0	0
Countywide	3/1/2015	200	Winter Weather	No Data	0	0	0	0
Countywide	1/12/2016	900	Winter Weather	No Data	0	0	0	0
Countywide	1/22/2016	600	Winter Weather	No Data	0	0	0	0
Countywide	2/8/2016	1500	Winter Weather	No Data	0	0	0	0
Countywide	2/15/2016	2100	Winter Weather	No Data	0	0	0	0
Countywide	2/24/2016	1700	Winter Weather	No Data	0	0	0	0
Countywide	12/11/2016	0	Winter Weather	No Data	0	0	0	0
Countywide	12/13/2016	800	Winter Weather	No Data	0	0	0	0
Countywide	12/16/2016	2100	Winter Weather	No Data	0	0	0	0
Countywide	12/30/2016	0	Winter Weather	No Data	0	0	0	0
Countywide	1/5/2017	400	Winter Weather	No Data	0	0	0	0
Countywide	2/8/2017	800	Winter Weather	No Data	0	0	0	0
Countywide	3/1/2017	200	Winter Weather	No Data	0	0	0	0
Countywide	3/13/2017	1200	Winter Weather	No Data	0	0	0	0
Countywide	12/9/2017	1900	Winter Weather	No Data	0	0	0	0
Countywide	12/24/2017	1500	Winter Weather	No Data	0	0	0	0
Countywide	12/29/2017	1600	Winter Weather	No Data	0	0	0	0
Countywide	1/8/2018	0	Winter Weather	No Data	0	0	0	0
Countywide	1/12/2018	1600	Winter Storm	No Data	0	0	0	0
Countywide	1/15/2018	0	Winter Weather	No Data	0	0	0	0
Countywide	2/6/2018	2300	Winter Weather	No Data	0	0	0	0

(Please Note: Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage.)								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Countywide	3/20/2018	1700	Winter Weather	No Data	0	0	0	0
Countywide	4/1/2018	1800	Winter Weather	No Data	0	0	0	0
Countywide	4/6/2018	2200	Winter Weather	No Data	0	0	0	0
Countywide	1/12/2019	1000	Winter Weather	No Data	0	0	0	0
Countywide	1/19/2019	2100	Winter Storm	No Data	0	0	0	0
Countywide	1/30/2019	500	Extreme Cold/Wind Chill	No Data	0	0	0	0
Countywide	2/1/2019	0	Winter Weather	No Data	0	0	0	0
Countywide	2/20/2019	0	Winter Weather	No Data	0	0	0	0
TOTALS:					0	0	\$546,000	0

9.3.6.3 Probability of Future Events

Because severe storms are random in their distribution, the Base Group has chosen to look at historic events to determine Licking County’s susceptibility. Severe winter storms are an all-county hazard. According to the National Climatic Data Center (NCDC), and with verification from the Licking County EMA, there have been 92 severe winter weather events in Licking County in the last 23 years. Which averages to four severe winter storms per year, with total losses of \$546,000 recorded.

9.3.6.4 Current Development Trends

Since winter severe storms are a non-site-specific hazard, current development trends have no affect other than the potential of increased population that would be susceptible to severe winter storms within Licking County’s boundaries.

9.3.6.5 Current Codes and Regulations

There are no current codes or regulations in place that protect structures from severe winter storm hazards in Licking County other than the Ohio Building Code (commercial) 2017 and the Residential Building Code of Ohio (residential) 2019. Since severe winter storm hazards are considered non-site specific, any code or regulation affecting this hazard would have to be implemented countywide to have any impact.

9.3.6.6 Severe Winter Weather Vulnerability in Licking County

Crops in Licking County are particularly vulnerable to severe winter weather if that weather occurs later into the spring after crops are planted, or early in the fall, if the crops have not already been harvested.

9.3.6.7 Critical Facilities Impacts

All the critical facilities within Licking County (schools, hospitals, water treatment plants, airports, police and fire stations, nursing homes, and entertainment facilities) are charted on the map in Figure 26. Severe winter storms are considered a non-site-specific hazard. The hazard of severe winter storms should be evaluated countywide and not in “defined” areas, as in the case of floodplains. All critical facilities are at risk of damage due to severe winter weather, as storms are a not a site-specific hazard.

9.3.6.8 Potential Impacts and Estimation of Losses

The impact that severe storms have on infrastructure can be significant. Summer storms can cause severe flooding that can shut down roadways and can also flood sanitary and drinking water systems. With areas outside of the flood zone it gets difficult to predict what might happen. Storms have knocked out power in the county for days; this is typically caused by blown down trees, lightning, or heavy ice and snow. Downed power lines and trees will shut down roads as well. The problem is planning for such events; mitigation activities typically happen after the fact with severe storms because it is difficult to predict when and where a storm will hit and its impact on our infrastructure.

In the past 23 years, severe winter weather has caused \$546,000 worth of property damage. This averages out to be about \$23,740 in damages every year. However, it is likely that reporting standards have changed over that time period as the only damages assessed from severe winter storms were all from 1996. Which means that winter storms have caused \$546,000 in just one year in Licking County. Given the unpredictable location of severe storms in Licking County any and all structures are susceptible to loss at some point.

9.3.7 Tornadoes

Tornadoes are produced from the energy released during a thunderstorm, but account for only a tiny fraction of the overall energy generated by a thunderstorm. What makes them particularly dangerous is that the energy is concentrated in a small area, perhaps only a hundred yards across. Not all tornadoes are the same, of course, and science does not yet completely understand how a portion of a thunderstorm's energy becomes focused into a tornado.

9.3.7.1 Location and Extent

Tornadoes occur whenever and wherever conditions are right, but they are most common in the central plains of North America, east of the Rocky Mountains and west of the Appalachian Mountains. They occur primarily during the spring and summer; however, the tornado season comes early in the south and later in the north according to the seasonal changes in relation to latitude. Tornadoes usually occur during the late afternoon and early evening. They have been known to occur in every state in the United States and every continent on the earth, any day of the year, and at any hour.

The damaging strong winds generated from tornadoes can reach 300 mph during the most destructive storms, causing automobiles to become airborne, ripping ordinary homes to shreds, and turning broken glass and other debris into lethal missiles. The biggest threat to living creatures (including humans) during tornadoes is flying debris and the risk of being tossed about in the wind. Contrary to previous belief, it is not true that the pressure in a tornado contributes to damage by making buildings "explode."

Today, the development of Doppler radar has made it possible, under certain circumstances, to detect tornado winds with radar. However, spotters remain an important part of the system to detect tornadoes, because not all tornadoes occur in situations where the radar can "see" them. Ordinary citizen volunteers make up what is called the SKYWARN (www.skywarn.org) network of storm spotters, who work with their local communities to watch out for approaching tornadoes to ensure that appropriate action is taken during tornado events. Spotter information is relayed to the National Weather Service, which operates the Doppler radars and issues warnings (usually relayed to the public by radio and TV) for communities ahead of storms. They utilize all the information they can obtain from weather maps, modern weather radars, storm spotters, monitoring power line breaks, and so on.

Although the process by which tornadoes form is not completely understood, scientific research has revealed that tornadoes usually form under certain types of atmospheric conditions. Those conditions can be predicted, but it is not yet possible to predict in advance exactly when and where they will develop, how strong they will be, or precisely what path they will follow. There are some "surprises" every year, when tornadoes form in situations that do not look like the right conditions in advance, but these are becoming less frequent. Once a tornado is formed and has been detected, warnings can be issued based on the path of the storm producing the tornado, but even these cannot be perfectly precise regarding what areas will or will not be struck.

The Enhanced Fujita Scale rates the intensity of tornadoes and is based on the damage they cause. Below is a table from the National Weather Service showing the Enhanced Fujita Scale with the associated wind speeds and potential damage. The most severe tornado that Licking County has experienced was in 1985 when an F3 tornado occurred (the Enhanced Fujita Scale was not implemented until 2007).

Table 39: Enhanced Fujita Scale³⁴

Scale	Derived Max Tangential 3 s Gust Speed (m/s)	Operational Scales		Damage Classification Description (from the old Fujita F scale)	Relative Frequency	
		EF Scale (stat. miles/h)	Old F Scale (km/h)		USA	Canada
EF0	29.1 – 38.3	65 – 85	64 – 116	Light damage; some damage to chimneys, TV antennas; breaks twigs off trees; pushes over shallow-rooted trees.	29%	45%
EF1	38.4 – 49.1	86 – 110	117 – 180	Moderate damage; peels surface off roofs; windows broken; light trailer homes pushed or turned over; some trees uprooted or snapped; moving cars pushed off road.	40%	29%
EF2	49.2 – 61.6	111 – 135	181 – 252	Considerable damage; roofs torn off frame houses leaving strong upright walls; weak buildings in rural areas demolished; trailer houses destroyed; large trees snapped or uprooted; railroad boxcars pushed over; light object missiles generated; cars blown off roads.	24%	21%
EF3	61.7 – 75.0	136 – 165	253 – 330	Severe damage; roofs and some walls torn off frame houses; some rural buildings completely destroyed; trains overturned; steel-framed hangars or warehouse-type structures torn; cars lifted off of the ground; most trees in a forest uprooted or snapped and leveled.	6%	4%
EF4	75.1 – 89.3	166 – 200	331 – 417	Devastating damage; whole frame houses leveled leaving piles of debris; steel structures badly damaged; trees debarked by small flying debris; cars and trains thrown some distance or rolled considerable distances; large wind-blown missiles generated.	2%	1%
EF5	≥ 89.4	> 200	418 – 509	Incredible damage; whole frame houses tossed off foundation and blown downwind; steel-reinforced concrete structures badly damaged; automobile-sized missiles generated; incredible phenomena can occur.	< 1%	0.1%

Tornadoes are considered the most violent atmospheric phenomenon on the face of the earth, having winds estimated at 300 mph in the worst tornadoes. Although the number of tornadoes in Ohio does not rank high compared to other states in the United States, Ohio does average around 24 tornadoes a year. Ohio's peak tornado season runs from April through July, with most tornadoes occurring between 2-10 p.m. Even though June has been the month with the most tornado occurrences, many of the state's major tornado outbreaks have taken place in April and May. However, history has shown that tornadoes can occur during any month of the year and at any time of the day or night. Many of these tornadoes are weak (EF0 or EF1 on the Enhanced Fujita Scale), but Ohio has been struck by some of the most destructive F5 tornadoes ever, including the April 3, 1974 tornado which devastated Xenia, killing over 30 people and destroying 2,000 buildings.

Table 40: Tornadoes in Ohio 2000-2019

Tornadoes in Ohio 2000-2018			
Year	# Reported	Year	# Reported
2019	57	2009	13
2018	19	2008	15

³⁴ https://www.eoas.ubc.ca/courses/atcsc113/flying/met_concepts/04-met_concepts/04b-h-Tstorm_hazards/5-tornadoes.html

2017	44	2007	13
2016	25	2006	37
2015	7	2005	4
2014	21	2004	9
2013	37	2003	13
2012	15	2002	34
2011	40	2001	9
2010	51	2000	27

Tornadoes, although not as frequent as some types of disasters in the county, do occur. Most of the damage from these storms is due to wind, however, in some instances these storms have caused total loss of property. Licking County has had several tornadoes touch down over time. These storms usually pop up with little notice, leaving behind a path of destruction that takes weeks or even months to clean up.

9.3.7.2 Previous Occurrences

1985

On Friday, May 31, 1985, a tornado touched down in the northern portion of the county. The tornado caused an estimated three million dollars in damage, one million of which was crop damage. It killed one person, injured 20, and destroyed 16 homes. Throughout this portion of the county, damage included downed phone and power lines, which caused scattered outages; the destruction of crops; and tree and debris scattered across the roadways and the countryside. Because of this storm, many residents were left homeless until they could receive funds to rebuild their homes; some stayed in campers, others with relatives. President Ronald Reagan declared Licking County a disaster area, thus qualifying those affected by the storm for federal aid.

1986

On Sunday, June 22, 1986, Newark was struck by a devastating tornado that touched down near the corner of Wilson and Union Streets and skipped its way across town where it finally dissipated at Moundbuilders Country Club. The storm produced damaging winds of up to 150 miles per hour. Damage was limited to downed phone and power lines, fallen limbs and trees, roofs ripped off of homes, and windows blown out. Only 25 homes reportedly received any extensive damage. There were no fatalities, and most injuries were minor. The City of Newark did not activate their tornado sirens during this event. This was because no one with authority to activate the sirens was notified by a reliable source that there was a funnel cloud spotted. The storm itself was a surprise, as there were no tornado watches or warnings issued for the area. With only a severe storm watch in effect that night, no one had expected a tornado to materialize.

2000

A tornado tracked out of Delaware County across the northwestern part of the county and then continued into Knox County. The storm lifted briefly in spots but maintained a 25-mile track across the three counties, mainly in rural areas. Eleven homes received major damage and four received minor damage. Several barns and outbuildings were also destroyed. Twelve buildings at the Buckeye Egg Farm were destroyed, trapping one million chickens inside.

2011

The first of three tornadic events in April occurred on April 4, 2011. A tornado touched down in two locations within a mile. At the first location, damage included the removal of part of a roof

off a larger metal sized garage. In addition, a supporting post was snapped, one side of a building was blown inward, and metal doors on the opposite side were blown outward. There was also a smaller garage with major damage to a metal door. About four to five large trees were uprooted in this area as well. The circulation was not on the ground for the entire path. At the second location where damage occurred, the tornado removed a large section of metal and wood roofing from a large barn. The debris was spread up to one-quarter of a mile downwind from the barn. In addition, there were three to four pieces of the barn debris impaled in the ground. A door was removed from a smaller storage shed and some damage occurred to one corner of a house where part of the roof was lifted up. The damage at these locations indicated wind speeds ranged from 75 to 80 miles per hour.

The next two-tornadic events were a part of a storm system that moved through on April 20 with a touchdown in the Newark-Heath area and heading east. A broken damage path was observed from just west of Heath near the Newark-Heath Airport to State Route 13 east of Heath. Trees were snapped off between two and fifteen feet above the ground just west of the airport. A store just east-northeast of the airport had a section of signage removed. A small business had its metal roof partially peeled away. Further along the path, a masonry building was damaged substantially, with one wall completely collapsed along with half of another. Several large trees were uprooted or snapped along the path. Some of the trees pulled up a large amount of rock in which they were previously embedded. Maximum wind speed based on damage is around 120 miles per hour.

The second touchdown was in Hanover Township. A mobile home was destroyed on the west side of Brushy Fork Road, southeast of Brownsville Road. The mobile home rolled over and the roof and lengthwise side were removed and blown into trees immediately to the east. Trees were snapped or uprooted in the vicinity of the mobile home. Roof damage was observed at a residence on the east side of Brushy Fork Road. Further along the path, trees were snapped on a hillside. Estimated maximum wind speed based on damage is around 109 miles per hour.

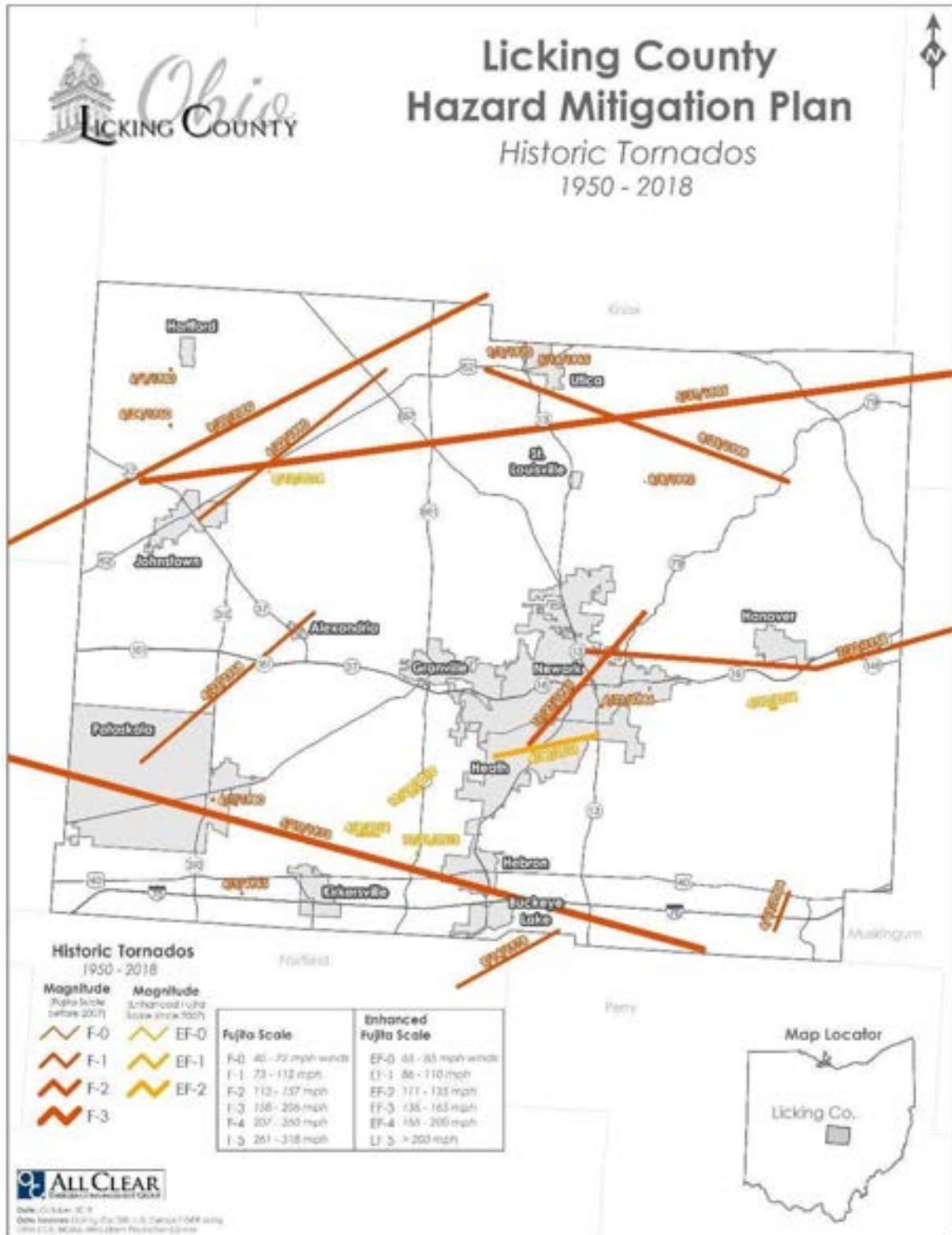


Figure 56: Historic Tornado Tracks Over Licking County 1950-2018

Table 41: Licking County Tornado Data 1958-2019

Mag = Magnitude, Dth = Death, PrD = Property Damage, and CrD = Crop Damage								
Location or County	Date	Time	Type	Mag	DTH	Ini	PrD	CrD
Licking	07/22/1958	1250	Tornado	F2	0	0	25000	0
Licking	06/24/1960	500	Tornado	F1	0	0	2500	0
Licking	06/05/1963	1705	Tornado	F1	0	0	2500	0
Licking	05/16/1965	1400	Tornado	F0	0	0	2500	0
Licking	11/27/1965	5	Tornado	F2	0	1	250000	0
Licking	04/23/1968	1430	Tornado	F1	0	0	250000	0
Licking	09/14/1978	1705	Tornado	F1	0	0	250000	0
Licking	06/01/1980	1220	Tornado	F1	0	0	250000	0
Licking	06/01/1980	1250	Tornado	F1	0	5	2500000	0
Licking	05/31/1985	1715	Tornado	F3	1	20	25000000	0
Licking	06/22/1986	2035	Tornado	F1	0	0	250000	0
Licking	06/22/1990	1825	Tornado	F1	0	0	250000	0
Licking	08/08/1992	1745	Tornado	F0	0	0	25000	0
Croton	07/26/1997	1815	Tornado	F1	0	0	5000	10000
Utica	08/25/1998	1445	Tornado	F2	0	0	300000	0
Johnstown	09/20/2000	1936	Tornado	F2	0	0	1000000	100000
Brownsville	06/13/2004	2315	Tornado	F1	0	0	10000	0
Union Station	10/26/2010	1327	Tornado	EF0	0	0	15000	0
Outville	04/04/2011	1446	Tornado	EF0	0	0	60000	0
Newark Health Airport	04/20/2011	142	Tornado	EF2	0	0	45000	0
Claylick	04/20/2011	151	Tornado	EF1	0	0	40000	0
Buckeye Valley Airport	11/1/2013	7	Tornado	EF1	0	0	100000	0
Appleton	8/12/2014	1015	Tornado	EF0	0	0	0	0
Total					1	26	\$30,612,500	\$110,000

9.3.7.3 Probability of Future Events

There have been 23 tornadoes in Licking County since 1958. This is a recurrence interval of 2.7 years, or 38 % chance of a tornado occurring anywhere within Licking County in any given year. While it is theoretically possible to have a tornado of any severity in the county, most tornadoes the county experiences are EF0-EF1. Only six tornadoes of the 23 have been greater than EF1, and none have been greater than EF3.

9.3.7.4 Current Development Trends

Since tornadoes are a non-site-specific hazard, current development trends have no affect other than the potential of increased population that would be susceptible to tornadoes within Licking County’s boundaries.

9.3.7.5 *Current Codes and Regulations*

There are no current codes or regulations in place that protect structures from tornado hazards in Licking County other than the Ohio Building Code (commercial) 2017 and the Residential Building Code of Ohio (residential) 2019. Since tornado hazards are considered non-site specific, any code or regulation affecting this hazard would have to be implemented countywide to have any impact.

9.3.7.6 *Tornado Vulnerability in Licking County*

Licking County has experienced 23 documented tornado events in the last 61 years, including some ordeals with more than one funnel cloud. Damage estimates have ranged from \$3,000 to \$25,000,000. Based on the information available and the number of events that have occurred in Licking County, the average amount of damage incurred by a tornado is approximately \$1.4 million per event. Each of the participating communities will be responsible for administering each aspect of the plan according to how it affects their community.

9.3.7.7 *Critical Facilities Impacts*

Based on the knowledge that tornadoes are a random event, the Base Group has decided to look at tornadoes as a hazard of chance. Tornadoes are an all-county hazard. The best way to deal with a random hazard event is to look at historic information and try to be as prepared as possible. The Base Group realized that tornadoes are usually accompanied by other hazards when they affect their community. In fact, when tornadoes hit a community they are typically coupled by other natural events, such as high winds, thunderstorms, lightning, and possibly flash floods.

All the critical facilities within Licking County (schools, hospitals, water treatment plants, airports, police and fire stations, nursing homes, and entertainment facilities) are charted on the map in Figure 26. Tornadoes are considered a non-site-specific hazard and should be evaluated countywide and not in “defined” areas, as in the case of floodplains. All critical facilities are at risk of damage due to tornadoes since they are not a site-specific hazard.

9.3.7.8 *Potential Impacts and Estimation of Losses*

Depending on where a tornado strikes, it can have a significant effect on Licking County infrastructure. Tornadoes can knock out electrical sub-stations, gas pressure stations, power lines, and water treatment facilities. Although rare, tornadoes could potentially shut the county down for days. Some critical facilities will install generators to keep them running during power outages, but it is difficult to protect against direct impact of a tornado.

Due to the non-site-specific nature of this hazard, the best way to deal with preparing for future events is to consider historical occurrences. The National Climatic Data Center (NCDC) estimates that tornadoes in Licking County have caused \$30,612,500 in property and \$110,000 damages. This averages out to \$501,844 in property damage every year, or approximately \$1,331,000 for each tornado. Tornadoes cause an average of \$1,800 of crop damage ever year, or \$4,780 per storm.

9.3.8 Wildfires

When we think wildfires, our minds automatically think of the severe fires that occur out west, where wildfires burn millions of acres and cause billions of dollars in property damage. While fires like this are very rare in Ohio, there have still been a noticeable number of wildfires over the last ten years. A wildfire is an unplanned fire that burns in a natural area such as a forest, grassland, or prairie.

9.3.8.1 Location and Extent

Licking County has been determined by the ODNR Division of Forestry to be in an area of overall moderate risk of wildland fire. Topography in Licking County is gently rolling to steep and variable in many places, especially in the eastern reaches of the county. There are numerous homes scattered throughout the rural landscape, creating a wildland/urban interface setting and the various hazards associated with this condition. Access is very limited in certain areas, with some homes virtually unreachable by large fire/rescue apparatus. The concept of defensible space is not commonly practiced among homeowners in Licking County.



Figure 57: Forest and Woodland Types in the Continental US

When combined, these factors immediately raise a concern in terms of life and property safety regarding wildland fire. When compounded with an overall lack of awareness and understanding of wildland fire dynamics, the situation hazard level becomes more elevated.

Fires in Licking County have the potential to become large, depending on weather and fuel conditions. The abundance of light, flashy fuels (Fuel Models 1 and 3) may contribute to rapid rates of fire spread and may present a serious safety hazard to firefighters engaged in wildland fire suppression activities.

Nearly every wildland fire in Licking County is human-caused. Consequently, this affords a great opportunity to address the problem through fire prevention, education, and awareness, as well as enhanced training and equipment for firefighters.

Wildland/Urban Interface is defined as “Any area where potentially combustible wildland fuels are found adjacent to combustible homes and other structures; a zone where man-made improvements intermix with the wildland fire fuels.” Licking County Fire Departments have recognized that conditions in many parts of the county and various properties encompassed in their respective fire districts qualify under this definition for Wildland/Urban Interface and have therefore deemed it appropriate to partner with county officials. In Licking County, the Wildland/Urban Interface is the area most vulnerable to damages from wildland fires.

During an average year in Ohio, an estimated 15,000 wildfires and natural fuel fires occur. Typically, a reported 1,000 wildland fires burn an average between 4,000 to 6,000 acres in Ohio each year. Firefighters talk about fire triangles in terms of the heat of combustion, fuel, and oxygen necessary for a fire to occur. Wildland fire fighters are concerned with the wildland fire triangle of fuel (grass, brush, forests, crops, etc.), terrain (open flat lands, steep slopes, and everything conducive to wildland fire spread) and weather (hot, dry, windy conditions are typical wildland fire weather).

9.3.8.2 Previous Occurrences of Wildfire in Licking County

Some of the larger fires that have occurred in Licking County have a common theme- they are all caused by human error. Most of the reported wildfires occurred in the eastern half of the county. The eastern half of the county is typically heavily wooded providing the fuel needed for a significant wildfire.

Newton Twp. 2004

Children were having a small fire on a hillside, the wind picked up and pushed the fire up the hill. Once the fire was contained it had already burned over 80 acres. The damage was limited to a wooded area. There were no structures affected by the fire but were in the path of the fire. Thanks to crew positioning themselves between the fire and the structures there was no damage to homes.

Newton Twp. 2009

A homeowner was burning a small pile of brush and debris from their property when the wind picked up and fanned the fire. The flames were pushed from Licking Springs Rd. north toward a subdivision on Newton Rd. Along its path it burned hay, pasture, cornfields, and a wooded area. By reports, crews were fighting the fire in the back yards of some of these homes. Fortunately, there was no damage to any of the homes or accessory structures. By the time the fire was contained it had burned over 100 acres. With the fire being late in the year there was no loss of income for the farms that had their crops burned.

Hanover Twp. 2010

A homeowner was burning trash on a windy day and the fire ignited in a wooded area. The fire burned approximately 35 acres before it was contained. There was no damage to any structures; damage was limited to the wooded area and a cornfield. There was no reported loss to the cornfield since the corn was already harvested for the year.

Table 42: Wildfire Events in Licking County 2007-2017 from the State of Ohio Enhanced Mitigation Plan

Total Fire Events	Total Acres Burned	Average Acres/Event	Average Events per Year	1 to 9.99 Acres		10 to 99.99 Acres		100+ Acres	
				# of Events	% of Total	# of Events	% of Total	# of Events	% of Total
139	961	6.91	13	117	84.17%	20	14.39%	2	1.44%

9.3.8.3 Probability of Future Events

Between the years 2007 and 2017 there were 139 fires, averaging approximately 13 fires per year. 84% of the fires were less than 10 acres, whereas only two fires (1.44%) were over 100 acres.

9.3.8.4 Current Development Trends

Since wildfires are a non-site-specific hazard, current development trends have no affect other than the increased population that would be susceptible to wildfires within Licking County’s boundaries. Due to Licking County’s population growth, the hypothesis is that there will be potentially more damage from a wildfire in the county, solely based on the increased housing stock.

9.3.8.5 Current Codes and Regulations

There are no current codes or regulations in place that protect structures from wildfire hazards in Licking County other than the Ohio Wildfire Laws that are enforced in part by Ohio Division of Natural Resources and Ohio EPA. Since wildfire hazards are considered non-site specific, any

code or regulation affecting this hazard would have to be implemented countywide to have any impact.

9.3.8.6 Wildfire Vulnerability in Licking County

Based on the knowledge that wildfires are a rare and often human-caused event, the best way to deal with a random hazard event is to be as prepared as possible. Wildfires are an all-county hazard. Almost all the wildfires in Licking County have been determined to be a human error. The Base Group felt that education is a vital key to the prevention of wildfires.

Given the size of the fires in Licking County and the quick response times of local fire stations, most of the damages tend to be minimal. Additionally, Licking County has many dry hydrants located in strategic places throughout the County to provide access to water in the more rural areas without a municipal source.

9.3.8.7 Critical Facilities Impacts

All the critical facilities within Licking County (schools, hospitals, water treatment plants, airports, police and fire stations, nursing homes, and entertainment facilities) are charted on the map in Appendix 2. Please refer to Appendix 2 for a complete list of these critical facilities. The hazard of wildfires should be evaluated countywide. There are no critical facilities currently documented that are susceptible to wildfires since they are non-site specific.

9.3.8.8 Potential Impacts and Estimation of Losses

The potential impacts of a wildfire would depend on where a wildfire was to ignite. Wildfires in Licking County are typically small compared to the large ones seen out west and tend to happen in the lesser-populated areas of the county. There could be damage to roads, power lines, gas lines, etc. depending on the size and extent of the wildfire. Due to the non-site-specific nature of this hazard, the best way to deal with preparing for future events is to consider historical occurrences. Currently damage to property and crops due to wildland fires is not tracked in terms of dollar amounts. As wildland fires in Licking County tend to happen in the low-density areas of the county, an estimate of potential losses can be calculated. To demonstrate a worst-case scenario, we look at the 2009 wildfire that narrowly missed a housing development on Newton Rd. Had that fire not been contained estimates show that approximately 15 homes would have been impacted by the fire. Using current housing figures with the median home value in Licking County from 2019, which was \$214,946, a “small” 100-acre wildfire could potentially equal a loss of \$3,224,190.

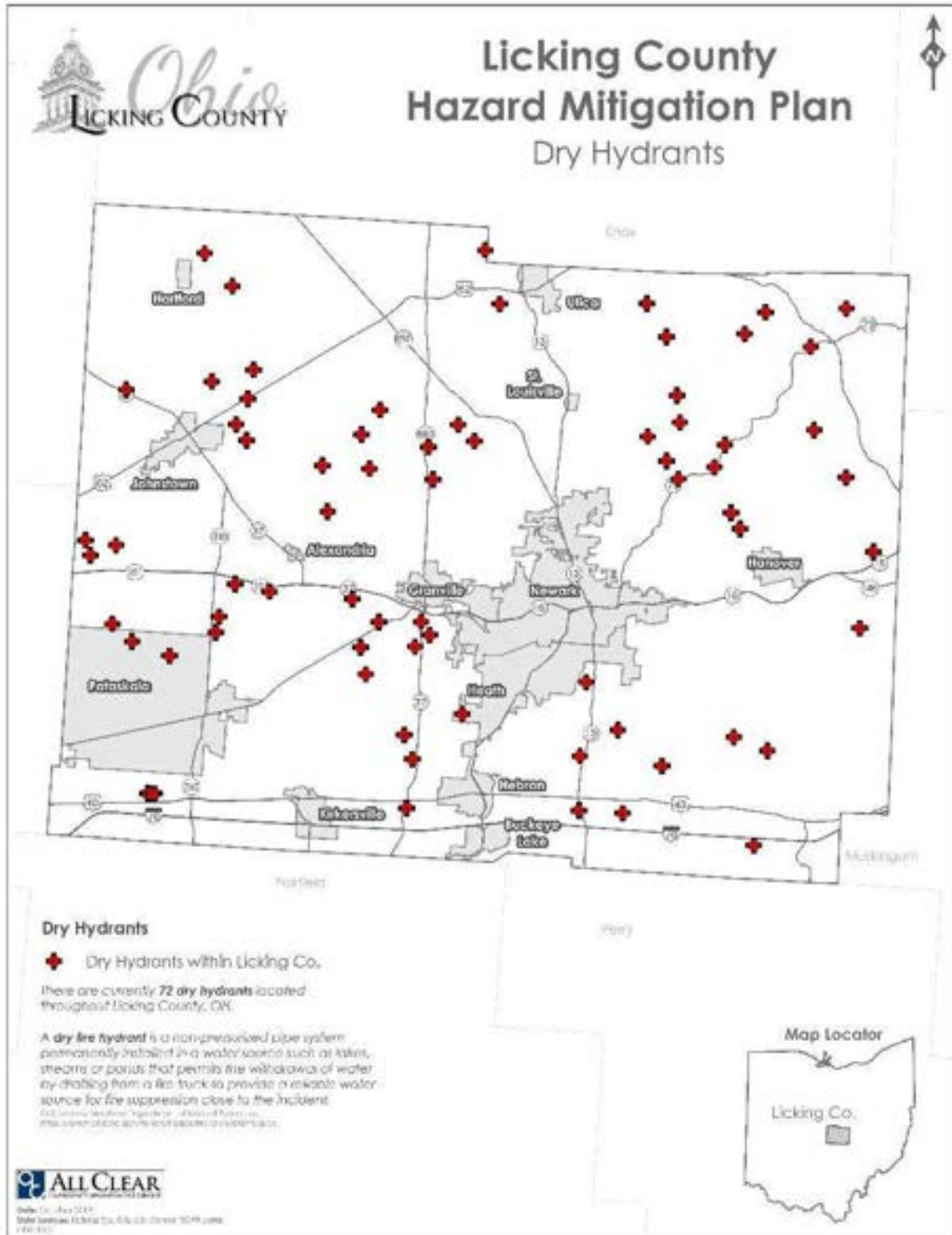


Figure 58: Dry Hydrants in Licking County

10 Mitigation Strategy

The mitigation strategy is the heart of the mitigation plan. It serves as the overall blueprint for how Licking County stakeholders want to reduce the potential losses identified in the risk assessment by reducing or eliminating the vulnerabilities to those hazards. The process to develop the mitigation strategy includes three key components:

1. **Mitigation Goals-** these are the outcomes the community is striving to achieve.
2. **Mitigation Actions-** the specific actions the community will take to reduce the risk from each identified hazard.
3. **Action Plan-** how the actions will be prioritized and implemented.

In order to facilitate the update of the Licking County mitigation strategy, a workshop was conducted to introduce the mitigation planning process to the community and to determine the goals and action plan necessary for this plan.

10.1.1 Mitigation Goals

The first step in completing the mitigation strategy was to examine the goals in the previous version of the plan to determine if changes were necessary. The committee examined the previous version's goals alongside the goals in the Ohio EMA Enhanced Mitigation Plan in order to address any gaps in the CANHMP. The main concern with the previous goals is that they were very broadly applied. So, the committee took a more detailed approach to ensure the goals truly met the needs of the community. Below is a list of the previous goal and the new goals.

The new goals provide the foundation for the action item recommendations also contained in the strategy and can be considered the broad sweeping desires of the committee.

10.1.1.1 Licking County Flooding and Dam/Levee Failure Mitigation Goals- superseded

- The overall mitigation goal remains to save lives and protect property, reduce flood damages, and increase education and awareness of flooding impacts on the community.
- The overall mitigation goal remains to increase awareness of severe storms and to reduce loss of life and property damage.
- The overall mitigation goal remains to reduce the potential for property damage, save lives, and increase awareness (tornado).
- The overall mitigation goal remains to reduce potential damage and increase awareness of this hazard (drought).
- The overall mitigation goal remains to reduce damage and to increase awareness regarding earthquakes.
- The overall mitigation goal remains to reduce damage and to increase awareness regarding

10.1.1.2 2021 CANHMP Goals:

- **Goal 1:** To reduce the economic losses to residents and businesses from disaster related damages, helping businesses get back up and running quickly.
- **Goal 2:** Reduce loss of life and injuries from hazard events.

- **Goal 3: Reduce damage to property and the disruption to the community from hazard events.**
- **Goal 4: Effectively manage debris, particularly along streams and waterways.**
- **Goal 5: Create joint ventures among private entities, local agencies, state and federal partners, and the community towards the goal of whole community mitigation.**
- **Goal 6: Rehabilitate and maintain natural systems and cultural heritage resources.**
- **Goal 7: Implement, update, and improve standards, plans, and programs designed to reduce the risk to lives and property and educate residents on risk and mitigation.**
- **Goal 8: Reduce the number of repetitive loss properties in Licking County.**

The core planning group developed problem statements, goals and objectives in an incremental, step-by-step process. This section summarizes the process used to develop the action plan for the natural hazards identified in the mitigation plan.

10.1.2 Action Items

Action items are goals put into tangible actions. They are based on the overall goals of the plan and are designed to give the community steps to take to reduce the risk of the hazards identified in this plan. The basic types of mitigation actions can be found below. These mechanisms will be used by Licking County jurisdictions and agencies in their efforts to consistently incorporate mitigation plan requirements and components into other planning mechanisms.

- *Local plans and regulations*
Local comprehensive plans, land use ordinances, and development regulations influence how the built and natural environment will be impacted by hazards. Examples of plans and regulations that are impacted and were considered in the action items are as follows:
 - Comprehensive plans
 - Land use ordinances
 - Subdivision regulations
 - Development review
 - Building codes and enforcement
 - NFIP Community Rating System
 - Capital improvement programs
 - Open space preservation
 - Stormwater management regulations and master plans
- *Structural 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. Examples include:

- Acquisitions and elevations of structures in flood prone areas
 - Utility undergrounding
 - Structural retrofits.
 - Floodwalls and retaining walls
 - Detention and retention structures
 - Culverts
 - Safe rooms
- *Natural systems protection*
These are actions that minimize damage and losses and also preserve or restore the functions of natural systems. Examples include:
 - Sediment and erosion control
 - Stream corridor restoration
 - Forest management
 - Conservation easements
 - Wetland restoration and preservation
 - *Education 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. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions. Examples include:
 - 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.
 - *Preparedness and response actions*
Mitigation actions reduce or eliminate long-term risk and are different from actions taken to prepare for or respond to hazard events. Mitigation activities lessen or eliminate the need for preparedness or response resources in the future. When analyzing risks and identifying mitigation actions, the planning team may also identify emergency response or operational preparedness actions. Examples include:
 - Creating mutual aid agreements with neighboring communities to meet emergency response needs.
 - Purchasing radio communications equipment for the Fire Department.
 - Developing procedures for notifying citizens of available shelter locations during and following an event.

10.1.2.1 Licking County Action Items

The Licking County Core Planning Group updated existing action items and created new action items to align with the current mitigation goals and to address the addition of Invasive Species as a new hazard. The development of action items was completed through a public planning committee meeting where the goals were discussed as a group and potential mitigation actions were reviewed. Many of the older action items were not able to be updated due to lack of information, so they were either modified for clarity, or removed as necessary.

The Core Planning Group examined each hazard and the associated action items. Best practices from FEMA and other sources were used to assist the team to develop solutions to the hazards they face. They utilized subject matter experts to develop and refine the actions that would best mitigate each hazard in Licking County. Below is a sample of the worksheet used to develop new action items for each jurisdiction and the county as a whole.

New Mitigation Action Item Worksheet

Mitigation Action Item:		
Identify the Problem:		
Goal this Action Item supports:		
Ideas for Implementation:		
Responsible Agencies:		
Timeline (circle one):	Immediate (within 6 months)	Short-term (within 6-12 months)
	Long-term (longer than 12 months)	
Hazard(s) Addressed:		
Estimated Cost:		
Completed by:	Jurisdiction:	

Figure 59: Mitigation Action Worksheet

A listing of all action items can be found in the tables on the following pages.

These actions will be implemented and administered by each impacted jurisdiction as appropriate and as funding and time allows. The annual meetings of the Core Planning Group will serve as a time to check on progress of action items, reduce duplication, and coordinate similar efforts.

10.1.2.2 Benefit-Cost Review

The 2021 CANHMP Update utilized a simple benefit-cost review methodology to look at the relationship between the benefits of an action and the cost to the community. Benefit-cost review will be used as projects are implemented on a local jurisdiction basis of priority, as well as an overall Licking County jurisdiction basis.

The core planning group used review tools and methods as described in FEMA Publication 386-5, “Using Benefit-Cost Review in Mitigation Planning.” The benefit-cost review was a critical component in the prioritization process of proposed mitigation actions which will be discussed in the following section. The core planning group felt a simple methodology would serve the purpose of being clear and easily understood by the public and future planners seeking to continue the mitigation process. The group selected a methodology that examined each action item along 8 separate criteria. The action item was either ranked as High, Medium, or Low along each criterion. The review tool examined these proposed mitigation actions against measurable criteria which included how the cost and economic feasibility compared to the benefits to life safety and property protection for example. A sample of the review tool can be found below including the criteria used to evaluate each action item.

Benefit Cost Review

Scoring Criteria	Scoring Criteria Definitions	Rating
Life Safety	How effectively does the action protect lives and prevent injuries?	
Property Protection	How significant will the action be at eliminating or reducing damage to structures and infrastructure?	
Social	How significantly will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?	
Technical	How technically feasible is the mitigation action? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.	
Political	How much public support would exist for the mitigation action? Is there political will to support it?	
Environmental	How significantly will these proposed actions impact the environment? Will it comply with environmental regulations?	
Cost	Where does the cost for this project fall on the range of projects and jurisdiction budgets?	
Economic	How reasonable is the cost for this project given the likely benefits?	

Rating Scale Definition
High: very effective, very reasonable
Medium: somewhat effective, somewhat reasonable
Low: ineffective, unreasonable
Not Applicable

Figure 60: Benefit Cost Review Tool

Once the core planning group assessed each action item along the above criteria as High, Medium, or Low, those rankings were translated into number scores used to further prioritize the action items. Each score was assigned a number and the scores were combined to find the overall score for each action item. This allowed for a comparison of action items against each other. This process is discussed in the following section.

10.1.2.3 Prioritization of Actions

The beginning of the prioritization process for the CANHMP began when the committee ranked each hazard against each other to determine which hazards caused the committee the most concern. The following table shows each hazard in ranked order from highest risk to least.

Table 43: Licking County Hazards by Priority

Rank	Hazard	Priority
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1.	Flooding	High Priority
2.	Severe Winter Weather	High Priority
3.	Severe Summer Weather	High Priority
4.	Wildfire	Medium Priority
5.	Tornado	Medium Priority
6.	Invasive Species	Medium Priority
7.	Earthquake	Low Priority
8.	Drought	Low Priority

These hazard rankings are the basis for the prioritization of the action items. All action items for Flooding and Dam/Levee Failure, Severe Winter Weather, and Severe Summer Weather are the highest priority. Wildfire, Tornado, and Invasive Species are medium priority. Drought and Earthquake are the lowest priority overall. For example, within the category of flooding, all action items pertaining to flooding are ranked as High, Medium, or Low priority based on the scores as defined by the benefit cost review done in prior steps. The greatest of the total scores was determined to be the highest priority, followed by subsequent scores as second and third priority, per hazard type block. This dual level of prioritization allowed the committee to rank the hazards and the action items within the hazards so that limited dollars can really impact those areas where the greatest risk is found.

In the Action Item tables found below, the hazard blocks are delineated as High, Medium, and Low. The priority listed in the first column of the chart is the priority of the action item within its hazard block. So, the action item is a high priority within the hazard block of Tornado.

10.1.3 Hazard Mitigation Action Items Tables

The following tables detail each action item (those from previous versions as well as new actions) developed by the core planning group. The format for this section includes charts with information about each action item. The following is an explanation of the meaning of each of the column listings.

Priority

A ranking of high, medium, or low placed on each mitigation action item using the methodology explained above; identification of lead agencies; available or proposed resources to enact mitigation action; expected completion date; current status; and other information. The charts are intended to provide a quick reference sheet to help enhance and better document each natural hazard mitigation action discussed at length in the text of the 2021 CANHMP update.

Hazard Type

The hazard to which the mitigation action applies.

Mitigation Action

An action which the jurisdiction has decided is necessary to help to mitigate the impacts of hazards on the community.

Lead Agency

The agency who will take responsibility for the action item.



Supporting Agencies

Agencies who have agreed to support the Lead Agency to accomplish the action item.

Funding Source

Potential sources of funding to accomplish the actions.

Benefitting Community

Listed here are the communities where the action items will reduce or eliminate the impact from the identified hazards.

Benefit/Cost

Per the methodology described above, this column ranks the action items as high, medium, or low for how well the benefits and costs align. Benefit cost data was not available for previously identified action items, so the column labeled “Benefit/Cost” is marked N/A for all action items done prior to this plan version.

Goal Addressed

The numbers found in this column correspond to the numbered goals found in the section above.

Timeframe

This details when each action item will reasonably be accomplished.

Current Status

A determination of where work on the goal is currently. “New” actions were developed for this plan revision. “Ongoing” actions are in progress. “Deleted” actions were determined to be unnecessary or lacked sufficient information for completion. “Deferred” actions will be postponed due to any number of factors. “Completed” actions have been accomplished. All action items completed from the previous plan version can be found at the end of the action items.

Other Information

Any additional details pertinent to planners.

These mitigation strategies and actions from the participating jurisdictions will be updated and maintained annually.

Table 44: 2021 Flooding and Dam/Levee Failure Mitigation Actions - High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Flooding Dam/Levee Failure	Develop comprehensive watershed management plans.	Licking County Soil and Water Conservation District (LCSWCD)	Participating Jurisdictions' Mayor's office or Administration, Licking County Planning Commission (LCPC)	Local, State, Federal	All participating jurisdictions	N/A	7	Long-term (longer than 12 months)	Ongoing	Funding is not currently available.
Medium	Flooding Dam/Levee Failure	Conduct an education outreach campaign to inform residents and the regulated community about the flooding risk in Licking County through the annual CRS mailing.	Licking County Planning Commission (LCPC)	Licking County Soil and Water Conservation District (LCSWCD), Participating Jurisdictions' Mayor's office or Administration, Licking County Emergency Management Agency (LCEMA)	Local	All participating jurisdictions	N/A	1, 5	Completed annually. (May of each year)	Ongoing	Adding to the annual required public outreach through the CRS mailing represents little to no cost.
High	Flooding Dam/Levee Failure	Move Lift Station outside of the way of flooding.	Village of Hebron Mayor's Office	Ohio Environmental Protection Agency (EPA)	State or Federal Grants	Village of Hebron	Medium	3, 4	Long-term (longer than 12 months)	New	Remove critical infrastructure out of the way of flooding.
High	Flooding Dam/Levee Failure	Raise Lift Station out of area which floods.	Village of Utica Mayor's Office	Ohio Environmental Protection Agency (EPA)	State or Federal	Village of Utica	Medium	3, 4	Long-term (longer than 12 months)	New	Need to raise the lift station as it is in flood plain.

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Flooding Dam/Levee Failure	Remove lime sludge lagoon from flood plain.	Village of Granville Mayor's Office	Licking County Planning Commission (LCPC), Ohio Environmental Protection Agency (EPA)	State or Federal	Village of Granville	Medium	4, 6	Short-term (within 6-12 months)	New	Flooding of this lagoon impacts the ecosystem of the river.
High	Flooding Dam/Levee Failure	Enclose trench to stop flooding.	Village of Granville Service Department	Licking County Engineer's Office (LCEO)	Local, State, or Federal	Village of Granville	Low	3, 4, 6	Short-term (within 6-12 months)	New	There is an open trench that back fills with rising creek water.
High	Flooding Dam/Levee Failure	Raise wellhead stacks out of 100- year flood plain.	Village of Granville Utilities Department	Licking County Planning Commission (LCPC), Ohio Environmental Protection Agency (EPA)	State or Federal Grants	Village of Granville	Low	3, 6	Short-term (within 6-12 months)	New	Protect the village water supply from flooding.
High	Flooding Dam/Levee Failure	Sunny Acres Wetland Restoration Project.	Village of Hebron, Ohio Emergency Management Agency (OEMA) & Federal Emergency Management Agency (FEMA)	Licking County Soil and Water Conservation District (LCSWCD)	Local and State	Village of Hebron	Low	4, 6	Long-term (longer than 12 months)	New	Restore this wetland to control flooding and provide natural habitat and space for native plants.
High	Flooding Dam/Levee Failure	Maintain the areas surrounding drainage ditches by performing maintenance	Licking County Engineer's Office (LCEO)	Licking County Soil and Water Conservation District (LCSWCD),	Local Funds	All participating jurisdictions	High	1, 2, 3, 4, 7	Short-term (within 6-12 months)	New	Half of all petition ditches are done each year. The remaining half

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
		actions including but not limited to mowing, tree and shrub trimming or removal, and sediment and debris removal.		and the Licking County Planning Commission (LCPC)							are done the following year.
High	Flooding Dam/Levee Failure	Ensure the proper maintenance and management of trees to include proper pruning of trees and/or removal of dead trees to reduce injuries, damage, and water flow issues from fallen trees.	Licking County Engineer's Office (LCEO)	Participating Jurisdictions' Mayor's office or Administration	Local Funds	All participating jurisdictions	High	3, 4	Short-term (within 6-12 months)	New	Fallen trees and debris can cause injuries, damage, and flooding in the area.
High	Flooding Dam/Levee Failure	Remove the lowhead dam from Raccoon Creek.	Village of Granville Mayor's Office	Ohio Environmental Protection Agency (EPA)	State or Federal Grants	Village of Granville	Medium	6	Immediate (within 6 months)	New	The goal is to restore the natural eco system to aid in flood prevention.
Medium	Flooding Dam/Levee Failure	Flood-proof critical facilities to 500-year floodplain standards.	Participating Jurisdictions' Floodplain Administrators	Participating Jurisdictions' Mayor's office or Administration, Licking County	Local, State, Federal	All participating jurisdictions	N/A	2, 3	Long-term (longer than 12 months)	Ongoing (10% complete)	Updates needed to minimize flooding damage to critical facilities.

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Flooding Dam/Levee Failure	Encourage adoption of floodplain standards above the minimum requirements.	Participating Jurisdictions' Floodplain Administrators	Planning Commission (LCPC) Licking County Planning Commission (LCPC)	Local	All participating jurisdictions	N/A	7	Short-term (within 6-12 months)	Ongoing (30% complete)	Strive for more CRS participation.
Medium	Flooding Dam/Levee Failure	Increase public awareness of risks from flooding and mitigation measures the public can take through annual outreach.	Licking County Planning Commission (LCPC)	Participating Jurisdictions' Floodplain Administrators	Local, State, Federal	All participating jurisdictions	N/A	1, 2, 3	Completed annually	Ongoing (50% complete)	Pamphlets are available at county offices, mass mailings in February and March. The county floodplain website is completed and available for use.
Medium	Flooding Dam/Levee Failure	Educate landowners adjacent to streams on proper stream maintenance.	Licking County Soil and Water Conservation District (LCSWCD)	Licking County Planning Commission (LCPC), Licking County Engineer's Office (LCEO)	Local	All participating jurisdictions	N/A	3, 4	Completed annually	Ongoing	Licking County Soil and Water Conservation District (LCSWCD) organizes volunteer clean-up days each year.
Low	Flooding Dam/Levee Failure	Continue to develop robust and updated development standards, floodplain management regulations, and	Licking County Planning Commission (LCPC)	Participating Jurisdictions' Floodplain Administrators	Local	All participating jurisdictions	N/A	7	Completed annually	Ongoing	Flood regulations were updated in 2012.

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Flooding Dam/Levee Failure	subdivision regulations. Conduct mitigation actions on properties found on the Repetitive Loss and in Licking County. Provide owners with relocation assistance.	Licking County Emergency Management Agency (LCEMA)	Licking County Planning Commission (LCPC), Village of Alexandria, City of Heath, Pataskala, City of Newark, Licking County, Village of Hebron	Local, State, Federal	Village of Alexandria, City of Heath, City of Pataskala, City of Newark, Licking County, Village of Hebron	Medium	8	Long-term (longer than 12 months)	Deferred	Will continue to monitor and when funds become available will seek to mitigate and provide relocation assistance.
Low	Flooding Dam/Levee Failure	Determine and document the infrastructure in the floodplain.	Participating Jurisdiction Mayor or Mayor's designee	Licking County Engineer's Office (LCEO), Licking County Planning Commission (LCPC)	Local, State, Federal	All participating jurisdictions	N/A	2, 7	Long-term (longer than 12 months)	Ongoing	Continue to document areas of concern (bridges, culverts, roads) to mitigate as funding allows.
Medium	Flooding Dam/Levee Failure	Conduct mitigation actions on 4 properties found on the Severe Repetitive Loss list in Licking County. Provide owners with relocation assistance.	Licking County Emergency Management Agency (LCEMA)	Licking County Planning Commission (LCPC), Licking County, Village of Hebron	Local, State, Federal	Licking County (unincorporated), Village of Hebron	Medium	8	Long-term (longer than 12 months)	Deferred	Will continue to monitor and when funds become available will seek to mitigate and provide relocation assistance.

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
Low	Flooding Dam/Levee Failure	Consider enhanced building codes beyond required minimums to better protect lives and property.	Licking County Planning Commission (LCPC)	Participating Jurisdictions' Mayor's office or Administration, Licking County Building Code Department	Local	All participating jurisdictions	N/A	3, 7	Long-term (longer than 12 months)	Ongoing	Current Building Code regulations are in effect in Ohio.
Medium	Flooding Dam/Levee Failure	Increase public awareness of risks from flooding and mitigation measures the public can take through annual outreach.	Licking County Planning Commission (LCPC)	Participating Jurisdictions' Floodplain Administrators	Local, State, Federal	All participating jurisdictions	N/A	1, 2, 3	Completed annually	Ongoing (50% complete)	Pamphlets are available at county offices, mass mailings in February and March. The county floodplain website is completed and available for use.
High	Flooding Dam/Levee Failure	Educate residents regarding the flooding hazards they face and how to be prepared using multiple means of communications.	Village of Hebron Mayor's Office	Licking County Emergency Management Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Hebron	High	2, 3	Short-term (within 6-12 months)	New	Residents need to be prepared for potential flooding in their community.
High	Flooding Dam/Levee Failure	Replace the West Main St. culvert.	Village of Hebron Public Works Dept.	Ohio Department of Natural Resources (ODOT),	State and Federal	Village of Hebron	Low	1, 3	Long-term (longer than 12 months)	New	Replacement of the culvert needed to reduce flooding

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Flooding Dam/Levee Failure	Establish a list of facilities that accept debris or recycle materials as a result of storm damage.	Licking County Emergency Management Agency (LCEMA)	Licking County Transportation Study (LCATS)	Local	Licking County and all participating jurisdictions	High	3, 4, 5, 7	Short-term (within 6-12 months)	New	Trees, building materials, metals, etc. need to be removed and disposed of in a timely manner.
High	Flooding Dam/Levee Failure	Update and create new Storm water management requirements as necessary to minimize flooding.	City of Newark Public Service Department	Licking County Planning Commission (LCPC)	Local	City of Newark	Medium	1, 3, 7, 8	Long-term (longer than 12 months)	New	Council action is needed to approve the requirements.
High	Flooding Dam/Levee Failure	Create and deliver a storm water run-off education program for residents.	Village of Granville Utilities Department	Licking County Planning Commission (LCPC), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Granville	High	6, 7	Short-term (within 6-12 months)	New	Maintain River eco-system and remove invasive species to reduce flooding.
Medium	Flooding Dam/Levee Failure	Conduct actions necessary to stabilize utility services during events.	Local public utility companies	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of	Private and Local	All participating jurisdictions	N/A	1, 3	Long-term (longer than 12 months)	Ongoing (30% Complete)	Sanitary lift stations have been retrofitted with continuous power.

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Flooding Dam/Levee Failure	Establish emergency plan outlining action steps for first responders and volunteers in event of flooding.	Village of Johnstown, Federal Emergency Management Agency (FEMA)	Commissioner's designee or Commissioner's designee Licking County Emergency Management Agency (LCEMA)	Local	Village of Johnstown	High	1, 2, 3, 5, 7	Long-term (longer than 12 months)	New	Village agencies could improve communication in order to respond faster and safer to emergencies.
High	Flooding Dam/Levee Failure	Retrofit Town Hall with a generator to maintain operations during outages	Village of Utica Mayor's Office	Licking County Emergency Management Agency (LCEMA)	Local, State or Federal Grants	Village of Utica	Medium	1, 3, 5	Immediate (within 6 months)	New	Install a Generator at town hall to provide power to the community.
High	Flooding Dam/Levee Failure	Complete Hope Drive to allow ingress and egress to residents in that area.	Village of Hebron Public Works Dept.	Licking County Engineer's Office (LCEO)	Local, State, Federal	Village of Hebron	Low	2, 7	Short-term (within 6-12 months)	New	Elderly and low-income residents in the area will have better escape plans.
High	Flooding Dam/Levee Failure	Educate landowners and village workers on maintaining areas around drainage ditches and ponds	Village of Johnstown Service Dept.	Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Johnstown	Low	1, 3, 6, 7	Short-term (within 6-12 months)	New	Drains get plugged with grass clippings and leaves, creating flooding problems in events of high rain.
Medium	Flooding Dam/Levee Failure	Establish fuel stations for first responders and the public	Licking County Emergency Management	Participating Jurisdictions' Mayor's office or Administration	Local, Private fuel companies	All participating jurisdictions	N/A	1, 3	Short-term (within 6-12 months)	Ongoing (25% complete)	Connect to generators during an outage to provide power

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
		during power outage events.	Agency (LCEMA)	Licking County Board of Commissioners or Commissioners designee							for first responders and the public.
Medium	Flooding Dam/Levee Failure	Encourage all jurisdictions to adopt the local EOP and create local plans to respond in each jurisdiction.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners or Commissioners' designee	Local	All participating jurisdictions	N/A	1, 2, 5, 7	Short-term (within 6-12 months)	Ongoing (25% complete)	Added five villages that adopted an emergency operation plan in previous planning cycle.
High	Flooding Dam/Levee Failure	Drainage repair of ditch at Hantsview.	Village of Hanover Mayor's Office	Councilman Chair of Storm Weather Committee	State, Federal grants	Village of Hanover	Medium	1, 3, 4	Short-term (within 6-12 months)	New	Drainage study and repair is needed to alleviate flooding.
Medium	Flooding Dam/Levee Failure	Creek erosion and debris alleviation	Village of Hanover Mayor's Office	Village Council	State, Federal grants	Village of Hanover	Medium	1, 3, 5	Long-term (longer than 12 months)	New	Reroute and change natural flow of the creek to reduce flooding.
Medium	Flooding Dam/Levee Failure	Maintain and increase vegetated stream bank buffers with a focus on woody native vegetation	Licking County Planning Commission (LCPC)	City, County, Village, and Township Zoning Officials	Local	Licking County and all Jurisdictions	Medium	3, 5, 6, 7	Long-term (longer than 12 months)	New	Streambank instability is a cause of flooding. Increased vegetated banks will provide a flooding buffer.

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
		throughout Licking County. Encourage other communities and supporters to become Storm Ready.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, organizations eligible to be Storm Ready Supporters	Local	All participating jurisdictions	N/A	2, 5, 7	Long-term (longer than 12 months)	New	Storm readiness is paramount during a flooding emergency.
High	Flooding Dam/Levee Failure	Education for resident regarding the hazards they face and how to be prepared using multiple means of communication.	Village of Hebron	Licking County Emergency Management Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Hebron	High	7	Short-term (within 6-12 months)	New	Education provided to help residents prepare for all natural hazards.
High	Flooding Dam/Levee Failure	Proper tree maintenance and management to ensure proper pruning of trees and/or removal of dead trees to reduce injuries and damage from fallen trees	Licking County Engineer's Office (LCEO)	Licking County Soil and Water Conservation District (LCSWCD)	Local Funds	All participating jurisdictions	High	1, 2, 3, 4, 7	Short-term (within 6-12 months)	New	Continued and improved programs for maintaining vegetation within the public road right-of-way.
High	Flooding Dam/Levee Failure	Purchase and install a back-up generator for	Village of Hanover	Mayor's Office and Fire Chief.	State, Federal grants	Village of Hanover	Low	1, 2, 3, 7	Long-term (longer)	New	The generator would allow for dispatching to continue

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
		Village Hall / Fire Station.							than 12 months)		despite power outages.
High	Flooding Dam/Levee Failure	Restore 1,900 feet of the South Fork of the Licking River to its original channel and create a park area surrounding the waterway as a flood control mechanism.	Licking County Soil and Water Conservation District	South Licking Watershed Conservancy District	Local, State, Federal Grants	City of Pataskala, City of Heath, City of Newark, Village of Granville, Village of Hebron	High	1, 2, 3, 4, 5, 6	Long-term (longer than 12 months)	New	Estimated cost \$909,987.10 to restore the channel to its historical location, bypassing the logjams plaguing the current channel.
High	Flooding Dam/Levee Failure	Educate residents on risks associated with the Buckeye Lake Dam.	LCEMA	Village of Buckeye Lake, Licking County	Local	Village of Buckeye Lake, Licking County	High	1, 2, 3, 7	Short-term	New	
High	Flooding Dam/Levee Failure	Educate residents on evacuation plans for emergencies associated with the Buckeye Lake Dam.	LCEMA	Village of Buckeye Lake, Licking County	Local	Village of Buckeye Lake, Licking County	High	1, 2, 3, 7	Short-term	New	
High	Flooding Dam/Levee Failure	Maintain working relationship with ODNR related to dam safety planning for Buckeye Lake Dam.	LCEMA	ODNR	Local	Village of Buckeye Lake, Licking County	High	5, 7	Short-term	New	
High	Flooding	Mitigate flooding along	Licking County	ODOT-District 5	BRIC Funding	Countywide	High	1, 2, 3	Long-term	New	Cost/Benefit consideration

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Flooding	the I-70 corridor between State Route 13 and Pataskala. This will include green and gray solutions.	Commissioners		and local/State match dollars						based on 25% match requirement and the number of partners willing to participate.
High	Flooding	Evaluate and pursue Long-term South Licking River Management.	Licking County Commissioners and the South Licking Watershed Conservancy District	USACE and MORPC	BRIC Funding and local/State match dollars. Also potentially look at additional funding for debris removal from MORPC	Countywide	High	1, 2, 3, 4, 5, 6, 7	Long-term	On-going	This may be tied to the Stream Restoration solutions and will not be focused on debris removal only.
High	Flooding	South Licking River Restoration to evaluate and implement long-term solutions within this river corridor to mitigate flooding. This will include green and gray solutions.	South Licking Watershed Conservancy District	Licking County Commissioners, Village of Hebron and the City of Heath	BRIC Funding and local/State match dollars	Countywide	High	1, 2, 3, 4, 6	Long-term	On-going	This mitigation alternative is tied to the I-70 mitigation and will need to be evaluated in tandem with that mitigation alternative.
High	Flooding	Implement South Fork Licking River	South Licking Watershed	Licking County Commissioners	BRIC Funding and	Countywide	High	1, 2, 3	Long-term	On-going	This mitigation alternative has significant

Flooding and Dam/Levee Failure Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit / Cost	Goal Addressed	Time Frame	Current Status	Other Information
		By-Pass to mitigate flooding.	Conservancy District	, Village of Hebron and the City of Heath	local/State match dollars						work already completed and should be evaluated for implementation
High	Flooding	Evaluate and Implement solutions to alleviate flooding along the Kirkersville Feeder Canal.	Ohio Department of Natural Resources	Licking County Commissioners, Fairfield County Commissioners	BRIC Funding and local/State match dollars	Countywide	High	1, 2, 3, 4	Long-term	On-going	A recent study has been completed by the owner of the Kirkersville Canal. Evaluation of implementation for this project.
High	Flooding	Evaluate and Implement solutions for the City of Heath Well Fields Flood Mitigation and Protection.	City of Heath	Licking County Commissioners	BRIC Funding and local/State match dollars	Countywide	High	1, 2, 3, 4, 6	Long-term	On-going	This mitigation alternative is tied closely to the South Licking River Restoration mitigation alternative.
High	All Hazards	Support the adoption of the most recent International Building Codes for the State of Ohio and adopt the most recent Building Code Effectiveness Grading Schedule (BCEGS)	Licking County	Licking County Building Code Department	Licking County	Countywide	High	1, 2, 3, 7, 8	Long-term	On-going	This mitigation action is critical for future FEMA grant applications.



Countywide All-Natural Hazards Mitigation



Table 45: 2021 Severe Winter Weather Mitigation Actions
Severe Winter Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Severe Winter Weather	Better define addresses and enhance GIS data to speed response times.	Licking County Emergency Management Agency (LCEMA)	Licking County Planning Commission (LCPC), Licking County Engineer's Office (LCEO)	Local	All participating jurisdictions	N/A	7	Long-term (longer than 12 months)	Ongoing (80% complete)	Convert all GIS to same system county-wide.
Medium	Severe Winter Weather	Create and publish innovative public service announcements (PSA) detailing emergency public information related to winter safety.	Licking County Emergency Management Agency (LCEMA)	Local radio and television, social media outlets, Village of Granville	Local, State and Federal	All participating jurisdictions	N/A	2, 3	Completed annually	Ongoing	Create PSAs and release information frequently on social media.
Medium	Severe Winter Weather	Increase public awareness of risks from flooding and mitigation measures the public can take through annual outreach.	Licking County Planning Commission (LCPC)	Participating Jurisdictions' Floodplain Administrators	Local, State, Federal	All participating jurisdictions	N/A	1, 2, 3	Completed annually	Ongoing (50% complete)	Pamphlets are available at county offices, mass mailings in February and March. The county floodplain website is completed and available for use.
Medium	Severe Winter Weather	Purchase emergency generators for critical facilities.	Licking County Emergency Management Agency (LCEMA),	Participating Jurisdictions' Mayor's office or Administration.	Local, State, Federal	All participating jurisdictions	N/A	1	Long-term (longer than 12 months)	Ongoing	Lack of funding has made this task difficult. Hebron has received funding for some



Severe Winter Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Severe Winter Weather	Encourage other communities and supporters to become Storm Ready.	Licking County Emergency Management Agency (LECEMA)	Participating Jurisdictions' Mayor's office or Administration, organizations eligible to be Storm Ready Supporters	Local	All participating jurisdictions	N/A	2, 5, 7	Long-term (longer than 12 months)	New	Storm readiness is paramount during a flooding emergency.
Medium	Severe Winter Weather	Enhance tree management and pruning to reduce injuries and damage from fallen trees.	Licking County Engineer's Office (LCEO)	Private property owners, Licking County Soil and Water Conservation District (LCSWCD), local power utility companies	County and Private	All participating jurisdictions	N/A	3	Completed annually	Ongoing	90 trees were removed in areas where risk existed for injury or property damage.
Medium	Severe Winter Weather	Conduct actions necessary to stabilize utility services during events.	Local public utility companies	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioner's designee or Commissioner's designee	Private and Local	All participating jurisdictions	N/A	1, 3	Long-term (longer than 12 months)	Ongoing (30% Complete)	Sanitary lift stations have been retrofitted with continuous power.
Medium	Severe Winter Weather	Establish fuel stations for first responders and the public	Licking County Emergency Management	Participating Jurisdictions' Mayor's office or Administration,	Local, Private fuel companies	All participating jurisdictions	N/A	1, 3	Short-term (within 6-12 months)	Ongoing (25% complete)	Connect to generators during an outage to provide power

Severe Winter Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		during power outage events.	Agency (LCEMA)	Licking County Board of Commissioner's or Commissioner's designee							for first responders and the public.
High	Severe Winter Weather	Purchase and install a back-up generator for Village Hall / Fire Station.	Village of Hanover	Mayor's Office and Fire Chief.	State, Federal grants	Village of Hanover	Low	1, 2, 3, 7	Long-term (longer than 12 months)	New	The generator would allow for dispatching to continue despite power outages.
Medium	Severe Winter Weather	Encourage all jurisdictions to adopt the local EOP and create local plans to respond in each jurisdiction.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners or Commissioner's designee	Local	All participating jurisdictions	N/A	1, 2, 5, 7	Short-term (within 6-12 months)	Ongoing (25% complete)	Added five villages that adopted an emergency operation plan in previous planning cycle.
Medium	Severe Winter Weather	Create areas for emergency shelters in existing structures.	Licking County Emergency Management Agency (LCEMA),	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioner's or Commissioner's Designee	Local	All participating jurisdictions	N/A	2	Long-term (longer than 12 months)	Ongoing (15% complete)	Each jurisdiction is responsible to identify local structures which could serve as emergency shelters for employees, residents, and visitors.
Medium	Severe Winter Weather	Ensure alternative communication systems are in	Licking County Emergency Management	Participating jurisdiction fire department and	Local, State, Federal	All participating jurisdictions	N/A	2	Short-term (within 6-12 months)	Ongoing (50% complete)	Granville utilizes a community wide

Severe Winter Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		place during emergency events.	Agency (LCEMA),	other first responders							notification system. Licking County utilizes the RAVE system. MARCS has been implemented countywide.
High	Severe Winter Weather	Education for resident regarding the hazards they face and how to be prepared using multiple means of communication.	Village of Hebron	Licking County Emergency Management Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Hebron	High	7	Short-term (within 6-12 months)	New	Education provided to help residents prepare for all natural hazards.
High	Severe Winter Weather	Establish emergency plan outlining action steps for first responders and volunteers in event of severe weather	Village of Johnstown, Federal Emergency Management Agency (FEMA)	Licking County Emergency Management Agency (LCEMA)	Local	Village of Johnstown	High	1, 2, 3, 5, 7	Long-term (longer than 12 months)	New	Village agencies could improve communication in order to respond faster and safer to emergencies.
High	Severe Winter Weather	Proper tree maintenance and management to ensure proper pruning of trees and/or removal of dead trees to reduce injuries and damage	Licking County Engineer's Office (LCEO)	Licking County Soil and Water Conservation District (LCSWCD)	Local Funds	All participating jurisdictions	High	1, 2, 3, 4, 7	Short-term (within 6-12 months)	New	Continued and improved programs for maintaining vegetation within the public road right-of-way.

Severe Winter Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		from fallen trees									
High	Severe Winter Weather	Purchase emergency generator for Bryn Du Mansion.	Village of Granville Mayor's Office	Village of Granville Recreation and Parks Dept.	Local, State, Federal	Village of Granville	Medium	2, 7	Short-term (within 6-12 months)	New	Critical operations for community to shelter during severe weather.
High	Severe Winter Weather	Retrofit Town Hall with a generator to maintain operations during outages	Village of Utica Mayor's Office	Licking County Emergency Management Agency (LCEMA)	Local, State or Federal Grants	Village of Utica	Medium	1, 3, 5	Immediate (within 6 months)	New	Install a generator at town hall to provide power to the community.
High	Severe Winter Weather	Move Lift Station outside of the way of flooding.	Village of Hebron Mayor's Office	Ohio Environmental Protection Agency (EPA)	State or Federal Grants	Village of Hebron	Medium	3, 4	Long-term (longer than 12 months)	New	Remove critical infrastructure out of the way of flooding.
High	Severe Winter Weather	Raise Lift Station out of area which floods.	Village of Utica Mayor's Office	Ohio Environmental Protection Agency (EPA)	State or Federal	Village of Utica	Medium	3, 4	Long-term (longer than 12 months)	New	Need to raise the lift station as it is in flood plain.
High	Severe Winter Weather	Update and create new Storm water management requirements as necessary to minimize flooding.	City of Newark Public Service Department	Licking County Planning Commission (LCPC)	Local	City of Newark	Medium	1, 3, 7, 8	Long-term (longer than 12 months)	New	Council action is needed to approve the requirements.
High	Severe Winter Weather	Sunny Acres Wetland Restoration Project.	Village of Hebron, Ohio Emergency Management Agency (OEMA) & Federal	Licking County Soil and Water Conservation District (LCSWCD)	Local and State	Village of Hebron	Low	4, 6	Long-term (longer than 12 months)	New	Restore this wetland to control flooding and provide natural habitat and space for native plants.



Countywide All-Natural Hazards Mitigation



Severe Winter Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
			Emergency Management Agency (FEMA)								

Table 46: 2021 Severe Summer Weather Mitigation Actions

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Low	Severe Summer Weather	Support residents who wish to apply to the Ohio Safe Room Rebate Program.	Licking County Emergency Management Agency	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners' designee or Commissioners' designee	Local	All participating jurisdictions	N/A	2	Short-term (within 6-12 months)	New	
High	Severe Summer Weather	Better define addresses and enhance GIS data to speed response times.	Licking County Emergency Management Agency (LCEMA)	Licking County Planning Commission (LCPC), Licking County Engineer's Office (LCEO)	Local	All participating jurisdictions	N/A	7	Long-term (longer than 12 months)	Ongoing (80% complete)	Convert all GIS to same system county-wide
Medium	Severe Summer Weather	Create and publish innovative public service announcements (PSA) detailing emergency public information related to summer weather	Licking County Emergency Management Agency (LCEMA)	Local radio and television, social media outlets, Village of Granville	Local, State and Federal	All participating jurisdictions	N/A	2, 3	Completed annually	Ongoing	Create PSAs and release information frequently on social media.
High	Severe Summer Weather	Purchase and install a backup generator	Village of Hanover	Mayor's Office and Fire Chief.	State, Federal grants	Village of Hanover	Low	1, 2, 3, 7	Long-term (longer)	New	The generator would allow for dispatching

Severe Summer Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		for Village Hall / Fire Station.							than 12 months)		to continue despite power outages.
Medium	Severe Summer Weather	Increase public awareness of risks from flooding and mitigation measures the public can take through annual outreach.	Licking County Planning Commission (LCPC)	Participating Jurisdictions' Floodplain Administrators	Local, State, Federal	All participating jurisdictions	N/A	1, 2, 3	Completed annually	Ongoing (50% complete)	Pamphlets are available at county offices, mass mailings in February and March. The county floodplain website is completed and available for use.
High	Severe Summer Weather	Purchase emergency generator for Bryn Du Mansion.	Village of Granville Mayor's Office	Village of Granville Recreation and Parks Dept.	Local, State, Federal	Village of Granville	Medium	2, 7	Short-term (within 6-12 months)	New	Critical operations for community to shelter during severe weather.
High	Severe Summer Weather	Retrofit Town Hall with a generator to maintain operations during outages	Village of Utica Mayor's Office	Licking County Emergency Management Agency (LCEMA)	Local, State or Federal Grants	Village of Utica	Medium	1, 3, 5	Immediate (within 6 months)	New	Install a generator at town hall to provide power to the community.
High	Severe Summer Weather	Education for resident regarding the hazards they face and how to be prepared using multiple means of communication .	Village of Hebron	Licking County Emergency Management Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Hebron	High	7	Short-term (within 6-12 months)	New	Education provided to help residents prepare for all natural hazards.

Severe Summer Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Severe Summer Weather	Purchase and install emergency generators to sustain critical operations during power outages.	Licking County Emergency Management Agency (LCEMA)	Private companies, Participating Jurisdictions' Mayor's office or Administration, Participating Jurisdiction Water and Wastewater Departments	Local, State, Federal	All participating jurisdictions	N/A	3, 5	Long-term (greater than 5 years)	Ongoing	Lack of funding has made this task difficult. Hebron has received funding for some generators at critical facilities.
High	Severe Summer Weather	Encourage other communities and supporters to become Storm Ready.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, organizations eligible to be Storm Ready Supporters	Local	All participating jurisdictions	N/A	2, 5, 7	Long-term (longer than 12 months)	New	Storm readiness is paramount during a flooding emergency.
Medium	Severe Summer Weather	Enhance tree management and pruning to reduce injuries and damage from fallen trees.	Licking County Engineer's Office (LCEO)	Private property owners, Licking County Soil and Water Conservation District (LCSWCD), local power utility companies	County and Private	All participating jurisdictions	N/A	3	Completed annually	Ongoing	90 trees were removed in areas where risk existed for injury or property damage.
Medium	Severe Summer Weather	Conduct actions necessary to stabilize utility services during events.	Local public utility companies	Participating Jurisdictions' Mayor's office or Administration, Licking	Private and Local	All participating jurisdictions	N/A	1, 3	Long-term (longer than 12 months)	Ongoing (30% Complete)	Sanitary lift stations have been retrofitted with continuous power.

Severe Summer Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Severe Summer Weather	Establish fuel stations for first responders and the public during power outage events.	Licking County Emergency Management Agency (LCEMA)	County Board of Commissioner's designee or Commissioner's designee	Local, Private fuel companies	All participating jurisdictions	N/A	1, 3	Short-term (within 6-12 months)	Ongoing (25% complete)	Connect to generators during an outage to provide power for first responders and the public
Medium	Severe Summer Weather	Encourage all jurisdictions to adopt the local EOP and create local plans to respond in each jurisdiction.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners or Commissioner's designee	Local	All participating jurisdictions	N/A	1, 2, 5, 7	Short-term (within 6-12 months)	Ongoing (25% complete)	Added five villages that adopted an emergency operation plan in previous planning cycle.
Medium	Severe Summer Weather	Create areas for shelters in existing structures.	Licking County Emergency Management Agency (LCEMA),	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners'	Local	All participating jurisdictions	N/A	2	Long-term (longer than 12 months)	Ongoing (15% complete)	Each jurisdiction is responsible to identify local structures which could serve as emergency shelters for

Severe Summer Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies or Commissioner's Designees	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Severe Summer Weather	Ensure alternative communication systems are in place during emergency events.	Licking County Emergency Management Agency (LCEMA),	Participating fire department and other first responders	Local, State, Federal	All participating jurisdictions	N/A	2	Short-term (within 6-12 months)	Ongoing (50% complete)	employees, residents, and visitors. Granville utilizes a community wide notification system. Licking County utilizes the RAVE system. MARCS has been implemented countywide.
High	Severe Summer Weather	Establish emergency plan outlining action steps for first responders and volunteers in event of severe weather	Village of Johnstown, Federal Emergency Management Agency (FEMA)	Licking County Emergency Management Agency (LCEMA)	Local	Village of Johnstown	High	1, 2, 3, 5, 7	Long-term (longer than 12 months)	New	Village agencies could improve communication in order to respond faster and safer to emergencies.
High	Severe Summer Weather	Proper tree maintenance and management to ensure proper pruning of trees and/or removal of dead trees to reduce injuries and damage from fallen trees	Licking County Engineer's Office (LCEO)	Licking County Soil and Water Conservation District (LCSWCD)	Local Funds	All participating jurisdictions	High	1, 2, 3, 4, 7	Short-term (within 6-12 months)	New	Continued and improved programs for maintaining vegetation within the public road right-of-way
High	Severe Summer Weather	Replace the West Main St. culvert.	Village of Hebron	Ohio Department of Natural	State and Federal	Village of Hebron	Low	1, 3	Long-term (longer)	New	Replace the culvert to reduce flooding

Severe Summer Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Severe Summer Weather	Establish a list of facilities that accept debris or recycle materials as a result of storm damage.	Public Works Dept.	Resources (ODOT), Licking County Transportation Study (LCATS)	Local	Licking County and all participating jurisdictions	High	3, 4, 5, 7	Short-term (within 6-12 months)	New	Trees, building materials, metals, etc. need to be removed and disposed of in a timely manner.
High	Severe Summer Weather	Complete Hope Drive to allow ingress and egress to residents in that area.	Village of Hebron Public Works Dept.	Licking County Engineer's Office (LCEO)	Local, State, Federal	Village of Hebron	Low	2, 7	Short-term (within 6-12 months)	New	Elderly and low-income residents in the area will have better escape plans.
High	Severe Summer Weather	Move Lift Station outside of the way of flooding.	Village of Hebron Mayor's Office	Ohio Environmental Protection Agency (EPA)	State or Federal Grants	Village of Hebron	Medium	3, 4	Long-term (longer than 12 months)	New	Remove critical infrastructure out of the way of flooding.
High	Severe Summer Weather	Raise Lift Station out of area which floods.	Village of Ufca Mayor's Office	Ohio Environmental Protection Agency (EPA)	State or Federal	Village of Ufca	Medium	3, 4	Long-term (longer than 12 months)	New	Need to raise the lift station as it is in flood plain.
High	Severe Summer Weather	Update and create new Storm water management requirements as necessary to minimize flooding.	City of Newark Public Service Department	Licking County Planning Commission (LCPC)	Local	City of Newark	Medium	1, 3, 7, 8	Long-term (longer than 12 months)	New	Council action is needed to approve the requirements.
High	Severe Summer Weather	Sunny Acres Wetland	Village of Hebron, Ohio Emergency	Licking County Soil and Water	Local and State	Village of Hebron	Low	4, 6	Long-term (longer)	New	Restore this wetland to control

Severe Summer Weather Mitigation Actions- High Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		Restoration Project.	Management Agency (OEMA) & Federal Emergency Management Agency (FEMA)	Conservation District (LCSWCD)					than 12 months)		flooding and provide natural habitat and space for native plants.

Table 47: 2021 Tornado Mitigation Actions - Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Low	Tornado	Support residents who wish to apply to the Ohio Safe Room Rebate Program.	Licking County Emergency Management Agency	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioner's designee or Commissioner's designee	Local	All participating jurisdictions	N/A	2	Short-term (within 6-12 months)	New	
High	Tornado	Increase the number of tornado sirens	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration	Local, State, Federal	All participating jurisdictions	N/A	2, 7	Long-term (longer than 12 months)	Ongoing (75% complete)	57 sirens were installed and 19 more sites were identified as critical for a siren.
High	Tornado	Purchase emergency generator for Bryn Du Mansion.	Village of Granville Mayor's Office	Village of Granville Recreation and Parks Dept.	Local, State, Federal	Village of Granville	Medium	2, 7	Short-term (within 6-12 months)	New	Critical operations for community to shelter during severe weather.
High	Tornado	Retrofit Town Hall with a generator to maintain operations during outages	Village of Utica Mayor's Office	Licking County Emergency Management Agency (LCEMA)	Local, State or Federal Grants	Village of Utica	Medium	1, 3, 5	Immediate (within 6 months)	New	Installation of a Generator at town hall to provide power to the community
High	Tornado	Purchase and install a back-up generator for Village Hall / Fire Station.	Village of Hanover	Mayor's Office and Fire Chief.	State, Federal grants	Village of Hanover	Low	1, 2, 3, 7	Long-term (longer than 12 months)	New	The generator would allow for dispatching to continue despite power outages.
Medium	Tornado	Ensure alternative communication systems are in place during	Licking County Emergency Management	Participating fire department and other first responders	Local, State, Federal	All participating jurisdictions	N/A	2	Short-term (within 6-12 months)	Ongoing (50% complete)	Granville utilizes a community wide notification

Tornado Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Tornado	Increase public awareness of risks from flooding and mitigation measures the public can take through annual outreach.	Licking County Planning Commission (LCPC)	Participating Jurisdictions' Floodplain Administrators	Local, State, Federal	All participating jurisdictions	N/A	1, 2, 3	Completed annually	Ongoing (50% complete)	Pamphlets are available at county offices, mass mailings in February and March. The county floodplain website is completed and available for use.
Medium	Tornado	Establish fuel stations for first responders and the public during power outage events.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioner's or Commissioner's designee	Local, Private fuel companies	All participating jurisdictions	N/A	1, 3	Short-term (within 6-12 months)	Ongoing (25% complete)	Connect to generators during an outage to provide power for first responders and the public.
Medium	Tornado	Encourage all jurisdictions to adopt the local EOP and create local plans to respond in each jurisdiction.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners	Local	All participating jurisdictions	N/A	1, 2, 5, 7	Short-term (within 6-12 months)	Ongoing (25% complete)	Added five villages that adopted an emergency operation plan in previous planning cycle.

Tornado Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies or Commissioner's designee	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Tornado	Create areas for emergency shelters in existing structures.	Licking County Emergency Management Agency (LCEMA),	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioner's or Commissioner's Designee	Local	All participating jurisdictions	N/A	2	Long-term (longer than 12 months)	Ongoing (15% complete)	Each jurisdiction is responsible to identify local structures which could serve as emergency shelters for employees, residents, and visitors.
High	Tornado	Encourage other communities and supporters to become Storm Ready.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, organizations eligible to be Storm Ready Supporters	Local	All participating jurisdictions	N/A	2, 5, 7	Long-term (longer than 12 months)	New	Storm readiness is paramount during a flooding emergency.
Medium	Tornado	Enhance tree management and pruning to reduce injuries and damage from fallen trees.	Licking County Engineer's Office (LCEO)	Private property owners, Licking County Soil and Water Conservation District (LCSWCD), local power utility companies	County and Private	All participating jurisdictions	N/A	3	Completed annually	Ongoing	90 trees were removed in areas where risk existed for injury or property damage.
Medium	Tornado	Conduct actions necessary to stabilize utility services during events.	Local public utility companies	Participating Jurisdictions' Mayor's office or Administration,	Private and Local	All participating jurisdictions	N/A	1, 3	Long-term (longer than 12 months)	Ongoing (30% Complete)	Sanitary lift stations have been retrofitted with continuous power.



Tornado Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Low	Tornado	Consider enhanced building codes beyond required minimums to better protect lives and property.	Licking County Planning Commission (LCPC)	Licking County Board of Commissioner's designee or Commissioner's designee	Local	All participating jurisdictions	N/A	3, 7	Long-term (longer than 12 months)	Ongoing	Current Building Code regulations are in effect in Ohio.
Medium	Tornado	Create and publish innovative public service announcements (PSA) detailing emergency public information related to tornado safety.	Licking County Emergency Management Agency (LCEMA)	Local radio and television, social media outlets, Village of Granville	Local, State and Federal	All participating jurisdictions	N/A	2, 3	Completed annually	Ongoing	Create PSAs and release information frequently on social media.
High	Tornado	Consider a requirement to request new mobile home parks to include tornado sirens and shelters.	Licking County Planning Commission (LCPC)	Local Jurisdiction Zoning and Development Departments, Participating Jurisdictions' Mayor's office or Administration	Local	All participating jurisdictions	N/A	2, 7	Long-term- greater than 5 years	Ongoing (5% complete)	Consider a regulatory requirement in zoning and development regulations.
Medium	Tornado	Create/purchase tornado shelter within the Village	Village of Hanover	Licking County Emergency Management	State or Federal grants	Village of Hanover	Low	2, 5, 7	Long-term (longer than 12 months)	New	Would provide shelter to those without adequate

Tornado Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Tornado	Proper tree maintenance and management to ensure proper pruning of trees and/or removal of dead trees to reduce injuries and damage from fallen trees	Licking County Engineer's Office (LCEO)	Licking County Soil and Water Conservation District (LCSWCD)	Local Funds	All participating jurisdictions	High	1, 2, 3, 4, 7	Short-term (within 6-12 months)	New	Continued and improved programs for maintaining vegetation within the public road right-of-way.
High	Tornado	Establish emergency plan outlining action steps for first responders and volunteers in event of severe weather	Village of Johnstown, Federal Emergency Management Agency (FEMA)	Licking County Emergency Management Agency (LCEMA)	Local	Village of Johnstown	High	1, 2, 3, 5, 7	Long-term (longer than 12 months)	New	Village agencies could improve communication in order to respond faster and safer to emergencies.
Medium	Tornado	Create and provide information on how to build structures to withstand tornadoes.	Licking County Emergency Management Agency (LCEMA)	Licking County Building Department, Participating Jurisdictions' Mayor's office or Administrations	Local, State, Federal	All participating jurisdictions	N/A	1, 2, 3, 5	Completed annually	Ongoing (40% complete)	Information is on website and available in the office. Seeking to expand public service announcements.
High	Tornado	Education for resident regarding the hazards they face and how to be prepared using multiple means of communication.	Village of Hebron	Licking County Emergency Management Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Hebron	High	7	Short-term (within 6-12 months)	New	Education provided to help residents prepare for all natural hazards

Tornado Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Tornado	Establish a list of facilities that accept debris or recycle materials as a result of storm damage.	Licking County Emergency Management Agency (LCEMA)	Licking County Engineer's Office (LCEO)	Local	Licking County and all participating jurisdictions	High	3, 4, 5, 7	Short-term (within 6-12 months)	New	Trees, building materials, metals, etc. need to be removed and disposed of in a timely manner.

Table 48: 2021 Wildfire Mitigation Actions - Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Wildfire	Create and publish innovative public service announcements (PSA) detailing emergency public information related to wildfire safety	Licking County Emergency Management Agency (LCEMA)	Local radio and television, social media outlets, Village of Granville	Local, State and Federal	All participating jurisdictions	N/A	2, 3	Completed annually	Ongoing	Create PSAs and release information frequently on social media.
Medium	Wildfire	Encourage all jurisdictions to adopt the local EOP and create local plans to respond in each jurisdiction.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners or Commissioner's designee	Local	All participating jurisdictions	N/A	1, 2, 5, 7	Short-term (within 6-12 months)	Ongoing (25% complete)	Added five villages that adopted an emergency plan in previous planning cycle.
Medium	Wildfire	Educate the public on fire safety and wildfire prevention strategies.	Participating jurisdiction fire department and other first responders	Licking County Emergency Management Agency (LCEMA), Participating Jurisdictions' Mayor's office or Administration	Local, State	All participating jurisdictions	N/A	7	Long-term (longer than 12 months)	Ongoing	Consider implementing Fire Wise programs on local level.
Medium	Wildfire	Enhance the 911 address system to provide accurate information to	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County	Local, Federal	All participating jurisdictions	N/A	2, 3, 5	Immediate (within 6 months)	Ongoing (90% complete)	Phase II wireless continues to improve.

Wildfire Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		first responders during wildfire situations.		Auditor's Office							
Medium	Wildfire	Encourage the installation of dry hydrants in rural areas.	Participating jurisdiction Fire Department	Licking County Soil and Water Conservation District (LCSWCD), Licking County Planning Commission (LCPC)	Local	All participating jurisdictions	N/A	1, 2, 3	Long-term (longer than 12 months)	Ongoing	Installed at the owner's expense or when funds are available.
High	Wildfire	Education for resident regarding the hazards they face and how to be prepared using multiple means of communication.	Village of Hebron	Licking County Emergency Management Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Hebron	High	7	Short-term (within 6-12 months)	New	Education provided to help residents prepare for all natural hazards
High	Wildfire	Establish emergency plan outlining action steps for first responders and volunteers in event of a wildfire	Village of Johnstown, Federal Emergency Management Agency (FEMA)	Licking County Emergency Management Agency (LCEMA)	Local	Village of Johnstown	High	1, 2, 3, 5, 7	Long-term (longer than 12 months)	New	Village agencies could improve communication in order to respond faster and safer to emergencies.
High	Wildfire	Retrofit Town Hall with a generator to maintain operations during outages	Village of Utica Mayor's Office	Licking County Emergency Management Agency (LCEMA)	Local, State or Federal Grants	Village of Utica	Medium	1, 3, 5	Immediate (within 6 months)	New	Install a generator at town hall to provide power to the community.

Table 49: 2021 Invasive Species Mitigation Actions
Invasive Species Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Invasive Species	Remove invasive species on public lands. Identify early infestations	Participating Jurisdictions' Mayor's office or Administration.	Licking County Soil and Water Conservation District (LCSWCD)	Local	All participating jurisdictions	Low	4, 5, 6, 7	Long-term (longer than 12 months)	New	Invasive species reduce the natural environment's resiliency during severe weather, flooding, wild fire and drought.
Medium	Invasive Species	Educate community on awareness of and identification of invasive species	Participating Jurisdictions' Mayor's office or Administration.	Licking County Soil and Water Conservation District (LCSWCD)	Local	All participating jurisdictions	Medium	5, 6, 7	Short-term (within 6-12 months)	New	Outreach campaign in order to educate the public on how to identify invasive species to the area.
Medium	Invasive Species	Establish development regulations to require all native plants in landscaping	Licking County Soil and Water Conservation District (LCSWCD)	Licking County Planning Commission (LCPC), Participating Jurisdictions' Mayor's office or Administration	Local	All participating jurisdictions	Medium	1, 3, 5, 6, 7	Short-term (within 6-12 months)	New	Goal is for a reduction in property loss.
High	Invasive Species	Sunny Acres Wetland Restoration Project.	Village of Hebron, Ohio Emergency Management Agency (OEMA) & Federal Emergency Management Agency (FEMA)	Licking County Soil and Water Conservation District (LCSWCD)	Local and State	Village of Hebron	Low	4, 6	Long-term (longer than 12 months)	New	Restore this wetland to control flooding and provide natural habitat and space for native plants.

Invasive Species Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Invasive Species	Maintain the areas surrounding drainage ditches by performing maintenance actions including but not limited to mowing, tree and shrub trimming or removal, and sediment and debris removal.	Licking County Engineer's Office (LCEO)	Licking County Soil and Water Conservation District (LCSWCD), and the Licking County Planning Commission (LCPC)	Local Funds	All participating jurisdictions	High	1, 2, 3, 4, 7	Short-term (within 6-12 months)	New	Half of all petition ditches are done each year. The remaining half are done the following year.
High	Invasive Species	Proper tree maintenance and management to ensure proper pruning of trees and/or removal of dead trees to reduce injuries and damage from fallen trees	Licking County Engineer's Office (LCEO)	Licking County Soil and Water Conservation District (LCSWCD)	Local Funds	All participating jurisdictions	High	1, 2, 3, 4, 7	Short-term (within 6-12 months)	New	Continued and improved programs for maintaining vegetation within the public road right-of-way.
Medium	Invasive Species	Maintain and increase vegetated stream bank buffers with a focus on woody native vegetation throughout Licking County.	Licking County Planning Commission (LCPC)	City, County, Village, and Township Zoning Officials	Local	Licking County and all Jurisdictions	Medium	3, 5, 6, 7	Long-term (longer than 12 months)	New	Streambank instability is a cause of flooding. Increased vegetated banks will provide a flooding buffer.

Invasive Species Mitigation Actions- Medium Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
High	Invasive Species	Create and deliver a storm water run-off education program for residents.	Village of Granville Utilities Department	Licking County Planning Commission (LCPC), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Granville	High	6, 7	Short-term (within 6-12 months)	New	Maintain river eco-system and remove invasive species to reduce flooding.

Table 50: 2021 Drought Mitigation Actions
Drought Mitigation Actions- Low Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Drought	Determine how current and future development impacts aquifers.	Licking County Soil and Water Conservation District (LCSWCD)	Ohio Department of Natural Resources (ODNR)	Local, State, Federal	All participating jurisdictions	N/A	6	Completed annually	Ongoing	Ohio Department of Natural Resources (ODNR) with other state/federal agencies continue to monitor 140 wells statewide.
High	Drought	Education for resident regarding the hazards they face and how to be prepared using multiple means of communication.	Village of Hebron	Licking County Emergency Management Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Hebron	High	7	Short-term (within 6-12 months)	New	Education provided to help residents prepare for all natural hazards.
Medium	Drought	Plan for and enforce local measures designed to reduce the impact of drought, such as water conservation techniques.	Licking County Emergency Management Agency (LCEMA)	Licking County Planning Commission (LCPC), Licking County Soil and Water Conservation District (LCSWCD), United States Department of Agriculture (USDA)	Local, State, Federal	All participating jurisdictions	High	2, 3, 7	Short-term (within 6-12 months)	New	Determine resources available now and in the future.
Medium	Drought	Encourage all jurisdictions to adopt the local	Licking County Emergency Management	Participating Jurisdictions' Mayor's office	Local	All participating jurisdictions	N/A	1, 2, 5, 7	Short-term (within 6-	Ongoing (25% complete)	Added five villages that adopted an

Drought Mitigation Actions- Low Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		EOP and create local plans to respond in each jurisdiction.	Agency (LCEMA)	Administration, Licking County Board of Commissioners or Commissioner's designee					12 months)		emergency operation plan in previous planning cycle.
Low	Drought	Educate residents on water conservation.	Village of Utica	Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Utica	Low	1, 2, 6, 7	Immediate (within 6 months)	New	Inform public of water alert levels and actions.
Low	Drought	Develop a local ordinance to address water consumption during a drought.	Village of Granville Mayor's Office	Granville Water Department	Local	Village of Granville	High	6, 7	Short-term (within 6-12 months)	New	Currently, there are no standards in place to address water usage during a drought.
Low	Drought	Provide educational materials to provide residents with ongoing water consumption education.	Village of Granville Mayor's Office, City of Pataskala Mayor's Office	Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Granville, City of Pataskala	High	6, 7	Short-term (within 6-12 months)	New	Help the public learn the importance of water conservation measures on a daily basis.
Low	Drought	Create drought legislation for water conservation	Village of Hebron Superintendent	Licking County Soil and Water Conservation District (LCSWCD), Licking County Emergency Management Agency (LCEMA)	Local	Village of Hebron	High	5, 6	Short-term (within 6-12 months)	New	Work with other communities and LCEMA to create plan for water conservation.

Drought Mitigation Actions- Low Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Low	Drought	Educate residents on water conservation techniques	Village of Johnstown	Licking County Soil and Water Conservation District (LCSWCD)	Local	Village of Johnstown	Medium	1, 7	Long-term (longer than 12 months)	New	Currently, residents and business owners are using large amounts of water.

Table 51: 2021 Earthquake Mitigation Actions

Earthquake Mitigation Actions- Low Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Medium	Earthquake	Establish fuel stations for first responders and the public during power outage events.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners' or Commissioner's designee	Local, Private fuel companies	All participating jurisdictions	N/A	1, 3	Short-term (within 6-12 months)	Ongoing (25% complete)	Connect to generators during an outage to provide power for first responders and the public.
High	Earthquake	Purchase and install a backup generator for Village Hall / Fire Station.	Village of Hanover	Mayor's Office and Fire Chief.	State, Federal grants	Village of Hanover	Low	1, 2, 3, 7	Long-term (longer than 12 months)	New	The generator would allow for dispatching to continue despite power outages.
High	Earthquake	Establish a list of facilities that accept debris or recycle materials as a result of storm damage.	Licking County Emergency Management Agency (LCEMA)	Licking County Engineer's Office (LCEO)	Local	Licking County and all participating jurisdictions	High	3, 4, 5, 7	Short-term (within 6-12 months)	New	Trees, building materials, metals, etc. need to be removed and disposed of in a timely manner.
Medium	Earthquake	Encourage all jurisdictions to adopt the local EOP and create local plans to respond in each jurisdiction.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioners' or Commissioner's designee	Local	All participating jurisdictions	N/A	1, 2, 5, 7	Short-term (within 6-12 months)	Ongoing (25% complete)	Added five villages that adopted an emergency operation plan in previous planning cycle.
High	Earthquake	Education for resident regarding the	Village of Hebron	Licking County Emergency Management	Local	Village of Hebron	High	7	Short-term (within 6-	New	Education provided to help residents

Earthquake Mitigation Actions- Low Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
		hazards they face and how to be prepared using multiple means of communication		Agency (LCEMA), Licking County Soil and Water Conservation District (LCSWCD)					12 months		prepare for all natural hazards.
High	Earthquake	Purchase emergency generator for Bryn Du Mansion.	Village of Granville Mayor's Office	Village of Granville Recreation and Parks Dept.	Local, State, Federal	Village of Granville	Medium	2, 7	Short-term (within 6-12 months)	New	Critical operations for community to shelter during severe weather.
High	Earthquake	Retrofit Town Hall with a generator to maintain operations during outages	Village of Utica Mayor's Office	Licking County Emergency Management Agency (LCEMA)	Local, State or Federal Grants	Village of Utica	Medium	1, 3, 5	Immediate (within 6 months)	New	Install a generator at town hall to provide power to the community.
High	Earthquake	Encourage other communities and supporters to become Storm Ready.	Licking County Emergency Management Agency (LCEMA)	Participating Jurisdictions' Mayor's office or Administrations, organizations eligible to be Storm Ready Supporters	Local	All participating jurisdictions	N/A	2, 5, 7	Long-term (longer than 12 months)	New	Storm readiness is paramount during a flooding emergency.
Medium	Earthquake	Conduct actions necessary to stabilize utility services during events.	Local public utility companies	Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioner's designee or Commissioner's designee	Private and Local	All participating jurisdictions	N/A	1, 3	Long-term (longer than 12 months)	Ongoing (30% Complete)	Sanitary lift stations have been retrofitted with continuous power.

Earthquake Mitigation Actions- Low Priority

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Goal Addressed	Time Frame	Current Status	Other Information
Low	Earthquake	Consider enhanced building codes beyond required minimums to better protect lives and property.	Licking County Planning Commission (LCPC)	Participating Jurisdictions, Mayor's office or Administration, Licking County Building Code Department	Local	All participating jurisdictions	N/A	3, 7	Long-term (longer than 12 months)	Ongoing	Current Building Code regulations are in effect in Ohio.
Medium	Earthquake	Create and publish innovative public service announcements (PSA) detailing emergency public information related to earthquake safety	Licking County Emergency Management Agency (LCEMA)	Local radio and television, social media outlets, Village of Granville	Local, State and Federal	All participating jurisdictions	N/A	2, 3	Completed annually	Ongoing	Create PSAs and release information frequently on social media.
High	Earthquake	Establish emergency plan outlining action steps for first responders and volunteers in event of an earthquake.	Village of Johnstown, Federal Emergency Management Agency (FEMA)	Licking County Emergency Management Agency (LCEMA)	Local	Village of Johnstown	High	1, 2, 3, 5, 7	Long-term (longer than 12 months)	New	Village agencies could improve communication in order to respond faster and safer to emergencies.

Table 52: Completed Mitigation Actions
COMPLETED ACTION ITEMS

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Time Frame	Current Status	Other Information
High	Flooding	Early warning detection-stream gauge	Licking County Emergency Management Agency (LCEMA), USGS	Participating Jurisdictions' Mayor's office or Administration, (which jurisdictions participated?) NWS	Federal, State, Local	Village of Granville	N/A	08-30-2010 to 12-31-2013	Completed	Study completed waiting on National Weather Service approval.
High	Flooding, Severe Summer Weather, Severe Winter Weather, Tornado, Drought, Earthquakes, Wildfire	Better define addresses and convert entire county to ESRI GIS platform.	LCEMA, LC Engineer's Office (LCEO)	End users of GIS system	Local	All participating jurisdictions	N/A	11-01-2012 to 11-1-2013	Completed	Converted entire county to updated ESRI GIS program.
Medium	Flooding, Drought, Severe Summer Weather, Severe Winter Weather, Tornado, Earthquake, Wildfire	Implement various volunteer programs designed to train volunteers to respond to disaster events.	LCEMA	Who supported the training?	Local, State, Federal	All participating jurisdictions	N/A	Completed annually	Completed	Cert team trained and responded to disaster in 2012.
Medium	Flooding	Purchase and install signage to mark areas of high water.	LCEO	Participating jurisdiction floodplain administrator, LCPC	Local, State, Federal	All participating jurisdictions	N/A	11-01-2012 to 11-01-2017	Completed	All areas identified were marked with signage.

COMPLETED ACTION ITEMS

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Time Frame	Current Status	Other Information
Low	Flooding	Update flood maps	Impacted jurisdictions	Participating Jurisdictions' Mayor's office or Administration, FEMA	Local, State Federal	All participating jurisdictions	N/A	Maps 05-2-2001	Completed	Selected for Risk-MAP project
Medium	Severe Summer Weather, Severe Winter Weather, Tornado, Flooding, Earthquake, Drought, Wildfires	Obtain Storm Ready Certification for Licking County.	LCEMA	LCPC, CERT team, Participating Jurisdictions' Mayor's office or Administration, Licking County Board of Commissioner's or Commissioner's designee	Local, State, Federal	All participating jurisdictions	N/A	By 2012	Completed	Storm ready certified for 2012.
High	Tornadoes	Provide fixed shelters for 2 local mobile home parks in the County.	LCEMA	LCPC, park owner's	Local, State, Federal	Countywide	N/A	7/31/2010	Completed	Complete July 2010, explore additional sites
High	Tornadoes	Explore Locations for New Tornado Sirens	LCEMA	First Responders, AHJ	Local, State, Federal	Countywide	N/A	11/1/2012-11/1/2017	Completed	Review and update as needed.
Medium	Tornadoes	Increase building code tornado standards	Licking County Building Code Department	Township Trustee	Local, State Federal	Countywide	N/A	Completed	Completed	Update as needed, continuously reviewed.
Medium	Earthquakes	Expand earthquake knowledge in Licking County	LCEMA	USGS	Local	Countywide	N/A	Update as needed	Completed	New Licking County web page, natural hazards planning.
Medium	Wild Fires	Enhanced fire fighter training	Participating jurisdiction	Participating Jurisdictions'	Local, State and Federal	Countywide	N/A	Short-term-	Completed	Structure and wild land low



Countywide All-Natural Hazards Mitigation



COMPLETED ACTION ITEMS

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/ Cost	Time Frame	Current Status	Other Information
		to better handle wildfires.	Fire Department	Mayor's office or Administration				than 5 years		water operations.

Table 53: Deleted Mitigation Actions

DELETED ACTION ITEMS

Priority	Hazard Type	Mitigation Action	Lead Agency	Supporting Agencies	Funding Source	Benefiting Community	Benefit/Cost	Time Frame	Current Status	Other Information
Medium	Wild Fires	Better equipment and resources for fire and emergency service providers.	Participating jurisdiction Fire Department and other First Responders	LCEMA	Local, State and Federal	Countywide	N/A	Ongoing	Deleted	Lack of local funding, pursue other sources
Medium	Severe Winter Weather	Alternative communication systems	Licking County Building Code Dept.	LCEMA	Local, State, Federal	All participating jurisdictions	N/A	Long-term (longer than 12 months)	Deleted due to insufficient information.	Current Ohio building codes, wind, ice.
Medium	Drought	Develop alternative water sources	LCPC	LCSWCD, United States Department of Agriculture (USDA)	Local, State, Federal	Countywide	N/A	11-01-2012 to 11-01-2017	Deleted	Determined not to have funding and ability to complete this task.
Medium	Tornadoes	Request that developers install sirens and shelters in new developments.	LCPC	Participating Jurisdictions' Mayor's office or Administration, Township Trustee	Local, State, Federal	Countywide	N/A	Long-term greater than 5 years	Deleted	Not a feasible solution.
High	Flooding	Conduct mitigation action in Village of Hebron	Participating jurisdiction Floodplain Administrator	Village of Hebron Mayor's Office, LCPC	Private, Local, Federal	Village of Hebron, Ohio	N/A	11-01-2012 to 11-1-2017	Deleted	More specific actions have been developed for the Village of Hebron.

11 Plan Maintenance

11.1 Plan Monitoring, Evaluation, and Updating

The Plan Maintenance Section of this document details the process to keep the Licking County Natural Hazard Mitigation Plan an active document. Plan revision will occur every five years and changes will be made as necessary. The Licking County Emergency Management Agency (LCEMA) will be tasked with overall plan maintenance and will work with local government and regional planning agencies to incorporate mitigation strategies into future development plans, capital improvement budgets, and building code standards. LCEMA will continue to include public comments and suggestions into reviews and/or updates of the Natural Hazards Mitigation Plan. This plan will be housed on the LCEMA website and Ohio's State Hazard Analysis Resource and Planning Portal (SHARPP) for download by the public at any time.

The CANHMP Core Planning Group will seek to meet annually to update portions of the CAMHMP and discuss important mitigation measures that need to be taken and ensure mitigation measures identified in the plan are done as funding and staff are available. These meetings will be open to the public and advertised as such. LCEMA will be the lead agency to coordinate these meetings and track the information for the purpose of updating the plan. After each significant natural hazard event occurrence, the Core Planning Group will also meet to discuss mitigation for that event.

12 List of Sources

Table 54: 2021 Licking CANHMP Source List

Source
FEMA Mitigation Guidance
Franklin County Natural Hazards Mitigation Plan
Licking County Databases
Local Subject Matter Expertise
Muskingum County Hazard Mitigation Plan
National Climatic Data Center
National Weather Service
Ohio Department of Natural Resources
Ohio Emergency Management Agency
Ohio Mitigation Plan
Storm Event Database
United States Geological Survey
National Levee Database

13 List of Acronyms

CANHMP	Countywide All Natural Hazards Mitigation Plan
CDBG	Community Development Block Grant
CRS	Community Rating System
DSP	Dam Safety Program
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
HUD	Housing and Urban Development
LCATS	Licking County Transportation Study
LCEMA	Licking County Emergency Management Agency
LCSWCD	Licking County Soil and Water Conservation District
MORPC	Mid-Ohio Regional Planning Commission
NCDC	National Climate Data Center
NFIP	National Flood Insurance Rate Program
NOAA	National Oceanic and Atmospheric Administration
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Natural Resources
OEMA	Ohio Emergency Management Agency
OSU	Ohio State University
PAR	Population At Risk
PDSI	Palmer Drought Severity Index
USDA	United States Department of Agriculture
USGS	United States Geological Survey

14 APPENDIX A. Outreach Strategy Documentation

All Licking County jurisdictions are committed to the whole community approach for developing, maintaining, and implementing the Licking County Countywide All-Natural Hazards Mitigation Plan (CANHMP). The Licking County Mitigation Planning Team created an outreach strategy at the Mitigation Planning kick-off meeting. Below are the goals of this outreach strategy:

A. Goals of Outreach:

1. To encourage public involvement and buy-in to the plan and plan process.
2. To solicit and incorporate stakeholder and public input into mitigation objectives, goals and action items.
3. To facilitate stakeholder and public input into the assessment and mitigation of the risks facing Licking County.
4. To allow for public and stakeholder review and comment of draft plan.

B. Outreach Methods

Outreach Method	Implementation
Community Events	Community events, booth at any public events.
Interviews	Targeted discussions with County officials, municipal officials, affected stakeholders, schools, universities, and the general public to identify hazards of concern and potential mitigation measures.
News Media	Local television, radio and print media partners promote widespread public involvement, post to the community's online public events calendar, local news media coverage of public meetings, assist with notifying the public of meetings and the opportunity to comment.
Presentations to Governing Bodies	Presentations about the plan and plan process during County Commissioner General Sessions, City Council meetings. Communications from Cities/ Licking County to all employees to solicit feedback.
Questionnaires/ Surveys	Distribution of survey online via the Licking County EMA website, and the websites of participating jurisdictions. Copies of the survey distributed by local officials and made available for residents to complete at local county and municipal offices and community events, and an electronic version was posted on local websites.
Public Meetings/ Existing Committees	Distribution of mitigation information at exiting public meetings, LEPC, other.
Social Media	Promoted via any jurisdictional social media accounts in the county.

Outreach Method	Implementation
Area-specific Meetings	Participate in regional meetings and local township trustee meetings and other area specific meetings to distribute mitigation information.
Letter to Adjacent Counties	Invitation letter sent to all adjacent counties in order to invite them to participate.
Faith Based Outreach	Churches distribute survey, present at meetings when possible.
Business/ Private Sector	Distribute survey, solicit feedback on draft planning document.

To accomplish the goals of public outreach, an informational flyer was created along with a survey to both educate residents and solicit input from them as well. Both were placed in public locations throughout the County and distributed electronically through websites and social media. The survey was available in paper copy as well as electronically through Survey Monkey.

One additional outreach was completed not found in the documents below. Sean Grady, Director of Licking County EMA, was interviewed on WNKO by Dave Doney on January 28th, 2019.

The following pages represent some evidence of the outreach strategy in action. It is a sampling of each jurisdictions' efforts to involve the whole community in the process of mitigation planning.

14.1 Letter to Jurisdictions and Adjacent County Emergency Management Agencies



Sean Grady- EMA Director

John Wieber- Deputy Director

To Whom It May Concern:

Licking County Emergency Management staff is currently working on a Countywide All Natural Hazard Mitigation Plan (CANHMP) update. The purpose of this plan is to help communities identify their risks in regards to natural disasters, assess the magnitude of these risks, and develop strategies and priorities to identify projects for reducing risks. This document is an update to the original CANHMP from 2014. By adopting this plan update, it will bring your community into the overall effort to strengthen community resilience on a countywide level.

Adopting this plan will also make your community eligible to apply for and receive FEMA Hazard Mitigation Assistance grant money for projects within your community. If your community is interested in participating the time is NOW, as the next opportunity to participate won't be until 2024 during the next mandatory five-year update. In order to be eligible for the FEMA Hazard Mitigation Funds, your community must also participate in the National Flood Insurance Program (NFIP).

If your community is interested in becoming a participant in the 2019 CANHMP update, there will be a meeting held at **10:00 am September 21, 2017 in Room D of the Licking County Administration Building**. There will be a copy of the CANHMP available at this meeting for your review. Staff will go over everything that the community will need to participate. Should you have any questions beforehand, please feel free to give me a call at (740) 670-5576.

Respectfully,

John Wieber

Deputy Director, Licking County EMA

Licking County Justice Center 155 East Main Street Newark, Ohio 43055

740.670.5576 (Office) • 740.670-5582(Fax) • www.lcounty.com

14.2 Mitigation Factsheet



What is Hazard Mitigation?

What is Mitigation?

Hazard mitigation includes any actions taken to decrease or eliminate the impacts of natural hazards (things like flooding and severe storms) on our community. Mitigation can take many forms, purchasing flood insurance, using tornado sirens, and setting building standards to withstand high wind. These are all examples of mitigation at work. Mitigation is taking action now, before a disaster to reduce loss of life and damage to property.

What is a mitigation plan?

- A Hazard Mitigation Plan is a written guidebook detailing how a community wants to lessen or eliminate disaster related impacts.
- Contains details on what hazards the community faces and provides possible strategies to reduce their impacts.
- Each participating Licking County jurisdiction has included projects for their community to reduce the impact of the hazards present in each area.

Why is hazard mitigation important?

- Saves money by decreasing the losses from disaster events.
- Builds partnerships by involving the government, public, non-governmental organizations, and private businesses.
- Increases awareness of hazards and risk for a particular area.
- Helps the community make decisions based on risk.

What can you do to help?

Attend public meetings and help shape the plan update!

Read and comment on the plan to inform the changes we will make in this update cycle.

Complete a survey on mitigation at the following link:

<https://bit.ly/2Ctwt34>



Licking County Emergency Management Agency

155 E Main Street
Newark, Ohio 43055

Director: Sean Grady, MS, MSEM

Deputy Director: John Wieber, OCEM

Phone: 740-670-5575

The essential steps in hazard mitigation planning are:

1. Identify the hazards in your community.
2. Determine how vulnerable you are to the hazards you face.
3. Choose the actions your community can take to reduce the impact from your hazards.
4. Implement your plan of action.

Is there a financial benefit?

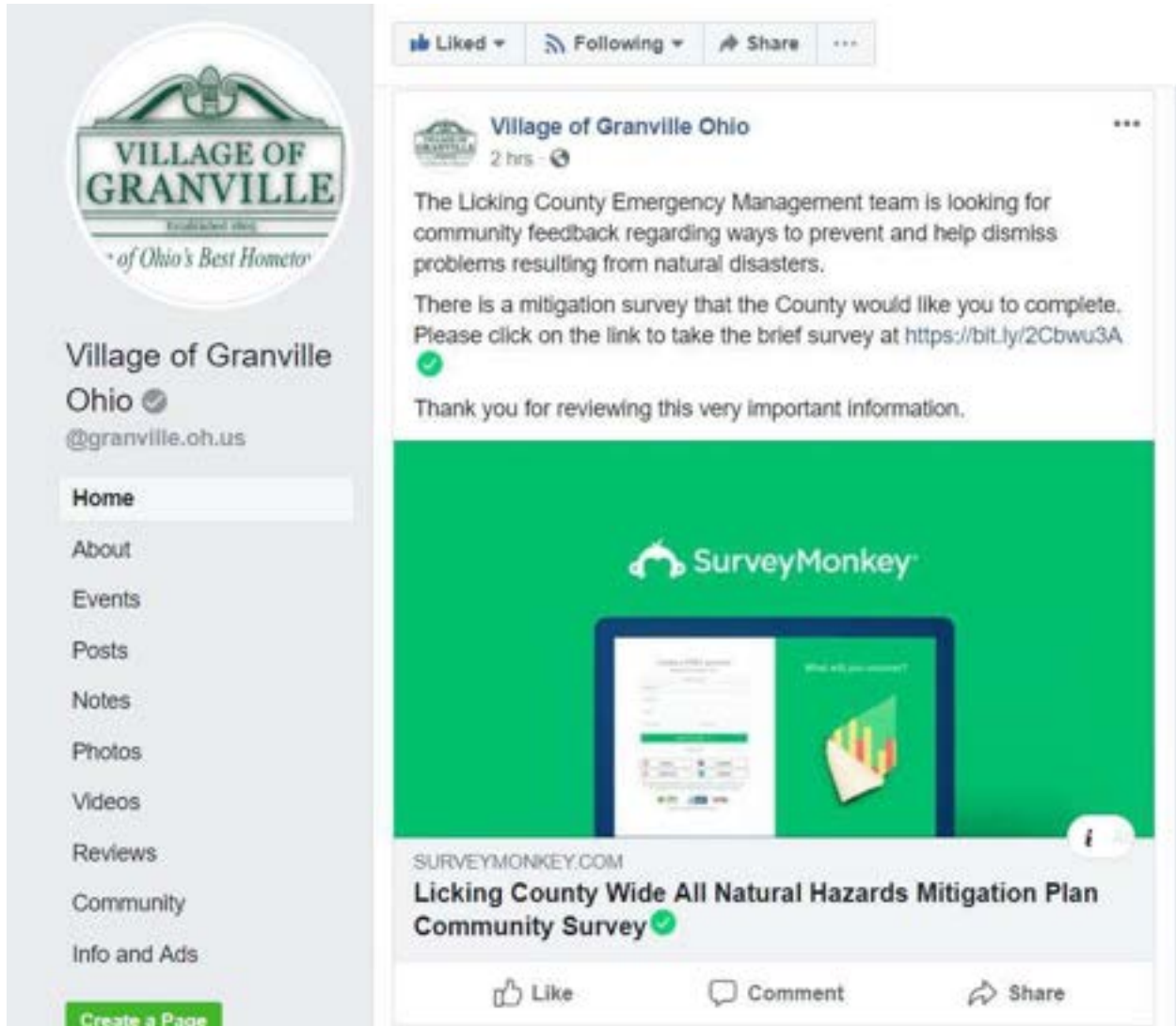
The Federal Emergency Management Agency (FEMA) requires each local government to have a mitigation plan in order to be eligible to receive federal grant funding for local hazard mitigation projects.

FEMA also estimates that mitigation saves six dollars for every dollar spent!

For more information, please contact the planning contractor, All Clear Emergency Management Group at 336-802-1800.



14.3 Public Outreach



The screenshot shows a Facebook post from the 'Village of Granville Ohio' page. The post is dated '2 hrs' and contains the following text:

The Licking County Emergency Management team is looking for community feedback regarding ways to prevent and help dismiss problems resulting from natural disasters.

There is a mitigation survey that the County would like you to complete. Please click on the link to take the brief survey at <https://bit.ly/2Cbwu3A>.

Thank you for reviewing this very important information.

The post includes a SurveyMonkey banner image with the text 'Licking County Wide All Natural Hazards Mitigation Plan Community Survey' and a green checkmark icon. The banner also features the SurveyMonkey logo and a laptop displaying a survey interface.

At the bottom of the post, there are interaction buttons for 'Like', 'Comment', and 'Share'.



Fri 2/22/2019 8:49 AM

Mollie Prasher <mprasher@granville.oh.us>

Licking County Emergency Management

To villageinformation@granvilleohio.us

Bcc jamies@allclearerng.com

The Licking County Emergency Management team wanted to share their Hazard Mitigation Fact Sheet with the community.

Please read the fact sheet below and follow-up with the Licking County EMA or with the Village if you have any questions.

There is also a mitigation survey that the County would like you to complete at <https://bit.ly/2Cbwu3A>

Thank you for reviewing this very important information.



LICKING COUNTY HAZARD MITIGATION FACT SHEET
2017 Countywide All-Natural Hazards Mitigation Plan Update

What is Hazard Mitigation?

What is mitigation?
Hazard mitigation includes any actions taken to decrease or eliminate the impacts of natural hazards (things like flooding and severe storms) on our community. Mitigation can take many forms, purchasing flood insurance, using tornado sirens, and setting building standards to withstand high wind. These are all examples of mitigation or risk reduction. Mitigation is taking action now, before a disaster to reduce loss of life and damage to property.

What is a mitigation plan?

- A Hazard Mitigation Plan is a written guidebook detailing how a community wants to lessen or eliminate disaster-related impacts.
- Contains details on what hazards the community faces and provides possible strategies to reduce their impacts.
- Each participating Licking County jurisdiction has included projects for their community to reduce the impact of the hazards present in each area.

Why is hazard mitigation important?

- Saves money by decreasing the losses from disaster events.
- Builds partnerships by involving the government, public, non-governmental organizations, and private business.
- Increases awareness of hazards and risk for a particular area.
- Helps the community make decisions based on risk.

What can you do to help?

Ahead public meetings and help shape the plan update!
Read and comment on the plan to inform the changes we will make in the update cycle.
Complete a survey on mitigation at the following link: <https://bit.ly/2Cbwu3A>



Is there a financial benefit?

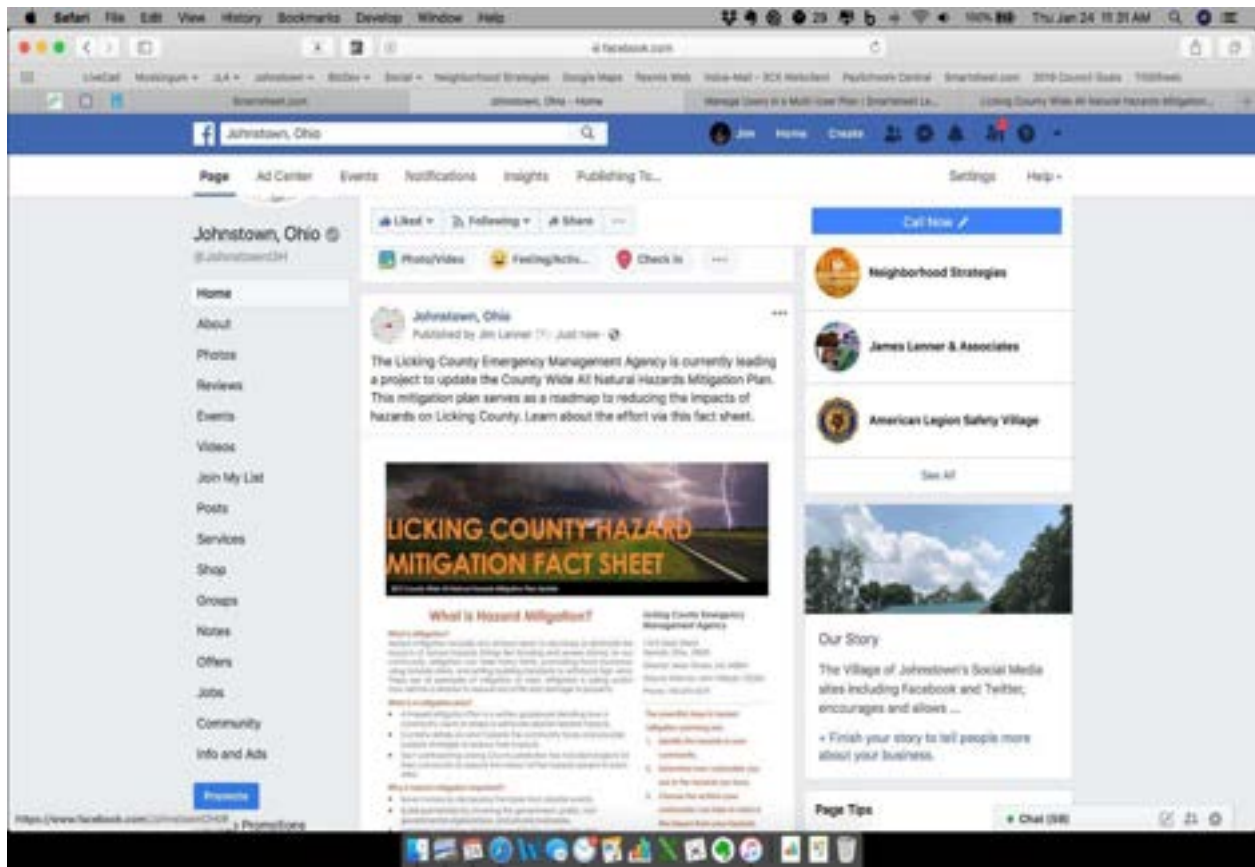
The Federal Emergency Management Agency (FEMA) requires each local government to have a mitigation plan in order to be eligible to receive federal grant funding for local hazard mitigation projects.

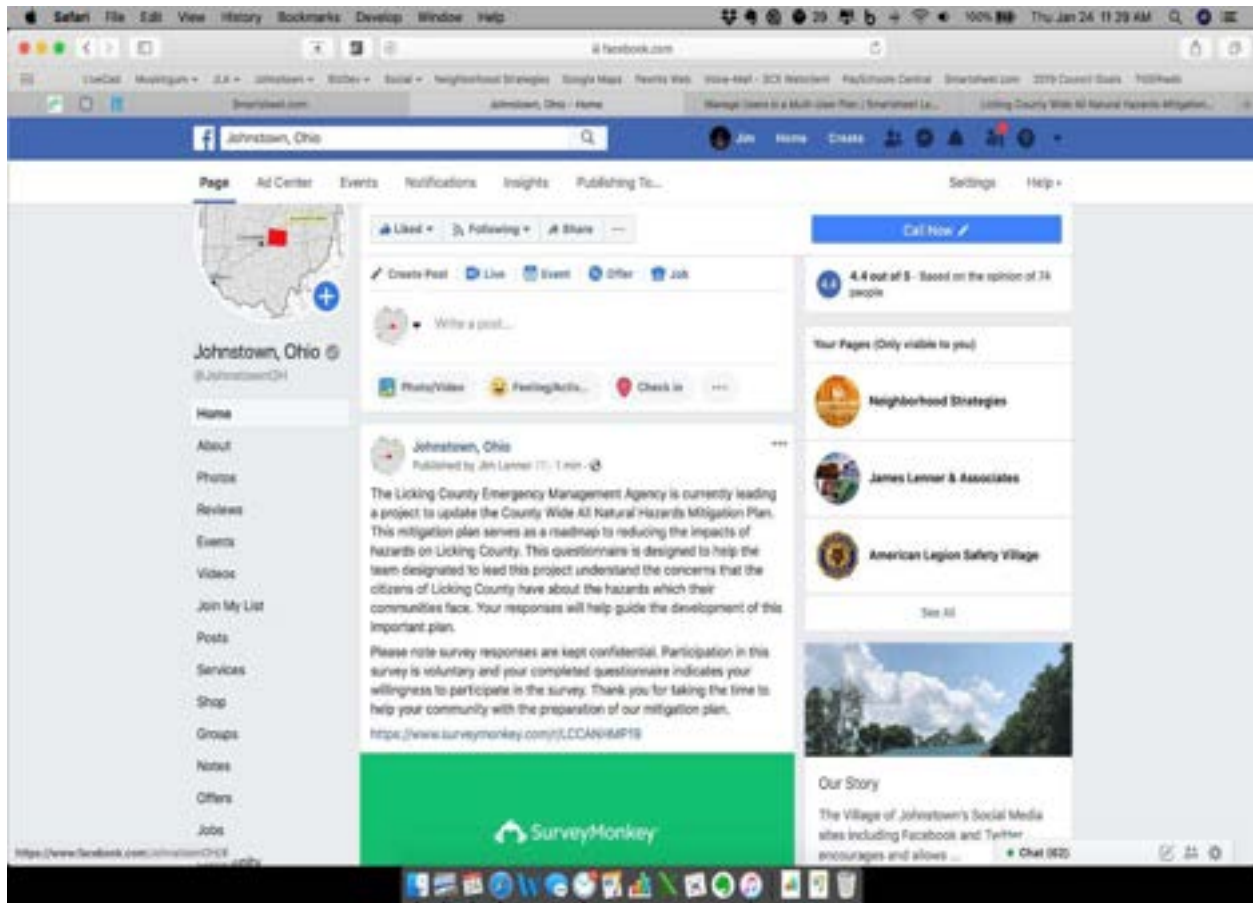
FEMA also estimates that mitigation saves six dollars for every dollar spent.

For more information, please contact the planning coordinator, All Clear Emergency Management Group at 334.962.1800



Mollie Prasher, CMC
Clerk of Council
Village of Granville

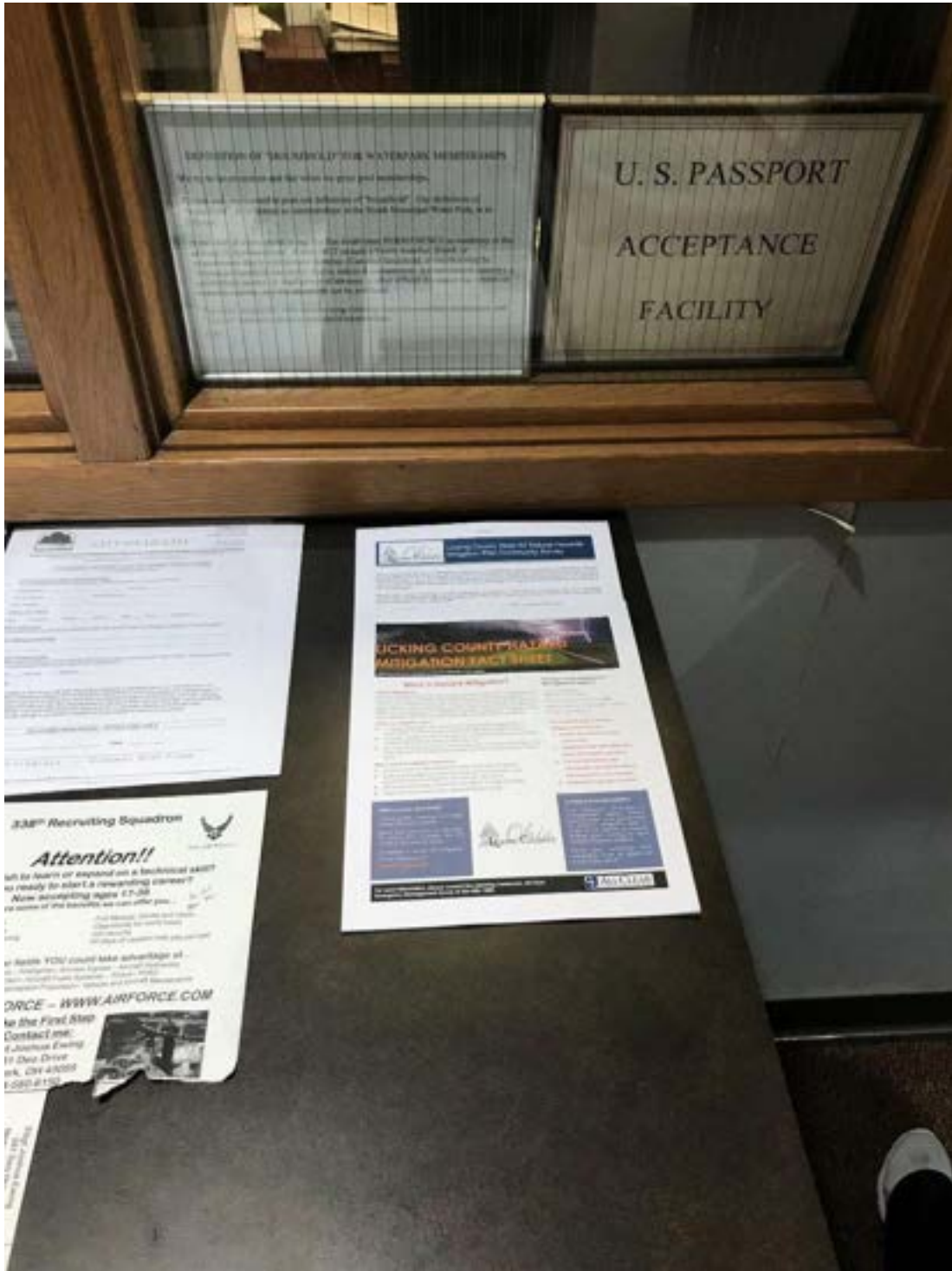


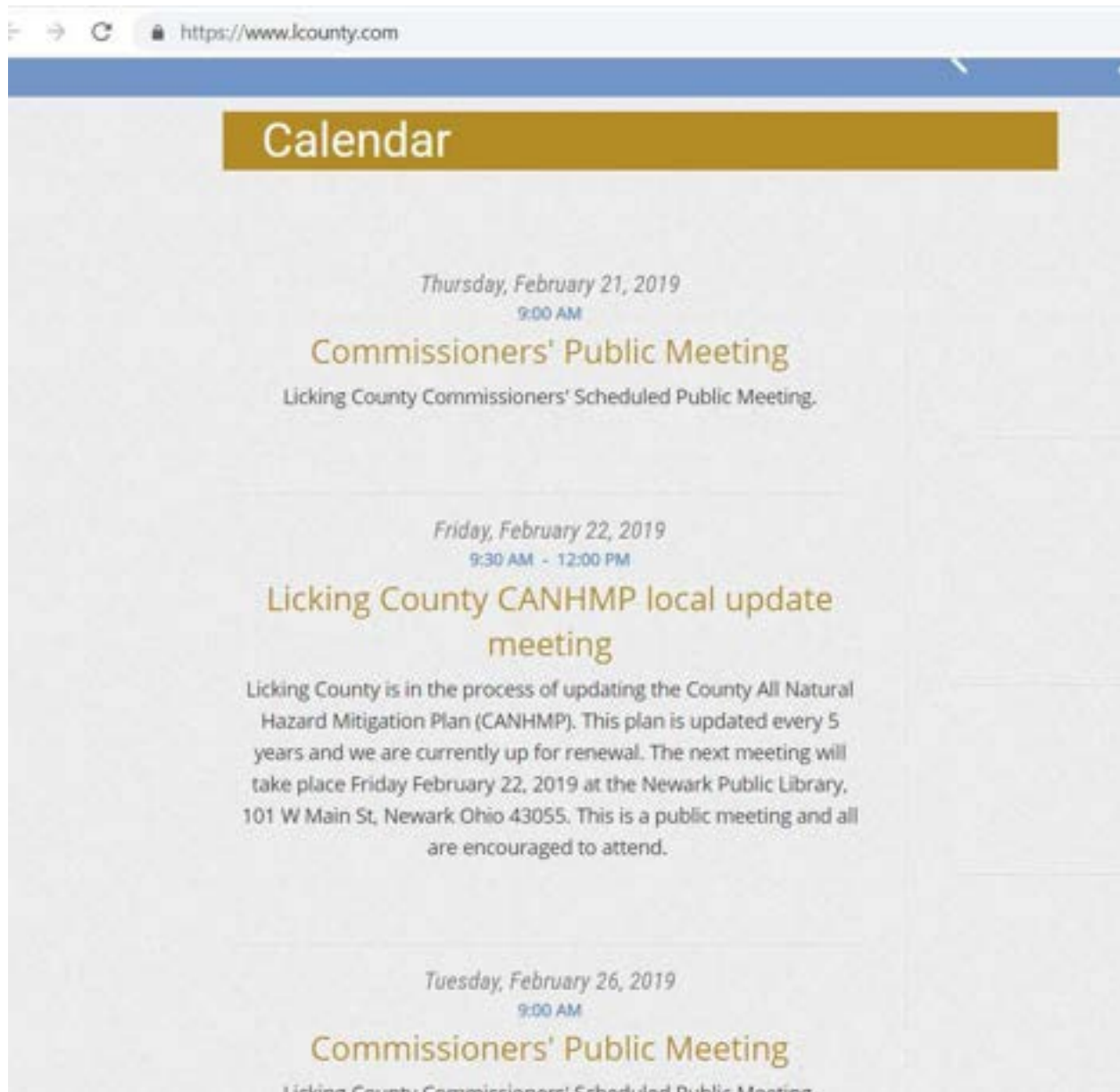




The image shows a screenshot of the Twitter profile for Licking County EMA (@lcountyEMA). The profile bio states: "Emergency Management response and planning for the residents and businesses of Licking County, Ohio. This account is not monitored 24/7." It lists the location as Newark, Ohio, the website as lcounty.com/depts/ema/, and notes it was joined in July 2009. There are 120 photos and videos in the gallery. A pinned tweet from January 28, 2018, reads: "We're leading a project to update the County Wide All Natural Hazards Mitigation Plan. This mitigation plan serves as a road map to reducing the impacts of hazards on Licking County! Help us out by completing this survey:". The tweet includes a SurveyMonkey link and a thumbnail image of a survey interface. The tweet statistics show 910 tweets, 127 following, 1,130 followers, 958 likes, and 1 list.

City of Heath Water Department





The screenshot shows a web browser window with the URL <https://www.lcounty.com>. The page features a blue header with the word "Calendar" in white text on a gold background. Below the header, there are three event listings separated by horizontal lines. Each listing includes the date, time, title, and a brief description.

Thursday, February 21, 2019
9:00 AM
Commissioners' Public Meeting
Licking County Commissioners' Scheduled Public Meeting.

Friday, February 22, 2019
9:30 AM - 12:00 PM
Licking County CANHMP local update meeting
Licking County is in the process of updating the County All Natural Hazard Mitigation Plan (CANHMP). This plan is updated every 5 years and we are currently up for renewal. The next meeting will take place Friday February 22, 2019 at the Newark Public Library, 101 W Main St, Newark Ohio 43055. This is a public meeting and all are encouraged to attend.

Tuesday, February 26, 2019
9:00 AM
Commissioners' Public Meeting
Licking County Commissioners' Scheduled Public Meeting.



15 APPENDIX B. Meeting Documentation



Sean Grady- EMA Director

John Wieber- Deputy Director

To Whom It May Concern:

Licking County Emergency Management staff is currently working on a Countywide All Natural Hazard Mitigation Plan (CANHMP). The purpose of this plan is to help communities identify their risks in regards to natural disasters, assess the magnitude of these risks, and develop strategies and priorities to identify projects for reducing risks. This document is an update to the original CANHMP from 2014. By adopting this plan update, it will bring your community into the overall effort to strengthen community resilience on a countywide level. Adopting this plan will also make your community eligible to apply for and receive FEMA Hazard Mitigation Assistance grant money for projects within your community.

If your community is interested in participating the time is NOW, as the next opportunity to participate won't be until 2024 during the next mandatory five-year update. In order to be eligible for the FEMA Hazard Mitigation Funds, your community must also participate in the National Flood Insurance Program (NFIP).

If your community is interested in becoming a participant in the 2019 CANHMP update, there will be a meeting held at **2 p.m. on May 22, 2017, in Room A of the Licking County Administration Building**. There will be a copy of the CANHMP available at this meeting for your review. Staff will go over everything that the community will need to participate. Should you have any questions beforehand, please feel free to give me a call at (740) 670-5576.

Sincerely,

John Wieber

Deputy Director, Licking County EMA

Licking County Justice Center 155 East Main Street Newark, Ohio 43055
740.670.5576 (Office) • 740.670-5582(Fax) • www.lccounty.com

PLEASE SIGN-IN 2-6-17

NAME	AGENCY	TITLE	PHONE	E-MAIL
Sherry Powell	Buckeye Lake Village	Planning Commission	614-498-730	Powellsherry@gmail.com
Karen Cookston	"	"	441-498-7897	karen.cookston@lickingcounty.com
Barry Connell	Newark P.D.	Chief of Police	740-670-7913	bconn@newarkohio.net
STEVEN A FARM	CITY OF NEWARK	SAFETY DIRECTOR	740-670-7710	sfarm@newarkohio.net
Jim Lerner	Johnstown	Village Manager	740-967-3177	jlerner@johnstownohio.org
Jack Liggett	Johnstown	Asst. Mgr	710-904-4315	jl199@johnstownohio.org
Newt Long	Johnstown	Service Director	740-917-2346	nlong@johnstownohio.org
Olivia Biops	Licking Co. Health Dept.	PIO	740-349-6488	obiops@lickingcountyohio.net
Adam Masters	Licking Co. Health Dept.	Epidemiologist	740-405-6287	amasters@lickingcountyohio.net
Robb Sun	Licking Co. Health Dept.	EH Director	740-349-6487	rsun@lickingcountyohio.net
PATRICK COMBOR	CITY OF NEWARK	FIRE CHIEF	740-404-1849	pcombor@newarkohio.net
JEFF HALL	NEWARK CITY	Mayor	740-670-7510	jhall@newarkohio.net
Linda Niemann	Village of Hebron	Community Dev	740-928-0076	lennemann@hebronohio.net
Ralph Chase	Village of Hebron	Village Adm	740-928-3864	admin@hebronohio.net

PLEASE SIGN-IN

<u>NAME</u>	<u>AGENCY</u>	<u>TITLE</u>	<u>PHONE</u>	<u>E-MAIL</u>
Kenneth Brantley	Garrison's Twp	Trustee	614-218-1494	KBRANTLEY@GARRISONSTWP.ORG
John Wisbar	LC EMA	Deputy Director	740-404-5034	Wisbar@LickingCounty.com
Sean Grady	LC EMA	Director	740-404-5020	sean.grady@LickingCounty.com
Brad Morici	LCPC	Planning Manager	740-670-5103	bmorici@LickingCounty.com
Tom Foust	Harrison's & Mt. Albion Twp	Trustee	740-403-2027	TFoust@HARRISONSTWP.ORG
Scott McFee	City of New Albany	PLO	614-939-2256	smcfee@newalbanymt.com
Brian Strayer	City of New Albany	Operations Manager	614-939-2237	bstrayer@newalbanymt.com
Glen Richards	Village of Utica	Village Admin	740-501-4817	GlenRichards@uticavillage.com
Dave Miller	Licking Twp	Trustee	740-404-4720	dmiller@LickingTwp.com
LEE COOPER	SW Licking Twp	Gen Mgr	740-927-0402	lcooper@swlicking.com



**Licking County CANHMP
Meeting Agenda**

May 22, 2017
1400 hrs.

Type of Meeting: Planning

Meeting Facilitator: LC EMA

I. Introduction

II. Plan Review

III. Community by Community

IV. Open issues

a) New Jurisdiction Participation

b) Plan Template

V. New business

Next Meeting Date:

CANHMP MEETING

Project: Plan Intro and Admin	Meeting Date: 05/22/17
Facilitator: LC EMA, LC PLANNING	Place/Room: COUNTY ADMIN, ROOM "A"

Name	Title	Jurisdiction	Phone	Fax	E-Mail
Steve K. Swell	Supervisor	City of New Albany	614-890-1721	614-895-8893	skswell@newalbanynh.org
Ralph Wise	Administrator	Village of Hebron	938-2207	938-5134	admin@hebronohio.org
Tom Farnsworth	Inspector	Harrison	740-403-7025		TFarnsworth@harrisonohio.org
Adam Parker	Environmentalist	Licking County	740-349-6495		aparker@lickingcounty.org
Brian Mercer	Planning Manager	Licking County	740-670-5300	-	bmercer@lickingcounty.org
Sean Grady	Director	LC EMA	-	-	-
Toby Miller	Water Supervisor	Village of Buckeye Lake	740-541-1790		blwater@buckeyelakeohio.com
John Wieber	Deputy Director	LC EMA	-	-	-

CANHMP MEETING

Date & Time: 5/22/2017 2:00 PM | Location: RM A

Meeting called by	LCEMA	Attendees- List Attached
Type of meeting	CANHMP UPDATE	
Facilitator	LCEMA	
Note taker	John Wieber	
Timekeeper	John Wieber	

Agenda Items

NOTES	Presenter	Follow up
Recap from last meeting	LCEMA	
Plan update	LCEMA	
Set meeting dates for future meetings	LCEMA	
Reach out to Non-Participating Jurisdictions	LCEMA	
Contact Steve Ferryman from OEMA about Core groups	LCEMA	
Education committee for Non-participating jurisdictions	LCEMA	
Add Solar storms/cyber security threat to plan. Jurisdictions will need financial support for cyber security.	LCEMA	
John will post upcoming meetings to various media outlets for public viewing	LCEMA	
Get dates and information on small council meeting to present plan.	LCEMA	
Add stream and river section to plan	LCEMA	

Other Information

Next meeting- August 22, 2017. All jurisdictions need to have their updates at meeting for review

November 13, 2017, follow up meeting for plan and review of additional updates as needed. The CANHMP will be reviewed page by page for complete updated information.

Meeting location- Licking County Admin building, 20 S 2nd St, (Room A, Basement) Newark Ohio 43055

Meeting time- 2:00pm.

Wieber, John

From: John Wieber <no-reply@evernote.com>
Sent: Friday, June 02, 2017 7:37 AM
To: Wieber, John
Subject: CANHMP MEETING. 052217, MEETING NOTES

Sign In sheet and agenda passed out

Introduction by meeting attendees

Plan update

Moving forward with meeting dates

Get with Reynoldsburg on plan
Grafton and Kirkersville- need outreach for plan implementation

Check with Steve ferryman on core groups

Reach out to the non-participating jurisdictions to bring them on board.

Education to help bring the jurisdictions on board not attending meetings.

Add solar storms/cyber security threat to plan
Jurisdictions will need financial assistance for cyber security.

Post all meetings prior to meeting.
Locounty.com
Lobby in admin building

Next meeting. August 22, 2017
2pm county admin building Room A

November 13, 2017
2pm county admin building Room A

GET ALL UPDATES FOR AUGUST MEETING.

GET INFO FOR SMALL COUNCIL MEETINGS

ADD STREAM AND RIVER SECTION TO PLAN.

Evernote helps you remember everything and get organized effortlessly. [Download Evernote.](#)

Wieber, John

From: Farley, Angela
Sent: Wednesday, September 06, 2017 3:40 PM
To: 'Anna Flaherty (villageofutica@yahoo.com)'; 'Carol Gissinger (cjgissinger@yahoo.com)'; 'Chad Waters (chad.l.waters@gmail.com)'; 'Clayton Carroll (blimayor@roadrunner.com)'; 'David Allen (dlallen464@yahoo.com)'; 'Glen Richards (glenrichards.utica@gmail.com)'; 'Gregory Retherford (glr1957@yahoo.com)'; 'Gregory Retherford (gretherford@villageofhartford.org)'; 'karencookston@yahoo.com'; 'Kathy Whisner (kwhisner.stlouisville@gmail.com)'; 'Lester Grennell (villageofutica@yahoo.com)'; 'Linda Propster (linprop615@gmail.com)'; 'Linda Propster (villageofalexandria@gmail.com)'; 'Melanie Kish (mkish15727@aol.com)'; 'Nicole Gieseler (hanoverohvillageclerkng4@gmail.com)'; 'Peggy A. Wells (pwells2@roadrunner.com)'; 'Sherry Powell (powellsherry@gmail.com)'; 'Shirley Roskoski (mayorscourt@yahoo.com)'; 'Valerie Hans (blservice@roadrunner.com)'; 'Teri Wise (teriwise89@yahoo.com)'; 'pcorman_d@msn.com'
Cc: Mercer, Brad; Grady, Sean; Wieber, John; Spiker, Sue; Platte, Rob
Subject: Council of Small Villages - TOMORROW!

Good Afternoon,

This email is to remind everyone that the next Council of Small Villages meeting is **tomorrow evening!** See more information below. While paper notices were mailed out around August 18, 2017, to everyone I had an address for, I neglected to email out the notification this time. Hopefully everyone can make it. Please respond to the email by letting me know if you can make it so we know who to expect.

At our last meeting, held on June 8, 2017, Matt Hill, Senior Transportation Planner with the Licking County Area Transportation Study (LCATS), provided information about roadway signage.

The September meeting will feature two Licking County Agencies. Rob Platte, Licking County's Community Development and Compliance Planner, and Sue Spiker, Licking County's Grant Coordinator, will speak about Fair Housing and the County's Housing Repair and Rehabilitation program. They will also give an overview of some State and Federal grant funding opportunities for communities.

The Licking County Emergency Management Agency will discuss the importance in participating in the Licking County All Natural Hazards Mitigation Plan, and how this no-cost, other than time and effort, tool is used to obtain hazard mitigation grants and plan for emergency response during a natural disaster.

Date: Thursday, September 7, 2017
Time: 6:00 PM to 7:00 PM
Location: Licking County Administration Building
(Meeting Room D, 4th floor)
20 South Second Street
Newark, OH 43055

Thank you,

Angela Farley, Planner I
Licking County Planning Commission (LCPC)

COUNCIL OF SMALL VILLAGES MEETING			
Project:	LC CANHMP UPDATE	Meeting Date:	09/07/2017
Facilitator:	LCEMA	Place/Room:	COUNTY ADMIN, ROOM "D"

Name	Title	Jurisdiction	Phone	E-Mail
Teri Wise	Village Administrator	HARTFORD CROTON	913.375.4660	teriwise89@yahoo.com
Ralph Clark	Village Admin	Hebron	740-228-3204	admin@hebronvillage.com
Sherry Powell	Buckeye Lake Planning Commission			powellsherry@gmail.com
Karen Coumston	Buckeye Lake Planning		614-496-1297	karen.coumston@nylpa.com

CANHMP MEETING

Date: 9/21/2017 10:00 AM Location: BMD

Meeting called by:	LCEMA	Attendees:	
Type of meeting:	CANHMP UPDATE	List Attached:	
Facilitator:	LCEMA		
Note taker:	John Wieber		
Timekeeper:	John Wieber		

Agenda Items

Notes	Presenter	Follow up
Recap from last meeting	LCEMA	
Plan update- Jurisdiction return date	LCEMA	
Set meeting dates for future meetings	LCEMA	
Reach out to Non-Participating Jurisdictions- Letters sent out	LCEMA	
Add Solar storms/cyber security threat to plan. Jurisdictions will need financial support for cyber security.	LCEMA	
John will post upcoming meetings to various media outlets for public viewing- Meetings posted per ORC	LCEMA	
Get dates and information on small council meeting to present plan. - John Attended last meeting. 4 people attended	LCEMA	
Add stream and river section to plan- In plan, needs updated	LCEMA	

Other Information

Meeting location- Licking County Admin building, 20 S 2nd St, (Room A,) Newark Ohio 43083

Meeting time- 10:00am

Next meeting- November 13, 2017. All jurisdictions need to have their updates at meeting for review

September 21, 2017, follow up meeting for plan and review of additional updates as needed. The CANHMP will be reviewed page by page for complete updated information.

Licking County Township Trustees Association meeting, October 5, 2017

Hebron is a sub-grantee for flood mitigation in Sunny Acres Development

Discussed adding schools and Healthcare facilities to plan

CANHMP MEETING	
Project: Planning Meeting (Jurisdiction updates Due)	Meeting Date: September 21, 2017 @10:00
Facilitator: LCEMA	Place/Room: COUNTY ADMIN. ROOM "D"

Name	Title	Jurisdiction	Phone	E-Mail
Barry Connell	Chief of Police	Newark	740-644-4705	bcconnell@newarkohio.net
Tom Fricenko	Municipal Director of Public Safety	Newark	740-927-8271	TFRICO@newarkohio.net
Tom Smith	Citizen	Newark	740-745-3700	tsmith@newarkohio.net
Ralph Wiser	Village Administrator	Newark	938-524	admin@villageofnewark.com
Steve Kimmel	Supervisor	City of Newark	614-571-1211	skimmel@newarkohio.net
Alvin Masters	Emergency Manager	County	740-594-6445	amasters@lickingohio.gov
Oliver Biral	PIO	County	360-4488	obiral@lickingohio.gov
Brian Mercer	LEPC Planning Mgr	County	740-670-5003	bmercer@lickingohio.gov

CANMAD Meeting Notes 9/21/17 1000hrs

LC Township Inmate Association Meeting (Fall Meeting)
Oct 5th Phyllis Ellis 587-1407

Spring Acres -> Sub-grantee for Flood Mitigation
old 7th Village of Hebron

Core Group Rep from Each Agency

Base Group First

Schools / Healthcare

CANHMP MEETING

11/13/2017 10:00 AM | Licking County, OH | A

Meeting called by	LCEMA	Attendees
Type of meeting	CANHMP UPDATE	List Attached
Facilitator	LCEMA	
Note taker	John Wieber	
Timekeeper	John Wieber	

Agenda items

Notes	Precedence	Follow up
Recap from last meeting	LCEMA	
Plan update- Retyping with new updates	LCEMA	
All jurisdictions will be included	LCEMA	
Add Solar storms/cyber security threat to plan. Jurisdictions will need financial support for cyber security.	LCEMA	
John will post upcoming meetings to various media outlets for public viewing	LCEMA	
Get dates and information on small council meeting to present plan. John Attended meeting. 5 members present	LCEMA	
Add stream and river section to plan	LCEMA	
	LCEMA	
Turn in all new updates	LCEMA	
	LCEMA	
	LCEMA	

Other information

(Done before of 400ft of Licking River)

Emerg Companies - Parking schedules / Tra
 Local energy
 City bike
 Done here

OSHA
 Nohy
 Done post
 10/11/17

Next Meeting Feb 12 2018 3PM

Brad- LCPC NO UPDATES Association

TOM- JAW Second SAH Township Meeting
Highway Frederick 9-10AM
Church

Mitigation Plans. Local Events / Storms
Background Info SWL Lake
FD / Police / ^{Fire} Council

Hebron-

SWL working on Removing Log Jams on South Fork
Soil + Water -> Fork
Municipal Conversations

Email to All Jurisdictions for meeting
Times to Attend ->

MA -> FD Meetings ->
mitigation) Township Group -> Villages
Action

Updates Commos -> with credit

Soil + Water) Log Jams
Communities

Shake with Systems - Models ~~Best~~ Plan for ~~Cost~~

Wieber, John

From: John Wieber <no-reply@evernote.com>
Sent: Monday, November 13, 2017 8:27 AM
To: Wieber, John
Subject: CANHMP MEETING, 052217, MEETING NOTES

- Sign In sheet and agenda passed out
- Introduction by meeting attendees
- Plan update
- Moving forward with meeting dates
- Get with Reynoldsburg on plan
- Grafton and Kirksville- need outreach for plan implementation
- Check with Steve ferryman on core groups
- Reach out to the non-participating jurisdictions to bring them on board.
- Education to help bring the jurisdictions on board not attending meetings.
- Add solar storm/cyber security threat to plan
- Jurisdictions will need financial assistance for cyber security.
- Post all meetings prior to meeting.
- Lcounty.com
- Lobby in admin building
- Next meeting, August 22, 2017
- 2pm county admin building Room A
- November 13, 2017
- 2pm county admin building Room A
- GET ALL UPDATES FOR AUGUST MEETING.
- GET INFO FOR SMALL COUNCIL MEETINGS
- ADD STREAM AND RIVER SECTION TO PLAN.

Evernote helps you remember everything, and get organized effortlessly. [Download Evernote](#)

Wieber, John

From: John Wieber <no-reply@evernote.com>
Sent: Monday, November 13, 2017 8:27 AM
To: Wieber, John
Subject: CANHMP NOTES for Plan update. 052217. WIP.

FORWARD PG 8.

3RD PARAGRAPH DOWN NEEDS UPDATED, MITIGATION PROJECTS

PAGE 10- COMMUNITY INFORMATION NEEDS UPDATED

PAGE 10- REMOVE THE WORD INVITED AND REPLACE WITH LICKING COUNTY

Pg 14 updates

Pg 15 updates

All graphics need updated

Pg 17- Hartford wells need checked

Hartford fair info needs updated (only fair in Licking County)

Each community takes their section and revise it

Print out each jurisdiction for updates

Pg 27- update census info

Pg 29- get new land use maps

Pg 30-39

Pg 40- EOP UPDATE SECTION

DISASTER ASSISTANCE PLAN

LICKING COUNTY SUBDIVISION REGULATIONS - *Planning*

FLOOD DAMAGE PREVENTION REGULATIONS - *Planning*

PG 42- LC AG PRESERVATION PLAN - *to change*

LC PANDEMIC FLU PLAN- COUNTY HEALTH - *Admin*

PG 43- NEEDS MAJOR UPDATES

PG 44- NEEDS MAJOR UPDATES

PG 45- ARE GROUPS REQUIRED? CORE GROUP, BASE GROUP, COUNTY GROUP ✓

PG 46- TIMELINE OF EVENTS *update*

ADD SOLAR WEATHER TO PLAN - *Set*

TODAY- HAZARD DETERMINATION-

FLOODING

SEVERE WEATHER

TORNADO

EARTHQUAKES

DROUGHTS

NEED DEFINITIONS FOR ALL OF THESE

PG 50 MAP NEEDS UPDATED

PG 52, ADD MAJOR FLOODING AFTER JAN 2006 - *Planning*

PG 53 FLOOD REPORT -

PG 55 UPDATES ✓

PG 58 ✓

PG 60- STOPPED

*M.F. Actions
PG*

CANHMP MEETING

Project:	Planning Meeting (Jurisdiction updates Due)	Meeting Date:	February 12, 2018
Facilitator:	LCEMA	Place/Room:	COUNTY ADMIN, ROOM "A"

Name	Title	Jurisdiction	Phone	E-Mail
Ralph Cluse	Administrator	Hebron	928-3207	admin@hebronva.com
John Wieber	Deputy Dir	LCEMA	740-404-5234	_____

CANHMP MEETING

Date | time: 4/24/2018 10:00 AM | Location: RM A

Meeting called by	LCEMA	Attendees-
Type of meeting	CANHMP UPDATE	List Attached
Facilitator	LCEMA	
Note taker	John Wieber	
Timekeeper	John Wieber	

Agenda Items

Notes	Presenter	Follow up
Recap from last meeting	LCEMA	
Plan update- Retyping with new updates	LCEMA	
All Jurisdictions will be included	LCEMA	
Add Solar storms/cyber security threat to plan. Jurisdictions will need financial support for cyber security.	LCEMA	
	LCEMA	
	LCEMA	
Add stream and river section to plan	LCEMA	
	LCEMA	
Turn in all new updates	LCEMA	
	LCEMA	
Plan will be updated for preliminary review by August 2018	LCEMA	

Other Information

CANHMP MEETING				
Project: Planning Meeting (Jurisdiction updates Due)		Meeting Date: April 23, 2018, @10:00		
Facilitator: LCEMA		Place/Room: COUNTY ADMIN, ROOM "A"		
Name	Title	Jurisdiction	Phone	E-Mail
John Thomas	Zoning Inspector	Kirkersville	740-919-9923	JThomas025@Columbus.rr.com
Sharon Ruffett	Retired	Newark	740-366-4488	brachgint63@comcast.com
Ryan Wyse	Captain	Hebron	928-4721	ryan.wyse@hebronfd.org
Glen Richards	Village Admin	Village of Utica	740-501-4877	glenrichards.utica@gmail.com
Tom Farrowell	Zoning Inspector	MURKINSON ST. WILSON MARIETTA TWP.	740-423-2029	TFARROWELL@WILSONMARIETTA.TWPA.OHIO.GOV
Kurt Simross	Assistant Hwy Sup Maintenance Management	Licking County Engineers Office	740-670-5286	ksimross@lccounty.com
Brian Monahan	CITY ENGINEER	CITY OF NEWARK	740-670-7725	bmonahan@newarkohio.net
Debi Yost	Village Planner	Village of Granville	740-581-0707	dwalker.yost@granville.oh.us
Linda Nicodemus	Community Dev. Stormwater	Village of Hebron	740-928-0076	hebroncdc@midohio.turbo.com
Brian Strayer	Operations Manager	CITY NEW ALBANY	614-939-2237	bstrayer@newalbanyohio.org
Olivia Bous	PIO	County Health	740-349-6488	oliviabous@lickinghealth.org
Adam Masters	Epidemiologist	Licking County	740-349-6495	amasters@lickinghealth.org
John Nieke	Deputy Dir	EMA	---	---

Licking County Countywide All Natural Hazards Mitigation Plan Update January 11th, 2019

- I. Welcome and Introductions
 - a. Sign-in Sheet
- II. Mitigation Overview
 - a. What is Mitigation?
 - b. Mitigation Planning
- III. Participation
 - a. Why participate?
- IV. Outreach Strategy
 - a. Written strategy
 - b. Strategy documents
- V. Community Profile
 - a. Capability Assessment
- VI. Hazard, Vulnerability, and Risk Assessment
 - a. Hazard Identification
 - b. Assessment of Risk
 - c. Community Assets
- VII. Next Steps

Licking County Countywide All Natural Hazards Mitigation Plan Update January 11th, 2019, Meeting Minutes

- I. Welcome and Introductions
 - a. Participants
Sean Grady, Director Licking County EMA
John Wieber, Deputy Director, Licking County EMA
Alan Haines, Director, City of Pataskala
Steve Kidwell, Supervisor, City of New Albany
Adam Masters, Epidemiologist, Licking County Health Department
Mollie Prasher, Emergency Manager, Village of Granville
Steven Smedley, Planner, Village of Granville
Mary Ann Figgins, Utilities Supervisor, Village of Utica
Brian Morehead, City Engineer, City of Newark
Clifford Mason, Fire Chief, Village of Hebron
Ralph Wise, Village Administrator, Village of Hebron
Brad Mercer, Planning Manager, Licking County
Deb Yost, Village Planner, Village of Granville
Clint Eskins, Police Sergeant, City of Newark
Eddie Hunt, Health Zoning, Licking County Health Department
Jamie Stout, Senior Planning Specialist, All Clear Emergency Management
- II. Mitigation Overview
 - a. What is Mitigation?
 - i. Overview of the importance of mitigation planning and the mechanics of mitigation planning.
 - b. Mitigation Planning
 - i. Reviewed federal and state requirements for mitigation planning with the committee.
 - ii. Detailed the planning process from beginning the update through adoption.
- III. Participation
 - a. Why participate?
 - i. Discussed the importance of participation.
 - ii. Detailed the level of effort required for participation.
 - b. Role of the Community and Participants
 - i. Provided the committee with details on the role of the community partners as well as all participating jurisdictions.

- c. Role of the Core Group
 - i. Specified the anticipated role of the core group through the remainder of the process.
 - d. Timeline
 - i. Provided an estimated timeline from this point in the process through completion.
- IV. Outreach Strategy
- a. Provided the committee the written outreach strategy for final approval.
 - b. Outreach Strategy documents
 - i. Outreach survey was presented, reviewed, and approved by the committee.
 - ii. A Mitigation Factsheet designed to be widely distributed to advertise the Plan Update and encourage the community to complete the survey was reviewed and approved for distribution.
 - c. Public Meetings
 - i. Jurisdictions identified potential public meetings to discuss mitigation as indicated through the outreach strategy.
 - ii. The public will also be invited to attend the mitigation strategy meeting in February.
- V. Community Profile
- a. Discussed each community's profile and requested any additional updates from those communities who have not provided updates as of yet.
 - b. Each jurisdiction present workshopped their Capability Assessment during the meeting. Those who could not complete the assessment were requested to email it to All Clear after the meeting.
- VI. Hazard, Vulnerability, and Risk Assessment
- a. Hazard Identification
 - i. Reviewed current plan hazards as well as the hazards listed in the State of Ohio Mitigation plan.
 - b. Assessment of Risk
 - i. Hazards were assessed along identified criteria related to consequence, vulnerability, and frequency.
 - ii. Hazards determined for inclusion in the Licking County plan were:
 - 1. Flooding
 - 2. Severe Winter Weather* modification

3. Severe Summer Weather* modification
 4. Drought
 5. Earthquake
 6. Tornado
 7. Wildfire
 8. Invasive Species* new
- c. Prioritization of Risk
 - i. Completed High-Medium-Low assessment to prioritize the hazards identified.
 - d. Community Assets
 - i. Reviewed the community assets and how the risks impact Licking County's community assets.
- VII. Next Steps
- a. Data Call
 - i. Requested any updates be sent to All Clear via email.
 - b. Mapping layers
 - i. Most mapping layers have been gathered, requested any additional be provided as well.
 - c. Community Capability Assessments
 - i. Those communities who did not complete the capability assessment during the meeting were asked to complete it and send it via email to All Clear.
 - d. Mitigation Strategy and Action Item Development
 - i. Next meeting will be focused on the update of the mitigation strategy and existing action items. New action items will also be created in a workshop style format.
 - e. Public Outreach
 - i. All participants were requested to implement the outreach strategy as identified in the approved written strategy using the survey and the mitigation factsheet.
 - f. Next Meeting- February 22nd at 9:00 am.

CANHMP MEETING			
Project:	Planning Meeting	Meeting Date:	January 11, 2019 @ 0900hrs.
Facilitator:	LCEMA	Place/Room:	COUNTY ADMIN, ROOM "D"

Name	Title	Jurisdiction	Phone	E-Mail
John Wieber	Deputy Dir	LCEMA	740-404-5231	jwieber@countyc.com
Sean George	Director	LCEMA	740-404-5012	sean-george@lccema.com
Alan Haines	Director	Potosi, Mo	614-746-5765	ahaines@potosimohio.gov
Stare Kimmel	Supervisor	NEW ALBANY	614-939-2249	SKimmel@newalbanymo.org
McLam Masters	Epidemiologist	Licking County	740-344-6405	amasters@delawarehealth.com
Mollie Prater	Emer Man	Granville	740-587-2330	mprat@granvilleohio.us
Steven Smedley	Planner	Granville	216-407-9423	ssmedley@granvilleohio.us
MaryAnn Figgins	Utilities Super	Utica	7408922696	mfiggins@villageofutica.com
Brian Morrison	City Engineer	Newark	740-670-7725	bimorrison@newarkohio.net
Clyde L. Mason	Fire Chief	Hebron	7409284771	clmason@hebronfire.com
Rhonda Wise	Village Mgr	Hebron	928-3204	rhonda@hebronvillage.com
Brad Mercer	Planning Mgr.	Licking County	741-670-5203	bmercer@county.com
Deb Yost	Village Planner	Granville	740-587-0707	dwalkeryost@granvilleohio.us
Clint Eskins	SEIT	NEWARK	740-670-7237	ceskins@newarkohio.net
Essie Hunt	Human Zoning	Heath	740-822-1820	ehunt@heathohio.gov
JAMIE STOUT	SENIOR PLNR	ALL CLEAR EMG	614-679-5439	JamieS@AllClearEMG.com



Licking County Countywide All Natural Hazards Mitigation Plan Update February 22nd, 2019

- I. Welcome and Introductions
 - a. Sign-in Sheet
- II. Mitigation Overview
 - a. What is Mitigation?
 - b. Mitigation Planning
- III. Information Gaps
- IV. Contact Information
- V. Survey Results
- VI. Mitigation Strategy
 - a. Goals
 - b. Action Items
 - c. Action Plan
- VII. Benefit Cost Review
- VIII. Next Steps

Licking County Wide All Natural Hazards Mitigation Plan
Core Group Meeting- February 22, 2019

Initial	First Name	Last Name	Job Title	Agency/Organization	Email	Phone
JD	John	Weber	Deputy Director	LCEMA	swieber@licking.com	740-404-5334
TJR	Travis	Boach	Deputy Director	Washington County Sheriff	trboach@washcountysheriff.com	740-506-2507
SK	Steve	Kidwell	Supervisor	City of New Albany	skidwell@newalbanyny.gov	614-939-2249
DWB	Denise	Widol Brooks	Program Administrator	Licking Co Soil & Water Cons. Dist	denise@wscd.com	740-535-0
GAR	Glen	Richards	Village Admin	Village of Utica	glenrichards@utica.com	740/501-4817
IF	JAY	FISHER	L.C. Planning & Development	Planner II Licking County	jayfisher@licking.com	740-670-5204
MAF	Melba	Prasher	EM advisor	Village of Granville	melba@granville.com	740-587-3230
TDE	Tom	Friedrich	Zoning Director	St. Albans Harrison Harrison Twp	tom.friedrich@stalbans.com	740-408-2025
AWH	Alan	Haines	Public Services Director	City of Ashland	alan.haines@cityofashland.com	740-927-0145
Jares	Jares	Kneer	Licking Co Engineer	LCCE	jkneer@licking.com	740-670-5292
SPB	Sean	GRAPY	LCEMA Director	LCEMA	SEAN.GRAPY@licking.com	740-670-5577
LAD	Linda	Nickodemus	CDC	Village of Hebron	linda@hebron.com	740-928-0076
DK	DK	Wise	Village Admin	Village of Hebron	admin@hebron.com	740-928-0076

Core Group Meeting- February 22, 2019

Licking County Wide All Natural Hazards Mitigation Plan
Core Group Meeting- February 22, 2019

Initial	First Name:	Last Name:	Job Title:	Agency/ Organization:	Email:	Phone:
	Todd	Magers	Fire Chief	West Licking Fire Dist.	westlickingfire@fire.org	7401927-8600

Licking County Countywide All Natural Hazards Mitigation Plan Update Meeting Notes February 22nd, 2019

- I. Welcome and Introductions
 - a. Sign-in Sheet
- II. Mitigation Overview- Power Point
 - a. What is Mitigation?
 - b. Mitigation Planning
- III. Contact Information
 - a. Identified agencies and jurisdictions needing to provide input.
 - b. Licking County Building Code Department will be engaged.
- IV. Survey Results
 - a. Reviewed the results of the survey based on the number of respondents.
 - b. Discussed increasing efforts to increase participation.
 - c. Results were largely as expected by the committee.
- V. Mitigation Strategy
 - a. New Goals and old goals were developed and improved. The following are the proposed goals.
 - i. Goal 1: To reduce the economic losses to residents and businesses from disaster related damages, helping businesses get back up and running quickly.
 - ii. Goal 2: Reduce loss of life and injuries from hazard events.
 - iii. Goal 3: Reduce damage to property and the disruption to the community from hazard events.
 - iv. Goal 4: Effectively manage debris, particularly along streams and waterways.
 - v. Goal 5: Create joint ventures among private entities, local agencies, state and federal partners, and the community towards the goal of whole community mitigation.
 - vi. Goal 6: Rehabilitate and maintain natural systems and cultural heritage resources.
 - vii. Goal 7: Implement, update, and improve standards, plans, and programs designed to reduce the risk to lives and property and educate residents on risk and mitigation.

- viii. Goal 8: Reduce the number of repetitive loss properties in Licking County.
 - b. Action Items
 - i. All existing actions were reviewed and modified as the committee was able.
 - ii. New action items will be created at the next meeting. Format for newly created actions was distributed.
 - c. Action Plan
 - i. Reviewed the action plan and discussed how to complete this portion following the next meeting.
- VI. Benefit Cost Review (BCR)
 - a. Discussed the specifics of a BCR and how this will be done for all new action items.
 - b. Committee is in agreement with methodology as proposed and will complete BCRs for all new action items at the next meeting.
- VII. Next Steps
 - a. All Clear will send goals to committee for review
 - b. All Clear will modify the existing action items and make contacts with agencies unable to attend the meeting. Once complete, All Clear will send to committee for approval.
 - c. All Clear will work with Licking County Soil and Water to develop a profile for Invasive Species.
 - d. All Clear will meet with Licking County Planning Commission to discuss GIS needs.
 - e. Next meeting- April



**Licking County Countywide All Natural Hazards Mitigation Plan
Update
June 10th, 2019**

- I. Welcome and Introductions
 - a. Sign-in Sheet
- II. Process Review
- III. Mitigation Strategy
- IV. Turning Goals into Actions
- V. Action Plan
- VI. Next Steps

Licking County Countywide All Natural Hazards Mitigation Plan Update Meeting Notes June 10, 2019

- I. Welcome and Introductions
 - a. Sign-in Sheet

- II. Mitigation Process Review
 - a. Planning Team process review
 - b. Outreach Strategy- past and continued outreach efforts
 - c. Community Capability Assessment review- reminder to jurisdictions which have not completed the assessment
 - d. Hazard Identification and Risk Assessment process review
 - e. Discussion of mitigation goals
 - f. Discussion of the purpose of mitigation actions

- III. Mitigation Strategy
 - a. All Clear Team provided an overview of the Mitigation Strategy and how goals, actions, and the action plan all work together.

- IV. Turning Goals into Actions
 - a. Review of the current set of mitigation goals identified by the planning team
 - b. Discussion of mitigation actions, types, format, how they relate to goals
 - c. Discussion of Benefit Cost Review process
 - d. Workshop session was conducted for all present to work on new action items

- V. Action Plan
 - a. Overview of the purpose and function of the action plan
 - b. Prioritization discussion- Planning team decided to prioritize action items based on the level of hazard. So, hazards ranked as high would have action items prioritized as high, hazards ranked as low would have action items prioritized as low.

- VI. Next Steps
 - a. Loop in any jurisdictions that have not participated at this time- EMA will begin this process.
 - b. Incorporate newly created action items into the plan.



- c. Create the draft plan based on all previous work completed.
- d. Public Meetings/Comment period
- e. State and federal submission
- f. Adoption

Licking County Wide All Natural Hazards Mitigation Plan
Core Group Meeting- June 10, 2019

Initial	First Name:	Last Name:	Job Title:	Agency/Organization:	Email:	Phone:
AK	Steve	Kibrell	Subervisor	CITY OF NEWARK OH	skibrell@newark.ohio.gov	614-774-2249
IF	JAI	Fisher	PLANNER II	LEPC	infisher@lecomy.com	740-670-5204
DNB	Denise	Brook	Program Administrator	Soil & Water Conservation Village of	denisebrooks@lickingsoil.com	740-670-5330
BK	Bailey	Kumchak	Village Planner	Township	baileyk@johnstownship.org	740-630-4143
MF	MaryAnn	Figgins	Utilities Super	Village of	mfiggins@villageofutica.com	
MFA	Mollie	Fisher	Clerk of Court	Village of	mfisher@villageofutica.com	740-580-0707
	Todd	Mages	clerk	Court Licking		740-907-8400
Cheryl	Cheryl	Bresler	Clerk Treasurer	Village of the Wood	cheryl@villageofthewood.com	740-644-7178
BAM	Barr	Mason	City Engineer	City of Newark	mason@newark.ohio.gov	740-670-7225
SG	Sean	Grady	Director	Licking County Dept	sean.grady@licking.com	740-670-5577
Bm	Brad	Neiler	Planning Manager	Licking County Planning Commission	bmneiler@licking.com	740-670-5103
JJ	John	Wieber	Deputy Director	Licking County	jwieber@licking.com	740-408-5084
HL	Linda	Niedermeyer	Community Dev. & Economic Dev.	Village of Hebron	lneideme@villageofhebron.com	740-928-0076

Licking County Countywide All Natural Hazards Mitigation Plan Agenda March 5th, 2020

- I. Welcome and Introductions
 - a. Sign-in Sheet

- II. Mitigation Overview
 - a. What is Mitigation?
 - b. Mitigation Planning

- III. Mitigation Plan Draft Overview
 - a. Sections of Plan
 - b. Key Updates
 - c. Community Participation
 - d. Risk Assessment
 - e. Mitigation Strategy

- IV. Outreach Strategy
 - a. Public Comment on Draft Plan
 - b. Plan Adoption

- V. Action Items

- VI. Next Steps



Licking County Countywide All Natural Hazards Mitigation Plan Minutes March 5th, 2020

- I. Welcome and Introductions
 - a. Sign-in Sheet

The public was invited to the meeting in order to provide public comment on the draft plan. There were no members of the public in attendance. The Licking County Planning Team was in attendance.

- II. Mitigation Overview
 - a. What is Mitigation?
 - b. Mitigation Planning

All Clear Team made available information on the basics of mitigation and mitigation planning in Licking County. This portion was designed to be specifically relevant for the public in attendance to provide background details on why mitigation is important and to highlight the Licking County mitigation process.

- III. Mitigation Plan Draft Overview

The All Clear Team presented a detailed overview of the draft of the Licking County Countywide All Natural Hazards Mitigation Plan.

- f. Sections of Plan

Each section of the plan was reviewed to detail which portions were updated and how the update occurred.

- Executive Summary - UPDATED
- Introduction - UPDATED
- Planning Process - UPDATED
- Community Profiles - UPDATED
- Hazard Identification and Analysis - UPDATED
- Risk Assessment - UPDATED
- Mitigation Goals, Strategies and Actions - UPDATED
- Plan Maintenance - UPDATED
- Appendices - UPDATED

g. Key Updates

Significant updates to the plan were presented in order to ensure the full picture of the extent of the update was portrayed.

- Historical hazards: Each natural hazard section within this plan includes updated reports of hazard events that have occurred in the jurisdictions.
- County profile: Demographics, social, and economic data, as well as existing and future land use descriptions are updated to reflect the current status of the county and its jurisdictions.
- Planning description: The new planning team and updated planning process are described and documented.
- Hazard Identification and Risk assessment: Hazards were identified and assessed according to data in the plan as well as subject matter expertise.
- Mitigation Strategy: The mitigation strategy was updated to include new goals and action items for each participating jurisdiction.
- Addition of Invasive Species as a new hazard.

h. Community Participation

All Clear discussed the individual jurisdictions that participated in the plan update and how the team could continue outreach to those jurisdictions that have not participated.

i. Risk Assessment

The Planning Team was presented with an overview of the process undertaken to identify the hazards and assess the risks to Licking County.

j. Mitigation Strategy

Goals, action items, and prioritization were reviewed and discussed based upon the completed update process.

IV. Outreach Strategy

a. Public Comment on Draft Plan

The Planning Team was asked to continue to advertise the draft plan for public comment through social media and other means. All Clear will provide new and updated materials to continue advertising this plan update.

Submission of comments can be done via Survey Monkey:
<https://www.surveymonkey.com/r/FXPH5WS>

b. Plan Adoption

Discussion on how adoption will occur as well as the timeline for adoption. All Clear will provide sample resolution language as well as a one-page factsheet on why adoption is important to each jurisdiction.

V. Action Items

- Supply any data gaps for your jurisdiction
- Review and comment on draft plan
- Solicit public comment and send proof of outreach to JoAnneH@AllClearEMG.com

VI. Next Steps

Incorporate public comment as well as Planning Team and jurisdiction comment into the draft plan. Upon completion, the plan will be submitted to the Ohio Emergency Management Agency for review.



Sean Grady- EMA Director

John Wieber- Deputy Director

NAME	Agency/Jurisdiction	SIGNATURE
John Wieber	LCEMA	<i>[Signature]</i>
Steve Kidwell	CITY OF NEWARK	<i>[Signature]</i>
DOVE MILLER	Licking Twp	<i>[Signature]</i>
Deb Howard		<i>[Signature]</i>
Brad Mercer	LCPC	<i>[Signature]</i>
Linda Nicodemus	Village of Hebron	<i>[Signature]</i>
MaryAnn Figgins	Vtica	<i>[Signature]</i>
Jay Fisher	LCPC	<i>[Signature]</i>
Tom Howard	St. James & Co	<i>[Signature]</i>
Sean Grady	LCEMA Director	<i>[Signature]</i>
Brian Marchant	CITY OF NEWARK	<i>[Signature]</i>

Participation by Village of Alexandria





 Alexandria - Hazard Mitigation

Thursday, June 18 - 11:30am - 12:30pm

 JoAnne to Call Linda

 2 guests
2 yes

 JoAnne Huie
Organizer

 Village Administrator

 740-924-2539

 10 minutes before

 JoAnne Huie

Going?

Yes

No

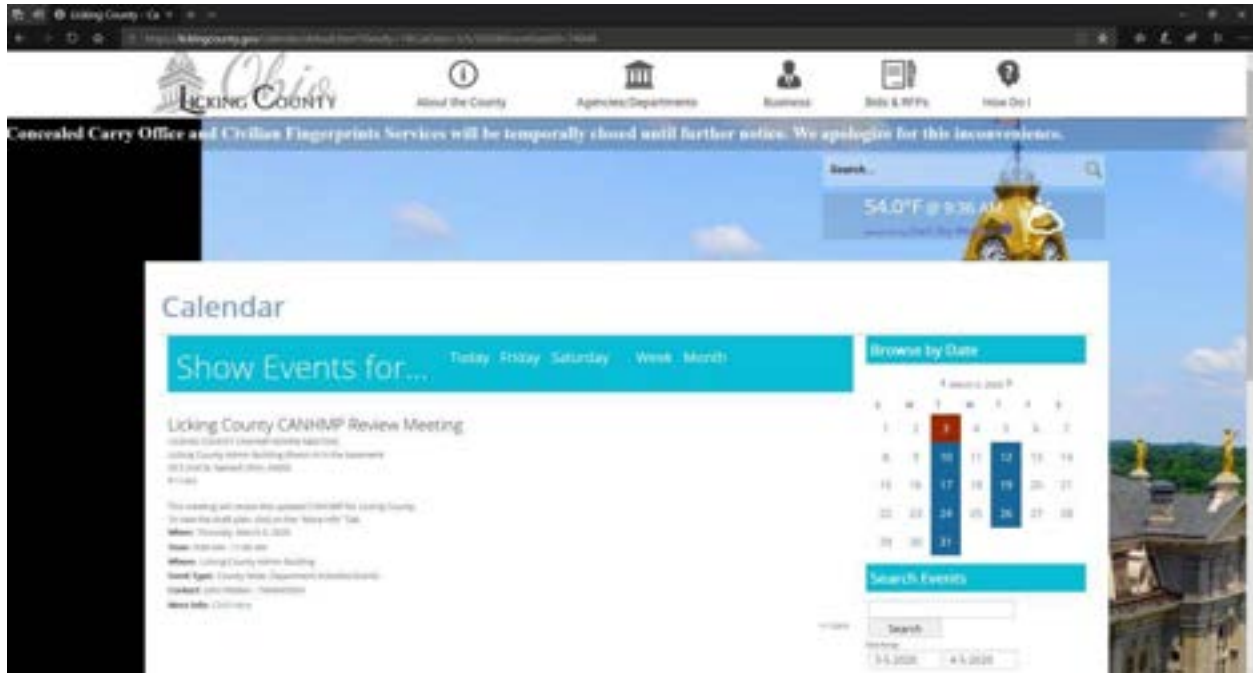
Maybe



16 APPENDIX C. Public Comment Documentation & Feedback

16.1 Public Comment Meeting on Draft Plan

A public comment meeting was held on March 5, 2020 at the Licking County Administration Building. The following images are documentation of the jurisdictions efforts at advertise the meeting.



Natural Resources Area at the Hartford Fair

Page Ad Center Inbox Events Notifications Insights More Edit Page Info Settings Help

Natural Resources Area at the Hartford Fair
@naturalresourcesareathartfordfair

Home About Photos Reviews Videos Events Posts Services Shop Groups Notes Offers Jobs Community

Like **Following** **Share**

Natural Resources Area at the Hartford Fair
Published by Daniel Rasmussen · 7 mins
Interesting opportunity to comment on a natural hazard plan.

LICKING COUNTY ALL NATURAL HAZARDS MITIGATION PLAN (CANMP) PUBLIC COMMENT MEETING
Date: March 26, 2020
Time: 7:00pm-11:00am
Location: Licking County Admin Building, Room 1A in the basement 36 S 2nd St, Newark Ohio 43082
MEETING OBJECTIVES:
Review Licking County's Progress and Budget
Review Key Updates to Licking County's Second Public Comments and Recommendations
For more information, please contact the planning consultant, All Clear Emergency Management Group at 614.402.4466.

Licking County River Round Up
Published by Daniel Rasmussen · 8 mins
Flooding and water quality are addressed in this natural hazards plan. Having it in place allows our community to receive FEMA funds after natural disasters like major floods. Please consider sharing your thoughts at this upcoming public meeting.

1 People Reached 0 Engagements **Boost Unavailable**

Like **Comment** **Share**

Groups

Create a Group to Build Community Around Your Page
Help your audience connect in a group. Groups are separate spaces for people to have discussions, plan events, share photos and more. You can interact with people in the group at your Page or yourself.

YOUR PAGES SEE ALL
Licking County Soil & ...
Licking County River ...
Natural Resources Are ...

PAGES LIKED BY THIS PAGE
All Occasions Carriage & Pony R...
Bugman Education & Science S...

CONTACTS
Burke Abbott
Jonathan K. Lang
Brooke Watson
Natasha Platt
Tricia Bell
Kelly Clark
Wise United
Fackler Kubala
Taylor Downes
Lindsay Wallace
Josh Lange
Seth Michael Hare Do...
Chase Gilman
Jeff Davis

GROUP CONVERSATIONS
Create New Group


MORE CONTACTS (34)

Search

3/19/2020 <https://mail.google.com/mail/u/0/?tab=rm&ogbi#label/OHFMfcgwHMGFHhmxLIMdGjDDThgpcpTm?projector=1>

Verizon LTE 9:12 AM 59%

< Tweet

 **Licking County EMA**
@lcountyEMA

There is a CANHMP (hazard mitigation) plan draft review meeting from 9-11 am in the County Admin basement today. Public is welcome

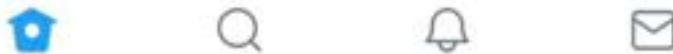
6:13 AM · 3/5/20 · [Twitter for iPhone](#)

||| View Tweet activity

2 Likes

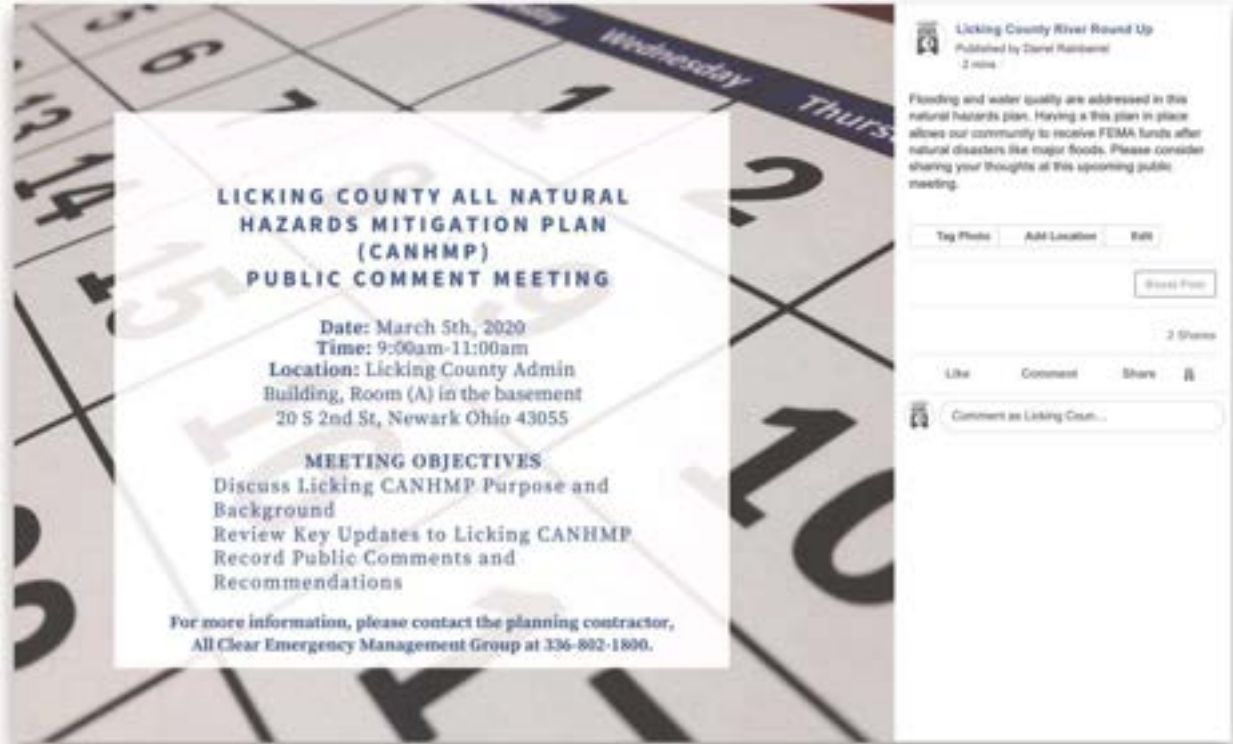


Add another Tweet



<https://mail.google.com/mail/u/0/?tab=rm&ogbi#label/OHFMfcgwHMGFHhmxLIMdGjDDThgpcpTm?projector=1>

1/1



LICKING COUNTY ALL NATURAL HAZARDS MITIGATION PLAN (CANHMP) PUBLIC COMMENT MEETING

Date: March 5th, 2020
Time: 9:00am-11:00am
Location: Licking County Admin Building, Room (A) in the basement
20 S 2nd St, Newark Ohio 43055

MEETING OBJECTIVES
Discuss Licking CANHMP Purpose and Background
Review Key Updates to Licking CANHMP
Record Public Comments and Recommendations

For more information, please contact the planning contractor, All Clear Emergency Management Group at 336-802-1800.

Licking County River Round Up
Published by Darrel Robinson
2 mins

Flooding and water quality are addressed in this natural hazards plan. Having a this plan in place allows our community to receive FEMA funds after natural disasters like major floods. Please consider sharing your thoughts at this upcoming public meeting.

Tag Photo Add Location Edit

Share Post

2 Shares

Like Comment Share

Comment as Licking Coun...


3/19/2020


IMG_7235.jpg




<https://mail.google.com/mail/u/0/?tab=rm&ogbl#search/in%3Asernt+JWieber%40lickingcounty.com/FMfcgwGDWwLKWIGLHXLHczHPJhgKav?projector=1...> 1/1

Post DESKTOP PREVIEW MOBILE PREVIEW

 **Add a Donate Button**
 Add a donate button to your post to raise money for a nonprofit, and we'll take care of the donation processing with no fees. To raise money for a personal cause instead, create a personal fundraiser.

 Jackie, Seth and 143 other friends have donated through Facebook.

 **Licking County Soil & Water Conservation District**
 March 1, 2020 at 8:00 AM

Flooding and invasive species are just 2 of the natural hazards addressed in this plan. We've been contributing to the plan's update for months. Now it's your turn. Please consider attending to learn about and to share your thoughts about natural hazards.

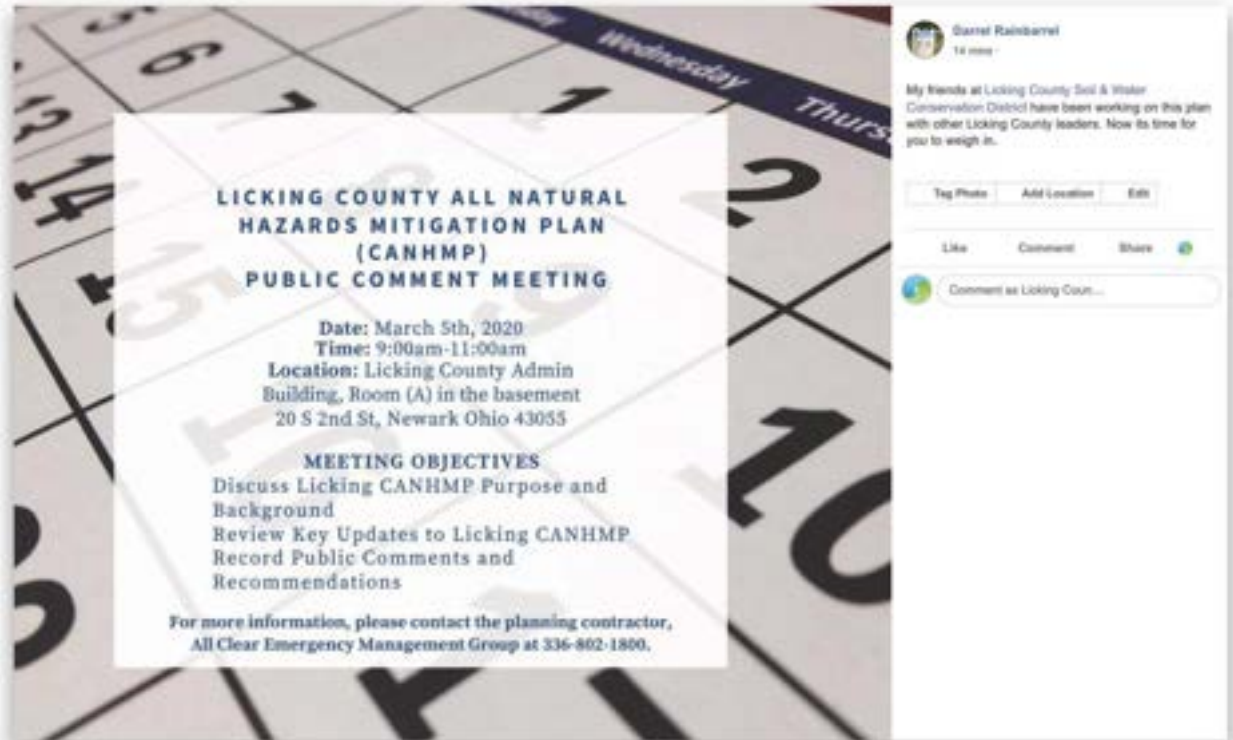
LICKING COUNTY ALL NATURAL HAZARDS MITIGATION PLAN (CANHMP) PUBLIC COMMENT MEETING

Date: March 5th, 2020
 Time: 9:00am-11:00am
 Location: Licking County Admin Building, Room (A) in the basement
 20 S 2nd St, Newark Ohio 43055

MEETING OBJECTIVES
 Discuss Licking CANHMP Purpose and Background
 Review Key Updates to Licking CANHMP
 Record Public Comments and Recommendations

For more information, please contact the planning contractor, AD Clear Emergency Management Group at 336-902-1890.

[View Edit History \(2\)](#)



LICKING COUNTY ALL NATURAL HAZARDS MITIGATION PLAN (CANMP) PUBLIC COMMENT MEETING

Date: March 26, 2020
Time: 7:00am-11:00am
Location: Licking County Admin Building, Room 120 at the Intersection of S. 2nd St., Newark Ohio 43082

MEETING OBJECTIVES:
 Discuss Licking CANMP Progress and Background
 Review Key Updates to Licking CANMP
 Receive Public Comments and Recommendations

For more information, please contact the planning contractor, 4870cc Emergency Management Group at 330-462-1496.

Licking County River Round Up
 Published by Daniel Rantamal · 10 mins

Flooding and water quality are addressed in this natural beauty plan. [View photo](#)



16.2 Electronic Form to Gather Feedback

If they were unable to attend the public comment meeting on March 5, the residents of Licking County were encouraged to submit any comments they had on the plan through a SurveyMonkey form. A copy of this form is below.

The Licking County Emergency Management Agency is currently leading a project to update the County Wide All Natural Hazards Mitigation Plan. This mitigation plan serves as a road map to reducing the impacts of hazards on Licking County. Your feedback is a critical step in this process.

Thank you for taking the time to help your community with the preparation of our mitigation plan.

If you have any questions, please contact JoAnne Hueie at JoAnnets@AirClearEMG.com.

1. In which community do you live?

Other (please specify)

2. Which category best describes you?

3. Please provide specific feedback, referencing page number and sections, for the Licking CANHMP.

4. Do you have any other comments, concerns or suggestions about hazard mitigation in your community?

5. **Optional:** Please provide your name and best contact information; a team member may contact you for clarification on your comments.



16.3 Public Review of Plan

Comments received at the in-person March 5, 2020 meeting were incorporated into the plan. There were no comments submitted through the online form.

17 APPENDIX D. Community Preparedness Survey

17.1 Community Preparedness Survey



The Licking County Emergency Management Agency is currently leading a project to update the County Wide All Natural Hazards Mitigation Plan. This mitigation plan serves as a roadmap to reducing the impacts of hazards on Licking County. This questionnaire is designed to help the team designated to lead this project understand the concerns that the citizens of Licking County have about the hazards which their communities face. Your responses will help guide the development of this important plan.

Please note survey responses are kept confidential. Participation in this survey is voluntary and your completed questionnaire indicates your willingness to participate in the survey. Thank you for taking the time to help your community with the preparation of our mitigation plan.

If you have any questions regarding this survey, please contact JuAnne Hule at JuAnneH@AIClearEMG.com.

Helpful Definitions

Critical Facilities - Any building or structure that provides services to people that are important during an emergency. Examples include fire stations, hospitals and 9-1-1 dispatch centers. Other critical facilities can include buildings that house vulnerable populations, such as nursing homes, or buildings or structures that house hazardous materials that can create additional risks if that building is damaged during a natural disaster.

Hazardous Materials - Any solid, liquid, or gas that has the potential to cause harm to people, animals, property or the environment. Examples include fertilizers, gasoline, or other chemicals involved in manufacturing.

Invasive Species - Any kind of living organism (including plants, insects, animals, etc.) that is not native to where it is found. They can cause damage to the environment or human health. Examples include Emerald Ash Borer, zebra mussels, and Gypsy Moths.

Natural Disaster - A major event caused by natural processes of the Earth. These can cause loss of life and property damage. Some result in economic damage for a long time after the event. Examples include flooding, landslides, tornadoes, and wildfires.

Natural Hazard - Any risk to people and property caused by a natural process of the earth that has the potential to be dangerous. Natural disasters are caused by natural hazards, such as tornadoes and floods.

Mitigation - Actions done to reduce or eliminate a risk to people and property. Mitigation helps reduce damage caused by natural hazards. Examples include not building in areas that have been known to flood frequently or putting salt or sand on roadways in the winter to reduce traffic accidents caused by ice.

Resistant - The ability to withstand harmful effects of something, such as natural disasters. One type of resistant building is a tornado shelter that is specifically built to protect people from the effects of tornadoes.

Risk - Risk or threat is the possibility of something bad happening. The risk of a winter storm in Ohio is greater than the risk of a hurricane.

Vulnerable Populations - Groups of people who are at a higher risk than the overall population to experience more severe effects from natural disasters. Examples include residents of a nursing home, young children, and people with limited resources.

1. In which community do you live?

Other (please specify)

2. Do you own or rent your home?

Own

Rent

Other (please specify)

3. Do you have flood insurance?

Yes, purchased voluntarily

Yes, required by insurer or mortgage holder

Yes, unsure why purchased originally

No, too expensive

No, not necessary

No, deductible is too high

No, never considered it

Other (please specify)

4. Would you be willing to make your home more resistant to disasters?

I would be willing to spend a lot of time and/or money

I would be willing to spend a moderate amount of time and/or money

I would be willing to spend a little or no time and/or money

I would be interested in seeking grant funding (example: Safe Room Rebate Program) to make my home more resistant to disasters

Not sure

No

5. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?

- Newspaper
- Television
- Radio
- Internet
- Social media
- Mail
- Public workshops/meetings
- School meetings
- Other (please specify)

6. How informed do you feel about the natural hazard risks (earthquake, tornado, winter storm, etc.) facing Licking County?

- Very informed
- Somewhat informed
- I have little to no knowledge about the hazards in Licking County

7. Please check the box that indicates how concerned you are about the following hazards affecting your community.

	Extremely Concerned	Very Concerned	Concerned	Somewhat Concerned	No Concerned
Drought	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Earthquake	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flooding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Invasive Species (Gypsy Moths, Emerald Ash Borer, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe Summer Storm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe Winter Storm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tornado	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wildfire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Are there natural hazards you are concerned about that are not listed above? If so, please list them below.

9. What types of hazards have you personally experienced in Licking County? (example: flooding at my home, tornado at my place of work, winter storms, etc.)

10. Are there places in your community that are impacted, or could be impacted, by specific hazards? (e.g. Main Street floods after heavy rain.) If so, please describe the hazard and the specific location.

11. In your opinion, what are some actions your local government could take to reduce the risk of future hazard damages to your community?

Questions 12-17 describe different methods that can be used to reduce the risk that hazards pose to lives and property. Please share how important you think each of these methods are in reducing risk in Licking County.

12. Prevention Strategies - These are actions taken to keep a problem from getting worse. An example of a prevention strategy are laws and ordinances that prevent construction of new buildings in floodplains.

- Very important
- Somewhat important
- Not important

13. Property Protection Strategies - These are actions taken to lessen the risk of damage to property. Examples of property protection strategies include removing homes from the floodplain and elevating homes to stay above water levels during flooding.

- Very important
- Somewhat important
- Not important

14. Public Education and Awareness Strategies - These are actions taken to inform the public about hazardous areas and the actions necessary to avoid potential injury or damage. Examples of public education and awareness strategies include outreach programs, notices to residents and property owners, and public service announcements, such as the "Turn Around, Don't Drown" campaign.

- Very important
- Somewhat important
- Not important

15. Natural Resource Protection Strategies - These are actions intended to protect the environment. Examples of natural resource protection strategies include placing limits on hunting and fishing, and requiring boaters to completely clean off the hull of their boats before moving them from one body of water to another.

- Very important
- Somewhat important
- Not important

16. Critical Facility Protection - These are actions taken to protect critical facilities which are important to response efforts. An example of critical facility protection strategy is placing backup generators in hospitals to ensure there is electrical power even in the event of a widespread power outage.

- Very important
- Somewhat important
- Not important

17. Structural Project Strategies - These are actions which directly protect people and property through the construction of manmade structures.

Examples of structural project strategies include adding additional storm sewers or elevating roadways to reduce flooding.

- Very important
- Somewhat important
- Not important

18. If you are interested in learning more about emergency preparedness and hazard mitigation, how do you want to receive this information? Check all that may apply.

- Classroom trainings
- Direct mailing
- Information booth (at the County fair, or other public event)
- Newspaper articles
- Online articles
- Online videos
- Social media posts

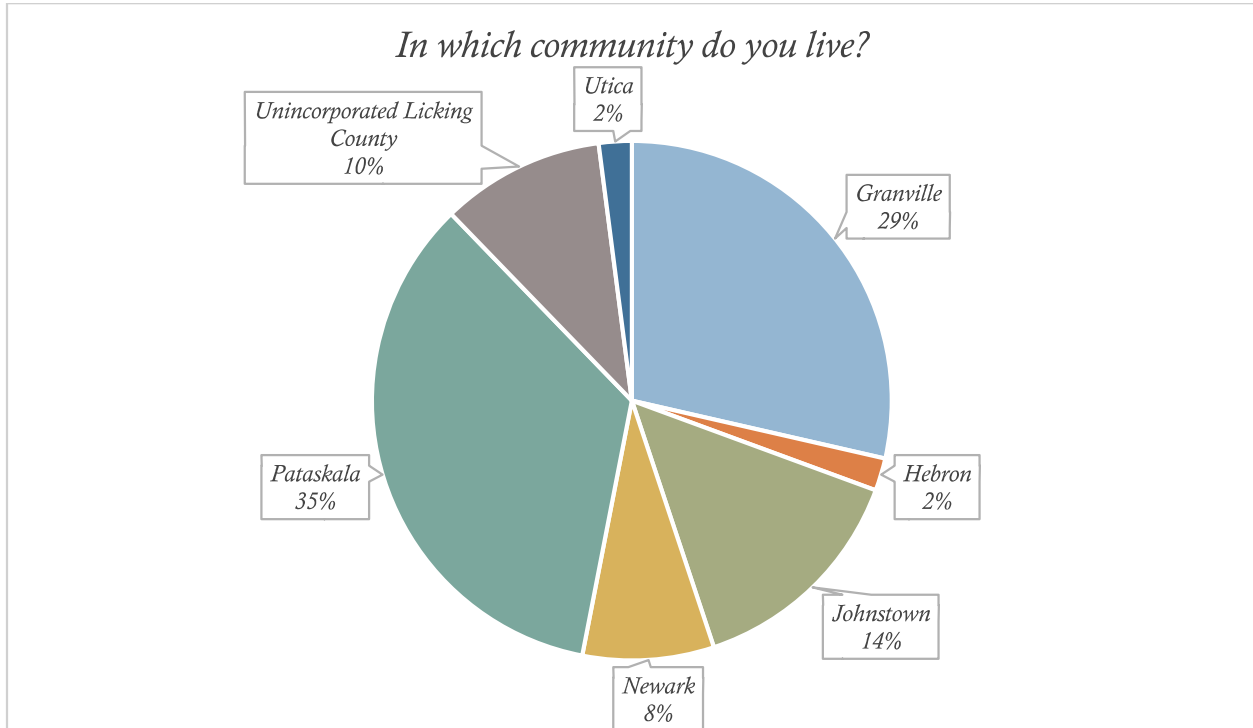
19. How are you currently receiving emergency information in Licking County or your jurisdiction? Check all that may apply.

- Licking County RAVE
- City of Heath Emergency Alert System
- City of New Albany Emergency Alert System
- Hartford Township Code Red System
- Village of Granville Emergency Alert System
- National Weather Service Weather Alert Radio
- I am not receiving any emergency information in Licking County or my jurisdiction.
- Other (please specify)

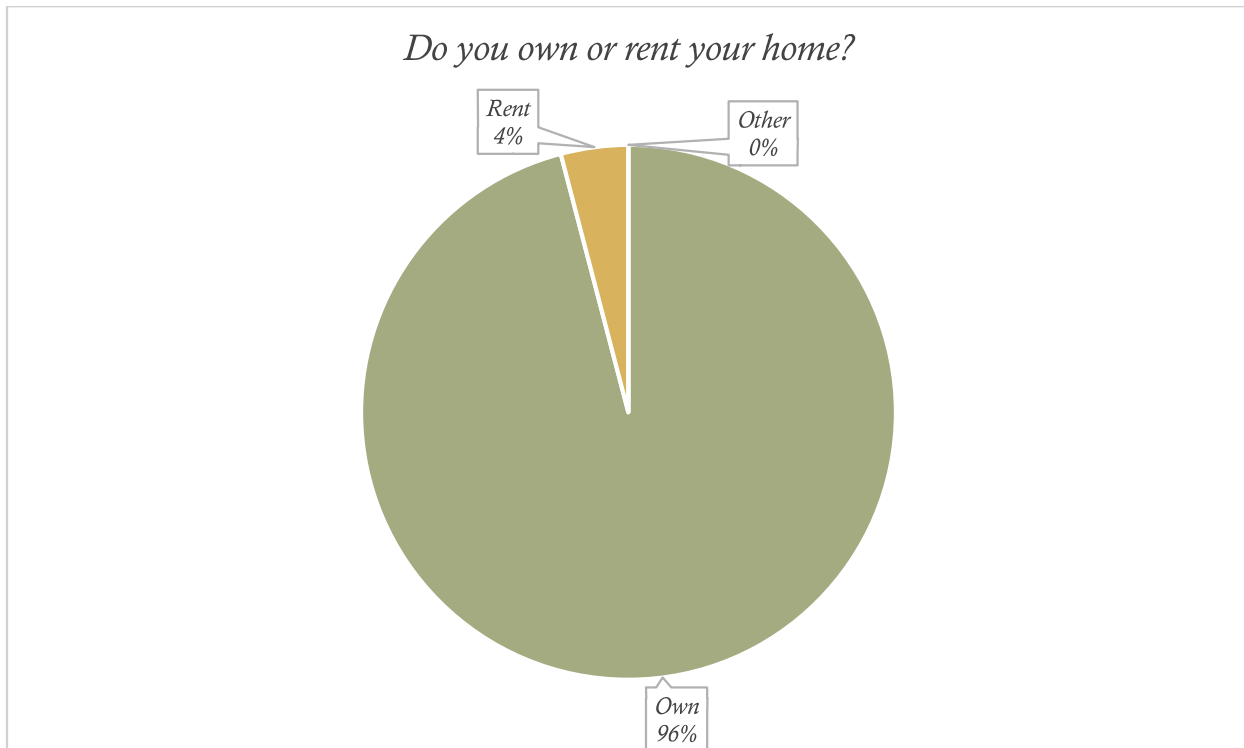
20. Do you have any other comments, concerns or suggestions about hazard mitigation planning in your community?

17.2 Survey Results and Data Analysis

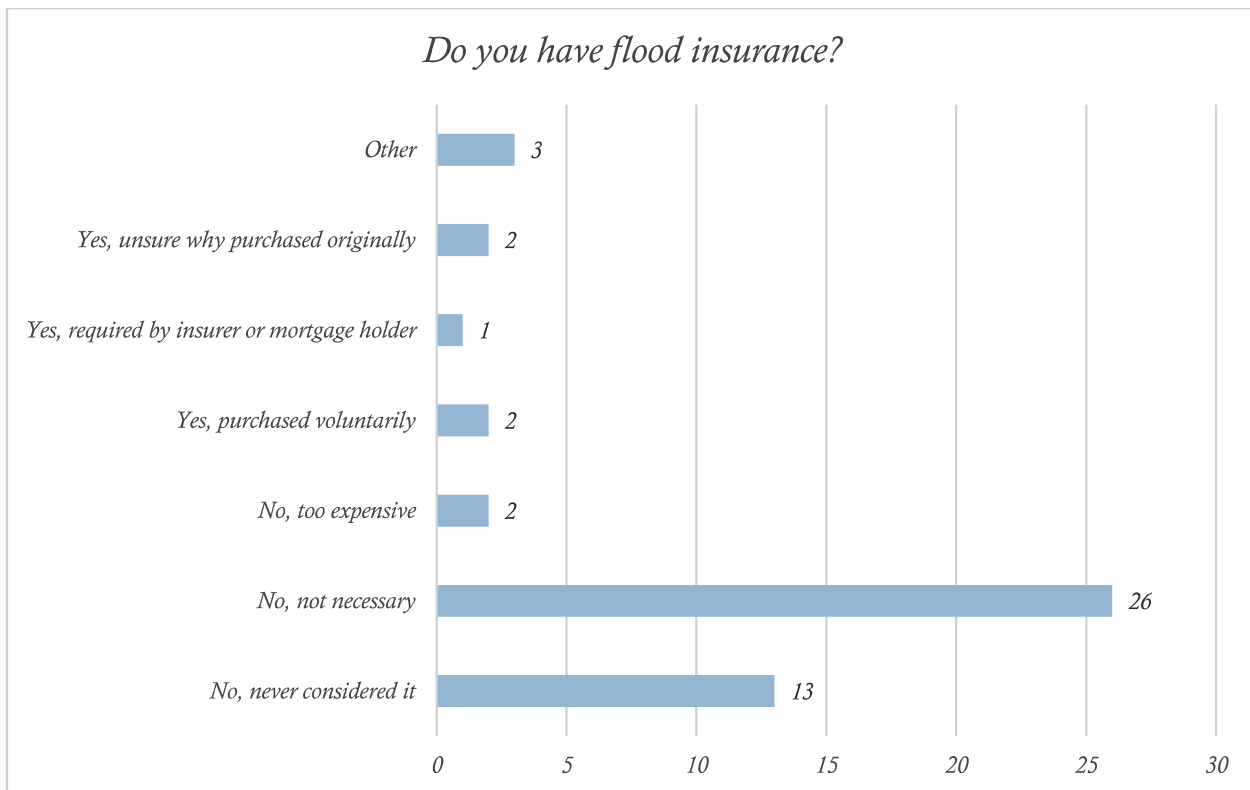
Question 1: In which community do you live?



Question 2: Do you own or rent your home?



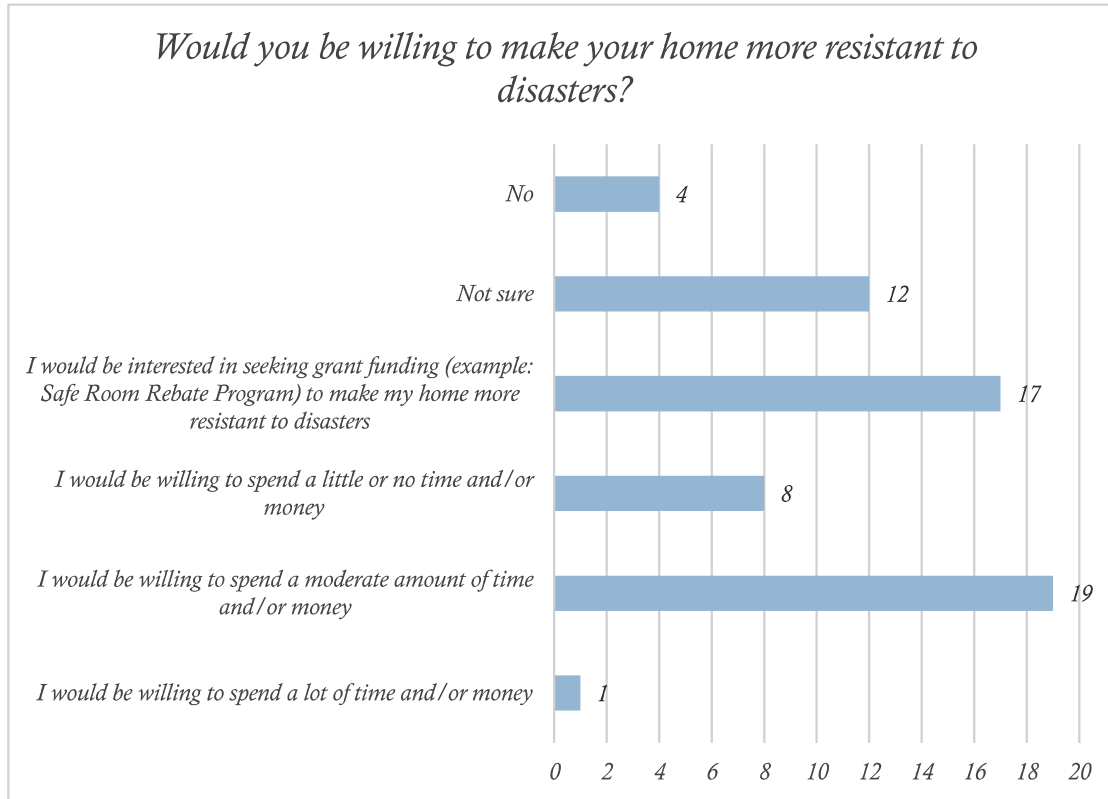
Question 3: Do you have flood insurance?

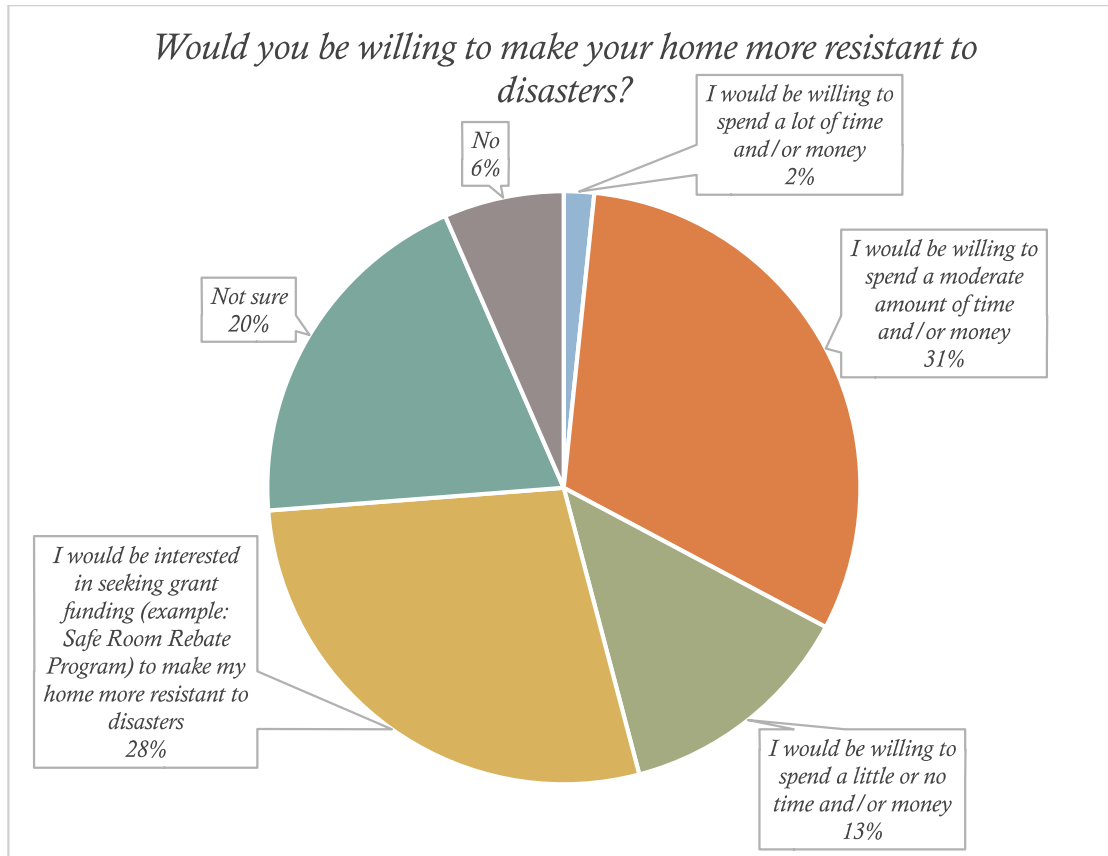


Other answers:

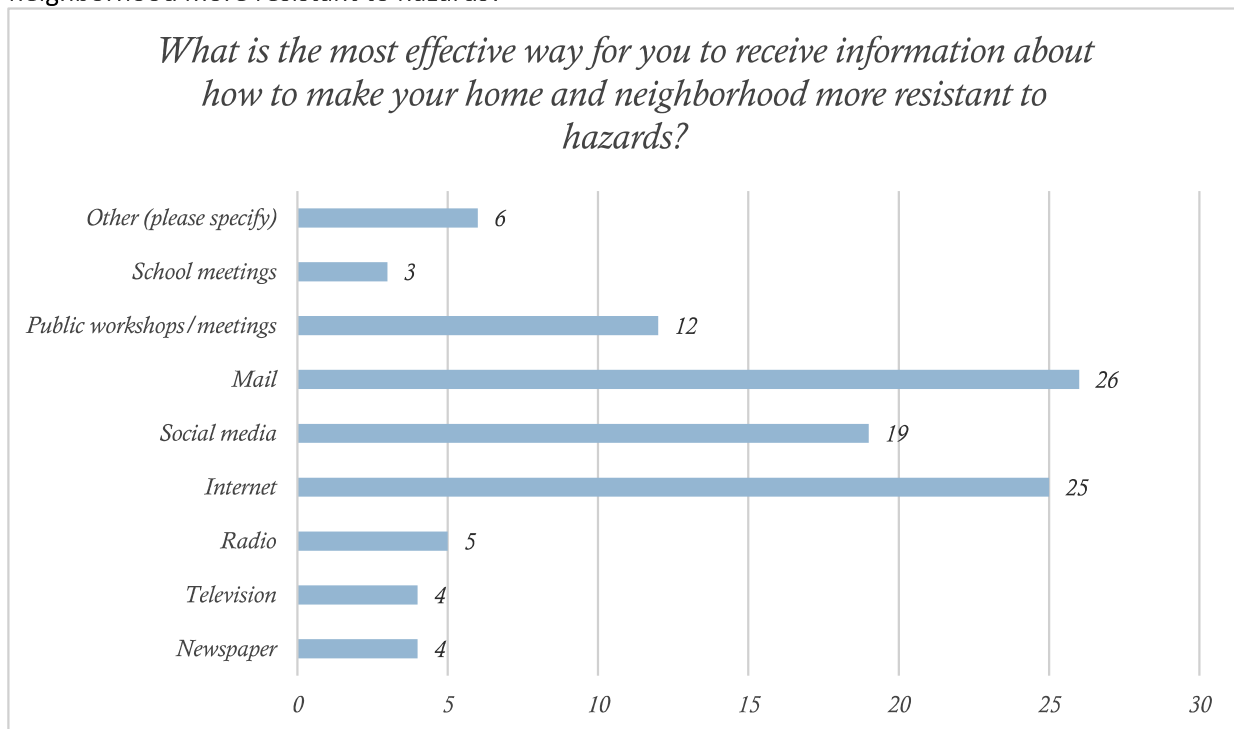
- No. Not possible to purchase without previous flood.
- I had flood insurance, but FEMA removed property from flood zone. Insurance no longer necessary.

Question 4: Would you be willing to make your home more resistant to disasters?

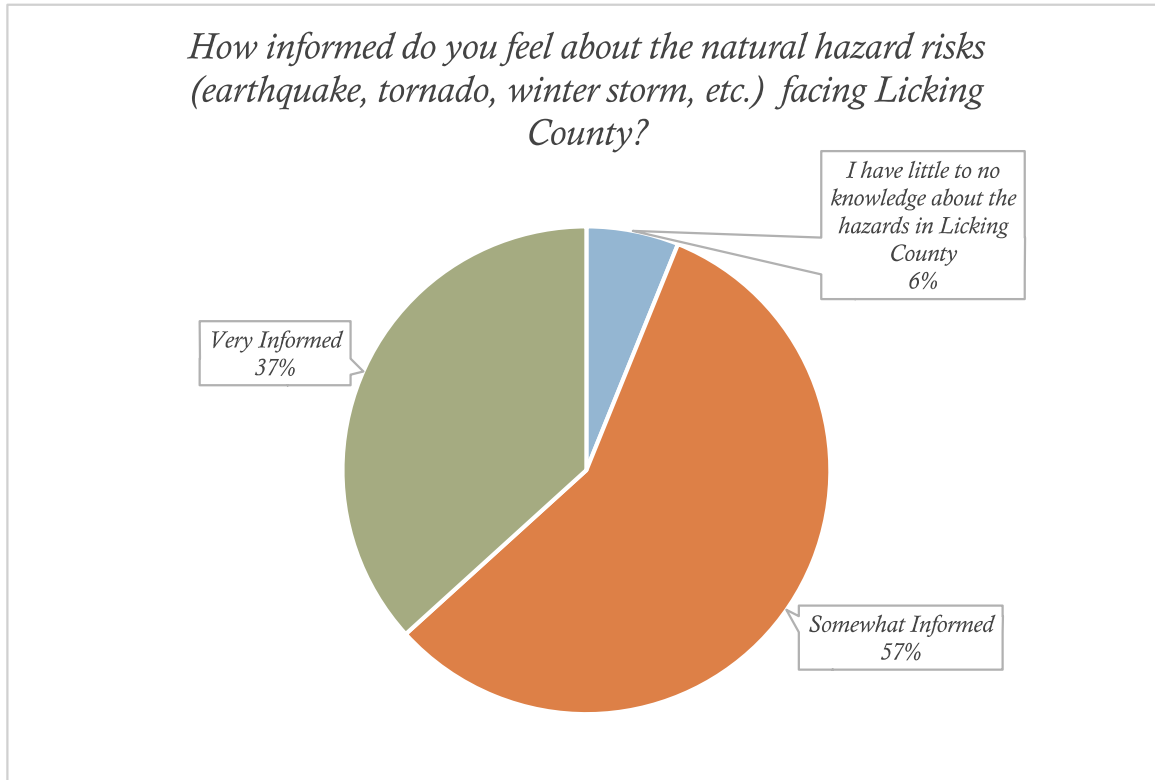




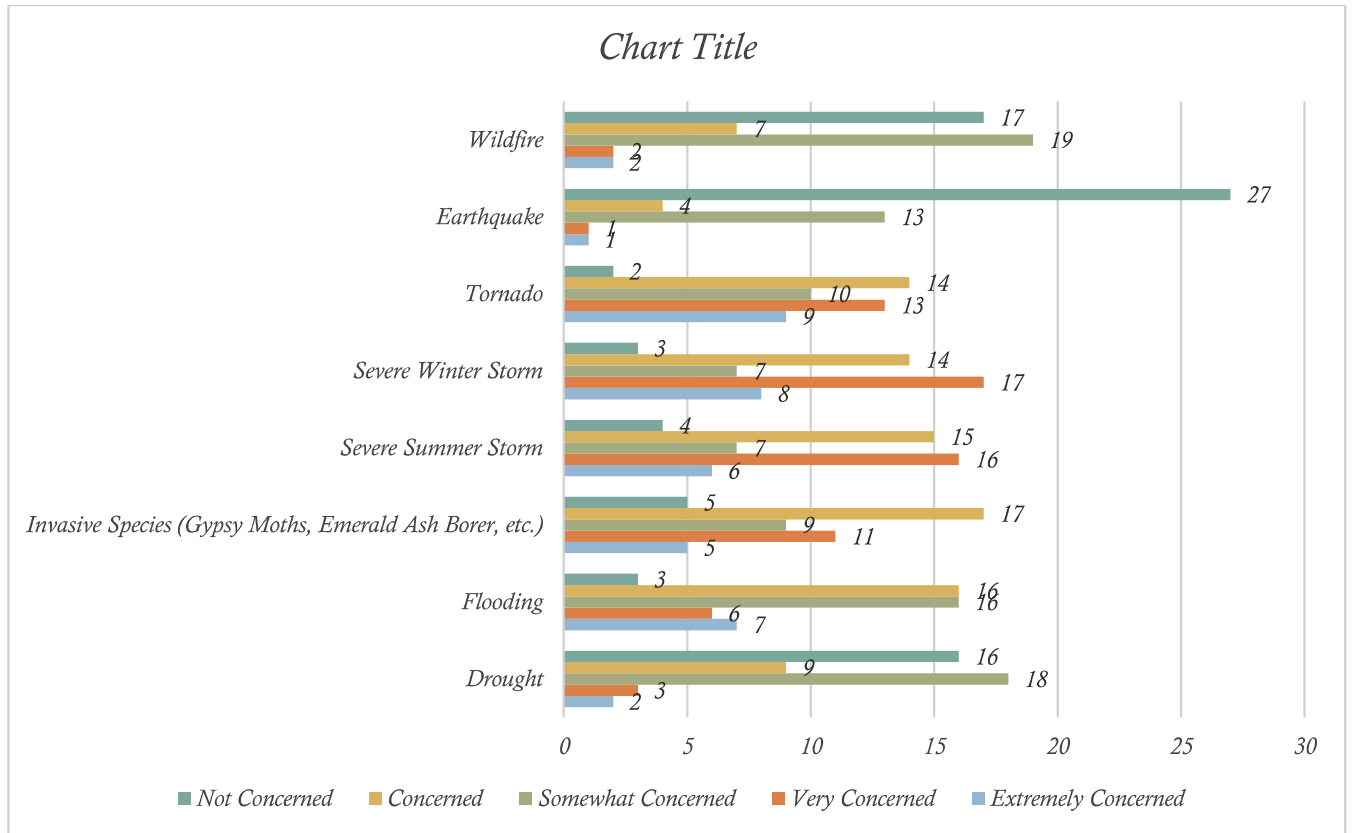
Question 5: What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?



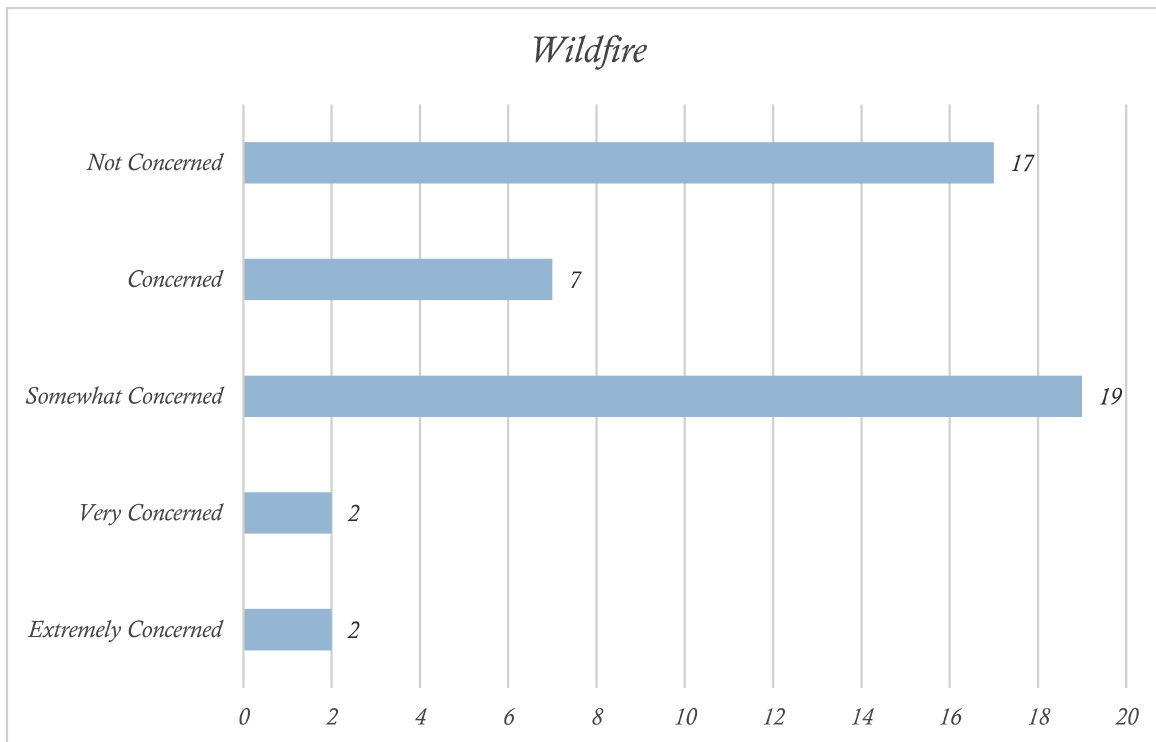
Question 6: How informed do you feel about the natural hazard risks (earthquake, tornado, winter storm, etc.) facing Licking County?



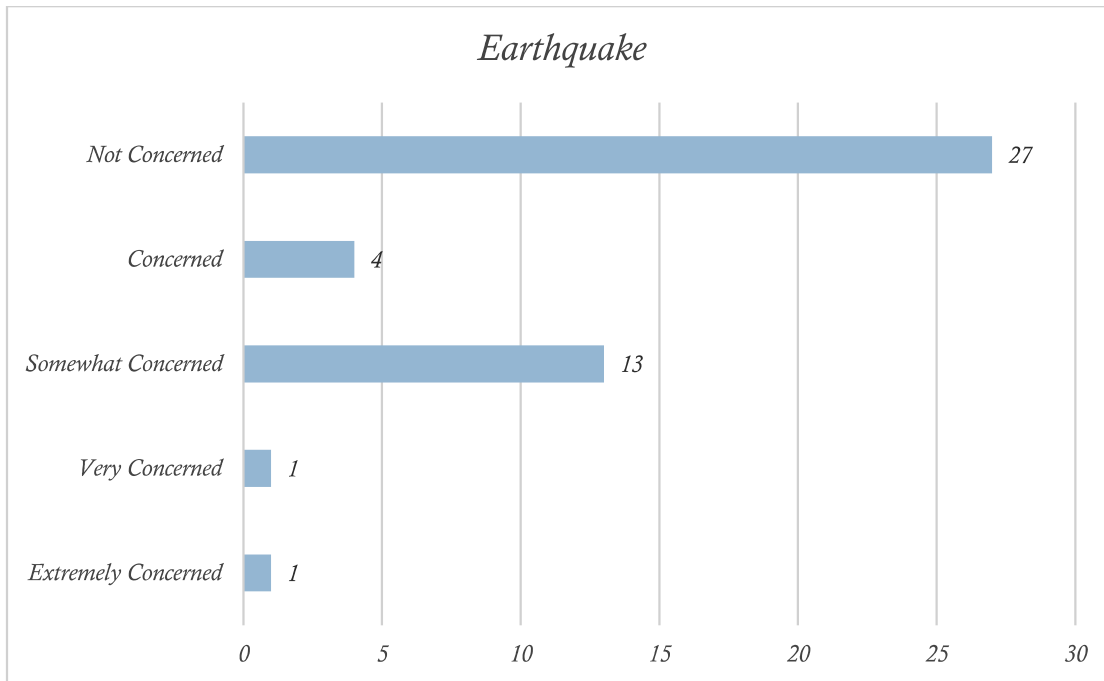
Question 7: How concerned are you about the following hazards affecting your community?



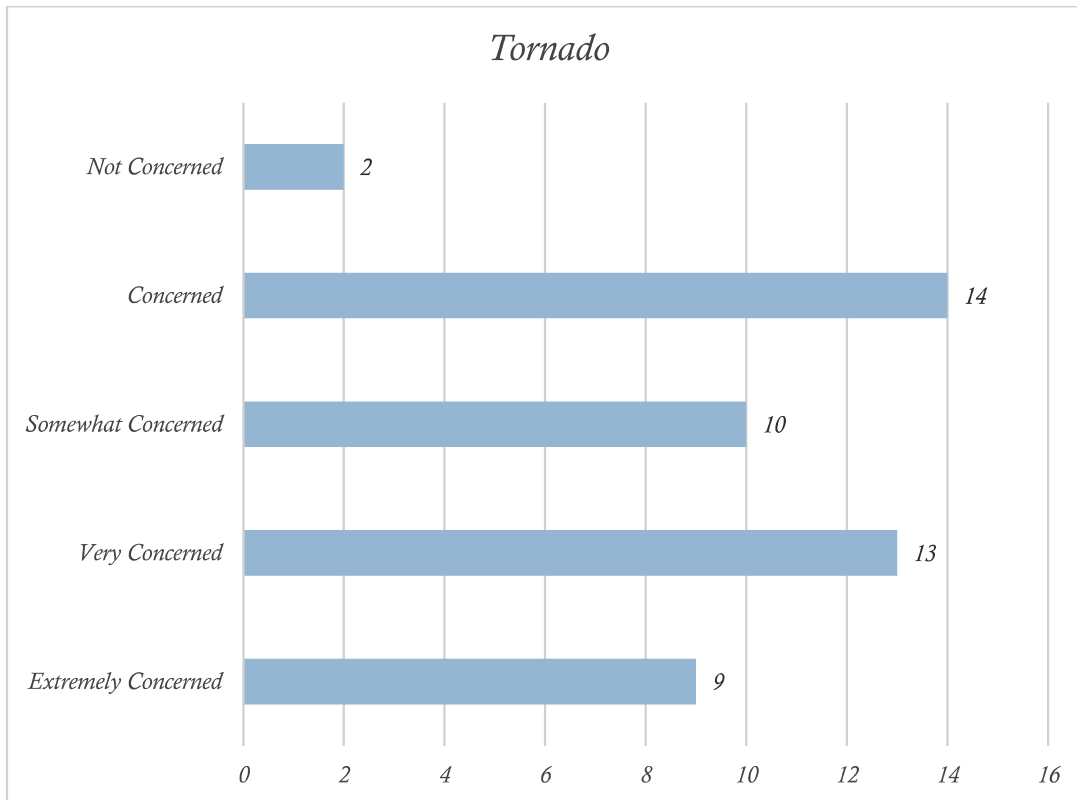
Wildfire



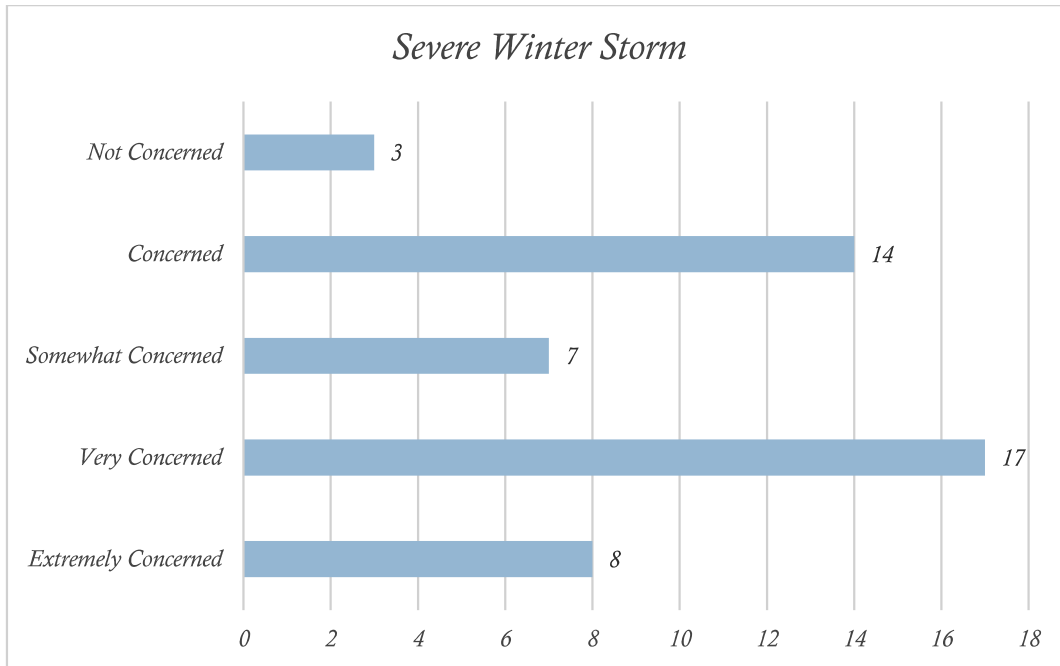
Earthquake



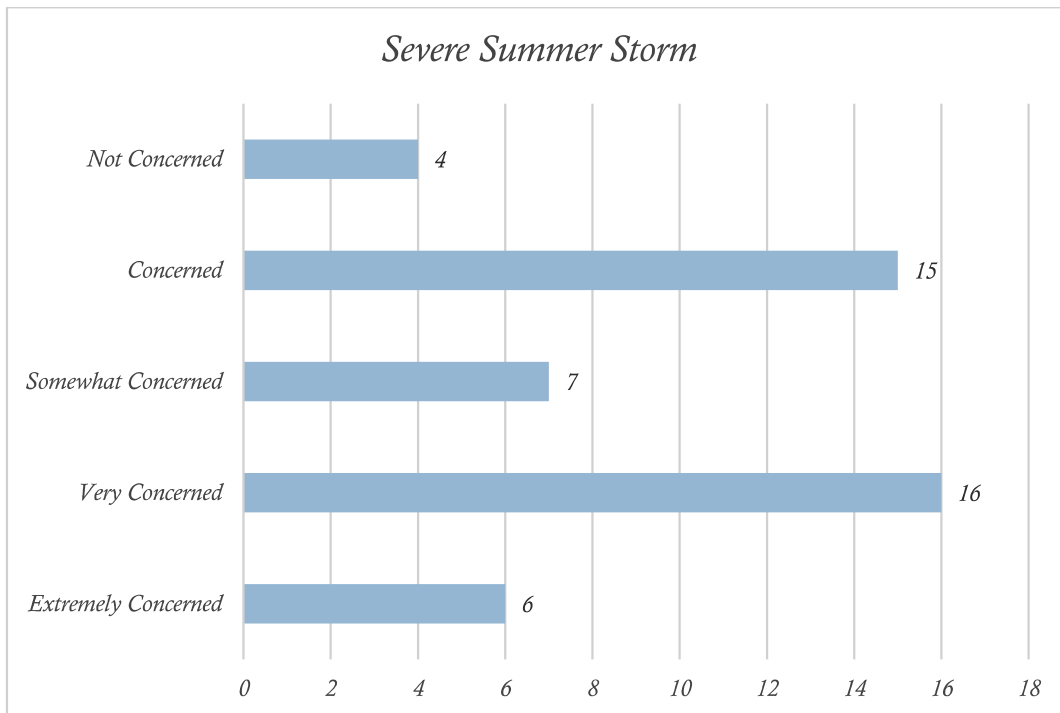
Tornado



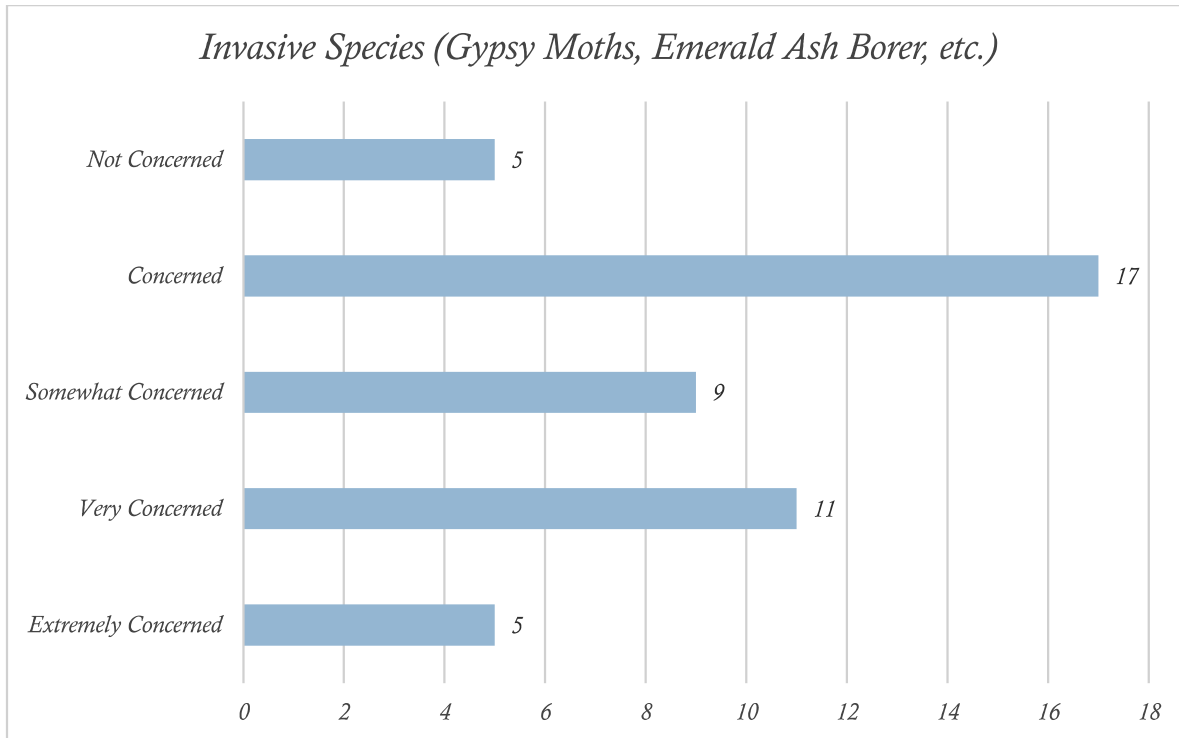
Severe Winter Storm



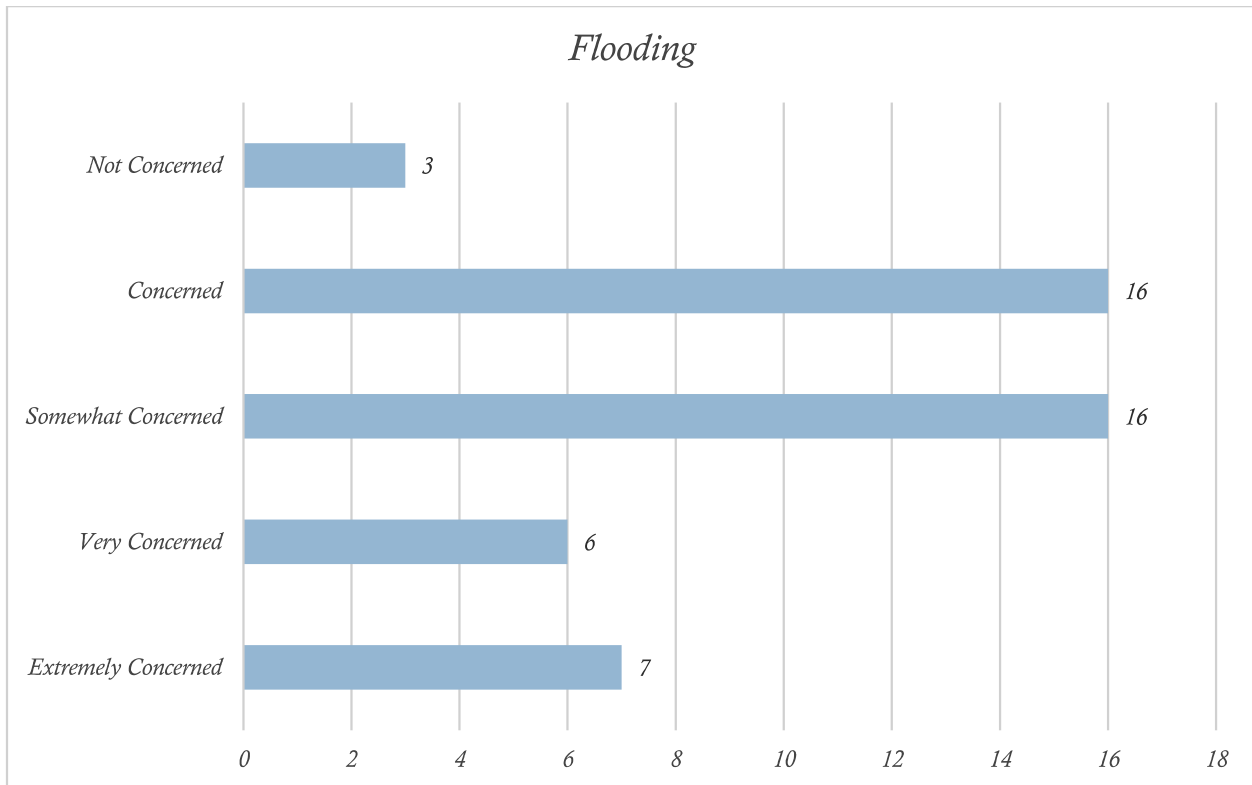
Severe Summer Storm



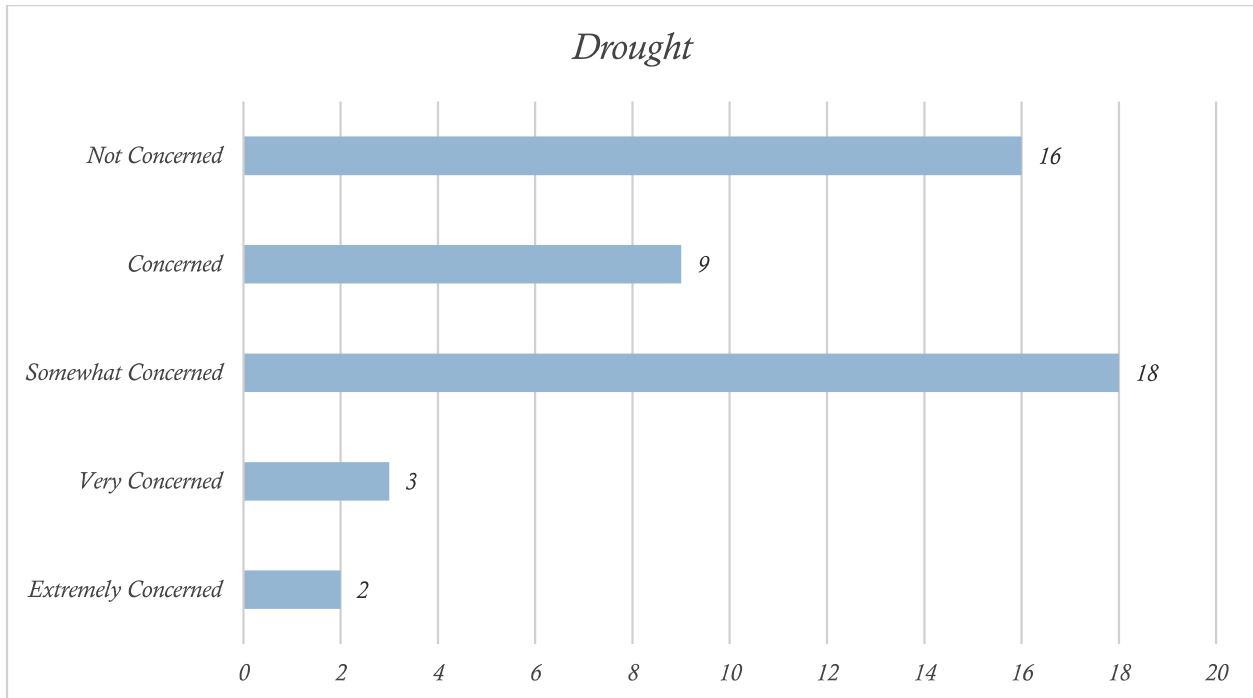
Invasive Species (Gypsy Moths, Emerald Ash Borer, etc.)



Flooding



Drought



Question 8: Are there natural hazards you are concerned about that are not listed above?

- Downed trees along the South Fork of the Licking River north of Broad street in Pataskala.
- Straight line wind warnings
- Climate change exacerbates all these hazards. I'm also concerned about other climate-change-driven hazards, such as new and/or newly spreading diseases and disease vectors, increased risk of heat-related illness, and famine.
- Winds causing trees to fall.
- Insect-borne disease - Lyme, mosquito stuff
- I am very concerned about increasing climate instability caused by global warming and the effects that will have on infrastructure and local economy (including agriculture).
- Down Drafts / Shear Winds
- Hazardous materials training for first responders to county officials. It appears not very many receive their annual refresher. They also have not received training to protect themselves from fentanyl you just can't use PPE.

Question 9: What types of hazards have you personally experienced in Licking County? (example: flooding at my home, tornado at my place of work, winter storms, etc.)

- Winter storms
- Heavy flooding of neighborhood streets, snow not being cleared in a timely fashion, high winds shaking the shingles of the house.
- Winter storms and a very minor earthquake
- Flooding at my home, hail damage to house, erosion of street drainage bulkhead that flows into the South Fork of the Licking River that runs from the Cul da sac at the end of Oak Meadow drive and the flow of the South Fork of the Licking River making a different

path towards homes on the North side of the cul da sac of Oak Meadow drive (this is longer term mitigation and may be solved with the removal of trees blocking the creek I mentioned. Winter Storms, Flooding all over the City of Pataskala,

- Hail damage to my home. Loss of electricity from a storm.
- Winter storms. Flooding in fields
- Flooding on main roads, wind damage, and winter storms, a tornado warning which didnt result in any damage
- Winter storms
- Invasive species - emerald Ash borer devastated our woods - spent thousands taking down trees. Flooding in Foundation Park, ice storms taking out power.
- Flooding, tornado, severe summer storms, severe winter storms, earthquake
- Winter storms
- Winter storms
- High winds, winter storms, wicked thunderstorms
- Flooded roads to/from home; bridges and dirt roads washing out; winter storm requiring a backhoe to clear my lane to get home; propane tank tipped over because the ground is so saturated; lost power for several days after the derecho; many dead ash trees including one that just fell on my electric lines; battling with ailanthus, multiflora rose, Asian honeysuckle, and other invasive species on my property; drought causing well to run intermittently dry;
- Trees down blocking street
- Frequent power outages
- Yard flooding after heavy rains
- Frequent tornados nearby
- Winter storms causing trees to fall.
- Multiple power outages due to high winds, ice storms and heavy snow.
- Winter storms
- Summer storms
- High winds
- Winter storms and power outages.
- Severe storms/2012 derecho
- Summer and winter storms, tornados
- Winter storms
- Tornado at home, high wind
- Week-long power outages during winter and also during a summer heat wave. Winter storms including ice too dangerous to leave my home. Twice in 25 years in current home, minor water intrusion during unusual weather in spite of exterior drainage system when I moved in; sump pump installed and effective so far.
- Winter storms derecho, associated power outages
- Winter storms and high winds from the hurricane that blew threw a few years back.
- Flooding is my biggest concern. My basement has flooded several times over the last 5 years when there is a lot of rain in a short amount of time. Storm drains fill up and drain into creeks that flow to the Licking river. The Licking river and these creeks need to be cleaned out.
- Flooding. Power loss. Windstorm.
- Winter Storms, strong winds, summer storms.
- Winter storms, yard flooding (no impact to house)
- Storms and other events that impact power lines
- Flooding, Tornado

- Flooding, extreme cold
- Flood
- Winter storms, tornado (funnel only in licking co. with no touchdown)
- Winter storms
- Flood/Storm at Home, winter storms home and work. High winds non storm related.

Question 10: Are there places in your community that are impacted, or could be impacted, by specific hazards? (e.g. Main Street floods after heavy rain.) If so, please describe the hazard and the specific location.

- Taylor Road floods between Broad and Cleveland in heavy rain.
- Flooding Broad Street, Main Street
- Monarch Dr. floods after very heavy rains and it is often not cleared of snow soon enough making early morning commutes hazardous.
- Flooding most likely but not that close to my house
- Yes, SO MANY on main streets and subdivisions due to major drainage issues. Tornado sirens not working properly, coordination and support needed by the county.
- Flooding in fields along SR 16 west of the settlement
- Barrington ridge neighborhood flooding in backyards, flooding in downtown Pataskala
- Several areas around Pataskala are prone to flooding.
- Street flooding oh high street Pataskala
- Foundation Park paths/ Macintosh road flood with high rains.
- Morse road floods constantly. There are several streets where water retention causes ice issues in the winter.
- Road in the area can get flooded.
- Brushy Fork Rd floods near the intersection with Gratiot Rd. SR 668 floods north of SR 204 (not sure where the county line is). County Line Rd often floods in a part maintained by Muskingum County.
- sloping from end of west maple/Shepardson condos down to bike trail erosion flooding 1st / ground levels
- Ross Market/River Road area flooding.
- Concerned about neighbors above me on Burg street putting in a giant lake that could flood houses and streets below,
- roads in township flood over.
- The electric power goes out once a week off Burg Street. It's 2019....why can't we get consistent electric- even on a good day!?
- Back yard and street behind us floods in heavy rain, as do other places around village. Damage from actual rain event rarely are a problem but leads to a significant mosquito problem after periods of heavy rain in warmer months.
- On ramp to SR 16 from Church Street heading west, Country Club Drive just north of Londondale
- some street flooding
- Fallen trees can trap us in our neighborhood (Burtridge).
- 21st and church street seems to always have a slick intersection and as cars drive down that hill, are often sliding off road when it's winter weather
- I live on Hamilton Ave. in Hebron, and when we have heavy rain, the Storm drains feed into the creek and when the creek is full the storm drains back up, which causes flooding on our street and in our basements.

- Surface water runoff/flooding in many areas of the country. Including Roland Estates east of Pataskala.
- Trees fall with strong winds.
- Flooding - south end of Newark
- Power outages from summer storms
- Blacksnake Road floods between Wells and Madama apartments and also near South End field (township does a great job with signage though)
- rural roads flooding, mostly Fancher Rd and Duncan Plains Rd
- Coshocton and Meadow Lane flooding. State route 62 Near Tippet rd flooding.

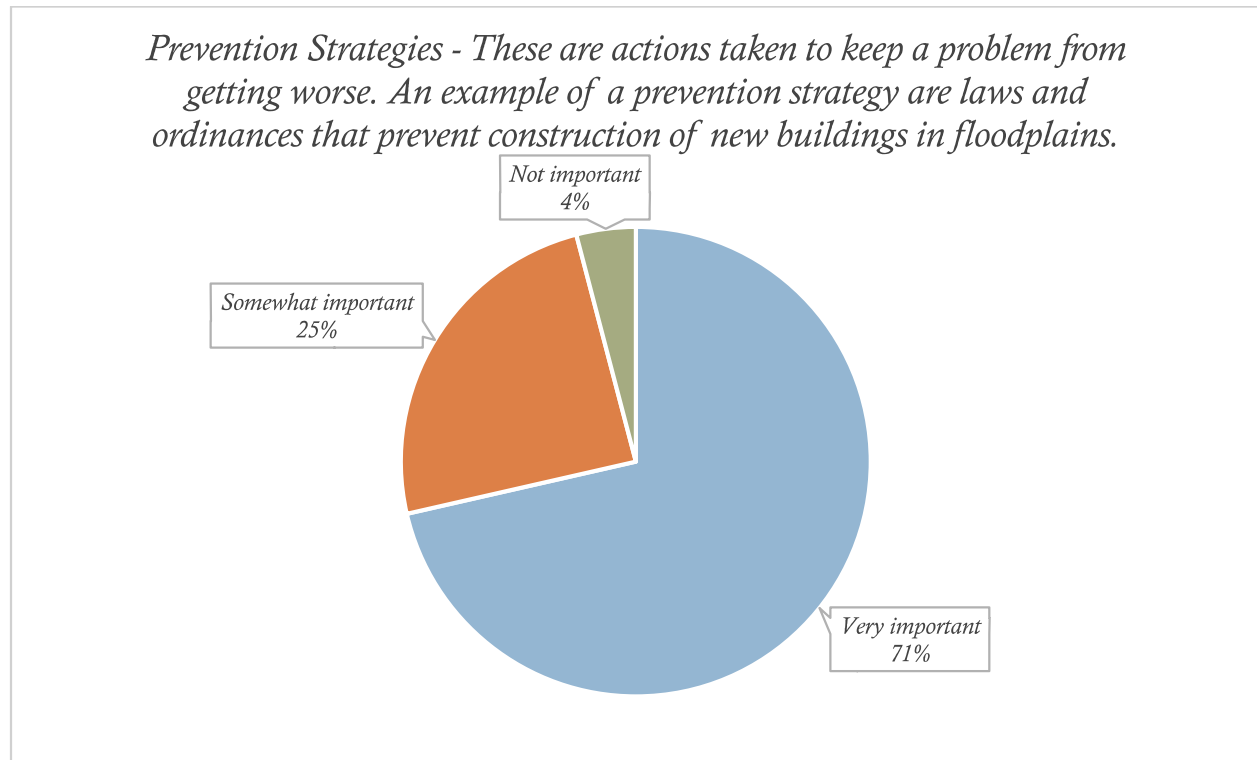
Question11: In your opinion, what are some actions your local government could take to reduce the risk of future hazard damages to your community?

- Emergency alert text system for residents.
- Ensure flood channels and storm water drains are clear of debris that could clog up the system
- Clear snow more frequently and salt the roads.
- Flood control
- Removal of trees across the South Fork of the Licking River north of Broad street. Mitigation plan for problems like the erosion around the bulkhead of the street drain tile to the South Fork of the Licking River. Drainage issues from Foundation Park which effect homeowners Property on the edges of Foundation Park i.e. North edge of Oak Meadow Drive Cul da Sac.
- Better warning system (I can barely hear the sirens)
- Replace drains, clean culverts etc
- Better drainage.
- Correct the grading for the roads to prevent flooding and water retention.
- Notify residents of pending risks
- Upgrade drainage systems to handle increased precipitation. Transition roadbuilding to materials suited for/durable in a warmer climate. Encourage distributed and/or on-site electric generation to reduce grid vulnerabilities.
- Provide limited cost tree cutting services, more storm sewers.
- Inspect proposed plans on property rather than just assume paperwork is correct, neighbors that are putting in lake on burg did not do what they proposed and only after I called the village manager and village council members did the property get inspected and it turns out they were not doing what they said and there is still concern once finished if it will be safe and not flood; already we are getting flooding on our road below that we have never had since property did so much bull dozing
- Proper zoning and ensuring stormwater management is a top priority. Better funding for Soil and Water Conservation District to better watch and protect our waterways.
- Improve drainage and eliminate low spots that collect water after heavy rain.
- Make a list of emergency contact numbers for the county available to download, maybe advertise such via billboard
- better snow removal
- Improve clarity of tornado siren- it's too hard to tell the difference between "a tornado could form, keep a look out" and "take cover! It's coming! For you, not the other end of the county!"
- Recognize the current and escalating impacts of climate change and help us be prepared for increasing challenges. I'd suggest a major educational campaign focused on how to mitigate the effects on us locally.

- Proactive things like this are certainly good, thank you. Other ideas; preventative maintenance on roads, working with local churches/local orgs to help provide shelters, notifying people ahead of pending threats (perhaps via Nixle - an online texting alert notification). Knox county has a text alert for road closures, that is helpful.
- For flooding, clean out the Licking River, streams and creeks that feed into it so that water can move downstream more efficiently and move the water away from the villages, towns and cities in Licking county. You could also look at places to buy land and create retention ponds to hold large amounts of water until the river levels are lower.
- Take responsibility for creating retention/detention areas throughout the county. Fix existing areas and require this for new developments.
- More tornado sirens in areas
- Encourage power companies to maintain right-of-way along power lines
- Would have to give this some detailed thought.
- Stormwater management
- Use HazMatOhio for training they are a local company that uses updated products and procedures
- Drainage ditches, fix holes
- Share action plan with public, have drills.
- Build wider roads with a better sewer system.

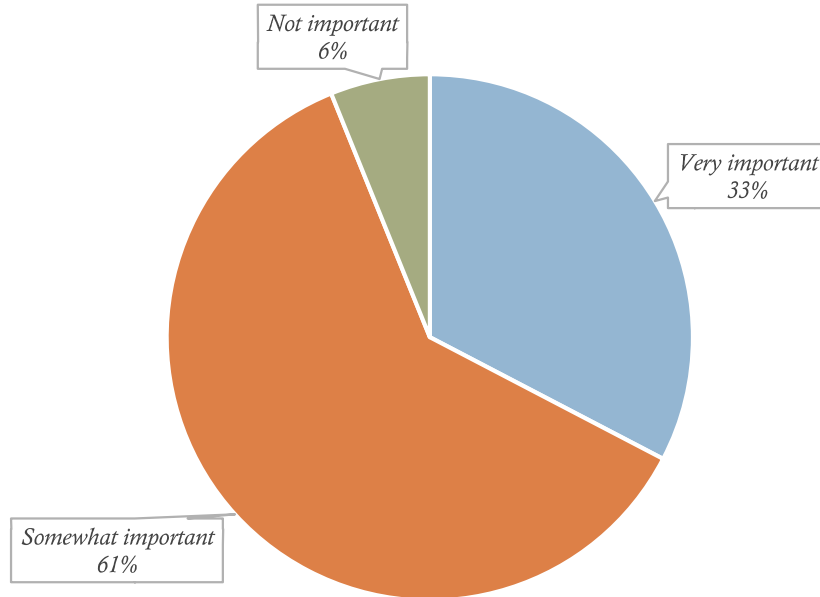
Questions 12 - 17: Describe different methods that can be used to reduce the risk that hazards pose to lives and property. Please share how important you think each of these methods are in reducing risk in Licking County.

Question 12: Prevention Strategies - These are actions taken to keep a problem from getting worse. An example of a prevention strategy are laws and ordinances that prevent construction of new buildings in floodplains.

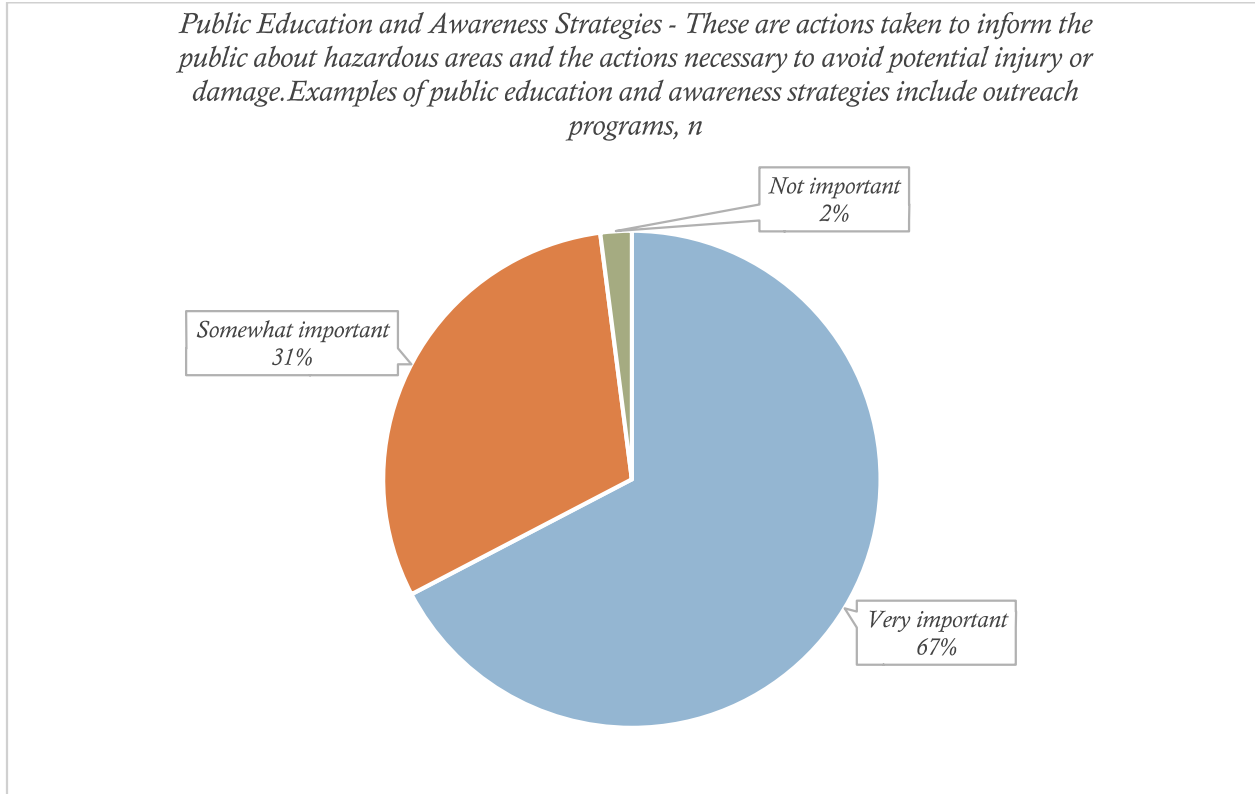


Question 13: Property Protection Strategies - These are actions taken to lessen the risk of damage to property. Examples of property protection strategies include removing homes from the floodplain and elevating homes to stay above water levels during flooding.

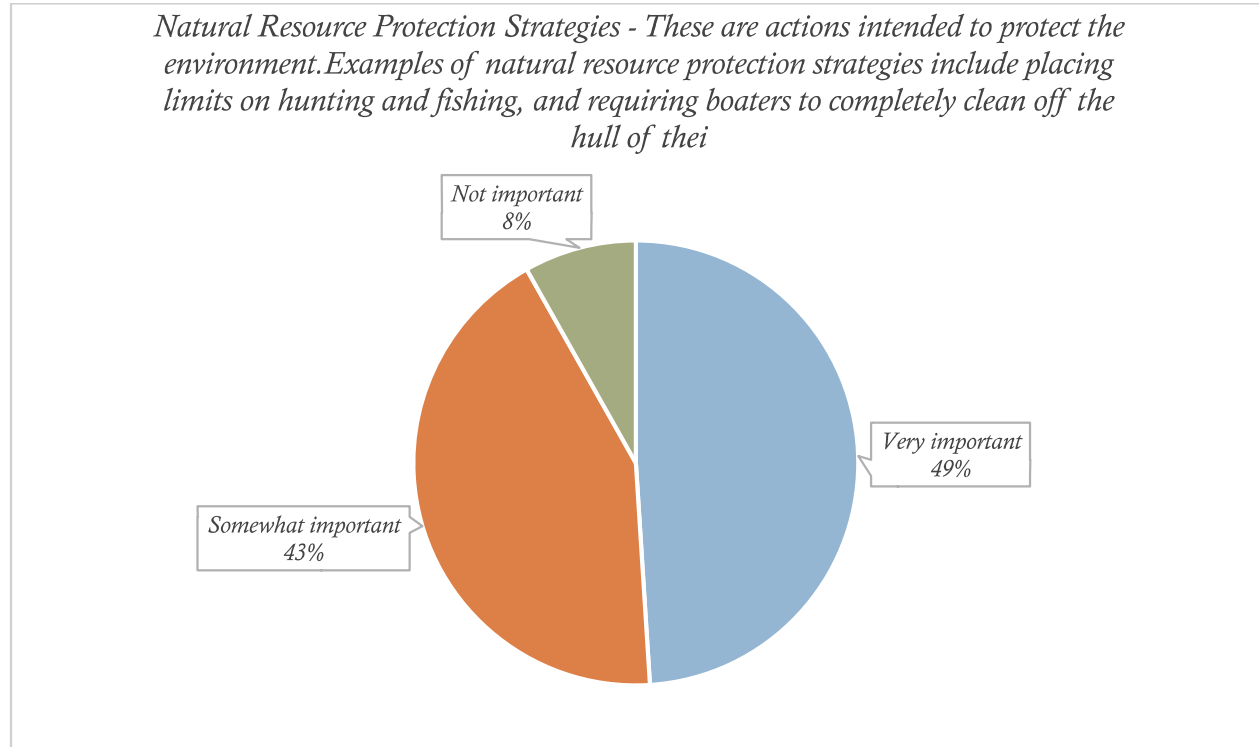
Property Protection Strategies - These are actions taken to lessen the risk of damage to property. Examples of property protection strategies include removing homes from the floodplain and elevating homes to stay above water levels during flooding.



Question 14: Public Education and Awareness Strategies - These are actions taken to inform the public about hazardous areas and the actions necessary to avoid potential injury or damage. Examples of public education and awareness strategies include outreach programs, notices to residents and property owners, and public service announcements, such as the "Turn Around, Don't Drown" campaign.

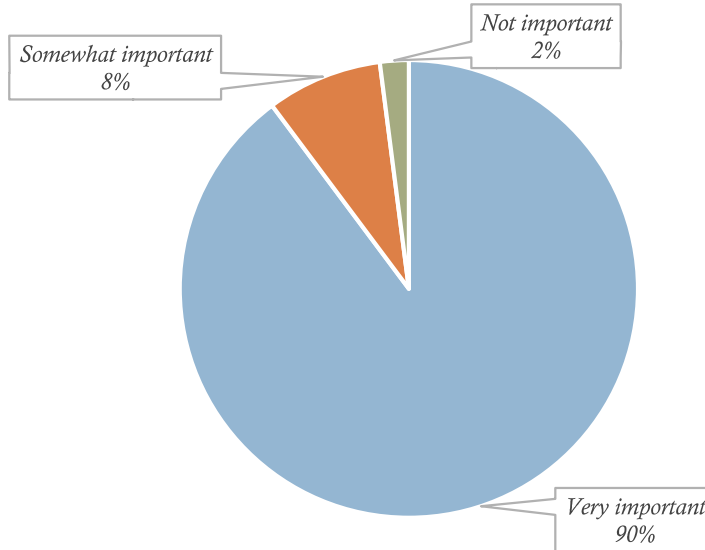


Question 15: Natural Resource Protection Strategies - These are actions intended to protect the environment. Examples of natural resource protection strategies include placing limits on hunting and fishing and requiring boaters to completely clean off the hull of their boats before moving them from one body of water to another.

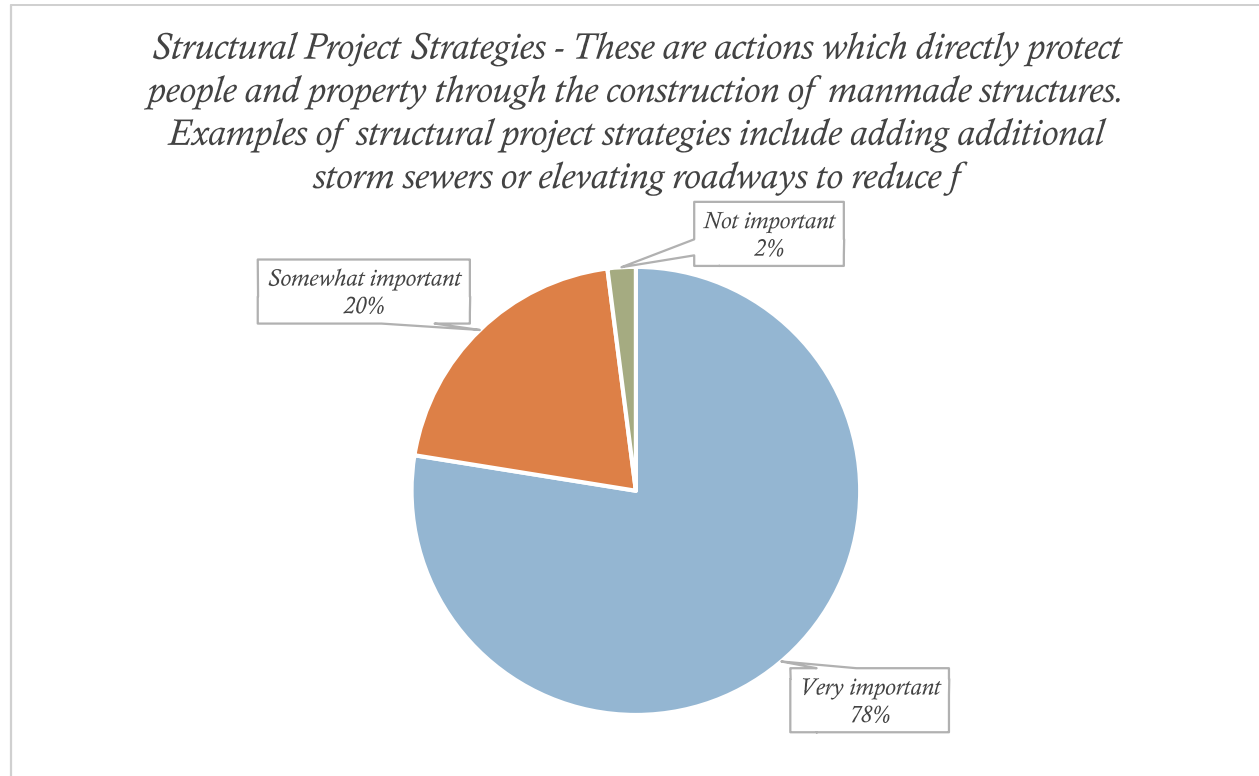


Question 16: Critical Facility Protection - These are actions taken to protect critical facilities which are important to response efforts. An example of critical facility protection strategy is placing backup generators in hospitals to ensure there is electrical power even in the event of a widespread power outage.

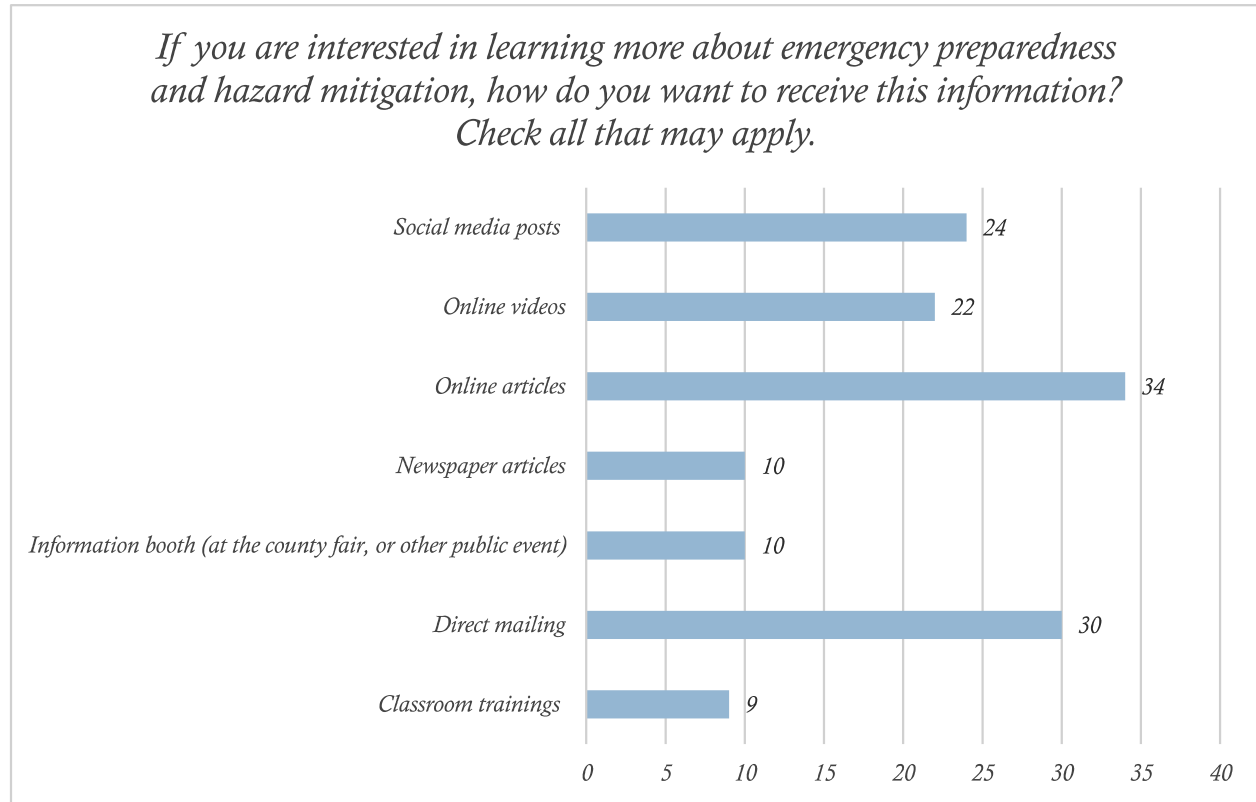
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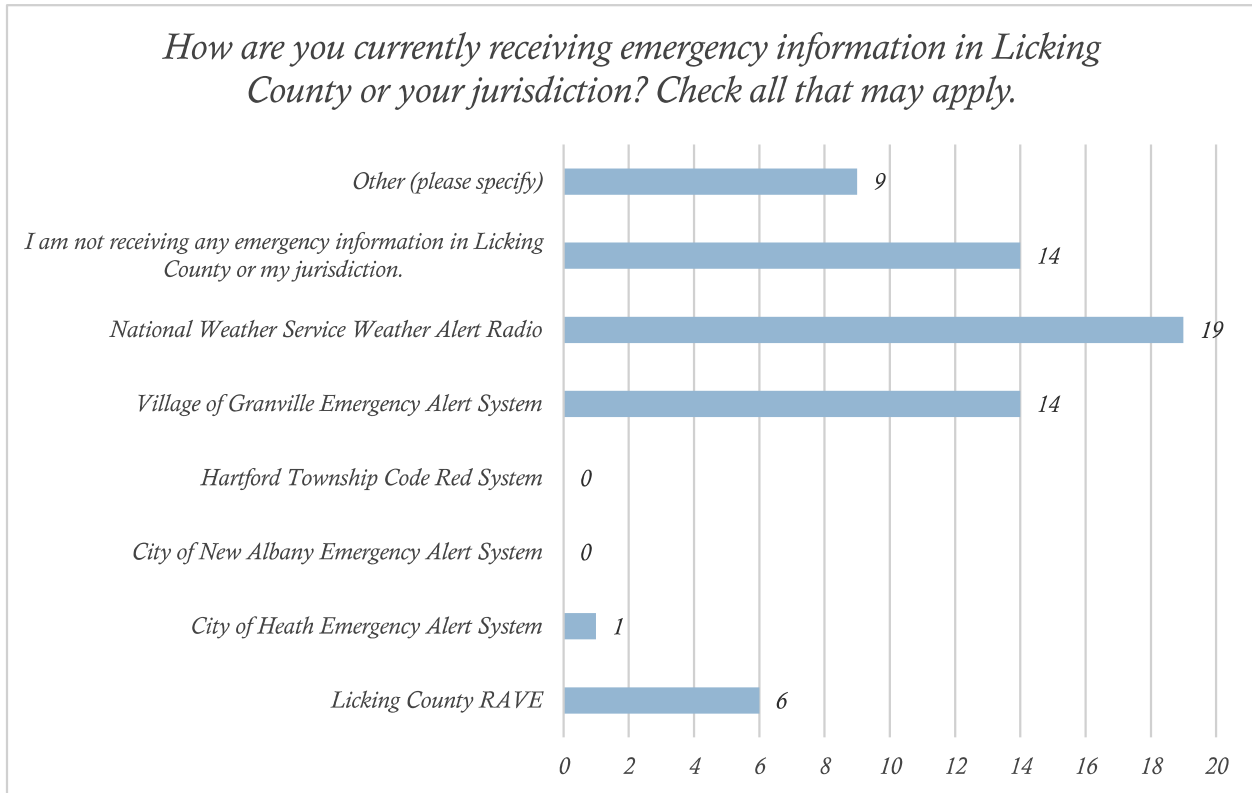
Question 17: Structural Project Strategies - These are actions which directly protect people and property through the construction of manmade structures. Examples of structural project strategies include adding additional storm sewers or elevating roadways to reduce flooding.



Question 18: If you are interested in learning more about emergency preparedness and hazard mitigation, how do you want to receive this information? Check all that may apply.



Question 19: How are you currently receiving emergency information in Licking County or your jurisdiction? Check all that may apply.



Question 20: Do you have any other comments, concerns or suggestions about hazard mitigation planning in your community?

- Need an effective tornado siren system that overlaps our entire county, we CANNOT hear the tornado siren inside our home and outside our home we can barely hear the sound of the siren. The only way we can barely hear the siren is if we are outside in back yard with no additional surrounding sound in the Hazelwood Community located behind Kroger's on Broad and 310.
- Is there a way to follow this now? Licking County web site??
- How do homeowners / citizens participate in actions proposed? What public forums are there?
- I am very concerned at the lack of knowledge about or denial of the effects of climate change by local officials. Science denial by decision makers hurts us all.
- There is a fine balance between notifying too much and not enough. It seems emergency situations can be over dramatized at times. This just causes information overload and people can disregard if it's not important enough. Which then renders the alert system useless. I trust your thought process as you work through this. It's an important matter in an age where notifications can become too much (simply notice how software companies are working to manage user notifications to help with this- it's something to consider as we add more tech to our world). Thank you for making this available to our community.
- Hebron has been looking at ways to mitigate flood risk in the village, but there is only so much a small village can do without the help of Licking County, the State of Ohio, and the



EPA. We have to find better ways to protect homeowners from flooding in Licking County. This is a huge problem, and it has been for 30 plus years or more.

- Let the public help keep us informed.



18 APPENDIX E. FEMA Mitigation Crosswalk & Compliance

LOCAL MITIGATION PLAN REVIEW TOOL 2019

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:
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FEMA Reviewer:	Title:	Date:
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Date Received in FEMA Region <i>(insert #)</i>		
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	Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)			
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		Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)				
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))				
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				
OPTIONAL: HIGH HAZARD POTENTIAL DAM RISKS				



1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan	Met	Not Met
HHPD1. Did Element A4 (planning process) describe the incorporation of existing plans, studies, reports, and technical information for high hazard potential dams?			
HHPD2. Did Element B3 (risk assessment) address HHPDs?			
HHPD3. Did Element C3 (mitigation goals) include mitigation goals to reduce long-term vulnerabilities from high hazard potential dams that pose an unacceptable risk to the public?			
HHPD4. Did Element C4-C5 (mitigation actions) address HHPDs prioritize mitigation actions to reduce vulnerabilities from high hazard potential dams that pose an unacceptable risk to the public?			
<u>REQUIRED REVISIONS</u>			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
<u>ELEMENT F: REQUIRED REVISIONS</u>			

SECTION 2:

PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

How does the Plan go above and beyond minimum requirements to document the planning process with respect to:

- *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);*
- *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);*
- *Diverse methods of participation (meetings, surveys, online, etc.); and*
- *Reflective of an open and inclusive public involvement process.*

Element B: Hazard Identification and Risk Assessment

In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:

- 1) A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;*
- 2) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and*
- 3) A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.*

How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:

- Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;*
- Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);*
- Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;*
- Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and*
- Identification of any data gaps that can be filled as new data became available.*

Element C: Mitigation Strategy

How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:

- Key problems identified in, and linkages to, the vulnerability assessment;*
- Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- Specific mitigation actions for each participating jurisdiction that reflects their unique risks and capabilities;*
- Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

Element D: Plan Update, Evaluation, and Implementation (Plan Updates Only)

How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

B. Resources for Implementing Your Approved Plan

Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

SECTION 3:

MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were ‘Met’ or ‘Not Met,’ and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/township/village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Requirements
1												
2												



MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/township/village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Requirements
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MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/township/village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Requirements
20												



19 APPENDIX F. Sample Resolution and Factsheet

Sample Resolution for Licking County Jurisdictions

The following is a sample resolution in support of the Licking County Countywide All Natural Hazards Mitigation Plan. A resolution adopting the plan must be passed by Licking County and in each participating city, village and township in Licking County.

RESOLUTION NUMBER [No.]

A RESOLUTION ADOPTING THE LICKING COUNTY COUNTYWIDE ALL NATURAL HAZARDS MITIGATION PLAN

WHEREAS, the citizens and property within the [Jurisdiction] have historically been subjected to the effects of natural hazards and manmade hazard events that pose threats to lives and cause damages to property; and

WHEREAS, the [Jurisdiction] desires to seek ways to mitigate the risks from known natural hazards, reducing the impact on people and property; and

WHEREAS, the Licking County Countywide All Natural Hazards Mitigation Plan has been updated after over a year of work by government organizations and participating jurisdictions; and

WHEREAS, Licking County and all jurisdictions within have been charged by the Federal Emergency Management Agency with the responsibility of developing a hazard mitigation plan aimed at reducing the community's vulnerability to natural hazards; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop a Natural Hazards Mitigation Plan in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, it is the intent of the [Jurisdiction] to fulfill this obligation and show support for the importance of mitigation in Licking County;

NOW, THEREFORE, be it resolved that the [Jurisdiction] hereby adopts the Licking County Countywide All Natural Hazards Mitigation Plan as the [Jurisdiction]'s Hazard Mitigation Plan and resolves to take official action as may be reasonably necessary to carry out the strategies outlined within the Plan.

PASSED, ADOPTED and APPROVED by the Council of the [Jurisdiction] on [day] day of [Month], [Year].

Adoption Factsheet



Licking County Emergency Management Agency

Director: Sean Grady
Deputy Director: John Wieber

Phone: (740) 522-9032

EMAPR@county.com

783 Irving Wick Dr. West
Heath, Ohio 43056

What do I need to do?

The Licking County Board of Commissioners and the administration of each participating jurisdiction need to do the following:

- Adopt the plan by formal resolution (sample resolution wording is provided with this fact sheet).
- Complete the adoption process by 2-26-2021.
- Send the signed adoption resolution to John Wieber via U.S. Mail, or email at JWieber@lccounty.com

Your adoption resolution will become a part of the final version of the plan, showing your commitment to hazard mitigation in Licking County and ensuring you are eligible for federal mitigation grants in the future.

Please contact the Licking County Emergency Management Agency with any questions or concerns.



It's time to adopt the Mitigation Plan

It is time to adopt the Licking County Mitigation Plan!

The Licking County Countywide All Natural Hazards Mitigation Plan was completed by the Licking County Emergency Management Agency with a committee of multi-disciplinary subject matter experts from across the county alongside representatives from each participating jurisdiction.

This plan is designed to serve as a guide to local jurisdictions on efforts to mitigate the loss of life and property from natural hazards faced by Licking County.

The plan contains details on

hazards and possible strategies to reduce their impacts.

Each jurisdiction was invited to participate by creating mitigation projects individualized to meet the specific needs of each jurisdiction in Licking County.

The Mitigation Plan has been approved by the Ohio Emergency Management Agency and the Federal Emergency Management Agency and now must be adopted by each participating jurisdiction in Licking County.

This plan must be adopted by formal resolution voted on by the governing body of each

jurisdiction in order to meet applicable legal requirements.

Adoption of this plan ensures your jurisdiction is eligible to receive federal mitigation grant dollars as they become available.

Were it not for your participation in the County plan, each jurisdiction would be required to complete its own mitigation plan to receive funds.

We thank you in advance for your participation with us as we finalize this important plan.

What does 'adoption' really mean?

Adoption of the Licking County Countywide All Natural Hazards Mitigation Plan is critical and means:

- Your jurisdiction is in compliance with the Disaster Mitigation Act of 2000 (DMA2K). DMA2K requires local jurisdictions adopt the plan in order to be

eligible to receive federal mitigation grant funds.

- Your jurisdiction has the opportunity to advocate for the plan, encourage mitigation, and implement building standards for hazard areas in your jurisdiction.

- Your jurisdiction values mitigation by supporting the mitigation projects created in your jurisdiction.

Adoption does not mean you agree to take any actions or fund any projects identified in the plan. This plan serves as a guide to mitigation actions and is in no way a mandate to act.





20 APPENDIX G. Participating Jurisdiction Plan Adoptions

Copies of each participating jurisdiction's adoptions of the plan will be added to the plan.