MADISON Indiana

Common Council Agenda

MEETING DATE: Tuesday, May 16, 2023, at 5:30 PM

MEETING PLACE: Madison City Hall- Council Chambers

A. Lord's Prayer/Pledge of Allegiance
B. Calling of roll and notice of absentees
C. Reading, approving, correcting, or disposing of minutes from prior meeting
D. Presentation of petitions, memorials, remonstrances, introduction of motions and guests
    - Proclamation for National Police Week
E. Resolutions or bills
    - Resolution 2023-4C: Adopting the Jefferson County Multi-Hazard Mitigation Plan
    - Ordinance 2023-10: Repealing and Replacing Ord. 2013-2 regarding Garbage Collection Sponsor C. Krebs
F. Reports, recommendations, other business of standing/select committees of city council
G. Reports of City Officials
    - Clerk Treasurer's Report; Katie Rampy Clerk Treasurer
    - Parks Programming and Organizational Plans: Scott Klein Parks Director
    - Madison Police; John Wallace Chief of Police
H. Bills on third reading
    - Ordinance 8-2023: Zoning Map Amendment 3910 Michigan Rd. Sponsor Thevenow
I. Bills on second reading
    - Ordinance 9-2023: Repeal and Replace Chapter 98 Streets Sidewalks Ordinance
J. Miscellaneous
K. Public comments
L. Mayor's comments
M. Next Council meeting: Tuesday June 2023 @ 5:30 pm
N. Motion to adjourn

MADISON Indiana

Common Council Minutes

MEETING DATE: May 3, 2023
MEETING PLACE: Madison City Hall – Council Chambers

The Common Council of the City of Madison, Indiana met in regular session at 5:30 P.M. at City Hall, 101 W. Main St.

Council President, Carla Krebs, opened the meeting with the Lord's Prayer followed by the Pledge of Allegiance to the Flag.

Present: Thevenow, J. Bartlett, D. Dattilo, Krebs, and L. Dattilo. (5-2). J. Schafer and Chatham were both absent and excused.

Minutes: Bartlett moved to approve April 18, 2023, minutes, seconded by Thevenow. All in favor, motion carried (5-0).

Presentation of petitions, memorials, remonstrances, introduction of motion & guests:
Andrew Forrester, National Tourism Proclamation: Tourism in Jefferson County, Indiana is the fifth largest nongovernmental industry, and it continues to be an essential part of Madison's economy, development, and workforce. Travel spending supports a vibrant and safe Madison and Jefferson County by generating over $5.5 million in state and local taxes to support vital services, such as education, emergency response, public safety, and more. Travel enables success for all industries including small businesses, retail and restaurants, manufacturing, agriculture, healthcare, and more. Forty-eight cents of every tourism dollar spent in Jefferson County stays local. Tourism supports more than 580 jobs with over $14.1 million in total wages in Jefferson County. Tourism brings over 400,000 people per year to Madison. Therefore, Carla Krebs, President Pro tempore of the City of Madison, Indiana proclaims May 7-12, 2023, as National Travel and Tourism Week in Madison, Indiana, and Jefferson County and a special observance in the events organized by the tourism leader, Visit Madison, Inc.

Troy Morgan, Jefferson County EMA: The multi-hazard mitigation plan is a FEMA-required plan for all incorporated communities across the country. It is tied to grant eligibility for mitigating or preparing for disaster. It is a five-year plan and the last time that Madison adopted this plan was about six or seven years ago and is a couple of years behind because of COVID. The most recently adopted plan was in 2017. This plan will be dated 2023, however, it started about sixteen months ago. The Commissioners adopted it at their meeting about four or five weeks ago. The Town of Hanover is drafting its resolution. The town of Brooksburg adopted it as well earlier this week. That will leave the town of Dupont, and then that means all the incorporated communities within the county will have addressed it, adopted it, and meet that FEMA requirement. The biggest change from the previous plan is that the Jefferson County EMA has since switched vendors called Burke Engineering out of Columbus, Indiana.

Resolutions or bills: None.

Reports, recommendations, and other business from standing/select committees of City Council: None.

Report of city officials: None.

Bills on third reading:
Ordinance 2023-6: Establishing Nonreverting Fund for Public Arts Commission (Bartlett):
Roll Call Vote: Thevenow – Y, Krebs – Y, L. Dattilo – Y, Bartlett – Y, D. Dattilo – Y. All in favor, ordinance passes (5-0).

Ordinance 2023-7: Amendment to Ordinance 2022-7 Establishing Economic Development Nonreverting Fund (L. Dattilo):
Roll Call Vote: Thevenow – Y, Krebs – Y, L. Dattilo – Y, Bartlett – Y, D. Dattilo – Y. All in favor, ordinance passes (5-0).

Bills on second reading:
Ordinance 2023-8: Zoning Map Amendment 3910 Michigan Rd. (Thevenow): Thevenow suggested moving the bill on to the third reading as there were no objections to it from the zoning board or the public during the meeting. This ordinance will move to third reading.

Ordinance 2023-9: Repeal and Replace Chapter 98 Streets Sidewalks Ordinance: L. Dattilo made a motion to table Ordinance 2023-9 until the next meeting for better discussion when the Mayor is present, seconded by Krebs. All in favor, motion carried (5-0).

Public comment: None.

Mayor's comments: None.

The next regular meeting will be Tuesday, May 16, 2023.

Adjourn: Thevenow moved to adjourn, seconded by Bartlett. All in favor (5-0).

Attested:

_____

President Pro Tempore

_____

Kathleen M. Rampy, Clerk-Treasurer

Proclamation National Police Week

WHEREAS, in 1962, President Kennedy proclaimed May 15 as National Peace Officers Day and the calendar week in which May 15 falls, as National Police Week. Established by a joint resolution of Congress in 1962, National Police Week pays special recognition to those law enforcement officers who have lost their lives in the line of duty for the safety and protection of others; and

WHEREAS, Public Safety Officers of the Madison Police Department stand watch over our citizens, selflessly risking their lives to protect individuals, families, neighborhoods, and property against crimes; and

WHEREAS, May 15-21, 2023, is observed Nationally as National Police Week in honor of those law enforcement officers who, through their courageous deeds, have made the ultimate sacrifice in service to their community or have become disabled in the performance of duty; and

WHEREAS, Officer Frank Knoebel of the Madison Police Department and Deputy Bruce Sutton of the Jefferson County Sheriff's Department, were killed in the line of duty; and

WHEREAS, the Madison Police Department, Jefferson County Sheriff's Department, Hanover Police Department, and the Indiana State Police, past and present, who, by their faithful and loyal devotion to their responsibilities, have rendered dedicated service to the community.

NOW, THEREFORE, I, Bob G. Courtney, Mayor of the City of Madison, on behalf of the Citizens of Madison, do hereby proclaim May 15-21, 2023, as "National Police Week" and hereby publicly salute the service of law enforcement officers in our community, including Madison Police Department, the Jefferson County Sheriff's Department, Town of Hanover Police Department, the Indiana State Police and in communities across the nation. Throughout the City of Madison, we urge and encourage all citizens to take time to appreciate our public safety officers and honor all peace officers who have made the ultimate sacrifice in the line of duty.

IN WITNESS WHEREOF, I have hereto set my hand and cause the seal of the City of Madison to be affixed this 16th day of May 2023.

_____

Bob G. Courtney, Mayor, City of Madison

RESOLUTION 4C-2023

A RESOLUTION OF THE COMMON COUNCIL OF THE CITY OF MADISON ADOPTING THE JEFFERSON COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Common Council recognizes the threat that natural hazards pose to people and property within the City of Madison; and

WHEREAS, the Common Council has prepared a multi-hazard mitigation plan, hereby known as "Jefferson County Multi-Hazard Mitigation Plan" in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS, the Jefferson County Multi-Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the City of Madison from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Common Council demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Jefferson County Multi-Hazard Mitigation Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA, that:

Section 1. The Common Council adopts the Jefferson County Multi-Hazard Mitigation Plan. While content related to the City of Madison may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the City of Madison to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

DULY ADOPTED BY THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA this 16th day of May, 2023.

_____
Councilman

_____
Bob G. Courtney, Mayor
City of Madison, Indiana

(SEAL)

ATTEST:

_____
Kathleen M. Rampy, Clerk-Treasurer

JEFFERSON COUNTY MULTI-HAZARD MITIGATION PLAN

MARCH 2023

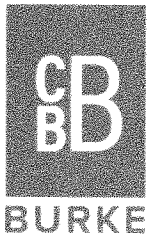
Prepared for:

Jefferson County Emergency Management Agency
620 Green Road
Madison, IN 47250

Prepared by:

Christopher B. Burke Engineering, LLC
115 W. Washington St., Ste. 1368 S.
Indianapolis, IN 46204

Burke Project No. 19R.210467



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EXECUTIVE SUMMARY

The Federal Emergency Management Agency (FEMA) defines the disaster life cycle as the process through which emergency managers respond to disasters when they occur; help people and institutions recover from them; reduce the risk of future losses; and prepare for emergencies and disasters. The Jefferson County Multi-Hazard Mitigation Plan (MHMP) focuses on the mitigation phase of the disaster life cycle. According to FEMA, mitigation is most effective when it's based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs. The MHMP planning process identifies hazards, the extent that they affect the municipality, and formulates mitigation practices to ultimately reduce the social, physical, and economic impact of the hazards.

For National Flood Insurance Program (NFIP) communities to be eligible for future mitigation funds, they must adopt either their own MHMP or participate in the development of a multi-jurisdictional MHMP. Further, it is required that local jurisdictions review, revise, and resubmit the MHMP every five years. As representatives from Jefferson County, City of Madison and the Towns of Brooksburg, Dupont, and Hanover have provided information, attended meetings, and participated in the planning process, the planning process used to update the Jefferson County MHMP satisfies the requirements of a multi-jurisdictional plan.

During Planning Committee meetings, those in attendance revisited existing the 2017 MHMP and identified new critical facilities and local hazards; reviewed the State's mitigation goals and updated the local mitigation goals; reviewed the most recent local hazard data, vulnerability assessment, and maps; evaluated the effectiveness of existing mitigation measures and identified new mitigation projects; and reviewed materials for public participation. Meetings were also conducted with key groups such as city planners and various emergency responders. Their information will be incorporated into the MHMP update.

Risk Assessment

The risk assessment conducted for the Jefferson County MHMP is based on the methodology described in the Local Multi-Hazard Mitigation Planning Guidance published by FEMA in 2013 and is incorporated into the following sections:

1. **Hazard Identification** lists the natural, technological, and political hazards selected as having the greatest direct and indirect impact to the county as well as the system used to rank and prioritize the hazards.
2. **Hazard Profile** for each hazard, discusses the 1) historic data relevant to the municipalities where available; 2) vulnerability in terms of number and type of structures, repetitive loss properties (flood only), estimation of potential losses, and impacts based on an analysis of development trends; and 3) the relationship to other hazards identified.
3. **Hazard Summary** provides an overview of the risk assessment process; a table summarizing the relationship of the hazards; and a composite map to illustrate areas impacted by hazards.

When considering the hazards selected for study (drought; earthquake; extreme temperature; fire; flood; hail, thunder, wind; land subsidence; snow and ice storm; tornado; dam failure; and hazardous materials incidents) and the information obtained regarding the hazard profile and the hazard summary, the attached table identifies the hazards studied and ranking outcomes. The ranking is completed utilizing the Calculated Risk Priority Index (CPRI), a tool by which individual hazards are evaluated and ranked according to an indexing system considering probability, magnitude, warning time, and duration for any hazard.

1. **Probability** is defined as the likelihood of the hazard occurring over a given period.

2. **Magnitude/Severity** is defined by the extent of the injuries, shutdown of critical infrastructure, the extent of property damage sustained, and the duration of the incident response.
3. **Warning Time** is defined as the length of time before the event occurs.
4. **Duration** is defined as the length of time that the actual event occurs. This does not include response or recovery efforts.

Mitigation Goals and Practices

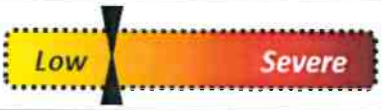
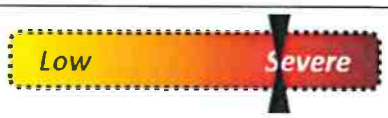
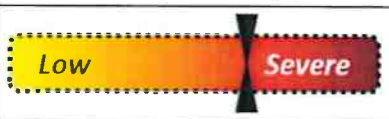
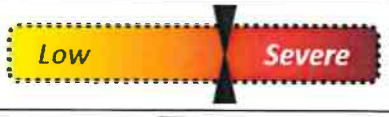
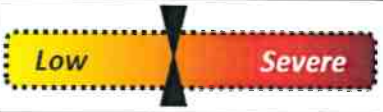
The overall goal of the Jefferson County MHMP is to reduce the physical, economic, and social losses associated with the identified and ranked hazards through emergency services, natural resource protection, prevention, property protection, public information, and structural control mitigation practices.

As part of the planning process the Planning Committee discussed the strengths and weaknesses of existing mitigation practices and made recommendations for improvements, as well as suggested new practices. To provide further detail, information on the local status, local priority, benefit-cost ratio, project location, responsible entity, and potential funding source are included regarding each proposed practice. Those practices ranked by participants as a high priority are anticipated to be implemented within five years from the final Plan adoption and additional steps, or an implementation plan is included for each.

Plan Maintenance

The successful implementation of the MHMP requires the participation and cooperation of the entire Planning Committee to successfully monitor, evaluate, and update the Jefferson County MHMP. Local jurisdictions are required to update and resubmit the MHMP every five years. Information gathered following individual hazard incidents and annual meetings will be utilized along with updated vulnerability assessments to assess the risks associated with each hazard common in Jefferson County.

Summary of Hazards and Weighted Average Calculated Risk Priority Index

Type of Hazard	List of Hazards	Weighted Average CPRI
Natural	Drought	
	Earthquake	
	Extreme Temperatures	
	Fires and Wildfire	
	Flood	
	Hail/Thunder/Windstorm	
	Landslide/Subsidence	
	Tornado	
	Winter Storm/Ice	
Technological	Dam Failure	
	Hazardous Materials Incident	

CHAPTER 1: INTRODUCTION

1.1 DISASTER LIFE CYCLE

The Federal Emergency Management Agency (FEMA) defines the disaster life cycle as the process through which emergency managers respond to disasters when they occur; help people and institutions recover from them; reduce the risk of future losses; and prepare for emergencies and disasters. The disaster life cycle, shown in **Figure 1,** includes four phases:

- **Response** – the mobilization of the necessary emergency services and first responders to the disaster area (search and rescue; emergency relief)
- **Recovery** – to restore the affected area to its previous state (rebuilding destroyed property, re-employment, and the repair of other essential infrastructure)
- **Mitigation** – to prevent or to reduce the effects of disasters (building codes and zoning, vulnerability analyses, public education)
- **Preparedness** – planning, organizing, training, equipping, exercising, evaluation and improvement activities to ensure effective coordination and the enhancement of capabilities (preparedness plans, emergency exercises/training, warning systems)

Figure 1. Disaster Life Cycle

The Jefferson County Multi-Hazard Mitigation Plan (MHMP) focuses on the mitigation phase of the disaster life cycle. According to FEMA, mitigation is most effective when it's based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs. Recent reviews of grant programs have determined for every $1 spent on mitigation efforts, between $6 and $10 are saved within the community on efforts following disasters. The MHMP planning process identifies hazards, the extent that they affect the municipality, and formulates mitigation practices to ultimately reduce the social, physical, and economic impact of the hazards.

1.2 PROJECT SCOPE & PURPOSE

REQUIREMENT §201.6(d)(3):
A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five (5) years in order to continue to be eligible for mitigation project grant funding.

An MHMP is a requirement of the Federal Disaster Mitigation Act of 2000 (DMA 2000). According to DMA 2000, the purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of occurrences.
A FEMA-approved MHMP is required to apply for and/or receive project grants under the Building Resilient Infrastructure and Communities (BRIC), Hazard Mitigation Grant Program (HMGP), and Flood Mitigation Assistance (FMA). Although the Jefferson County MHMP meets the requirements of DMA 2000 and eligibility requirements of these grant programs, additional detailed studies may need to be completed prior to applying for these grants.

For National Flood Insurance Program (NFIP) communities to be eligible for future mitigation funds, they must adopt either their own MHMP or participate in the development of a multi-jurisdictional MHMP. The Indiana Department of Homeland Security (IDHS) and the United States Department of Homeland Security (US DHS)/FEMA Region V offices administer the MHMP program in Indiana. As noted above, it is required that local jurisdictions review, revise, and resubmit the MHMP every five years. MHMP updates must demonstrate that progress has been made in the last five years to fulfill the commitments outlined in the previously approved MHMP. The updated MHMP may validate the information in the previously approved Plan or may be a major plan rewrite. The updated MHMP is not intended to be an annex to the previously approved Plan; it stands on its own as a complete and current MHMP.

The Jefferson County MHMP Update is a multi-jurisdictional planning effort led by the Jefferson County EMA. This Plan was prepared in partnership with Jefferson County and the City of Madison, and the Towns of Brooksburg, Dupont, and Hanover. Representatives from these communities attended the Committee meetings, provided valuable information about their community, reviewed, and commented on the draft MHMP, and assisted with local adoption of the approved Plan. As each of the jurisdictions had an equal opportunity for participation and representation in the planning process, the process used to update the Jefferson County MHMP satisfies the requirements of DMA 2000 in which multi-jurisdictional plans may be accepted.

Throughout this Plan, activities that could count toward Community Rating System (CRS) points are identified with the NFIP/CRS logo. The CRS is a voluntary incentive program that recognizes and encourages community floodplain activities that exceed the minimum NFIP requirements. As a result, flood insurance premiums are discounted to reflect the reduced flood risk resulting from community actions that meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote education and awareness of flood insurance. Savings in flood insurance premiums are proportional to the points assigned to various activities. A minimum of 500 points is necessary to enter the CRS program and receive a 5% flood insurance premium discount. This MHMP could contribute as many as 374 points toward participation in the CRS. At the time of this planning effort, none of the cities, towns, nor the county are participating in the CRS program.

Funding to update the MHMP was made available through a FEMA/DHS grant awarded to the Jefferson County EMA and administered by IDHS. Jefferson County provided the local 25% match required by the grant. Christopher B. Burke Engineering, LLC (Burke) was hired to facilitate the planning process and

prepare the Jefferson County MHMP under the direction of an American Institute of Certified Planners (AICP) certified planner.

1.3 ANALYSIS PROCESS

REQUIREMENT §201.6(c)(1):
The plan shall document the planning process used to prepare the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Preparation for the Jefferson County MHMP Update began in 2020, when the grant request was approved by FEMA and grant funds were awarded in 2021.

Once the grant was awarded, the planning process to update the 2017 MHMP took 18 months. This included a review period by IDHS and FEMA for the draft MHMP Update, and time for Jefferson County and communities to adopt the final MHMP Update.

1.3.1 Planning Committee

In July of 2021, the EMA began to compile a list of Planning Committee members to guide the MHMP update planning process. These individuals were specifically invited to serve on the Committee because they were knowledgeable of local hazards; have been involved in hazard mitigation; have the tools necessary to reduce the impact of future hazard events; and/or served as a representative on the prior Planning Committee in 2017. Clark, Scott, Jennings, Ripley, and Switzerland Counties in Indiana and Carroll and Trimble Counties in Kentucky were also given an opportunity to provide input and feedback to the plan. **Table 1** lists the individuals that actively participated on the Committee and the entity they represented.

Table 1: MHMP Update Committee

Name	Office	Representing
Sharon Stevens	Town of Brooksburg	Brooksburg
Blythe Couch	Jefferson County Health Department	County
Jennifer Scott	Jefferson County Emergency Management	County
Josh Cline	Surveyor's Office - Flood Administrator	County
Lindsey Wyne	Health Department	County
Matt True	Jefferson County Emergency Management	County
Mike Pittman	Surveyor's Office - Surveyor	County
Troy Morgan	Jefferson County Emergency Management	County
Judy Smith	Jefferson County Council	County
George Canfield	Dupont Fire Department	Dupont
Brian Schoettmer	NWS - Louisville KY	Federal Agency
Eric Carothers	NWS - Louisville KY - Student Volunteer	Federal Agency
Rachel Wynalda	NWS - Louisville KY - Student Volunteer	Federal Agency
Jim Hickerson	Hanover College Security Director	Hanover
Rick Schnebelt	Building Inspector and Floodplain Administrator	Hanover
Andrew Stark	Trimble County EMA Director	Kentucky
Ashley Schutte	Madison Community Schools	Madison

Name	Office	Representing
Ken Washer	Madison Fire Department Chief	Madison
Nicole Schell	City of Madison	Madison
Art Peters	Chief of Rykers Ridge Volunteer Fire Company	Madison
Bill Stevens	Texas Gas - Pipelines	Industry
Chad Renfro	Ivy Tech - Facilities	Industry
Scott Stevens	King's Daughter Hospital EMS	EMS/Madison
Shane Williams	Kings Daughters Hospital	EMS/Madison
Troy Hawkins	Jefferson County Sheriff Department	County

Members of the Committee participated in the MHMP Update as a Planning Committee member or through various other group meetings. During these meetings, the Committee:

- Revisited existing (in the 2017 MHMP) and identified new critical infrastructure and local hazards.
- Reviewed the State's mitigation goals and updated the local mitigation goals.
- Reviewed the most recent local hazard data, vulnerability assessment, and maps.
- Evaluated the effectiveness of existing mitigation measures and identified new mitigation projects.
- Reviewed materials for public participation.

A sign-in sheet recorded those present at each meeting to document participation. Meeting agendas and summaries are included in **Appendix 2**. Members of the Committee also reviewed a draft MHMP, provided comments and suggestions, and assisted with adoption of the Jefferson County MHMP Update.

1.3.2 Public Involvement

A draft of the Jefferson County MHMP Update was posted to the Jefferson County website (EMA Web page) for public review and comment. A media release indicating the posting of the draft MHMP and the ability to comment was submitted for publishing to *Madison Courier*. Committee members were provided with an informational flyer regarding the same information to display in their respective offices and to provide to family, friends, and colleagues. No comments or corrections were received from the public or the Committee. The media release, informational flyer, and any comments received are included in **Appendix 3**.

1.3.3 Involvement of Other Interested Parties

Neighboring EMAs (Clark, Jennings, Ripley Scott, and Switzerland Counties in Indiana, and Carroll, and Trimble Counties in Kentucky) were invited to review and comment on the MHMP update. Trimble County, KY EMA Director also participated in the planning meetings. Information related to the planning process and the availability of the draft Jefferson County MHMP was directly provided to representatives via personal conversations, informational flyer, and email correspondence. Successful implementation and future updates of the Jefferson County MHMP Update will rely on the partnership and coordination of efforts between such groups. No comments or corrections were received from the neighboring EMA offices.

1.4 PLANS, STUDIES, REPORTS, AND TECHNICAL INFORMATION

REQUIREMENT §201.6(c)(1):
The plan shall include a review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

During the development of the Jefferson County MHMP Update, several relevant sources of information were reviewed either as a document or through discussions with local personnel. This exercise was completed to gather updated information since the development of the previous Jefferson County MHMP, and to assist the Committee in developing potential mitigation measures to reduce the social, physical, and economic losses associated with hazards affecting Jefferson County.

For the purposes of this planning effort, the following materials (among others) were discussed and utilized:

- Jefferson County Planning and Zoning Ordinance 27 – Subdivisions, 2004
- Jefferson County MHMP, 2017
- Jefferson County Comprehensive Plan, 2021
- Jefferson County Floodplain Ordinance 28 – Zoning
- Jefferson County Floodplain Ordinance 28-6 - Flood Hazard Area
- Jefferson County GIS data, 2021
- Jefferson County LEPC Plan, 2022
- City of Madison Floodplain Ordinance, 2015
- City of Madison Zoning Ordinance, 2021
- City of Madison – "One Madison" Comprehensive Plan, 2016

The Jefferson County Building and Planning Department has authority over the unincorporated rural areas of Jefferson County as well as the Towns of Brooksburg and Dupont. The City of Madison and the Town of Hanover Building Departments have jurisdiction within the boundaries of their two communities.

In addition to local agencies and offices such as those listed above, several regional and state agencies were contacted and subsequently provided data for this planning effort. Those contacts, and the information they provided, include:

- Indiana Department of Natural Resources, Division of Water – *Flood insurance policies, claims, and payment information*
- Indiana Department of Natural Resources, Division of Water – *Dam records*
- FEMA, Region V – *Repetitive loss structure counts and payments.*

The CRS program credits NFIP communities a maximum of 170 points. Up to 15 points for organizing a planning committee composed of staff from various departments; up to 120 points for involving the public in the planning process; and up to 35 points for coordinating among other agencies and departments to resolve common problems relating to flooding and other known natural hazards.

CHAPTER 2: COMMUNITY INFORMATION

Although much of the information within this section is not required by DMA 2000, this section contains important background information about the physical, social, and economical composition of Jefferson County necessary to better understand the Risk Assessment discussed in **CHAPTER 3:.**

Jefferson County was formed on February 1, 1811, from Dearborn and Clark Counties. It was named for Thomas Jefferson, principal draftsman of the Northwest Ordinance and President of the United States from 1801 through 1809. Jefferson County was one of Indiana's first counties with Madison as one of the leading cities competing with Vincennes and later New Albany. The total area of Jefferson County is 362.89 square miles of which 360.63 square miles is land and 2.26 square miles is water. The county is divided into 10 townships. The City of Madison serves as the county seat. The Towns of Brooksburg, Dupont, and Hanover make up the remaining incorporated communities.

The City of Madison, located beside the Ohio River, was settled in 1809 and served as a link from the Ohio River to Indiana's interior and points beyond. Madison has a historic district composed of 133 city blocks and is one of the largest national historic landmark districts in the United States. Near the city is the former munitions testing facility of the Test and Evaluation Command of the United States Army Materiel Development and Readiness Command also known as Jefferson Proving Ground (JPG). The grounds were decommissioned and now serve as a wildlife refuge as well as a gunnery range. Big Oaks National Wildlife Refuge, the former JPG site, is a 50,000-acre wildlife refuge operated by the United States Fish and Wildlife Service. The location of the county within the State of Indiana is identified in **Figure 2.**

2.1 POPULATION AND DEMOGRAPHICS

Figure 2. Jefferson County Location

The US Census Bureau estimates that the 2021 population for Jefferson County was 33,141, which ranks 49 in the State. Since 2010 Jefferson County population has grown by 2.3%. This is slightly below the average of 4.9% for Indiana and much lower than the national growth rate of 7.3%. The County has been relatively stable with only 2.3% growth over the past 10 years, according to the US Census Bureau. As of July 1, 2021, the City of Madison accounts for 37.0% of the County's population with 12,266 people

In 2021, the median age of the population in the county was 41.8 years of age. The largest demographic age groups in the county are 45 to 64 (older Adult) 9,038 (27.3%); and Age 25 to 44 (Young Adult) 7,963 (24.0%). The third largest age group is the Seniors (65 and older) which make up 18.8% of the population with 6,222 people. The 5-to-17-year group (School Age) 4,896 (14.8%) lead the balance of the community and the younger age groups. They are followed 18 to 24 (College Age) 3,173 (9.6%); and last but not least the 0-4 (Preschool) category at 1,849 (5.6%). The approximate median household income in 2020 was reported to be 55,588 while the poverty rate in the same year was reported at 12.7% county-wide. In total, 2,051 (16.0%) of households are married with children, and 3,767 (29.4%) of households are married without children.

Within the county, 89.3% of the adults older than 25, have reportedly completed a High School education. Further, 17.3% of those same adults have also completed a Bachelor of Arts or higher degree.

2.2 EMPLOYMENT

US Census data indicate that of the Jefferson County workforce, 19.9% are employed in Other Private places of work. Manufacturing and Government account for 17.8% and 15.2% respectively. The total resident labor force according to estimates in 2020 is 14,891(with 469 unemployed) and as of September 1, 2022 unemployment rate of 2.1% which places Jefferson County as 38th of 92 counties in the State. **Table 2** lists the ten largest employers within Jefferson County as of 2020.

Table 2: List of Major Employers

King's Daughters' Hosp Cancer	Walmart Supercenter
King's Daughters' Health	Indiana Kentucky Electric
Arvin Sango Inc	Laser Command
Madison State Hospital	Hanover College
Madison Precision	Century Tube LLC

2.3 TRANSPORTATION AND COMMUTING PATTERNS

Several major transportation routes pass through Jefferson County and the municipalities within. US Highway 421, State Roads 56, 62, 250, 256, and 356 serve as main routes between the various municipalities. The City of Madison Railroad (CMPA) has a line that runs from Madison past Dupont to North Vernon where it joins an east west CSX railroad. These transportation routes are identified in **Figure 3.**

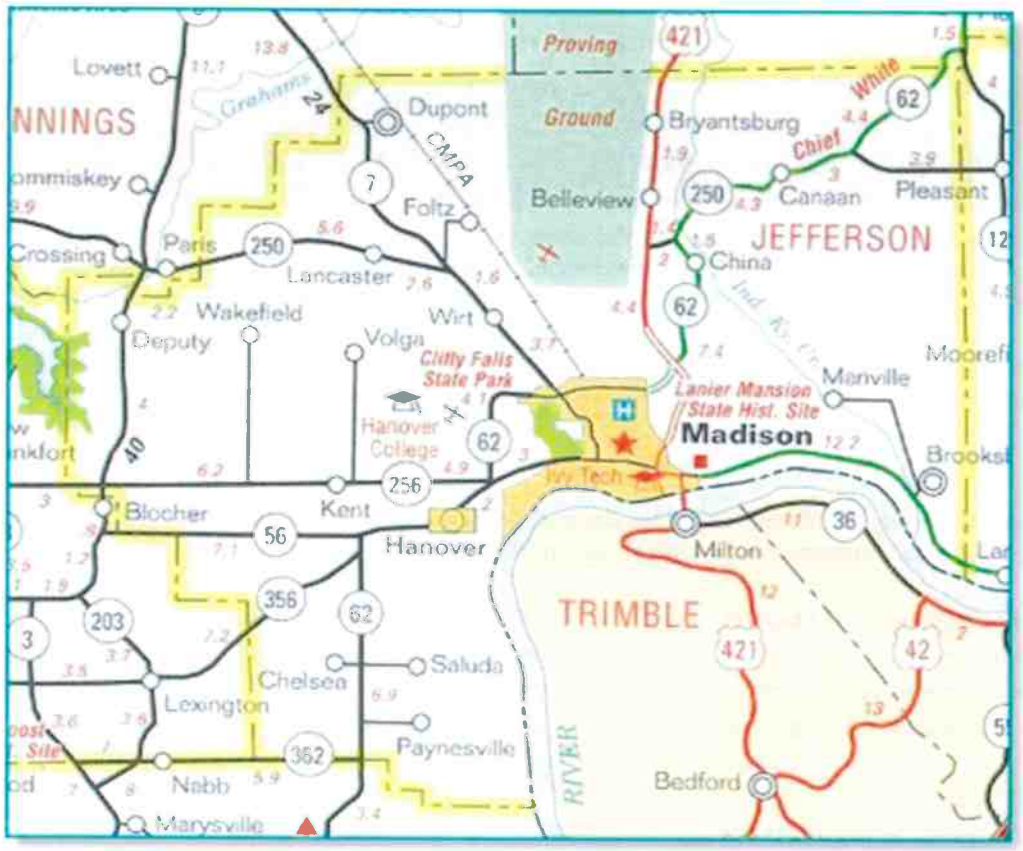


Figure 3. Jefferson County Transportation Routes

According to STATSIndiana, nearly 5,514 people commute into Jefferson County daily. Approximately 24.4% of commuters travel from Clark County with an additional 21.1% of commuters travelling from Kentucky. Further, approximately 3,234 Jefferson County residents commute to other counties, with the State of Kentucky having the greatest percentage of commuters from Jefferson County at 25.1% followed by Clark County Indiana with 16%.

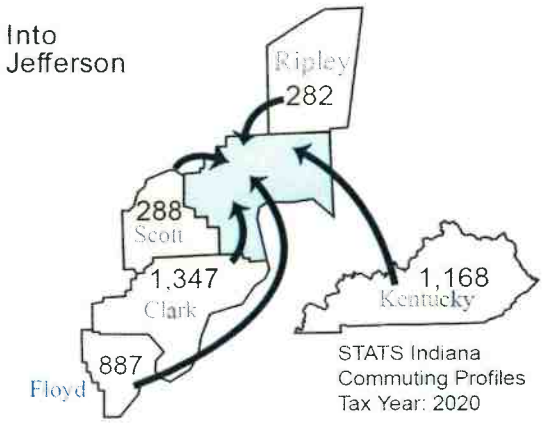


Figure 4. Commuters Into Jefferson County

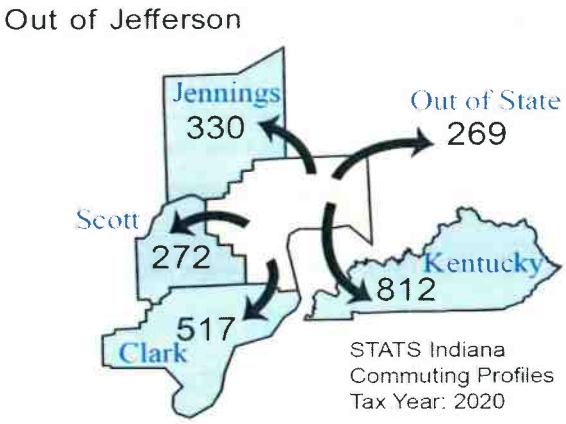


Figure 5. Commuters Out of Jefferson County

Figure 5 indicates the number of Jefferson County residents 16 and older who do not live within Jefferson County but commute into the County. Similarly, **Figure 4.** indicates the number of workers, 16 and older, who for employment purposes commute out of the county for employment.

2.4 CRITICAL AND NON-CRITICAL INFRASTRUCTURE

REQUIREMENT §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas....

Critical facilities, or critical infrastructure, are the assets, systems, and networks, whether physical or virtual, so vital to the local governments and the United States that their incapacitation or destruction would have a debilitating effect on security, economic security, public health or safety, or any combination thereof.

These structures are vital to the community's ability to provide essential services and protect life and property; are critical to the community's response and recovery activities; and/or are the facilities, the loss of which, would have a severe economic or catastrophic impact. The operation of these facilities becomes especially important following a hazard event.

The Jefferson County EMA and GIS Department Offices provided the listing and locations of the following 184 critical infrastructure points for the MHMP update:

- 2 Airports (1 active, 1 inactive)
- 76 Churches
- 4 Communication Facilities
- Community Gathering Places
- 9 Dams
- Daycares
- 1 Emergency Management Agency
- 16 Fire/EMS Stations
- 3 Government Facilities
- 18 Hazardous Materials Handlers (Tier II Facilities)
- 2 Jails
- 20 Large Employers
- Lift Stations
- 16 Medical Facilities
- 2 Military Installations
- 2 Mobile Home Communities

- 1 Natural Gas Facility
- Nursing Home (see Health Care)
- 3 Police Stations
- 12 Power Plants/Substations
- 5 Shelters
- 20 Schools
- 7 Water Towers
- 2 Wastewater Treatment Plants
- 4 Water Treatment Plants

Information provided by the EMA, County Surveyor's Office, and the MHMP Planning Committee members was utilized to identify the types and locations of critical structures throughout Jefferson County. Draft maps were provided to the Planning Department and EMA, along with the Planning Committee for their review and all comments were incorporated into the maps and associated databases.

Exhibit 1 illustrates the critical infrastructure identified throughout unincorporated Jefferson County and the individual municipalities. **Appendix 4** lists the critical structures in Jefferson County by community. Non-critical structures include residential, industrial, commercial, and other structures not meeting the definition of a critical facility and are not required for a community to function. The development of this MHMP focused only on critical structures; non-critical structures are neither mapped nor listed.

2.5 MAJOR WATERWAYS AND WATERSHEDS

According to the United States Geological Survey (USGS), there are 68 waterways in Jefferson County, which are listed in **Appendix 5**. The county's main waterways are the Muscatatuck River and its tributaries and the Ohio River. The county lies within two 8-digit Hydrologic Unit Code (HUC): Muscatatuck, and the Silver-Little Kentucky watersheds. These major waterways, and others, are identified on **Exhibit 2**. There are 3 USGS river gages located in Jefferson County. The first is located near Canaan on Indian-Kentuck Creek. The remaining two are located on the Muscatatuck River near Deputy, and at Clifty Creek on the Ohio River.

2.6 NFIP PARTICIPATION

The NFIP is a FEMA program that enables property owners in participating communities to purchase insurance protection against losses from flooding. Jefferson County and the City of Madison as well as the Towns of Brooksburg, Dupont and Hanover, participate in the NFIP. At the time of this planning effort, according to the Indiana Department of Natural Resources, the Jefferson County Planning Director is responsible for the administration of the floodplain program in the unincorporated areas of the County as well as the Towns of Brooksburg and Dupont. In the City of Madison, the Building and Planning Director is responsible for floodplain management and in the Town of Hanover the Building Inspector is the floodplain manager. **Table 3** lists the NFIP number, effective map date, and the date each community joined the NFIP program.

Table 3: NFIP Participation

NFIP Community	NFIP Number	Effective Map Date	Join Date
Jefferson County	180104A	4/2/2015	1/3/1975
City of Madison	180107A	4/2/2015	2/1/1974
Town of Brooksburg	180105A	4/2/2015	11/29/1974
Town of Dupont	180105A	4/2/2015(M)	11/29/1974
Town of Hanover	180326A	4/2/2015	2/1/1974

2.7 TOPOGRAPHY

Jefferson County's topography is based upon the Wabash-Ohio Divide. According to Professor Glenn Culbertson of Hanover College, all the streams to the east of the divide flow directly into the Ohio. They include Indian Kentuck and its leading tributaries. Since the divide, as at Hanover is only one and a half miles from the Ohio River, and at the farthest only twelve or fifteen miles, all these streams have a high gradient. Those with the shorter courses have deep ravines and picturesque falls, as Clifty, Deadman, Crowe, Butler, Chain Mill, and Hearts, over which the water plunges to the depth of from forty to a hundred feet . The streams of the Wabash side of the divide, largely tributaries of Big creek, whose waters flow into the Muscatatuck and then to the east fork of the White River, have a course approximately of 250 or 300 miles before reaching the level of the Ohio River. The slopes, therefore, of the westerly flowing streams are comparatively gentle. Much of the Wabash side of the divide has gently rolling terrain.

The highest elevation in Jefferson County is 970 ft., located near Cross Plains. The lowest elevation approximately 413 ft.is in the floodplain of the Ohio River.

2.8 CLIMATE

The Midwestern Regional Climate Center (MRCC) provided climate data that includes information retrieved from a weather station located Madison Sewage Plant, near Madison, Indiana, identified as station USC00125237. The average annual precipitation is 47.91 inches per year, with the wettest month being May with 5.33 inches of precipitation and the driest month being February with 3.08 inches of precipitation. The highest 1-day maximum precipitation was recorded on September 27, 2002, at 5.16. The highest 1-day maximum precipitation for the recent 5- year period was on July 30, 2020, with 3.68 inches of rain. On average, there are 83.0 days of precipitation greater than or equal to 0.1 inch; 33.0 days with greater than or equal to 0.5 inch; and 13.2 days with greater than or equal to 1.0 inch of precipitation.

Annual Average Temperature range from a minimum of 44.4 degrees to a maximum of 67.1 degrees. The coldest month based on NCEI normals for this station is January at a mean temperature of 32.4 degrees and the warmest is July with a mean temperature of 77.2 degrees.

Studies have recently been completed by the Indiana Climate Change Impacts Assessment, which is overseen by Purdue University Climate Change Research Center and comprised of a Steering Committee and several topic-oriented Working Groups. These studies indicate that average annual precipitation for Indiana is increasing seasonally during the winter and spring. Conversely, summers and autumns are trending toward less precipitation. In addition, their report shows changes in rain intensity and duration, along with frost-free days and growing seasons. These changes in climate, especially in Indiana, will impact natural hazards and how municipalities prepare for them.

Focusing on the more recent 5-year trends, according to the MRCC between January 1, 2017, and December 15, 2022, the average maximum temperature at the Madison Sewage Plant location was 60.7 degrees, 0.5 degrees warmer than the normal averages. Additionally, the average minimum temperature for the same five-year period was recorded at 43.4 degrees, two degrees warmer than the normal average. This resulted in an annual average mean temperature of 51.5 degrees as compared to the normal annual average mean temperature of 50.8 degrees. Overall, the past five years Jefferson County temperatures have been 0.7 degrees warmer on average.

CHAPTER 3: RISK ASSESSMENT

REQUIREMENT §201.6(c)(2):
[The risk assessment shall provide the] factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessment must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

A risk assessment measures the potential loss from a hazard incident by assessing the vulnerability of buildings, infrastructure, and people in a community. It identifies the characteristics and potential consequences of hazards, how much of the community may be affected by a hazard, and the impact on community assets. The risk assessment conducted for Jefferson County and the communities within is based on the methodology described in the Local Multi-Hazard Mitigation Planning Guidance published by FEMA in 2011 and is incorporated into the following sections:

Section 3.1: Hazard Identification lists the natural, technological, and political hazards selected by the Planning Committee as having the greatest direct and indirect impact to the county as well as the system used to rank and prioritize the hazards.

Section 3.2: Hazard Profile for each hazard, discusses 1) historic data relevant to the county where applicable; 2) vulnerability in terms of number and types of structures, repetitive loss properties (flood only), estimation of potential losses, and impact based on an analysis of development trends; and 3) the relationship to other hazards identified by the Planning Committee.

Section 3.3: Hazard Summary provides an overview of the risk assessment process; a table summarizing the relationship of the hazards; and a composite map to illustrate areas impacted by the hazards.

3.1 HAZARD IDENTIFICATION

3.1.1 Hazard Selection

The MHMP Planning Committee reviewed the list of natural and technological hazards in the 2017 Jefferson County MHMP, discussed recent events, and the potential for future hazard events. The Committee identified those hazards which affected Jefferson County and each community selecting the hazards to study in detail as part of this planning effort. As shown in Table 4, these hazards include dam failure; drought; earthquake; extreme temperature; fires and wildfire; flooding; hailstorms, thunderstorms, and windstorms; hazardous materials incident; land subsidence and landslides; snowstorms and ice storms; and tornado. All hazards studied within the 2017 Jefferson County MHMP are included in the update.

Table 4: Hazard Identification

Type of Hazard	List of Hazards	Detailed Study	
		2017 MHMP	MHMP UPDATE
Natural	Drought	Yes	Yes
	Earthquake	Yes	Yes
	Extreme Temperature	Yes	Yes
	Fires and Wildfire	Yes	Yes
	Flood	Yes	Yes
	Hail/Thunder/Wind	Yes	Yes
	Land Subsidence/Landslide	Yes	Yes
	Snow / Ice Storm	Yes	Yes
	Tornado	Yes	Yes
Technological	Dam Failure	Yes	Yes
	Hazardous Material Incident	Yes	Yes

3.1.2 Hazard Ranking

The Planning Committee ranked the selected hazards in terms of importance and potential for disruption to the community using a modified version of the Calculated Priority Risk Index (CPRI). The CPRI, adapted from MitigationPlan.com, is a tool by which individual hazards are evaluated and ranked according to an indexing system. The CPRI value (as modified by Burke) can be calculated by assigning varying degrees of risk probability, magnitude/severity, warning time, and the duration of the incident for each event, and then calculating as index value based on a weighted scheme. For ease of communications, simple graphical scales are used.

Probability

Probability is defined as the likelihood of the hazard occurring over a given period. The probability can be specified in one of the following categories:

- Unlikely – incident is possible, but not probable, within the next 10 years.
- Possible – incident is probable within the next five years.
- Likely - incident is probable within the next three years.
- Highly Likely – incident is probable within the next calendar year.

Magnitude / Severity

Magnitude/severity is defined by the extent of the injuries, shutdown of critical infrastructure, the extent of property damage sustained, and the duration of the incident response. The magnitude can be specified in one of the following categories:

- Negligible – few injuries OR critical infrastructure shutdown for 24 hours or less OR less than 10% property damaged OR average response duration of less than six hours.
- Limited – few injuries OR critical infrastructure shut down for more than one week OR more than 10% property damaged OR average response duration of less than one day.
- Significant – multiple injuries OR critical infrastructure shut down of at least two weeks OR more than 25% property damaged OR average response duration of less than one week.
- Critical – multiple deaths OR critical infrastructure shut down of one month or more OR more than 50% property damaged OR average response duration of less than one month.

Warning Time

Warning time is defined as the length of time before the event occurs and can be specified in one of the following categories:

- More than 24 hours
- 12-24 hours
- 6-12 hours
- Less than six hours

Duration

Duration is defined as the length of time that the actual event occurs. This does not include response or recovery efforts. The duration of the event can be specified in one of the following categories:

- Less than six hours
- Less than one day
- Less than one week
- Greater than one week

Calculating the CPRI

The following calculation illustrates how the index values are weighted and how the CPRI value is calculated. CPRI = Probability x 0.45 + Magnitude/Severity x 0.30 + Warning Time x 0.15 + Duration x 0.10. For the purposes of this planning effort, the calculated risk is defined as:

- **Low** if the CPRI value is between 1 and 2.
- **Elevated** if the CPRI value is between 2 and 3.
- **Severe** if the CPRI value is between 3 and 4

The CPRI value provides a means to assess the impact of one hazard relative to other hazards within the community. A CPRI value for each hazard was determined for each incorporated community in Jefferson County, and then a weighted CPRI value was computed based on the population size of each community. **Table 5** presents each community, population, and the weight applied to individual CPRI values to arrive at a combined value for the entire county. Weight was calculated based on the average percentage of each community's population in relation to the total population of the county. Thus, the results reflect the relative population influence of each community on the overall priority rank.

Table 5: Determination of Weighted Value for Communities

Community	Population (2020)	% of Total Population	Weighted Value
Jefferson County	16,820	50.8%	0.508
City of Madison	12,266	37.0%	0.370
Town of Hanover	3,635	11.0%	0.110
Town of Dupont	348	1.1%	0.011
Town of Brooksburg	72	0.2%	0.002
Total	33,141	100.0%	1.000

3.2 HAZARD PROFILES

The hazards studied for this report are not equally threatening to all communities throughout Jefferson County. While it would be difficult to predict the probability of an earthquake or tornado affecting a specific community, it is much easier to predict where the most damage would occur in a known hazard area such as a floodplain or near a facility utilizing an Extremely Hazardous Substance (EHS). The magnitude and severity of the same hazard may cause varying levels of damages in different communities.

This section describes each of the hazards that were identified by the Planning Committee for detailed study as a part of this MHMP Update. The discussion is divided into the following subsections:

- **Hazard Overview** provides a general overview of the causes, effects, and characteristics that the hazard represents.
- **Historic Data** presents the research gathered from local and national courses on the hazard extent and lists historic occurrences and probability of future incident occurrence.
- **Assessing Vulnerability** describes, in general terms, the current exposure, or risk, to the community regarding potential losses to critical infrastructure and the implications to future land use decisions and anticipated development trends.
- **Relationship to Other Hazards** explores the influence one hazard may have upon another hazard.

3.2.1 Drought

Overview

Drought, in general, means a moisture deficit extensive enough to have social, environmental, or economic effects. Drought is not a rare and random climate incident; rather, it is a normal, naturally recurring feature of climate. Drought may occur in virtually all climactic zones, but its characteristics vary significantly from one region to another. Drought is a temporary aberration and is different from aridity, which is restricted to low rainfall regions.

Figure 6. Urban Grass Affected by Drought

There are four academic approaches to examining droughts; these are meteorological, hydrological, agricultural, and socio-economic. Meteorological drought is based on the degree, or measure, of dryness compared to a normal, or average amount of dryness, and the duration of the dry period. Hydrological drought is associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply. Agricultural drought is related to agricultural impacts; and focuses on precipitation shortages, differences between actual and potential evapo-transpiration, soil water deficits, reduced ground water or reservoir levels, and crop yields. Socioeconomic drought relates the lack of moisture to community functions in the full range of societal functions, including power generation, the local economy, and food source. **Figure 6** shows urban grassed areas affected by drought conditions.

Recent Occurrences

Data gathered from the U.S. Drought Monitor indicated that between January 1, 2017 – December 31, 2022, there were 38 weeks where some portions of Jefferson County was in "Abnormally Dry" or D0. According to the Drought Monitor, there were 18 weeks at D1 "Moderate Drought" and only 1 week within that period where any portion of Jefferson County was D2 "Severe Drought". Between August 6, 2019 and October 29, 2019, portions of the county ranged from "Abnormally Dry" to "Severe Drought". As of October 13, 2019, USDA/NASS records showed crop conditions rated poor or very poor surpassed 25% for corn and soybeans in Indiana. **Figure 7**, from the U.S. Drought Monitor, describes the rationale to classify the severity of droughts.

The National Climate Data Center (NCDC) does not report any events nor property or crop losses within Jefferson County during this planning period. During discussions with the Planning Committee, effects from the drought were highlighted.

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought • short-term dryness slowing planting, growth of crops or pastures Coming out of drought • some lingering water deficits • pastures or crops not fully recovered
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restrictions imposed
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions
D4	Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies

Figure 7. Drought Monitor Drought Classification

The Planning Committee, utilizing the CPRI, determined the overall risk of drought throughout Jefferson County is "Elevated." The impact of drought was determined to be the same for all communities and unincorporated area throughout the county due to the possible agricultural impacts and impacts to water wells. The committee agreed that a drought is "Possible" (to occur within the next three years) and the magnitude of drought is anticipated to be "Limited" to "Significant." Further it is anticipated that with the enhanced weather forecasting abilities, the warning time for a drought is greater than 24 hours and the duration will be greater than one week. A summary is shown in **Table 6.**

Table 6: CPRI for Drought

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Possible	Significant	> 24 hours	> 1 week	Elevated
City of Madison	Possible	Limited	> 24 hours	> 1 week	Elevated
Town of Hanover	Possible	Limited	> 24 hours	> 1 week	Elevated
Town of Dupont	Possible	Limited	> 24 hours	> 1 week	Elevated
Town of Brooksburg	Possible	Limited	> 24 hours	> 1 week	Elevated

According to the National Drought Mitigation Center, scientists have difficulty predicting droughts more than one month in advance due to the numerous variables such as precipitation, temperature, soil moisture, topography, and air-sea interactions. Further anomalies may also enter the equation and create more dramatic droughts or lessen the severity of droughts. Based on the previous occurrences of significant droughts and drought related impacts felt within Jefferson County, the Committee estimated that the probability of a drought occurring in the area is "Possible" or occurrence is probable within the next three to five years. "Limited" to "Significant" damages are anticipated throughout the county as the municipalities rely on groundwater and surface water supplies for fire response efforts and face a higher risk during times of prolonged drought. Businesses and industry that rely upon water for their processes and products would be impacted by water limitations within the cities and towns.

Throughout the unincorporated areas of the county, increased crop and livestock damages would also be expected during a significant drought. In addition, the long-term stress on the forested land could result in additional tree deaths and debris during subsequent high wind events.

Assessing Vulnerability

This type of hazard will generally affect entire counties and even multi-county regions at one time. Within Jefferson County, direct and indirect effects from a long period of drought may include:

Direct Effects:

- Urban and developed areas may experience revenue losses from decreased tourism, landscaping companies, golf courses, restrictions on industry cooling and processing demands, reduced incomes for businesses dependent on crop yields, and increased potential for fires.
- Rural areas within the county may experience revenue losses from reductions in decreased livestock and crop yields as well as increased incidence of field fires.
- Citizens served by drinking water wells or surface water supplies may be impacted during low water periods and may require drilling of deeper wells or loss of water service for a period of time.

Indirect Effects:

- Loss of income of employees from businesses and industry affected; loss of revenue to support services (food service, suppliers, etc.)
- Loss of revenue from recreational or tourism sectors associated with streams, and other open water venues.
- Lower yields from domestic gardens increasing the demand on purchasing produce and increased domestic water usage for landscaping.
- Increased demand on emergency responders and firefighting resources

Estimating Potential Losses

Figure 8. Drought Effects on Corn Crop

It is difficult to estimate the potential losses associated with a drought for Jefferson County because of the nature and complexity of this hazard and the limited data on past occurrences. However, for the purpose of this MHMP update, a scenario was used to estimate the potential crop loss and associated revenue lost due to a drought similar to that experienced during the drought of record from 1988. In 2021, Jefferson County produced approximately 3.47M bushels of corn and 1.9M bushels of soybeans, as reported by the United States Department of Agriculture (USDA) National Agricultural Statistics Service. Using national averages of $6.10 per bushel of corn and $14.40 per bushel of soybeans, the estimated crop receipts for 2021 would be $48.53M. Using the range of crop yield decreases reported in 1988 and 1989, just after the 1988 drought period (50%-86%) and assuming a typical year,

economic losses could range between $24.26M-$41.74M; depending on the crop produced and the market demand. Effects of drought on corn crops can be seen in **Figure 8.**

Purdue Agriculture News reports that as of March 2013, Indiana producers received more than $1.0B in crop insurance payments for 2012 corn, soybean, and wheat losses. This amount is nearly double that of the previous record, $522M following 2008 losses, also due to drought. These losses are still considered to be record-setting in terms of drought effects, damages, and costs for Indiana. In comparison, in 2020 Indiana received $56.21M in crop insurance from the drought and weather-related events.

According to a July 5, 2012, article in The Times (Noblesville, IN), "The effects of drought also could touch agricultural businesses, such as handlers and processors, equipment dealers, and see, fertilizer and pesticide providers." Additional losses associated with a prolonged drought are more difficult to quantify. Drought has lasting impacts on urban trees: death to all or portions of a tree, reduction in the tree's ability to withstand insects and diseases, and interruption of normal growth patterns. Such effects on trees, especially urban trees can lead to additional impacts, both environmentally and monetarily in terms of the spread of Emerald Ash Borer insect and the weakening of tree limbs and trunks which may lead to increased damages during other hazard events such as wind and ice storms.

Future Considerations

Advancements in plant hybrids and development have eased the impacts from short-lived droughts. Seeds and plants may be more tolerant of drier seasons and therefore fewer crop losses may be experienced.

As the municipal areas of the county continue to grow and expand, protocols may need to be developed which create a consistency throughout the communities and the unincorporated portions of the county for burn bans and water usage advisories.

According to the Indiana Climate Change Impacts Assessment, Indiana has experienced a rise in the average annual precipitation between 1895 and 2016; an increase of 3.3inches for the area of Jefferson County. This increase in precipitation may lessen the likelihood or overall impact of a long-term drought in Jefferson County. However, the assessment also notes seasonal shifts in precipitation which may lead to seasonal short-term droughts. In either scenario, changes in precipitation are not anticipated to relieve the area of a probability of a drought occurring.

Prior to municipalities expanding, provisions and considerations should be given regarding the potential additional demand for both water usage and fire response efforts. Following such expansion or development plans, alternative water sources should be explored. Since the previous MHMP was prepared, large scale and significant development has not occurred throughout the county. The majority of Jefferson County remains largely unincorporated and rural in nature.

Relationship to Other Hazards

Discussions with the Planning Committee were held regarding the similar effects of prolonged periods of extreme heat and the similar impacts that may be experienced during these times. Planning and mitigation efforts for one hazard may benefit the other. It is anticipated that rural areas of the county may be more susceptible to brush and rangeland or woodland fires during a drought, while urban areas may experience these impacts in areas where several abandoned buildings or overgrown lots exist, and this may lead to increased losses associated with a fire.

3.2.2 Earthquake

Overview

An earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the earth as the huge plates that form the earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free, causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of the plates.

Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, fires, and huge destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil, and trailers and homes not tied to their foundations are at risk because they can move off their mountings during an earthquake. When an earthquake occurs in a populated area, it may cause deaths, injuries, and extensive property damage.

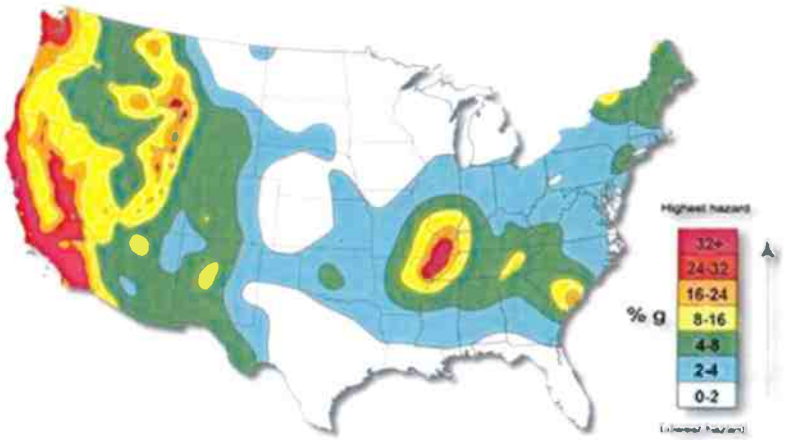


Figure 9. Earthquake Risk Areas in the US

Earthquakes strike suddenly, without warning. Earthquakes can occur at any time of the year and at any time of the day or night. On a yearly basis, 70-75 damaging earthquakes occur throughout the world. Estimates of losses from a future earthquake in the United States approach $200B.

One method of measuring the magnitude or energy of an earthquake is the Richter Scale. This scale uses whole numbers and decimal fractions whereby each increase of a whole number represents a release of 31 times more energy than the amount associated with the previous whole number on the scale. Scientists are currently studying the New Madrid fault area and have predicted that the chances of an earthquake in the M8.0 range occurring within the next 50 years are approximately 7%-10%. However, the chances of an earthquake at a M6.0 or greater, are at 90% within the next 50 years.

There are 45 states and territories in the United States at moderate to very high risk from an earthquake, and they are located in every region of the county (**Figure 9**). California experiences the most frequent damaging earthquakes; however, Alaska experiences the greatest number of large earthquakes – most located in uninhabited areas. The largest earthquakes felt in the United States were along the New Madrid Fault in Missouri, where a three-month long series of quakes from 1811 to 1812 occurred over the entire Eastern United States, with Missouri, Tennessee, Kentucky, Indiana, Illinois, Ohio, Alabama, Arkansas, and Mississippi experiencing the strongest ground shaking. Several smaller historic faults are located throughout the state of Indiana. Additionally, some soils in Indiana are highly susceptible to liquefaction during earthquake conditions. Two such areas of soils exist in Jefferson County along and

west of US 421 as well as the areas near Hanover. **Figure 10**. shows the liquefaction potential of surface materials. According to the US Geological Survey, "Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes."

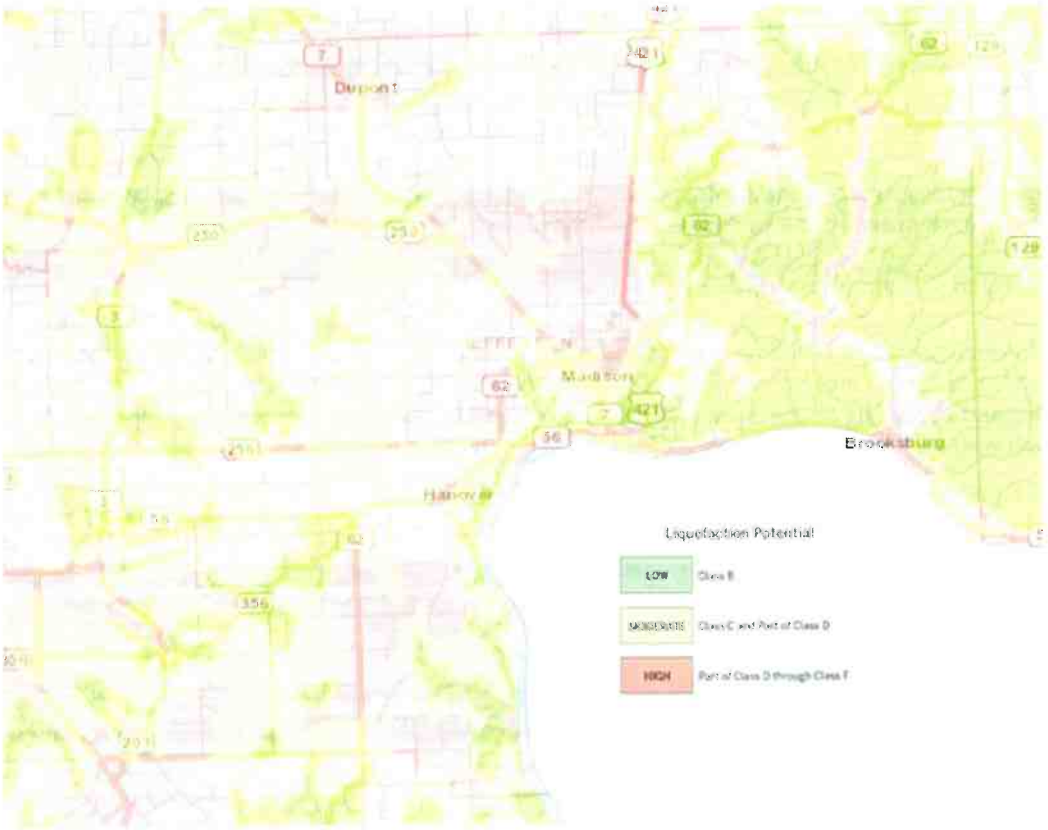


Figure 10. Liquefaction Potential of Surficial Materials

Recent Occurrences

Indiana, as well as several other Midwestern states, lies in the most seismically active region east of the Rocky Mountains. Regarding Jefferson County, the nearest areas of concern are the Anna Fault, Wabash Seismic Zone, and the New Madrid Fault Zone.

On June 17, 2021, an earthquake centered near Bloomingdale, Indiana in Parke County was felt as far north as Chicago, Illinois and as far east as Cincinnati, Ohio. With a magnitude of 3.8 several localized reports included descriptions of shaking buildings and feelings of tremors. No injuries or severe damages were reported due to this incident. As reported by the NBC 5 Chicago, "Once the earthquake was confirmed, officials said the 9-1-1 phone line "started ringing immediately."" Before this event, the last earthquake to be felt in Indiana was a magnitude 5.1 centered in Sparta, North Carolina, and the last event to actually occur within the state was a magnitude 2.3 earthquake centered in Haubstadt, IN on May 28, 2015. No injuries or damages were reported with either of these events.

On December 30, 2010, central Indiana experienced an earthquake with a magnitude of 3.8; rare for this area in Indiana as it is only the 3rd earthquake of notable size to occur north of Indianapolis. Even rarer is the fact that scientists believe that the quake was centered in Greentown, Indiana approximately 13 miles southeast of Kokomo, Indiana. According to The Kokomo Tribune, "113 people called 911

in a 15-minute period after the quake, which was the first tremblor centered in Indiana since 2004". Further, a geophysicist from the USGS in Colorado stated, "It was considered a minor earthquake," and "Maybe some things would be knocked off shelves, but as far as some significant damage, you probably wouldn't expect it from a 3.8."

Figure 11. Earthquake Damaged Front Porch

A M5.8 centered in Mineral, Virginia affected much of the East Coast on August 23, 2011. According to USA Today, 10 nuclear power plants were shutdown of precautionary inspections following the quake, over 400 flights were delayed, and the Washington Monument was closed indefinitely pending detailed inspections by engineers.

Based on historical earthquake data, local knowledge of previous earthquakes, results of HAZUS-MH scenarios, and that Jefferson County has not been directly impacted by an earthquake, the Committee determined that the probability of an earthquake occurring in Jefferson County or any of the communities is "Unlikely." Should an earthquake occur, the impacts associated with this hazard are anticipated to be "Limited" in all the unincorporated areas of the county and "Limited" to "Critical" for the incorporated cities and towns due to the historic nature of the structures and the population density. As with all earthquakes, it was determined that the residents of Jefferson County would have little to no warning time (less than six hours) and that the duration of the event would be expected to also be less than one week. A summary is shown in **Table 7**.

Table 7: CPRI for Earthquake

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Unlikely	Limited	< 6 hours	< 1 week	Low
City of Madison	Unlikely	Critical	< 6 hours	< 1 week	Elevated
Town of Hanover	Unlikely	Limited	< 6 hours	< 1 week	Low
Town of Dupont	Unlikely	Significant	< 6 hours	< 1 week	Elevated
Town of Brooksburg	Unlikely	Critical	< 6 hours	< 1 week	Elevated

Per the Ohio Department of Natural Resources Division of Geological Survey, "…it is difficult to predict the maximum-size earthquake that could occur in the state and certainly impossible to predict when such an event would occur. In part, the size of an earthquake is a function of the area of a fault available for rupture. However, because all known earthquake-generating faults in Ohio are concealed beneath several thousand feet of Paleozoic sedimentary rock, it is difficult to directly determine the size of these faults." Further according to the Indiana Geological Survey, "…no one can say with any certainty when or if an earthquake strong enough to cause significant property damage, injury, or loss of life in Indiana will occur…we do indeed face the possibility of experiencing the potentially devastating effects of a major earthquake at some point in the future." The Committee felt that an earthquake occurring within or near to Jefferson County is "Unlikely" to occur within the next five years.

Assessing Vulnerability

Earthquakes generally affect broad areas and potentially many counties at one time. Within Jefferson County, direct and indirect effects from an earthquake may include:

Direct Effects:

- Urban areas may experience more damages due to the number of structures, the multi-story nature of the structures and critical infrastructure located in these areas.
- Rural areas may experience losses associated with agricultural structures such as barns and silos.
- Bridges, buried utilities, and other infrastructure may be affected throughout the county and municipalities.

Figure 12. Minor Earthquake Damages

Indirect Effects:

- Provide emergency response personnel to assist in the areas with more damage.
- Provide shelter for residents of areas with more damage.
- Delays in delivery of goods or services originating from areas more affected by the earthquake.

Types of loss caused by an earthquake could be physical, economic, or social in nature. Due to the unpredictability and broad impact regions associated with an earthquake, all critical and non-critical infrastructure are at risk of experiencing earthquake related damages. Damages to structures, infrastructure, and even business interruptions can be expected following an earthquake. Examples of varying degrees of damages are shown in **Figure 11** and Error! Reference source not found.

Estimating Potential Losses

To determine the losses associated with an earthquake, the HAZUS-MH software was utilized in the Jefferson County MHMP update to determine the potential impacts anticipated from an arbitrary earthquake scenario. This scenario placed a magnitude 5.0 within Jefferson County located in the center of the county. This type of modeling is useful for planning efforts such as this.

The HAZUS-MH model computes anticipated economic losses for the hypothetical earthquake due to direct building losses and business interruption losses. Direct building losses are the costs to repair or to replace the damage caused to the building and contents, while the interruption losses are associated with the inability to operate a business due to the damage sustained. Business interruption losses also include the temporary living expenses for those people displaced from their homes.

Per the HAZUS-MH scenario noted above, total economic losses are anticipated to be near $265M with moderate damages to approximately 1,970 buildings (12% of the buildings in the county), of which 69 are anticipated to be damaged beyond repair. Further, there are 37 critical facilities (2 hospitals, 17 schools, 1 EOC, 3 Police Stations, and 14 Fire Stations), 38 highway segments along with 151 bridges, 31 segments of railway as well as 12 railway bridges, 7 ports and 2 airport runways would have reduced functionality on day 1. 3 ports and the airport facilities would have at least moderate damage. The utilities are anticipated to have at least 1 wastewater facility, 1 electric power facility and

3 communications facilities with reduced functionality after day 1. Approximately 92,000 tons of debris would need to be removed from the area requiring 3,680 dump trucks. 157 households are expected to be displaced following the event with 90 residents seeking assistance with shelter.

The HAZUS-MH Earthquake Model allows local building data to be imported into the analysis. However, these local data are imported as "general building stock," meaning that the points are assigned to a census tract rather than a specific XY coordinate. HAZUS performs the damage analysis as a county wide analysis and reports losses by census tract. While the results of the hypothetical scenario appear to be plausible, care should be taken when interpreting these results.

Future Considerations

While the occurrence of an earthquake in or near to Jefferson County may not be the highest priority hazard studied for the development of the plan, it is possible that residents, business owners, and visitors may be affected should an earthquake occur anywhere within the state. For that reason, Jefferson County should continue to provide education and outreach regarding earthquakes and even earthquake insurance along with education and outreach for other hazards. As Jefferson County and the communities within the county grow and develop, the proper considerations for the potential of an earthquake to occur may help to mitigate against social, physical, or economic losses in the future.

It can be anticipated that while all structures in Jefferson County will remain at-risk to earthquake damages and effects, new construction or redevelopment may reduce the overall risks. As redevelopment or growth occurs, the new construction may be significantly sturdier. Further, as blighted or abandoned areas are addressed, those communities and the county as a whole, are less susceptible to economic and physical damage associated with earthquakes. Since the last planning effort, no significant development has occurred within the county.

Relationship to Other Hazards

Hazardous materials incidents may occur as a result of damage to material storage containers or transportation vehicles involved in road crashes or train derailments. Further, dam failures or landslides may occur following an earthquake or associated aftershocks due to the shifting of the soils in these hazard areas. These types of related hazards may have greater impacts on Jefferson County communities than the earthquake itself. It is not expected that earthquakes will be caused by other hazards studied within this plan.

3.2.3 Extreme Temperature

Overview

Extreme Heat

Extreme heat is defined as a temporary elevation of average daily temperatures that hover 10 degrees or more above the average high temperature for the region for the duration of several weeks. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a dome of high atmospheric pressure traps water-laden air near the ground. In a normal year, approximately 175 Americans die from extreme heat.

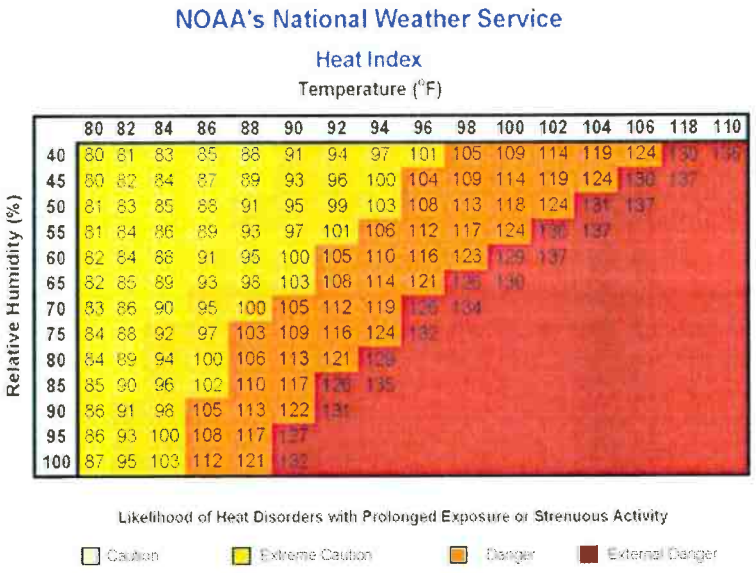


Figure 13. Heat Index Chart

According to the NWS, "The Heat Index or the "Apparent Temperature" is an accurate measure of how hot it really feels when the Relative Humidity is added to the actual air temperature." To find the Heat Index Temperature, refer to the Heat Index Chart in **Figure 13**. As an example, if the air temperature is 96°F and the relative humidity is 65%, the heat index – how hot it feels – is 121°F. The Weather Service will initiate alert procedures when the Heat Index is expected to exceed 105°-110°F for at least two consecutive days.

It is important to also note that these heat index values were devised for shady, light wind conditions. Exposure to full sunshine may increase heat index values by up to 15°F. Further, strong winds, particularly with very hot, dry air, can also be extremely hazardous.

As **Figure 14** indicates, there are four cautionary categories associated with varying heat index temperatures. Each category provides a heat index range along with effects on the human body. People with underlying health issues, the very old or very young may

Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

Figure 14. Extreme Heat Effects by Heat Index

be impacted at lower temperatures since their systems are less likely to be able to compensate for the heat and humidity.

Extreme Cold

Figure 15. Ice on Log in the Ohio River

Extreme cold is defined as a temporary, yet sustained, period of extremely low temperatures. Extremely low temperatures can occur in winter months when continental surface temperatures are at their lowest point and the North American Jet Stream pulls arctic air down into the continental United States. The jet stream is a current of fast-moving air found in the upper levels of the atmosphere. This rapid current is typically thousands of kilometers long, a few hundred kilometers wide, and only a few kilometers thick. Jet streams are usually found somewhere between 10-15 km (6-9 miles) above the Earth's surface. The position of this upper-level jet stream denotes the location of the strongest surface temperature contrast over the continent. The jet stream winds are strongest during the winter months when continental temperature extremes are greatest. When the jet stream pulls arctic cold air masses over portions of the United States, temperatures can drop below 0° F for one week or more. Sustained extreme cold poses a physical danger to all individuals in a community and can affect infrastructure function as well. **Figure 15** shows the accumulation of ice on a log during a recent extreme cold event along the Ohio River.

The HAZUS-MH model computes anticipated economic losses for the hypothetical earthquake due to direct building losses and business interruption losses. Direct building losses are the costs to repair or to replace the damage caused to the building and contents, while the interruption losses are associated with the inability to operate a business due to the damage sustained. Business interruption losses also include the temporary living expenses for those people displaced from their homes. In addition to strictly cold temperatures, the wind chill temperature must also be considered when planning for extreme temperatures. The wind chill temperature, according to the NWS, is how cold people and animals feel when outside and it is based on the rate of heat loss from exposed skin. **Figure 16** identifies the Wind Chill Chart and how the same ambient temperature may feel vastly different in varying wind speeds.

Wind chill is a guide to winter danger

New wind chill chart

Frostbite occurs in 15 minutes or less

Wind (MPH) \ Temperature (°F)	30	25	20	15	10	5	0	-5	-10	-15	-10	-25
5	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40
10	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47
15	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51
20	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55
25	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58
30	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60
35	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62
40	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64
45	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65
50	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67
55	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68
60	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69

Figure 16. NWS Wind Chill Chart

Recent Occurrences

The effects of extreme temperatures extend across large regions, typically affecting several counties, or states, during a single event. According to the NCDC, there have been no extreme heat event or extreme cold events between January 1, 2017 and December 31, 2022. Local reports did not provide any additional information regarding a period of excessive heat during this time. However, the National Weather Service reported "A highly unusual cold front brought an Arctic blast into the Ohio Valley (and much of the central and eastern U.S., all the way to the Gulf of Mexico). Temperatures crashed over 50 degrees in 12 hours, bottoming out below zero on the morning of December 23rd. Gusty winds resulted in wind chills of 30 degrees below zero" on December 23, 2022. No additional reports were provided relevant to damages or losses associated with the prolonged cold temperatures. Committee members have indicated that they have not necessarily felt there are great number of extreme temperatures in July and August, but rather that the extremely hotter days are also more frequent in June in the recent years. They also noted that people tend to check on one another when extreme cold spells occur but tend not to do so when it is extremely hot.

It is difficult to predict the probability that an extreme temperature event will affect Jefferson County residents within any given year. However, based on historic knowledge and information provided by the community representatives, an extreme temperature event is "Possible" (event is possible within the next 5 years) to occur and if an event did occur, it would result in "Limited" to "Significant" magnitude. **Table 8** identifies the CPRI for extreme temperatures-both heat and cold events for all communities in Jefferson County.

Table 8: CPRI for Extreme Temperatures

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Possible	Limited	> 24 hours	< 1 week	Low
City of Madison	Possible	Limited	> 24 hours	< 1 week	Low
Town of Hanover	Possible	Limited	> 24 hours	< 1 week	Low
Town of Dupont	Possible	Limited	> 24 hours	< 1 week	Low
Town of Brooksburg	Possible	Significant	> 24 hours	< 1 week	Elevated

As shown in the table, index values are increased within the unincorporated areas of Jefferson County due to the dispersed population and access to critical infrastructure potentially impacted by the extreme temperatures. The anticipation of experiencing "Significant" damages within the Town of Brooksburg is due to the number of the number of homes without access to air conditioning or reliable heat and transportation.

Assessing Vulnerability

As noted above, this type of hazard will generally affect entire counties and even multi-county regions at one time; however, certain portions of the population may be more vulnerable to extreme temperatures. For example, outdoor laborers, very young and very old populations, low-income populations, and those in poor physical condition are at an increased risk to be impacted during these conditions.

By assessing the demographics of Jefferson County, a better understanding of the relative risk that extreme temperatures may pose to certain populations can be gained. In total, just over 18.8% of the county's population is over 65 years of age, 5.6% of the population is below the age of 5, and approximately 12.7% of the population is considered to be living below the poverty line. People within

these demographic categories are more susceptible to social or health related impacts associated with extreme heat.

Extreme heat can affect the proper function of organ and brain systems by elevating core body temperatures above normal levels. Elevated core body temperatures, usually in excess of 104°F are often exhibited as heat stroke. For weaker individuals, an overheated core body temperature places additional stress on the body, and without proper hydration, the normal mechanisms for dealing with heat, such as sweating in order to cool down, are ineffective. Examples of danger levels associated with prolonged heat exposure are identified in **Figure 17**.

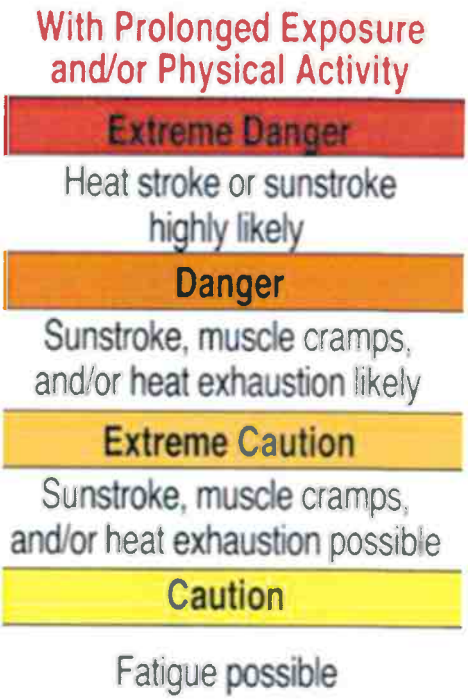


Figure 17. Danger Levels with Prolonged Heat Exposure

Extreme cold may result in similar situations as body functions are impacted as the temperature of the body is reduced. Prolonged exposure to cold may result in hypothermia, frostbite, and even death if the body is not warmed.

Within Jefferson County, direct and indirect effects from a long period of extreme temperature may include:

Direct Effects:

Direct effects are primarily associated with health risks to the elderly, infants, people with chronic medical disorders, lower income families, outdoor workers, and athletes. Health risks can range from heat exhaustion or mild hypothermia due to cold to heat stroke, amputations due to frost bite or severe hypothermia due to the cold or death due to either extreme temperature events.

Indirect Effects:

- Increased need for cooling or warming shelters.
- Increased medical emergency response efforts.
- Increased energy demands for heating or cooling.
- Increased number of structure fires due to improper use of alternative heating equipment

Estimating Potential Losses

It is difficult to estimate the potential losses due to extreme temperatures as damages are not typically associated with buildings but instead, with populations and persons.

This hazard is not typically as damaging to structures or critical infrastructure as it is to populations so monetary damages associated with the direct effects of the extreme temperature are not possible to estimate accurately. Indirect effects would cause increased expenses to facilities such as manufacturing facilities where temperatures are normally elevated may need to alter work hours or experience loss of revenue if forced to limit production during the heat of the day. Energy suppliers may experience demand peaks during the hottest and/or coldest portions of the day. Healthcare facilities and/or emergency services may experience higher demands for services, increased calls and impacts upon the staff due to the elevated temperatures. With extreme cold indirect effects include frozen pipes.

Freezing pipes not only results in loss of access to water for industrial processes, personal hygiene, sanitation and hydration of livestock and people, but also results in extensive damages due to pipes rupturing resulting flooding of the interior of the structures and loss of fire protection in commercial structures. Additional cascading impacts from this damage results closure or limited us of the facilities for repairs resulting in loss of revenue.

Future Considerations

As more and more citizens are experiencing economic difficulties, local power suppliers along with charitable organizations have implemented programs to provide cooling and heating mechanisms to residents in need. Often, these programs are donation driven and the need for such assistance must be demonstrated. As susceptible populations increase, or as local economies are stressed, such programs may become more necessary to protect Jefferson County's at-risk populations.

The Climate Change Assessment identifies several temperature related considerations of which communities should be aware and begin planning to avoid further impacts. For example, rising temperatures will increase the number of extreme heat days, thereby increasing the potential for heat related illnesses, potential hospitalizations, and medication costs to vulnerable populations. In addition, added days of extreme heat will impact agriculture, manufacturing, and potentially, water sources. To address the challenges of extreme heat community leaders may choose to examine the distribution of shade trees in urban areas.

New construction associated with development of residential areas often brings upgraded and more efficient utilities such as central heating and air units further reducing vulnerabilities to the aging populations in those municipalities mentioned above. Conversely, new development associated with industrial or large commercial structures in the inner-urban centers often result in increased heat over time, which may cause additional stress to labor-related populations. Since the last planning effort, there has not been significant residential and commercial development within the county.

Extreme Temperatures: Relationship to Other Hazards

While extreme temperatures may be extremely burdensome on the power supplies in Jefferson County, the Committee concluded that this type of hazard is not expected to directly cause any other hazards studied. It is anticipated that due to prolonged extreme temperatures, primarily long periods of high temperatures, citizens may become increasingly agitated and irritable, and this may lead to a disturbance requiring emergency responder intervention.

3.2.4 Fires and Wildfire

Overview

Figure 18. Wildfire in Forested Area

A wildfire, also known as a forest fire, vegetation fire, or a bushfire, is an uncontrolled fire in wildland areas and is often caused by lightning. Other common causes are mechanical failures, human carelessness, and arson. Small wildfires may be contained to areas less than one acre, whereas larger wildfires can extend to areas that cover several hundred or even thousand acres. Generally, ambient weather conditions determine the nature and severity of a wildfire event. Very low moisture and windy conditions can help to exacerbate combustion in forested or brush areas (**Figure 18**) and turn a small brush fire into a major regional fire event in a very short period. Wildfires can be very devastating for residents and property owners.

A structural fire is an incident where a fire starts within a structure and is largely contained to that structure. Causes of structure fires can be related to electrical shorts, carelessness with ignition sources, poor storage of flammable materials, as well as arson. These types of fires can be deadly if no warning or prevention measures are present. The most dangerous aspect of structural fires is the production of toxic gases and fumes that can quickly accumulate in enclosed areas of structures and asphyxiate those who might be in the structure.

Problems associated with structural fires are compounded when high-rise buildings catch fire. High-rise fires hinder the ability of rescue workers to fight the fire, reach impacted building occupants, and evacuate impacted occupants. Rescue efforts also become more complicated when handicapped or disabled persons are involved. Complications associated with multi-story structure fires typically increase as the height and occupancy levels of the buildings increase. Structural collapse is another concern associated with high-rise fires. Structural collapse often results in persons becoming trapped and severely injured. However, it is important to note that the concern associated with structural collapse, is not limited to high-rise buildings; the collapse of smaller multi-story buildings can also lead to severe injury and death.

Typically, a wildfire will incinerate all structures and objects in its path. A resident may lose all possessions and structures to a wildfire event. Additionally, combating a wildfire or a structure fire may be extremely dangerous. If weather conditions change suddenly, the wildfire may change course and overtake firefighters, causing severe injury or death. Fires can travel at speeds greater than 45 mph. Therefore, these hazard events can pose a serious threat to county residents and response agencies.

Recent Occurrences

Within the NCDC, there are no reports of wildfires occurring within Jefferson County between January 1, 2017 to December 31, 2022. Within the same time parameter, there were only two reported events

within the State of Indiana, both within Pike County and both taking place in 2006. During each of these events over 350 acres were burned.

Figure 19. Fire at Deputy Fire Department

The NCDC does not report structure fires; therefore, local sources were utilized to provide information regarding residential and business fires. These fires are the typical hazard affecting Jefferson County in the last several years. Two examples of very different firefighting challenges are: 1) Deputy Fire Department caught fire on December 18, 2018, **Figure 19**, photo was taken from WLKY TV and 2) In the City of Madison, during a 2009 restoration of the courthouse the roof and cupola caught fire. This image shows the intensity of the fire. **Figure 20**

Figure 20. Madison Courthouse Fire

Jefferson County has a limited amount of government managed lands. These areas include the former Jefferson Proving Grounds munitions testing site which has been closed and now serves as a wildlife refuge with limited access by the public (Big Oaks National Wildlife Refuge), and Clifty Falls State Park and Splinter Ridge Fish and Wildlife Area which are owned and operated by the Indiana Department of Natural Resources. Due to the expansive acreage of agricultural land within Jefferson County, and the potential for urban areas to be at risk due to abandoned homes, blighted areas, or industrial activities, the Planning Committee determined the probability to be "Possible" throughout the County. **Table 9** identifies the CPRI rankings for fire in Jefferson County.

Table 9: CPRI for Fire

	Probability	Magnitude / Severity	Warning Time	Duration	CPRI
Jefferson County	Possible	Significant	< 6 hours	< 1 day	Elevated
City of Madison	Possible	Critical	< 6 hours	< 1 day	Elevated
Town of Hanover	Possible	Significant	< 6 hours	< 1 day	Elevated
Town of Dupont	Possible	Significant	< 6 hours	< 1 day	Elevated
Town of Brooksburg	Possible	Critical	< 6 hours	< 1 day	Elevated

Information provided in **Table 10** highlights the number of fire runs for some of the Jefferson County fire departments for the period January 2017 through December 2022. Based on this information, annual damages to structures, contents, and vehicles may be significant for each municipality on an

annual basis. Social losses, such as being unable to work following a residential structure fire or losses associated with a business fire should also be considered as an impact.

Table 10: Jefferson County Fire Calls

Department	2017	2018	2019	2020	2021	2022
Brooksburg FD	0	0	0	4	11	15
Canaan Vol Fire Co Inc	17	72	60	20	15	21
Deputy Vol Fire Co Inc	119	102	91	44	26	52
Hanover Township Vol Fire Co	249	276	252	123	99	176
Kent Vol Fire Co	53	73	52	15	31	72
Lancaster Twp Vol Fire Co Inc. - Dupont	64	50	36	24	41	31
Madison Twp Vol Fire Dept.	119	114	98	66	148	164
Madison Vol. Fire Dept.	681	969	932	418	381	300
TOTAL	1,302	1,656	1,521	714	752	831

Assessing Vulnerability

A fire typically affects a large regional area with potential for physical, economic, and/or social losses. Typically, a structural fire affects one or two structures, as one of the main functions of fire response is to prevent the fire from spreading to neighboring structures. This type of action works to reduce the magnitude and severity from "Significant" to "Critical" throughout the county and municipalities.

Much of the county is rural, which may be more susceptible to brush, field, crop fires or woodland fires, especially in times of drought. Vulnerabilities to this hazard have not shifted in location. Municipal areas within Jefferson County are susceptible to urban and industrial fires. Residential fires remain dispersed throughout the county. There is a greater concern for the residences and historic buildings located in the Historic District of Madison. Structures are located immediately adjacent to one another, so when a fire does occur, the likelihood of multiple structures being impacted is much greater than in more contemporary community areas. Many of the structures in the historic district are rental units with a large proportion of the residents being elderly, or those with some physical limitations.

Direct and indirect effects of a such an event within Jefferson County may include:

Direct Effects:

- Loss of structures (residential as well as agricultural)
- Loss of forests
- Loss of natural resources and wildlife
- Loss of cultural resources – historic district

Indirect Effects:

- Loss of revenue as businesses may be closed.
- Loss of revenue from reduced tourist activities in the county
- Increased emergency response times based on safety of roads.
- Loss of income if dependent on crop production or timber harvest
- Potential increase in homelessness due to very limited housing availability in the area

Estimating Potential Losses

Given the nature and complexity of a potentially large hazard such as a wildfire, it is difficult to quantify potential losses to property and infrastructure. As a result, all critical and non-critical structures and infrastructure may be at some degree of risk.

Monetary damages associated with the direct effects of the fires are difficult to estimate, other than utilizing historic information as provided. Indirect effects would cause increased efforts associated with emergency response services as wildfires are difficult to contain and may accelerate very quickly. Further, multi-level business or residential structures place increased risks to those who work or live within those structures or nearby structures.

Future Considerations

As populations increase and community growth increases, the need to respond to fire will remain an important municipal effort. As new construction or re-development occurs, especially new or existing critical infrastructure, it is important to ensure that these new structures are equipped to deal with the potential risks associated with this hazard. Those may include increased risk for wooden or flammable outer structures and potential lengthy power outages. With the adverse impacts of extreme temperatures and drought upon the heavily forested areas, consideration must be given to mitigating fire risks for structures that are built in the rural areas to limit losses should a wildland fire take place.

In addition, increased populations require increased housing. Many urban communities develop large multi-family residential structures, or apartment complexes, where structures are not only in close proximity to each other, but also contain a large number of citizens. As communities age, some structures may become abandoned, significantly increasing the risk of fire due to potential vagrant populations and lack of maintenance. These areas should be considered at-risk and potentially demolished to avoid such risk and potential hazard.

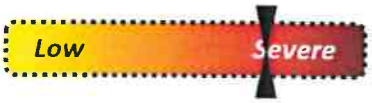
In areas such as Jefferson County which are reliant on volunteer firefighters, firefighting responses can be slowed due to the limited numbers of volunteers available at various times of the day. Increasing numbers of people working outside of the community in which they reside limits volunteer presence to outside of normal working hours. Recruitment initiatives will need to be considered as the firefighting needs and staffing levels change.

Fires can also result in substantial indirect costs. Increased emergency response times, loss of work or the inability to get to work, as well as business interruption, are possible indirect effects of a fire and how it may affect those businesses directly related to cropland or natural resource areas.

Relationship to Other Hazards

Fires may certainly result in a hazardous materials incident if storage structures are within the path of the burn. Material storage containers farther away from the burn path may become damaged by high winds and embers resulting in a spill or release of materials. Fires may result from lightning associated with a thunderstorm. Typical wind speeds during a thunderstorm may also exacerbate the impacts from any ignitions from the lightning.

3.2.5 Flood



Overview

Floods are the most common and widespread of all the natural disasters. Most communities in the United States have experienced flooding as a result of spring rains, heavy thunderstorms, or winter snow melts. A flood, as defined by the NFIP, is a general and temporary condition of partial or complete inundation or two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waters, or unusual and rapid accumulation or runoff of surface waters from any sources, or a mudflow. Floods can be slow or fast rising but generally develop over a period of days. Flash flooding is a term often used to describe flood events that are due to heavy or excessive rainfall in a short period of time, generally less than 6 hours. Unlike tradiotional flooding which can be slower developing, these rgaging torrents rip through river beds, streets and roads, and overland taking anything in its way with the force of the water. Flash floods typically occur within minutes up to a few hours after an excessive rain event.

Flooding and associated flood damages are most likely to occur during the spring because of heavy rains combined with melting snow. However, provided the right saturated conditions, intense rainfall of short duration during summer rainstorms can produce damaging flash flood conditions.

The traditional benchmark for riverine or coastal flooding is a 1% Annual Exceedance Probability (AEP), or the 100-year flood. This is a benchmark used by FEMA to establish a standard of flood protection in communities throughout the country. The 1% AEP is referred to as the "regulatory" or "base" flood. Another term commonly used, the "100-year flood", can be misleading. It does not mean that only one flood of that size will occur every 100 years, but rather there is a 1% chance of a flood of that intensity and elevation happening in any given year. In other words, the regulatory flood elevation has a 1% chance of being equaled, or exceeded, in any given year and it could occur more than once in a relatively short time period. The area impacted by the 1% AEP flood event is called the Special Flood Hazard Area (SFHA).

Recent Occurrences

The NCDC indicates that between January 1, 2017 to December 30, 2022, there were 4 flood and 2 flash flood events reported. Although the flood events did damage property, the damage amounts were not captured by the NCDC. Two of the events resulted in SBA disaster declarations with State Disaster Relief Fund assistance being provided to homeowners and renters who were ineligible for SBA assistance due to their ability to repay the loans. No reports of injuries or deaths have been provided regarding the flood events. With regards to the most recent flash flood event, September 3, 2022, NCDC reported $200,000 in property damages and no crop damages. Property and infrastructure

Figure 21. Flash Flood September 3, 2022 – Jefferson Co EMA

damages we assessed by the Jefferson County Emergency Management Agency. This resulted in a Joint Preliminary Damage Assessment by the IDHS and FEMA. $1.6M in infrastructure damages were confirmed, however, the amount of damages did not meet the requirements for a Presidential Major Disaster Declaration. Early in 2023, the State of Indiana was able to open the State Disaster Relief Fund for infrastructure damages and will be assisting the county in their recovery efforts. One death was reported.

National Weather Service reports indicate that on September 3, 2022, a combination of a moist, unstable environment and relatively light steering level winds over the Ohio Valley facilitated the development of slow-moving showers and thunderstorms which produced heavy rainfall across southern Indiana. A weak mid-level low across the mid-Mississippi Valley also contributed to broad uplift across the region, with precipitation being widespread across most of the lower Midwest and Ohio Valley during the afternoon of September 3rd. Where heavy thunderstorms lingered the longest, flash flooding was reported, with rainfall reports exceeding 10 inches in isolated areas. This heavy rainfall contributed to particularly severe flash flooding in Jefferson County, Indiana along Brushy Fork. A 64-year-old woman was killed when water left the banks of Brushy Fork and swept away her house on Brushy Fork Road. A barn and all the family's belongings were also swept away in the flood waters. The body of the woman was found 5 miles downstream by family members. **Figure 21** shows the results of the flash flood on September 3, 2022, and Figure 22 shows the location of the heaviest rain amounts located at the head waters to Brushy Creek.

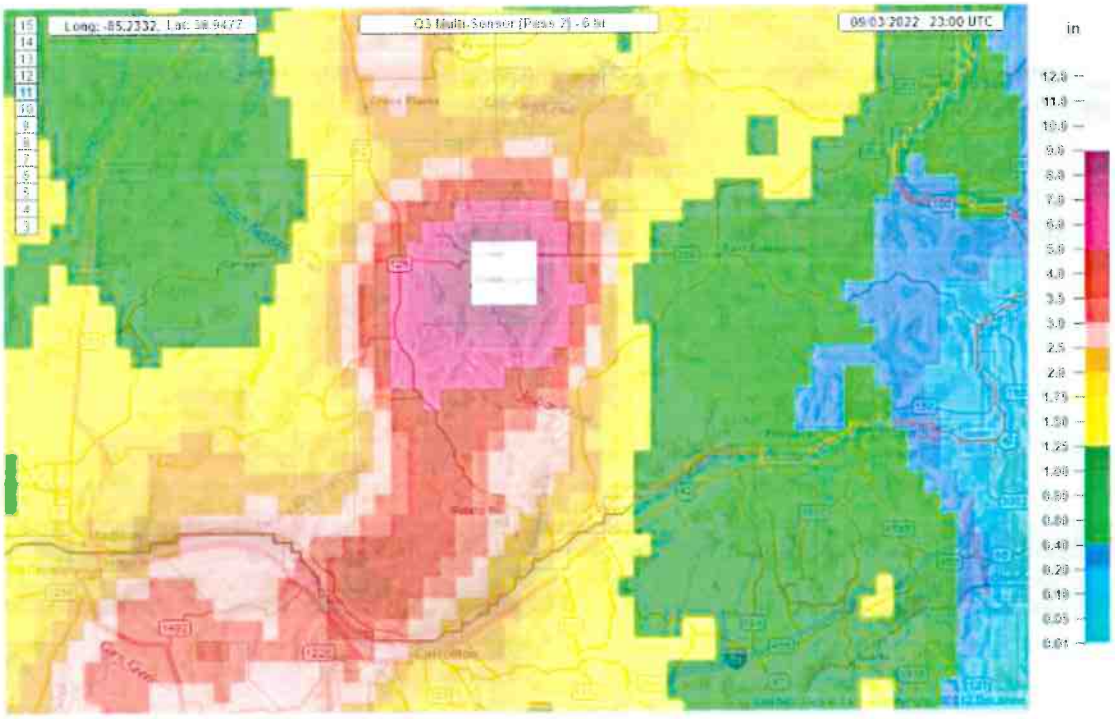


Figure 22. 6 Hour Radar Estimated Rainfall Image - NWS

Stream gages are utilized to monitor surface water elevations and/or discharges at key locations and time periods. Some such gages are included in the NWS's Advanced Hydrologic Prediction Service (AHPS) program. These gages have the potential to provide valuable information regarding historical high and low water stages, hydrographs representing current and forecasted stages, and a map of the surrounding areas likely to be flooded. Within Jefferson County, there are 3 active stream gages which are pictured in **Figure 23**. One near Deputy on the Muskatatuck River, one near Canaan on Indian - Kentuck Creek, and one on the Ohio River at Clifty Creek. Since 2016 the gage near Deputy on the Muscatatuck River has not exceeded major flood stage of 32 feet nor has the gage has recorded river levels above moderate flood stage at 28 feet. The gage has recorded river levels above minor flood stage at 25 feet 5 times and above action level at 23 feet an additional 1 time. The gage near Canaan

Figure 23. USGS Stream Gages in Jefferson County

on Indian - Kentuck Creek does not have flood categories determined. In addition, according the AHPS page for the National Weather Service – Louisville, no recent crests are shown since 2011 for this site. The gage is active and is showing water levels. The peak of record is at 11.6 feet recorded on April 19, 2011.

The Ohio River gage at Clifty Creek has not reached major stage of 470 feet since the Great Flood of 1937. Within the past five years it has exceeded the moderate flood stage at 457 feet 1 time and minor

flood stage at 451 feet 2 times. There have been no events where the water only rose above action level of 449 feet.

Flood insurance is a key for flood recovery. Any property having received two insurance claim payments for flood damages totaling at least $1,000, paid by the NFIP within any 10-year period since 1978 is defined as a repetitive loss property. These properties are important to the NFIP because they account for approximately 1/3 of the country's flood insurance payments. According to FEMA Region V, there are a total of 16 repetitive loss structures in Jefferson County. In the unincorporated areas of Jefferson County there are 4 single family residences, 2 multi-family properties and 1 other/non-residential property that is considered a repetitive loss structure. The City of Madison has 6 single-family residences and 1 business/non-residential property considered as repetitive loss structures. Two residential structures were identified in the Town of Hanover. **Table 11** identifies the number of repetitive loss claims per community as well as payments made, as provided by FEMA.

Table 11: Repetitive Properties, Claims, and Payments

Community	# Repetitive Loss Properties	Total Losses	Total Payments
Jefferson County	7	22	$421,857.84
City of Madison	7	14	$458,306.58
Town of Hanover	2	6	$164,765.24
TOTAL	**16**	**42**	**$1,044,929.46**

There have been several claims made for damages associated with flooding in Jefferson County since 1978. Within the unincorporated areas of the county, there have been 44 claims resulting in $1.92 Million in payments. Further, within the incorporated cities and towns 45 claims totaling approximately $2.16 Million has been paid. **Table 12** further indicates the premiums and coverage totals for individual communities.

Table 12: Insurance Premiums and Coverage

Community	Flood Insurance Premiums	Flood Insurance Coverage
Town of Brooksburg	$4,225.00	$234,200.00
Town of Dupont	$932.00	$84,000.00
Town of Hanover	$2,468.00	$298,200.00
City of Madison	$102,589.00	$9,264,300.00
Jefferson County	$57,659.00	$8,829,200.00
TOTAL	**$167,873.00**	**$18.70 M**

As determined by the Committee, the probability of flooding occurring throughout Jefferson County is "Highly Likely." This is largely based on the presence of rivers and streams near the communities throughout the county. The Committee also determined that the warning time would be less than 6 hours based on the terrain and flashy nature of the waterways in the county, forecasting methods, and local knowledge of stream activities. Finally, the duration of such an event is anticipated to last less than one day for all areas. A summary for flooding is shown in **Table 13.**

Table 13: CPRI for Flood

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Highly Likely	Significant	12 - 24 hours	< 1 week	Severe
City of Madison	Highly Likely	Significant	6 - 12 hours	< 1 week	Severe
Town of Hanover	Highly Likely	Significant	12 - 24 hours	< 1 week	Severe
Town of Dupont	Highly Likely	Limited	12 - 24 hours	< 1 week	Elevated
Town of Brooksburg	Highly Likely	Significant	12 - 24 hours	< 1 week	Severe

The committee expressed a concern over the recent increases in flash flooding and overland flooding. During the preparation of this plan a high-volume short duration rain event deposited approximately 12 inches of rain in the head waters of Brushy Creek over a 3-hour timespan. Although rain amounts were light to minimal throughout the rest of the county, the downpour at the head waters of Brushy Creek resulted in the loss of one life and two residences. The creek flow was altered due to the massive deposit of bedrock materials in the normal creek channel. For this reason, the team wanted to consider flash flooding as a significant contributor to the local flood risk.

As mentioned within this section, there is a 1% chance each year that the regulatory flood elevation will be equaled or exceeded, and these types of events may occur more than once throughout each year. Further, based on information provided by the NCDC, and previous experiences, the Committee determined that flooding is "Highly Likely" throughout the county for both incorporated cities and towns as well as the unincorporated areas of the county.

Assessing Vulnerability

Flood events vary within Jefferson County depending on the location of the event. Communities near the Ohio River (Madison and Hanover) not only have the riverine flooding as a concern, but also due to the terrain from the highlands down to the river side areas, the flash flooding impacts as the rainwater from the hillside rushes down narrow creeks to the open floodplains. Roads and bridges within the county are vulnerable to the powerful movement of the runoff and are eroded or damaged isolating and/or restricting access to some part of the county. In the City of Madison this is a particular challenge on the northeast side of the historic district. The terrain has resulted in two devasting flash flood events where state disaster relief fund program was called in to assist homeowners and renters recover from the flood. The close proximity of the buildings and the small creek result in flood waters spilling over into the neighborhood where underserved populations reside. Annual flooding is experienced at the campgrounds near the river and access is cut off for the 75 to 80 residents of Hanover Beach. Even in the upland areas wooded areas and farm fields have provided ample supply of debris causing clogs and damages to culverts, and bridges.

In addition to riverine flooding or flooding in poorly drained areas, is the consideration of fluvial erosion hazard (FEH). This represents the risk associated with natural stream movements and losses associated with buildings and infrastructure. In some cases, this may be represented by a gradual movement of a stream across a farm field. In other, more extreme instances, homes or other infrastructure may be lost as riverbanks or bluffs sluff into the water below. This will be discussed more within the landslide/land subsidence discussion.

The flood gages provide little warning for the flash flood events. The greatest flash flood contributions come from the small creeks which are located throughout the county. The major riverine flood source, the Ohio River, is slow to rise. Upstream gages provide good warning.

The Towns of Dupont and Hanover have few SFHA areas designated within the corporate limits. However, the Town of Brooksburg, located at the confluence of Indian-Kentuck Creek has quite a bit SFHA designated areas within the corporate limits. Additionally, the City of Madison and Jefferson County, both have larger populated areas that lie within the SFHA designation. Direct and indirect effects of a flood event may include:

Direct Effects:

- Structural and content damages and/or loss of revenue for properties affected by increased water.
- Increased costs associated with additional response personnel, evacuations, and sheltering needs.
- Increased potential impacts to infrastructure and buildings located within the SFHA.

Indirect Effects:

- Increased response times for emergency personnel when roads are impassable.
- Increased costs associated with personnel to carry out evacuations in needed areas
- Increased risk of explosions and other hazards associated with floating propane tanks or other debris.
- Reduced community revenues due to business losses.
- Losses associated with missed work or school due to closures or recovery activities.
- Cancellations of special events in impacted areas or water related activities that become too dangerous due to high water.

In the time since the last planning effort, significant development has been limited within the municipalities and populations have not significantly increased. The development and redevelopment that has occurred, has been directed away from the floodplains. This mitigation measure helps to reduce the county-wide flood risk and vulnerability. New structures have been prevented from being built in the high-risk areas while growth is being directed to more appropriate areas, less at risk from riverine flooding. Jefferson County has been working to increase the number of affordable rental housing units in the hilltop area in an effort to encourage community members living in the flood prone valley to move from of the SFHA.

Estimating Potential Losses

Critical and non-critical structures located in regulated floodplains, poorly drained areas, or low-lying areas are most at risk for damages associated with flooding. For this planning effort, a GIS Desktop Analysis methodology was utilized to estimate flood damages.

For the GIS Desktop Analysis method, an analysis was completed utilizing the effective Digital FIRMs (DFIRMs) overlaid upon a Modified Building Inventory developed with information provided by Jefferson County. Structures located within each flood zone were tallied using GIS analysis techniques.

In the assessment, any structure listed as less than 400 ft^2 in area or classified in the Assessor's database as a non-habitable structure was assumed to be an outbuilding. It was assumed that a building was located on a parcel if the value listed in the "Assessed Value (Improvements)" showed a value greater than zero dollars. Parcels that intersected any portion of the FEMA flood zones were considered to be flood prone, and subsequently, further analyzed separately from parcels without structures. Structure values were calculated using:

Residential = Assessed Value x 0.5
Commercial = Assessed Value x 1.0

Industrial = Assessed Value x 1.5
Agricultural = Assessed Value x 1.0
Education = Assessed Value x 1.0
Government = Assessed Value x 1.0
Religious = Assessed Value x 1.0

To estimate anticipated damages associated with each flood zone in Jefferson County and communities, it was estimated that 25% of structures in the flood zones would be destroyed, 35% of structures would be 50% damaged, and 40% of structures would be 25% damaged. **Table 14** identifies the estimated losses associated with structures in the floodway, the 1% AEP (100-year floodplain), and the 0.2% AEP (500-year floodplain) areas by community within Jefferson County.

Table 14: Jefferson County Building Inventory

	Floodway		1% AEP		0.2% AEP		Unnumbered	
	#	$	#	$	#	$	#	$
Jefferson County	163	11,646,295.22	112	8,935,877.09	53	4,613,542.61	0	0
City of Madison	80	8,800,337.87	261	27,438,643.86	178	27,675,167.48	0	0
Town of Hanover	0	0	0	0	0	0	0	0
Town of Dupont	0	0	0	0	0	0	0	0
Town of Brooksburg	1	68,766.34	19	1,608,381.91	12	858,417.69	0	0
Totals	**244**	**20,515,399.43**	**392**	**37,982,902.89**	**243**	**33,147,127.79**	**0**	**0**

Utilizing the same GIS information and process, critical infrastructure within each of the flood hazard areas in Jefferson County was assessed and are included in **Table 15**. These buildings are included in the overall number of structures and damage estimate information provided in

Table 16.

Table 15: Critical Infrastructure in Flood Zones in Jefferson County

Community	Floodway	1% AEP	0.2% AEP
Jefferson County	Manville Christian Church		
City of Madison	City of Madison Wastewater Treatment Plant		IN-KY Electric (IKE) Corp/Clifty Creek Station, Madison Police Department
Town of Hanover			
Town of Dupont			
Town of Brooksburg		Milton Township Fire Department	

Utilizing the information in Table 14 regarding the number of structures within each of the flood hazard areas, it is also important to note the number of flood insurance policies within each area in Jefferson County.

Table 16 provides the comparison between the number of structures in the 1.0% AEP and the number of flood insurance policies. It is also important to note that flood insurance is voluntary unless the

property owner carries a federally subsidized mortgage; insurance coverage may be discontinued when the mortgage is completed.

Table 16: Structures in the 1.0% AEP and Number of Flood Insurance Policies

Community	# Structures In 1.0% AEP	# Policies
Jefferson County	44	63
City of Madison	40	52
Town of Hanover	0	2
Town of Dupont	1	1
Town of Brooksburg	4	4
Total	**89**	**122**

Future Considerations

As the municipalities within Jefferson County grow in population and redevelop, it can be anticipated that the number of critical and non-critical infrastructure will also increase accordingly. Jefferson County updated and adopted the County Floodplain Ordinance in 2015 similarly the City of Madison adopted their Floodplain Ordinance in 2021. The Town of Hanover adopted their flood ordinance in 2015. The two largest municipalities, City of Madison, and Town of Hanover, with Jefferson County discourage critical facilities such as schools, medical facilities, community centers, municipal buildings, and other critical infrastructure to be located within the 1% AEP (100-year) floodplain. New structures must also be protected to that level along with a flood-free access to reduce the risk of damages caused by flooding and to ensure that these critical infrastructures will be able to continue functioning during major flood events. Flooding due to steep terrains, poor drainage, low-lying land, or flash flooding is also an important consideration. It will be important for recognition of potential flood impacts to residents and businesses in these areas to be coupled with proper planning for future development and redevelopment of the flood zones. This would also include studying the inundation areas mapped through the development of the Indiana Floodplain Portal. Since the previous planning effort, no new development has occurred within the flood zones of Jefferson County or the incorporated communities within the county. Adoption of the DNR Model Floodplain Ordinance and the LTAP Model Stormwater Ordinance will assist the communities and the county in addressing some of the flood water challenges.

It is important to ensure that owners and occupants of residences and businesses within the known hazard areas, such as delineated or approximated flood zones and FEH, are well informed about the potential impacts from flooding incidents as well as proper methods to protect themselves and their property. Lack of transportation and support resources discourages less mobile community members from relocating to cost effective housing outside of the flood hazard area. Encouraging community support for those community members who lack reliable transportation will increase the opportunities for community members to choose to relocate outside of the flood prone areas.

Increased precipitation, as predicted in the Indiana Climate Change Assessment, is anticipated to come in the form of heavier, shorter events which lead to the increased potential for flooding and stress on infrastructure such as sanitary and storm sewers. Heavy precipitation events are anticipated to occur more frequently as temperatures rise, replacing rain when previously there was snow.

Despite these efforts, the overall vulnerability and monetary value of damages is expected to increase in the area unless additional measures, such as those discussed later in Chapter 4 of this report, are implemented.

Indirect effects of flooding may include increased emergency response times due to flooded or redirected streets (**Figure 24**), the danger of dislodged and floating propane tanks causing explosions, debris movement with flood waters causing additional damages, and the need for additional personnel to carry out the necessary evacuations. Additional effects may include sheltering needs for those evacuated, and the loss of income or revenue related to business interruptions. Many communities within Jefferson County host numerous special events near or on the Ohio River and smaller local waterways. These special events may have to be cancelled or postponed due to flooding or high-water levels. With the City of Madison having the largest historic district as a National Historic Landmark, repetitive flooding adversely impacts the value and integrity of the structures. Flooding reduces the number of visitors since restoration efforts after flood events limit access to the buildings.

Figure 24. Fire Engine in Flood Waters

Relationship to Other Hazards

While flooding creates social, physical, and economic losses, it may also cause other hazards to occur. For example, flooding may increase the potential for a hazardous materials incident to occur. Above ground storage facilities may be toppled or become loosened and actually migrate from the original location. In less severe situations, the materials commonly stored in homes and garages such as oils, cleaners, and de-greasers, may be mobilized by flood waters. Should access roads to hazardous materials handlers become flooded, or if bridges are damaged by flood waters, response times to more significant incidents may be increased, potentially increasing the damages associated with the release.

Increased volumes of water during a flood event may also lead to a dam failure. As the water levels rise in areas protected by dams, at some point, these structures will over-top or will breach leading to even more water released. These two hazards, flood, and dam failure, when combined, may certainly result in catastrophic damage.

In a similar fashion, a snowstorm or ice storm can also lead to flooding on either a localized or regional scale. When a large amount of snow or ice accumulates, the potential for a flood is increased. As the snow or ice melts, and the ground becomes saturated or remains frozen, downstream flooding may occur. Ice jams near bridges and culverts may also result in flooding of localized areas and potentially damage the bridge or culvert itself.

Repeated flooding may also create impacts associated with landslides along riverbanks and bluff areas. As floodwaters travel through the systems, saturating shorelines and increasing volumes and velocities of water, the natural process of fluvial erosion may be exacerbated. As these processes are increased, structures and infrastructure located on bluffs or in proximity to the river may be at risk. High volume short duration rain events causing flash flooding may result in debris flows and deposits exacerbating fluvial erosion and creating greater damages during future flood events.

Flooding in known hazard areas may also be caused by dams that experience structural damages or failures not related to increased volumes or velocities of water. These "sunny day failures," while not typical, may occur wherever these structures exist throughout the county.

3.2.6 Hailstorms, Thunderstorms, and Windstorms

Overview

Hail occurs when frozen water droplets form inside a thunderstorm cloud, and then grow into ice formations held aloft by powerful thunderstorm updrafts, and when the weight of the ice formations becomes too heavy, they fall to the ground as hail. Hail size ranges from smaller than a pea to as large as a softball, and can be very destructive to buildings, vehicles (**Figure 25**), and crops. Even small hail can cause considerable damage to young and tender plants. Residents should take cover immediately in a hailstorm, and protect pets and livestock, which are particularly vulnerable to hail, and should be under shelter as well.

Thunderstorms are defined as strong storm systems produced by a cumulonimbus cloud, usually accompanied by thunder, lightning, gusty winds, and heavy rains. All thunderstorms are considered dangerous as lightning is one of the by-products of the initial storm. In the United States, on average, 300 people are injured, and 80 people are killed each year by lightning. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms. Other associated dangers of thunderstorms included tornados, strong winds, hail, and flash flooding.

Windstorms or high winds can result from thunderstorm inflow and outflow, or downburst winds when the storm cloud collapses, and can result from strong frontal systems, or gradient winds (high- or low-pressure systems). High winds are speeds reaching 50 mph or greater, either sustained or gusting.

Recent Occurrences

Figure 25. Damaging Hail on Vehicles

In Jefferson County, the NCDC has recorded 2 hailstorms and 13 thunderstorms/windstorm events between January 1, 2017, to December 31, 2022. The average diameter hail stone occurring throughout Jefferson County ranges from approximately ¾ to 1 inch with the largest one for this period of interest being 1.75 inches. According to the Midwest Regional Climate Center (MRCC) hail is considered severe if a thunderstorm produces hail stones larger than one inch in diameter, or larger than the size of a quarter. Significant windstorms are characterized by the top wind speeds achieved during the incident, characteristically occur in conjunction with thunderstorms, and have historically occurred year-round with the greatest frequency and damage occurring in May, June, and July. Within Jefferson County, NCDC reports 29 thunderstorms with only 1 instance between January 1, 2017 to December 31, 2022 where top wind speeds were greater than 60 mph.

The NCDC recorded damages for hailstorms, thunderstorms, and windstorms throughout Jefferson County indicate $306,000 in property damages for the thunder and windstorms, but, no crop damages. The strongest storm was described as a "a brick home near Rogers Road and Chicken Run Road was completely missing its roof due to severe thunderstorm winds. The residence next to it had half of its roof missing. Many trees in the area were snapped or uprooted. An NWS damage survey team determined the winds to be near 100 mph. This was part of a larger swath of 70+ mph winds that extended in a 1-2-mile-wide path from northern Scott into western Jefferson County.". No injuries

or deaths associated with these events. Many event reports included in the NCDC provided limited descriptive information on the social, physical, and economic losses resulting from individual storms specific to Jefferson County. In local storm reports at the National Weather Service where damages were reported, narrative descriptions of the event rarely extended beyond reports of damages to broken tree limbs, downed power lines, or roof damages.

Appendix 6 provides the NCDC information regarding hailstorms, thunderstorms, and windstorms. The tables include the number of injuries, deaths, and monetary damages to property and/or crops.

According to the Institute for Business and Home Safety, central Indiana can expect to experience damaging hailstorms three to four times over 20 years; the average life of a residential roof. Further, thunderstorms and windstorms are considered a high frequency hazard and may occur numerous times per year.

The Committee determined the probability of a hailstorm, thunderstorm, or windstorm occurring anywhere throughout Jefferson County is "Likely to Highly Likely" and will typically affect broad portions of the county at one time resulting in potentially "Limited" damages. As advancements in technologies such as weather radar systems and broadcast alerts are continually made, the warning time for such incidents may increase. Currently, the Committee feels that the warning time is anticipated to be less than six hours and the duration is expected to last less than six hours.

Indicative of a regional hazard, the probability, magnitude, warning time, and duration of a hailstorm, thunderstorm, or windstorm are expected to be similar throughout the county. These events are highly unpredictable, and the occurrences are distributed through the county, sometimes impacting one community more often or more severely than another. Therefore, the CPRI values reflect the distributed risk and associated priority for a hailstorm, thunderstorm, or windstorm. A summary is provided in **Table 17**.

Table 17: CPRI for Hailstorm, Thunderstorm, and Windstorm

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Highly Likely	Limited	< 6 hours	< 6 hours	Severe
City of Madison	Likely	Limited	< 6 hours	< 6 hours	Elevated
Town of Hanover	Likely	Limited	< 6 hours	< 6 hours	Elevated
Town of Dupont	Likely	Limited	< 6 hours	< 6 hours	Elevated
Town of Brooksburg	Likely	Limited	< 6 hours	< 6 hours	Elevated

Specific locations and frequency of hailstorms, thunderstorms, and windstorms are difficult to predict as many of these individual events are without significant warning time and may have impacts to very limited areas or may affect broader areas. However, based on NCDC data and individual experiences of the Committee, it was determined that all areas within the County are anticipated to experience a hailstorm, thunderstorm, or windstorm within the next calendar year. The magnitude is anticipated to be similar based on the number of critical infrastructure and populations of each of the municipalities, or "Limited."

Assessing Vulnerability

The effects of a hailstorm, thunderstorm, or windstorm may be minimal to extensive in nature and may affect small or broad ranges of land area. Within Jefferson County, direct and indirect effects from a hailstorm, thunderstorm, or windstorm may include:

Direct Effects:

- Damages to infrastructure (power lines)
- Damages to individual properties (homes, cars)
- Damages to trees.

Indirect Effects:

- Downed power lines due to falling tree limbs.
- Losses associated with power outages.
- Damages sustained from blowing debris.
- Cancellation or interruption of special events

Estimating Potential Losses

Figure 26. Home Damaged During Windstorm

Due to the unpredictability of this hazard all critical infrastructure and non-critical structures in Jefferson County are at risk of damage including temporary or permanent loss of function. For hailstorms, thunderstorms, and windstorms, it is not possible to isolate specific critical infrastructure or non-critical structures that would be vulnerable to damages. However, areas where utility lines are above ground and areas where dead or dying trees have not been removed may be at a higher risk of property damages or power outages during hailstorms, thunderstorms, and windstorms. Additionally, mobile homes and accessory buildings such as pole barns and sheds may also be at a higher risk of damages from hailstorms, thunderstorms, and windstorms if not properly anchored to the ground. Damages from falling limbs or uprooted trees such as that shown in **Figure 26.**

Future Considerations

As the populations of the communities in Jefferson County develop and redevelop, it can be anticipated that the number of critical and non-critical structures will also increase. To reduce the vulnerability for damages resulting from a hailstorm, thunderstorm, or windstorm, measures such as proper anchoring of roofs as well as mobile homes, proper tree maintenance, enforcement of the International Building Codes, and burial of power lines should be considered. While measures can be taken to remove existing structures or prevent future structures from being built in known hazard areas such as floodplains and hazardous materials facility buffers, such measures are not applicable to hailstorms, thunderstorms, and windstorms due to the diffuse nature and regional impacts of this hazard.

Indirect effects resulting from a hailstorm, thunderstorm, or windstorm can include power outages caused by downed tree limbs or flying debris, damages resulting from prolonged power outages, reduced access to areas of greatest impact due to debris and trees blocking roadways, and damages to structures or property as a result of debris.

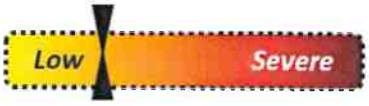
Relationship to Other Hazards

Hailstorms, thunderstorms, and windstorms may be the precursor for other hazards. For example, hazardous materials incidents can be the result of a hailstorm, thunderstorm, or a windstorm. Material storage containers can become damaged by high winds, debris, or even lightning, and can result in a spill or release of materials. With wind speeds greater than 58 mph, tankers and other transportation vehicles carrying hazardous materials are also at risk while on the road. High winds may also cause gaseous substances to travel farther distances at a much faster rate, increasing the evacuation area necessary to protect residents and visitors of Jefferson County.

Additionally, rainfall typically occurs with a thunderstorm and this additional precipitation may lead to localized flooding or riverine flooding depending on the amount of rain during the event. Debris from a windstorm may also lead to localized flooding if debris is deposited over drains or if obstructions are created by downed limbs, trees, or other storm related debris. A similar concern due to the potential precipitation would be dam failure. High winds may place debris near spillways, blocking the emergency drainage mechanism for the dams. High winds may also lead to structural damages to a dam or may cause damages to nearby trees or other structures, leading to indirect damages.

The risk of social losses also increases during a hailstorm, thunderstorm, or windstorm, as these hazards often result in downed power lines, utility poles, and trees. Debris such as this may impede traffic patterns and make it difficult for emergency vehicles (Fire, EMS, and Police) to pass through affected areas or people may be directly injured because of falling or flying debris.

3.2.7 Landslide/Subsidence



Overview

The term landslide includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on an over steepened slope is the primary reason for a landslide, there are other contributing factors. For example, erosion by rivers, glaciers, or ocean waves can cause rock to fall. Rock and soil slopes may be weakened through saturation by snowmelt or heavy rains, earthquakes can create stresses that make weak slopes fail, and excess weight from accumulation of rain or snow, stockpiling of rock or ore, from waste piles, or man-made structures that may stress weak slopes to the point of collapse.

Another important consideration is Fluvial Erosion Hazard (FEH). This represents the risk associated with natural stream movements and losses associated with buildings and infrastructure. In some cases, this may be represented by a gradual movement of a stream across a farm field. In other, more extreme instances, homes or other infrastructure may actually be lost as steep riverbanks or bluffs sluff into the water below.

Land subsidence, according to the USGS, is "a gradual settling or sudden sinking of the Earth's surface owing to subsurface movement of earth materials." Further, there are three processes that attribute to subsidence: compaction of aquifer systems, drainage and subsequent oxidation of organic soils, and dissolution and collapse of susceptible rocks.

Recent Occurrences

The potential for any of landslides or land subsidence within Jefferson County was discussed by the Planning Committee. The committee members shared the landslide challenges of the communities in the county. A number of roads are closed due to the roadways support slipping down the hillsides. Saluda Road was closed because of landslide risk, restricting access to Hanover Beach to only one roadway. The state highway has plans for Hanging Rock Hill which leads to Madison. The planning committee attributes most of the landslide

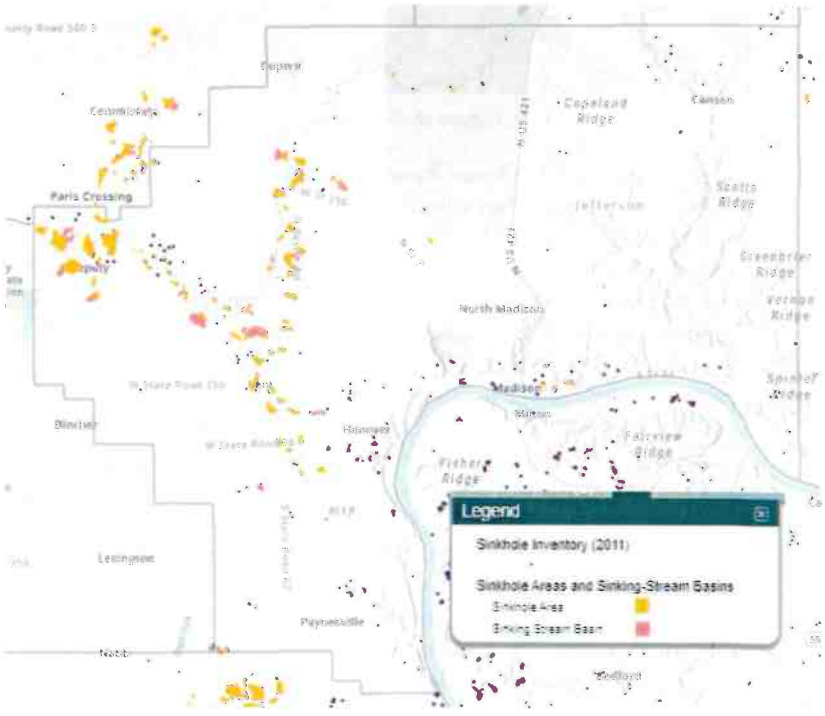


Figure 27. Karst Sinkhole Areas in Jefferson County

issues the steep terrain and mobile soils. IndianaMap shows that there are some Karst Sinkhole areas in the County as can be seen in **Figure 27**. To the knowledge of the Planning Committee, there are no active underground mining operations within Jefferson County. In addition, there have however been some concerns about Fluvial Erosion Hazard (FEH) and possible debris flows along the rivers, and creeks. The steeper terrain in the eastern portion of the county lends itself to soil and debris movement with heavy rain events. This concern was affirmed by an event on September 3, 2022. 12 inches of rain fell in 3 hours near the head waters of Brushy Creek. Most of the county received little or no rain, but along Brushy Creek, a wall of water accompanied by debris, cars, trees and structures

Figure 28. September 3, 2022, Damaged Bridge and Debris

flowed downhill. One homeowner was swept away in her home by the torrent. Her body was found 5 miles downstream from where her home once stood. The normally ankle-deep creek turned into a massive debris flow FEH event that spanned ½ mile wide. Local bridges were damaged. **Figure 28.** shows the debris packed under the bridge and the damages to the bridge surface due to the debris flow. Tons of bedrock from the headwaters were transported downstream, carving out new stream beds when the streams became clogged with debris.

During the plan update meeting, held in May of 2022, the Committee determined the probability of a landslide or subsidence occurring in Jefferson County is "Unlikely" with any event expected to result in potentially "Negligible" to "Limited" damages. Having recently experienced the September event, the committee felt that the event probability would be "Possible" with the magnitude ranging from "Negligible" in the flatter areas of the county to "Significant" in the steeper terrains. In all cases, the Committee feels that the warning time is anticipated to be less than six hours and similarly, the duration is expected to last less than six hours. These events are highly unpredictable and the risk, although very low according to the Committee, is distributed throughout the county. Therefore, the CPRI values reflect the distributed risk and associated priority for a landslide or subsidence event. A summary is provided in **Table 18.**

Table 18: CPRI for Landslide/Land Subsidence

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Possible	Significant	< 6 hours	< 6 hours	Elevated
City of Madison	Unlikely	Negligible	< 6 hours	< 6 hours	Low
Town of Hanover	Unlikely	Negligible	< 6 hours	< 6 hours	Low
Town of Dupont	Unlikely	Negligible	< 6 hours	< 6 hours	Low
Town of Brooksburg	Unlikely	Negligible	< 6 hours	< 6 hours	Low

Assessing Vulnerability

Jefferson County is normally considered to be at a low risk of land subsidence or sink holes. The Planning Committee's assessment found it to be "Unlikely" with "Negligible" severity. With the increase in short duration high volume rain events such as September 3, 2022, this vulnerability is being reassessed at the county and local levels. Consideration is being given to the steeper terrains especially in the eastern portions of the county.

The effects of a landslide or subsidence event may be minimal to extensive in nature and may affect small or broad ranges of land area. **Figure 29** identifies the FEMA National Risk Index regarding landslide throughout Indiana and surrounding areas. The risk index considers expected annual loss as well as vulnerabilities by census tract and community resilience. Jefferson County is highlighted in the center of the figure and is shown to have a "Relatively Moderate" risk index associated with landslides.

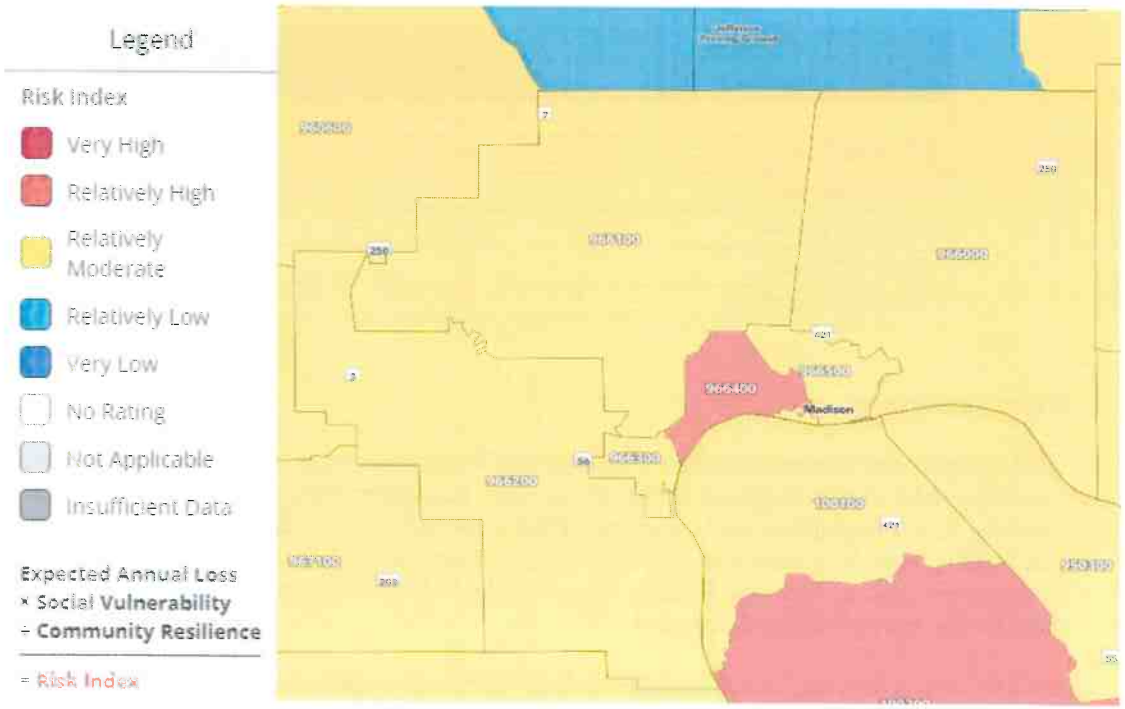


Figure 29. FEMA National Risk Index - Landslide

Within Jefferson County, direct and indirect effects may include:

Direct Effects:

- Damages to infrastructure (power lines, roads, bridges)
- Damages to individual properties (homes, cars, access to homes)

Indirect Effects:

- Increased response time for emergency vehicles
- Losses associated with affected land (crop loss, tree loss)
- Potential contamination of groundwater resources

Estimating Potential Losses

Due to the unpredictability of this hazard all critical infrastructure and non-critical structures in Jefferson County are at risk of damage including temporary or permanent loss of function. For landslide and subsidence, it is difficult to isolate specific critical infrastructure or non-critical structures that would be more or less vulnerable to damages. However, areas where FEH meander belt widths (FEH Zones) have been identified there may be at a higher risk of property damages caused by such events. To prepare a basic "what-if" scenario, the Indiana FEH GIS layers were overlaid onto parcel data provided by the County. **Table 19** identifies the number of structures and potential damages within the FEH areas.

Table 19: Summary of Structures in FEH Zone

Community	Potential Damages	
	# Structures	$ Damages
Jefferson County	114	11,646,295.22
City of Madison	261	8,800337.87
Town of Hanover	0	0
Town of Dupont	0	0
Town of Brooksburg	19	68,766.34

Future Considerations

As the populations of the communities in Jefferson County grow, it can be anticipated that the number of critical and non-critical structures will also increase. In order to reduce the vulnerability for damages resulting from a landslide or land subsidence, FEH areas, and soils GIS layers should be integrated into the building permit or approval process. In recent years, no significant development has occurred within these areas of Jefferson County. However, depending on the location, any development may increase the vulnerability to this hazard.

Indirect effects resulting from a landslide or land subsidence event can include power outages caused by downed trees and tree limbs, increased response times for emergency personnel if transportation routes are damaged, and potentially temporary closure of businesses.

Relationship to Other Hazards

A landslide or a subsidence event may be the precursor for other hazards. Depending on the location of the event. Material storage containers can become damaged resulting in a spill or release of materials and potentially contaminating groundwater reserves. Dam failures may occur in much the same fashion if located in the potential hazard areas, or resulting from heavy saturation following a rainstorm, heavy snow, or rapid snow melt.

Similarly, these types of events may be caused by hail, thunder, or windstorms and their effects on the soils; an earthquake may release the ground enough to set a slide in motion; or a flood may add increased soil saturation or weight to at-risk areas increasing the potential for an event and resulting damages.

3.2.8 Tornado

Overview

Tornadoes are defined as violently rotating columns of air extending from thunderstorms to the ground. Funnel clouds are rotating columns of air not in contact with the ground. However, the funnel cloud may reach the ground very quickly – becoming a tornado. If there is debris lifted and blown around by the "funnel cloud," then it has reached the ground and is a tornado.

Figure 30. Funnel Cloud During a Lightning Storm at Night

A tornado is generated when conditions in a strong cell are produced that exhibit a wall of cool air that overrides a layer of warm air. The underlying layer of warm air rapidly rises, while the layer of cool air drops – sparking the swirling action. The damage from a tornado is a result of the high wind velocity and wind-blown debris. Tornado season is generally April through June in Indiana, although tornadoes can occur at any time of year. Tornadoes tend to occur in the afternoons and evenings; over 80 percent of all tornados strike between 3:00 pm and 9:00 pm but can occur at any time of day or night as shown in **Figure 30**. Tornadoes occur most frequently in the United States east of the Rocky Mountains. Tornadoes in Indiana generally come from the south or southwest moving to the north northeast. While most tornadoes (69%) have winds of less than 100 mph, they can be much stronger. Although violent tornadoes (winds greater than 205 mph) account for only 2% of all tornadoes, they cause 70% of all tornado deaths. In 1931, a tornado in Minnesota lifted an 83-ton rail car with 117 passengers and carried it more than 80 feet. In another instance, a tornado in Oklahoma carried a motel sign 30 miles and dropped it in Arkansas. In 1975, a Mississippi tornado carried a home freezer more than a mile.

Recent Occurrences

The classification of tornadoes utilizes the Enhanced Fujita Scale of tornado intensity and damages. Tornado intensity ranges from low intensity (EF0) tornadoes with effective wind speeds of 65-85 mph to high intensity (EF5+) tornadoes with effective wind speeds of 200+ mph. (**Table 20**)

According to the NCDC, Jefferson County has experienced 1 tornado between January 1, 2017, and December 31, 2022. The reports show the tornado was an EF-1 with no deaths or injuries, but $75,000.00 in property damages. The NCDC report stated, "The tornado uprooted and snapped trees as it moved east. An eyewitness reported seeing a black mass with debris moving horizontally. The tornado covered his house in fallen trees. As it crossed Paper Mill Road, the inflow winds into the tornado pulled off siding from nearby houses and moved light objects several hundred feet. A camper parked on the southern edge of the path rolled three times toward the center of circulation and was destroyed. After crossing the road, it struck an abandoned farm house and did more tree damage."

Table 20: Enhanced Fujita Scale of Tornado Intensity

EF-Scale	Winds	Character of Damage	Relative Frequency	Typical Damages
EF0	65-85 mph	Light damage	29%	Shallow rooted trees blown over; damage to roofs, gutters, siding
EF1	86-110 mph	Moderate damage	40%	Mobile homes overturned, roofs stripped, windows broken
EF2	111-135 mph	Considerable damage	24%	Large trees snapped, light-object missiles generated, cars lifted
EF3	136-165 mph	Severe damage	6%	Severe damages to large buildings, trains overturned
EF4	166-200 mph	Devastating damage	2%	Whole houses destroyed; cars thrown
EF5	200+ mph	Incredible damage	<1%	High-rise buildings with significant damage, strong framed homes blown away

The Committee estimated the probability of a tornado occurring in Jefferson County would be "Likely" and the magnitude and severity of such an event to be "Limited" throughout the unincorporated county and "Significant" in the City of Madison due to the population density and the large number of older and historic structures. As with many hazardous events, the Committee anticipated a short warning time of typically less than six hours, and a short duration, also less than six hours. The summary is shown in **Table 21**.

Table 21: CPRI for Tornado

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Likely	Limited	< 6 hours	< 6 hours	Elevated
City of Madison	Likely	Significant	< 6 hours	< 6 hours	Elevated
Town of Hanover	Likely	Limited	< 6 hours	< 6 hours	Elevated
Town of Dupont	Likely	Limited	< 6 hours	< 6 hours	Elevated
Town of Brooksburg	Likely	Limited	< 6 hours	< 6 hours	Elevated

The Indiana State Climate Office estimates that throughout Indiana, there is an average of 20 tornado touchdowns per year. Based on the number of tornado touchdowns previously reported through the NCDC and local weather agencies, the Committee determined the general probability of a future tornado occurring in Jefferson County is "Likely" (within the next five years).

Assessing Vulnerability

As a path of a tornado is not pre-defined, it is difficult to isolate specific critical infrastructure and non-critical structures, or areas of Jefferson County that would be vulnerable to a tornado. Direct and indirect effects from a tornado may include:

Direct Effects:

- Damages to older construction structures, mobile homes, and accessory structures (pole barns, sheds, etc.)
- Damages to above ground utility lines and structures.
- Damages to vehicles in parking lots and driveways or travelling near the tornado.
- Damage to crops and livestock areas.

Indirect Effects:

- Expenses related to debris clean-up and/or reconstruction.
- Loss of revenue for affected businesses.
- Loss of work if employers are affected.
- Long-term emotional distress when future watches, warnings and events occur.

Estimating Potential Losses

Due to the unpredictability of this hazard, all critical and non-critical structures within the county are at risk of future damage or loss of function. Estimates of potential physical losses were determined through a hypothetical exercise where an EF2 intensity tornado traveled through portions of the county and the communities. This is intended to present a "what-if" scenario of a tornado incident and associated damages. Damage estimates were derived by assuming that 25% of all structures in the path of the tornado would be completely destroyed, 35% of the structures would be 50% damaged, and 40% of the structures would sustain 25% damage. These estimations were also determined utilizing three wind speed zones based on distance from the tornado path. Zone 1 is nearest the center of the tornado path, while Zone 3 is the farthest from the path and with a theoretically lower wind speed. **Table 22** provides summary data for the hypothetical tornado, which is identified on **Exhibit 3.**

Table 22: Summary of Hypothetical Tornado Damages

	Zone 1		Zone 2		Zone 3		Total	
	#	$	#	$	#	$	#	$
Jefferson County	96	8,004,550.69	100	8,762,224.55	89	8,022,379.99	285	24,789,155.23
City of Madison	292	23,283,117.84	247	19,366,255.78	227	17,490,203.17	766	60,139,576.79
Totals	388	31,287,668.53	347	28,128,480.32	316	25,512,583.17	1,051	84,928,732.02

Utilizing the same GIS information and process, critical infrastructure within each of the hypothetical tornado zones are included in **Table 23**. These buildings are not included in the structures and damage estimate information provided in **Table 22**.

Table 23: Critical Infrastructure within Hypothetical Tornado

Community	Zone 1	Zone 2	Zone 3
Jefferson County		North Madison Christian Church Autumn Trace Of Jefferson County	
City of Madison	Calvary Baptist Church Grace Baptist Church North United Methodist Church Baptist Health Urgent Care Grace Baptist Schools Ivy Tech Community College Waters Of Clifty Falls	River Of Life Church/Christ Apostle Ministry Norton's King's Daughters' Rehabilitation Center Madison Consolidated Junior High	River Valley Community Church

Future Considerations

Within Jefferson County, there are numerous outdoor events each year as well as the regular tourist attractions which draw thousands of guests to the area. The county has encouraged community members to take advantage of the RAVE public notification system as well as personal weather alert radios. The outdoor warning sirens play a significant role in assuring that guests and visitors as well as community members receive adequate notice of hazardous weather. With the popularity of the area in and around Madison, the sirens are all located within the city. The hilly terrain requires a denser distribution of sirens to assure adequate coverage. Currently, other more densely populated areas of the county are not covered by the audible ranges of the existing outdoor warning sirens. The existing siren locations are identified in **Figure 31.** While it can be anticipated that new construction associated with development may be stronger than older or existing construction, existing older structures, barns, pole buildings, silos and mobile homes remain threatened by tornados. The unincorporated portions of Jefferson County will remain vulnerable in areas the outdoor warning siren coverage is not present. It is impossible to predict the path of a tornado and therefore all current and future development will continue to be at risk for damages. Risks to the citizens of Jefferson County may be lessened through participation in mass notification programs. The county has successfully deployed the RAVE mass warning notification system. Participation is good at the present time, however continued encouragement and outreach are necessary to assure that community members remain as participants and new community members join the program.

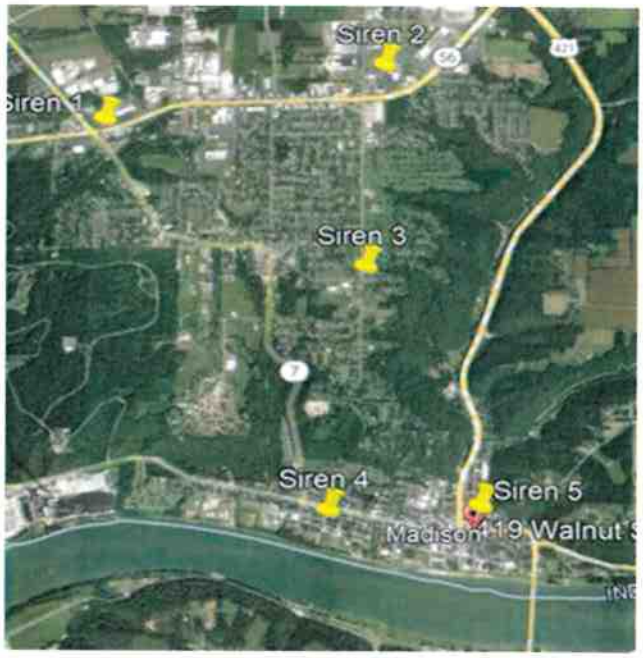


Figure 31. Jefferson County Outdoor Warning Siren Locations

There may also be indirect effects of a tornado event. For example, post-event clean-up may result in high expenses or inability to work for property owners that have experienced damages from either the tornado directly or by debris from high winds. Affected business owners may experience loss of revenue if they are unable to continue operations following the event. Similarly, if a business is affected and unable to operate, employees may experience a loss of wages during the period of recovery.

Relationship to Other Hazards

Tornadoes may result in a hazardous materials incident. Material storage containers can become damaged by high winds and debris can result in a spill or release of materials. As wind speeds increase, the potential for damages to above ground storage containers also increases. Tankers and other transportation vehicles carrying hazardous materials are also at an increased risk while on the road or rail.

Tornadoes may also result in a dam failure as the increased wind speeds, and debris caused by the tornado, may directly impact the dam, or cause indirect damages through large debris or downed trees. In addition, tornadoes may lead to structure fires as the destruction path is sometimes long and broad, leading to an increased number of potentially damaged homes, exposed power lines, and large amounts of debris.

3.2.9 Winter Storm and Ice

Overview

A winter storm can range from moderate snow over a few hours to blizzard conditions with high winds, ice storms, freezing rain or sleet, heavy snowfall with blinding wind-driven snow, and extremely cold temperatures that can last for several days. Some winter storms may be large enough to affect several states while others may affect only a single community. Winter storms are typically accompanied by cold temperatures and blowing snow, which can severely reduce visibility. A winter storm is defined as one that drops four or more inches of snow during a 12-hour period, or six or more inches during a 24-hour span. An ice storm occurs when freezing rain falls from clouds and freezes immediately on contact with a variety of surfaces. All winter storms make driving and walking extremely hazardous. The aftermath of a winter storm can affect a community or region for days, weeks, and even months.

Figure 32. Ice Covered Power Lines

Storm effects such as extreme cold, flooding, and snow and ice accumulation can cause hazardous conditions and hidden problems for people in the affected area. **Figure 32** shows the added weight on trees and ice coated powerlines. People can become stranded on the road or trapped at home, without utilities or other services, including food, water, and fuel supplies. The conditions may overwhelm the capabilities of a local jurisdiction. Winter storms are considered deceptive killers as they may indirectly cause transportation accidents, and injury and death resulting from exhaustion/ overexertion, hypothermia and frostbite from wind chill, and asphyxiation. House fires occur more frequently in the winter due to lack of proper safety precautions and improper use of alternative heating sources.

Wind chill is a calculation of how cold it feels outside when the effects of temperature and wind speed are combined. On November 1, 2001, the NWS implemented a replacement Wind Chill Temperature (WCT) index for the 2001/2002 winter season. The reason for the change was to improve upon the current WCT Index, which was based on the 1945 Siple and Passel Index.

A winter storm watch indicates that severe winter weather may affect your area. In the next year, winter storm watches will become a part of the weather advisory notices rather than having a singular category. This change is anticipated to help community members better understand the significance of a warning when it is issued. A winter storm warning indicates that severe winter weather conditions are on the way. In the event of a blizzard, a winter storm warning will be issued and include the details of the blizzard - that large amounts of falling or blowing snow and sustained winds of at least 35 mph are expected for several hours. Winter storms are not uncommon in Jefferson County and the surrounding region. Such conditions can result in substantial personal and property damage, even death. The

National Weather Service recently (October 15, 2018) consolidated their watch and warning products. In doing so, blizzards and lake effect snows are no longer separate watches and warnings, but instead are detailed as a part of winter storm watches and warnings.

Recent Occurrences

Since January 1, 2017 the NCDC has recorded 3 winter storms, 0 heavy snow and 2 ice storm events. NCDC reports indicated no property damages, no additional crop damages and no injuries, or deaths are associated with any of the events. Many narrative descriptions indicated poor travel conditions, power outages and debris associated with similar events. Assessing the probability, magnitude, warning times, and duration of a snowstorm or ice storm causing disruption to residents and businesses in Jefferson County, as determined by the Planning Committee, is expected to be mostly consistent throughout the county and communities. It is "Likely" that this type of hazard will occur in this area and will typically affect the entire county, and possibly several surrounding counties at one time, resulting in primarily "Limited to Significant" damages. The warning time for severe temperatures or several inches of snow associated with a winter storm is usually greater than 24 hours while the duration of the incident is anticipated to be less than one day. A summary is shown in **Table 24**.

Table 24: CPRI for Winter Storm and Ice

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Likely	Limited	> 24 hours	< 1 day	Elevated
City of Madison	Likely	Significant	> 24 hours	< 1 day	Elevated
Town of Hanover	Likely	Significant	> 24 hours	< 1 day	Elevated
Town of Dupont	Likely	Significant	> 24 hours	< 1 day	Elevated
Town of Brooksburg	Likely	Significant	> 24 hours	< 1 day	Elevated

The Planning Committee determined that the probability for a snowstorm or ice storm to occur in Jefferson County and the communities within is "Likely" or may occur within the next 3 calendar years. Based on historical data and the experience of the Planning Committee, snowstorms are frequent within Jefferson County, but actions have been taken to mitigate many impacts from snow and ice storms. The Committee concerns are greater with the higher population density areas and especially areas with hilly terrain as the freezing of roadways during snow events and ice events can bring day to day life to a standstill.

Assessing Vulnerability

A snowstorm typically affects a large regional area with potential for physical, economic, and/or social losses. Direct and indirect effects of a snowstorm or ice storm within Jefferson County may include:

Direct Effects:

- Higher number of businesses rely on outside workforce and may experience loss of production as employees may not be able to get to work. The high number of residents traveling to other areas for work results in loss of income due to the inability to reach their normal worksites.
- Rural (County) roads may impassable
- Expenses related to snow removal or brine/sand applications.
- Weight of ice and wet snow impacts older structures roofs as well as powerlines.
- Large ice and snow events interrupt economic activity within the community.

Indirect Effects:

- Loss of revenue as businesses are closed.
- Increased emergency response times based on safety of roads.
- Loss of income if unable to get to place of employment.
- Delayed impacts due to supply chain disruptions – products not received or shipped on time causes lost wages and revenues.
- Cancellation of special events and reduced tourist activities impact the local economy.

Estimating Potential Losses

Given the nature and complexity of a regional hazard such as a snowstorm, it is difficult to quantify potential losses to property and infrastructure. As a result, all critical and non-critical structures and infrastructure are at risk from snowstorm and ice storm incidents.

Figure 33. Travel Impacted During Snowstorm

For planning purposes, information collected in snowstorms impacting other communities around the nation is also useful in assessing the potential social, physical, and economic impact that a winter storm could have on communities. For example, a March 2003 snowstorm in Denver, Colorado dropped approximately 31 inches of snow and caused an estimated $34M in total damages. In addition, a February 2003 winter storm dropped an estimated 15-20 inches of snow in parts of Ohio. The Federal and Ohio Emergency Management Agencies and U.S. Small Business Administration surveyed damaged areas and issued a preliminary assessment of $17M in disaster related costs. These costs included snow and debris removal, emergency loss prevention measures, and public utilities repair. The agencies found over 300 homes and businesses either damaged or destroyed in six counties. Snowstorms and blizzards also make road travel difficult and dangerous, as in **Figure 33**.

Looking a bit closer to home, In December 2008, Allen County a wintry combination freezing rains, snow and ice. This storm was the largest disaster for Indiana Michigan Power with 110,000 Allen County customers without power. One thousand six hundred (1,600) additional crew members were brought in to restore electrical service to the county. According to the Journal Gazette $10 – $12 million was spent to clean up the debris, make repairs and labor costs for this event.

While the above examples indicate the wide-ranging and large-scale impact that winter storms can have on a community or region, winter storms generally tend to result in less direct economic impacts than many other natural hazards. According to the Workshop on the Social and Economic Impacts of Weather, which was sponsored by the U.S. Weather Research Program, the American Meteorological Society, the White House Subcommittee on Natural Disaster Relief, and others, winter storms resulted in an average of 47 deaths and more than $1B in economic losses per year between 1988 and 1995. However, these totals account for only 3% of the total weather-related economic loss and only 9% of fatalities associated with all weather-related hazards over the same period.

Future Considerations

As populations increase and communities continue to grow, the need to respond to snowstorms or ice storms will remain an important municipal effort. As new construction or re-development occurs, especially new or existing critical infrastructure, it is important to ensure that these new structures are equipped to deal with the potential risks associated with this hazard. Those may include lengthy power outages and potentially impassable transportation routes, making it difficult to obtain supplies or for passage of response vehicles. These hazard events will typically affect the entire county as a whole, perhaps multiple counties, and therefore all development, current and future, will be at risk for damage associated with snow and ice storms.

Winter storms can also result in substantial indirect costs. Increased emergency response times, loss of work or the inability to get to work, as well as business interruption, are possible indirect effects of a winter storm. According to a report by the National Center for Environmental Predictions, the cold and snowy winter in late 1977 and early 1978, which impacted several heavily populated regions of the country, was partially responsible for reducing the nation's Gross Domestic Product (GDP) from an estimated growth rate of between 6% and 7% during the first three quarters of 1977 to approximately -1% in the last quarter of 1977 and 3% during the first quarter of 1978.

Relationship to Other Hazards

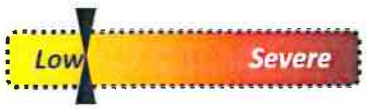
Figure 34. Flooding Caused by Snow Melt

Winter storms and ice storms can lead to flooding as the precipitation melts and enters local receiving waters. This increased volume of water on already saturated, or still frozen ground can quickly result in flood-related damages to structures and properties (**Figure 34**) as well as within the stream or river channel. The increased flooding may then lead to a dam failure within the same area, further exacerbating the damages.

Hazardous materials incidents may be caused by poor road conditions during winter storms or ice storms. Many hazardous materials are transported by rail or by tanker over highways and interstates. In the more rural areas of Jefferson County, or where open areas are more susceptible to snow drifts on roads, the possibility of a traffic related hazardous materials incident may increase.

Power outages and other infrastructure failures may also occur during a winter storm. Weight from snow and ice accumulations can directly or indirectly cause power lines to fail. During extreme cold temperatures, power outages may prove deadly for certain populations such as the elderly or ill. Power outages in the winter are especially critical as families try to generate heat using alternative heat sources.

3.2.10 Dam Failure



Overview

A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is a collapse, breach, or other failure resulting in downstream flooding.

A dam impounds water in the upstream area, referred to as the reservoir. The amount of water impounded is measured in acre-feet. An acre-foot is the volume of water that covers an acre of land to a depth of one foot. As a function of upstream topography, even a very small dam may impound or detain many acre-feet of water. Two factors influence the potential severity of a full or partial dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream.

Of the approximately 80,000 dams identified nationwide in the National Inventory of Dams, the majority are privately owned. Each dam is assigned a downstream hazard classification based on the potential loss of life and damage to property should the dam fail. The three classifications are high, significant, and low. With changing demographics and land development in downstream areas, hazard classifications are updated continually. The following definitions of hazard classification currently apply to dams in Indiana:

- High Hazard Dam: a structure, the failure of which, may cause the loss of life and serious damage to homes, industrial and commercial buildings, public utilities, major highways, or railroads.
- Significant Hazard Dam: a structure, the failure of which, may damage isolated homes and highways or cause the temporary interruption of public utility services.
- Low Hazard Dam: a structure, the failure of which, may damage farm buildings, agricultural land, or local roads.

A levee is a flood control structure designed to hold water away from a building. Levees protect buildings from flooding as well as from the force of water, from scour at the foundation, and from impacts of floating debris. The principle causes of levee failure are like those associated with dam failure and include overtopping, surface erosion, internal erosion, and slides within the levee embankment or the foundation walls. Levees are designed to protect against a particular flood level and may be overtopped in a more severe event. When a levee system fails or is overtopped, the result can be catastrophic and often more damaging than if the levee were not there, due to increased elevation differences and water velocity. The water flowing through the breach continues to erode the levee and increases the size of the breach until it is repaired or water levels on the two side of the levee have equalized.

Recent Occurrences

Within Jefferson County, there are 9 DNR-regulated dams. Of the 9, 1 is considered high hazard dams, 3 are regulated as significant hazard dams by DNR, and the remaining 5 are regulated by DNR as low hazard dams. Locations of the dams are shown on **Exhibit 2**. According to local information, there have not been any recent dam failures within Jefferson County.

According to the National Levee Database (NLD) managed by the USACE, there are no levees systems within Jefferson County. Therefore, levees will not be considered as a hazard within this planning effort.

Based on the information provided to them and their local knowledge, experience, and expertise, the Committee determined the probability of a dam failure is "Unlikely." The magnitude of a dam failure damages was determined to be "Negligible". For a dam failure that occurs on a sunny day, the warning time is anticipated to be less than six hours. **Table 25** provides a summary of the Planning Committee's expectations during a dam failure.

Table 25: CPRI for Dam Failure

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Unlikely	Negligible	< 6 hours	< 6 hours	Low
City of Madison	Unlikely	Negligible	< 6 hours	< 6 hours	Low
Town of Hanover	Unlikely	Negligible	< 6 hours	< 6 hours	Low
Town of Dupont	Unlikely	Negligible	< 6 hours	< 6 hours	Low
Town of Brooksburg	Unlikely	Negligible	< 6 hours	< 6 hours	Low

Assessing Vulnerability

The actual magnitude and extent of damages due to a dam failure depend on the type of breach, the volume of water that is released, and the width of the floodplain valley to accommodate the flood wave. Due to the conditions beyond the control of the dam owner or engineer, there may be unforeseen structural problems, natural forces, mistakes in operation, negligence, or vandalism that may cause a structure to fail. The High Hazard Dam, Paradise Lake, does not have an Incident and Emergency Action Plans (IEAP) on file with the County EMA and the State Dam Safety Program at IDNR. Although now required for high hazard dams, these plans are not required for the significant or low hazard structures. Dam owners are, however, encouraged to prepare an IEAP to help identify whom to notify and what actions might need to take place in the event of an incident or emergency event affecting the dam.

Within Jefferson County, direct and indirect effects from a dam failure may include:

Direct Effects:

- Potential loss of life and serious damage to downstream homes, industrial and commercial buildings, public utilities, major highways, or railroads
- Loss of use of reservoirs for flood control, recreation, and water supply
- Loss of nearby crops and/or livestock located within the inundation area.

Indirect Effects:

- Loss of land in the immediate scour area
- Increased response times due to damaged or re-routed transportation routes and/or bridges

Estimating Potential Losses

As of July 1, 2022, the State of Indiana is requiring High Hazard dams to have Incident and Emergency Action Plans (IEAPs) developed. These plans have detailed potential dam failure inundation areas identified along with at-risk structures identified. The actual magnitude and extent of damages depends

on the type of dam break, the volume of water that is released, and the width of the floodplain valley to accommodate the dam break flood wave. All dam owners are encouraged to develop an IEAP.

Since inundation areas are not available for the dams in Jefferson County and most of the dams are classified as significant or less, the potential damages are anticipated to be limited at best. However, for Paradise Lake Dam damages could include county roads, downstream outbuildings, and structures. Utilizing GIS maps and orthoimagery, the infrastructure and other features below these dam can be identified.

Future Considerations

As areas near existing dams continue to grow in population, it can be anticipated that the number of critical and non-critical structures could also increase accordingly. Location of these new facilities should be carefully considered, and precautions should be taken to ensure that schools, medical facilities, municipal buildings, and other critical infrastructure are located outside of the delineated or estimated dam failure inundation areas. Also, flood-free access should be provided for these facilities. Large areas of new development have not yet occurred downstream of the dams in Jefferson County. Until such development or re-development downstream of a dam is prohibited, those areas remain vulnerable to losses and damages associated with a failure of that structure.

It is also very important to all downstream communities and property owners that dam IEAPs are developed, kept up-to-date, and routinely exercised to ensure the greatest safety to those within the hazard area. This is a good suggestion even for Significant and Low Hazard dams as well.

Relationship to Other Hazards

With the potentially large volumes and velocities of water released during a breach, it can be expected that such a failure would lead to flooding and debris flow within the inundation areas downstream of the dam. Nearby bridges and roads are also in danger of being destroyed or damaged due to a dam failure. Bridges may become unstable and portions of road surfaces may be washed away, or the entire road may be undermined. Other infrastructure such as utility poles and lines may be damaged as the water and debris flows along. The surface or pipes may become exposed due to scouring; all of which may lead to utility failures within the area downstream of the dam failure. If farming or residential structures are downstream, potential hazardous materials releases from LP gas tanks must be considered. If an event were to occur during the spring time, ammonia tanks for fertilization may also be present, providing an additional hazard in the area.

3.2.11 Hazardous Materials Incident

Overview

Figure 35. Potentially Hazardous Waste Drums

Hazardous materials are substances that pose a potential threat to life, health, property, and the environment if they are released. Examples of hazardous materials include corrosives, explosives, flammable materials, radioactive materials, poisons, oxidizers, and dangerous gases. Despite precautions taken to ensure careful handling during manufacture, transport, storage, use, and disposal, accidental releases are bound to occur. These releases create a serious hazard for workers, neighbors, and emergency response personnel. Emergency response to a release may require fire, safety/law enforcement, search and rescue, and hazardous materials response units.

As materials are transported for treatment, disposal, or transport to another facility, all infrastructure, facilities, and residences near the transportation routes are at an elevated risk of being affected by a hazardous materials release. Often these releases can cause serious harm to Jefferson County and its residents if proper and immediate actions are not taken. Most releases are the result of human error or improper storage (**Figure 35**), and corrective actions to stabilize these incidents may not always be feasible or practical in nature.

Railways often transport materials that are classified as hazardous and preparations need to be made and exercised for situations such as derailments, train/vehicle crashes, and/or general leaks and spills from transport cars. Another potential source of hazardous materials in the community from the transportation sector is barge traffic on the Ohio River. Many bulk chemicals are shipped via barge to ports where the materials can then be offloaded and shipped via truck.

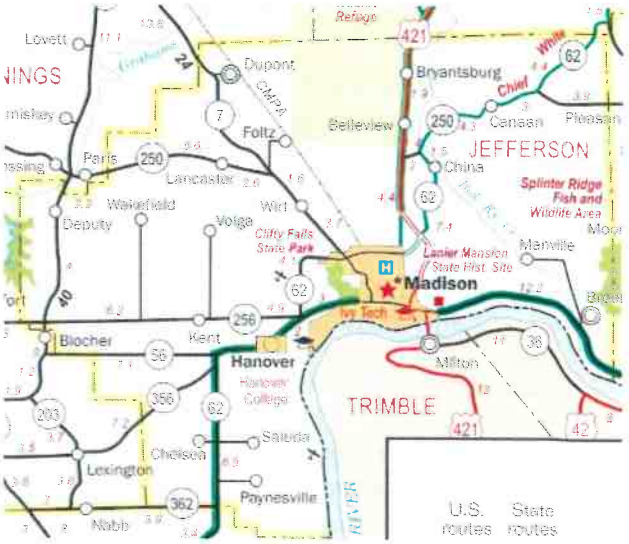


Figure 36. Major Transportation Routes

Recent Occurrences

During conversations with Committee members and through information

provided by local news outlets, it was noted that numerous small and moderately sized incidents involving manufacturing facilities and transportation routes have occurred since the development of the original MHMP. Even though the number of facilities utilizing, storing, and/or manufacturing regulated quantities of listed chemicals has decreased slightly, the number of facilities handling chemicals and the number of high-volume transportation routes (US Highway 421, State Roads 7, 56, 62, 250, 256, 356, and 362 , and City of Madison Port Authority – Madison Rail Road has a line that runs form Madison to North Vernon, IN.) increase the likelihood of an incident. (**Figure 36**)

According to the Committee, the probability of a hazardous materials release or incident is "Possible" in all areas due to the number of facilities and transportation routes within and through county. "Significant" damages are anticipated to result from an incident. The level of damages is dependent upon the location of the event. As with hazards of this nature, a short warning time of less than six hours and a short duration, also less than six hours is anticipated in the event of a hazardous materials incident. A summary is shown in **Table 26**.

Table 26: CPRI For Hazardous Materials Incident

	Probability	Magnitude/ Severity	Warning Time	Duration	CPRI
Jefferson County	Possible	Significant	< 6 hours	< 1 day	Elevated
City of Madison	Possible	Critical	< 6 hours	< 1 day	Elevated
Town of Hanover	Possible	Significant	< 6 hours	< 1 day	Elevated
Town of Dupont	Possible	Significant	< 6 hours	< 1 day	Elevated
Town of Brooksburg	Possible	Significant	< 6 hours	< 1 day	Elevated

Small hazardous materials incidents have occurred throughout Jefferson County in the past and may, according to the Committee, occur again. As the number of hazardous materials producers, users, and transporters increase within or surrounding Jefferson County, it can be anticipated that the likelihood of a future incident will also increase.

Assessing Vulnerability

Within Jefferson County, direct and indirect effects from a hazardous materials incident may include:

Direct Effects:

- The more densely populated areas including the City of Madison have a greater potential for chemical incidents as the production and distribution facilities are nearby as well as the major crossroads which traverse the county.
- The rural areas may find greater amounts agricultural chemicals, shipment and deliveries of products, and storage along with railroad crossings that are affected by such events.
- Expense of reconstruction of affected structures
- Expenses to care for and shelter out of town visitors who may not be able to leave the area during the incident.

Indirect Effects:

- Loss of revenue or production while testing, recovery and/or reconstruction occurs.
- Anxiety or stress related to the event.
- Potential evacuation of neighboring structures or facilities
- Expenses incurred due to response, testing, and cleaning of the affected areas.

Figure 37. Fuel Tanker Fire

While the possibility of an incident occurring may be possible, the vulnerability of Jefferson County has been lowered due to the enactment of Superfund Amendments and Reauthorization Act (SARA) Title III national, state, and local requirements. SARA Title III, also known as the Emergency Planning and Community Right to Know Act (EPCRA), establishes requirements for planning and training at all levels of government and industry. EPCRA also establishes provisions for citizens to have access to information related to the type and quantity of hazardous materials being utilized, stored, transported, or released within their communities.

One local result of SARA Title III is the formation of the Local Emergency Planning Committee (LEPC). This committee has the responsibility for preparing and implementing emergency response plans, cataloging Safety Data Sheets (SDS) formerly known as Material Safety Data Sheets (MSDS), creating chemical inventories of local industries and businesses, and reporting materials necessary for compliance.

In Jefferson County, facilities are subject to SARA Title III provisions due to the presence of listed hazardous materials in quantities at or above the minimum threshold established by the Act. These facilities are also required to create and distribute emergency plans and facility maps to local emergency responders such as the LEPC, fire departments, and police departments. With this knowledge on hand, emergency responders and other local government officials can be better prepared to plan for an emergency and the response it would require, and to better prevent serious effects to the community involved.

Estimating Potential Losses

In addition, the very nature of these events makes predicting the extent of their damage very difficult. A small-scale spill or release might have a minor impact and would likely require only minimal response efforts. Another slightly larger incident might result in the disruption of business or traffic patterns, and in this situation, might require active control response measures to contain a spill or release. However, even small, or moderate events could potentially grow large enough that mass evacuations or shelter in place techniques are needed, multiple levels of response are utilized, and additional hazards such as structural fires and/or additional hazardous materials releases (or explosions) may occur. Given the unpredictable nature of hazardous materials incident, an estimate of potential losses was not generated.

Future Considerations

Additional facilities, both critical and non-critical in nature may be affected if a hazardous materials release were to occur along a transportation route. All of the state roads are traveled by carriers of hazardous materials. As businesses and industries increase in the area, the increased use of these routes will increase the number of transportation related incidents.

By restricting development within the known hazardous materials facility buffer zones, future losses associated with a hazardous materials release can be reduced. Critical infrastructure should be especially

discouraged from being located within these areas. Further, by restricting construction in these zones, the number of potentially impacted residents may also be greatly reduced, lowering the risk for social losses, injuries, and potential deaths. Future construction of hazardous materials facilities should be located away from critical infrastructure such as schools, medical facilities, municipal buildings, and daycares. Such construction would likely reduce the risk to highly populated buildings and populations with physical or social, emotional, or behavioral challenges or considerations such as children, elderly, and medically fragile individuals.

Many facilities constructed within close proximity to a hazardous materials facility are similar due to local zoning ordinances. This reduces the risk and vulnerability of some populations. However, there are several facilities and numerous transportation routes located throughout each of the community making current and future development at risk for losses associated with a hazardous materials release.

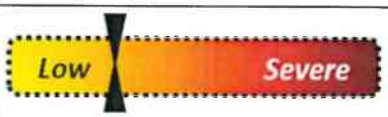
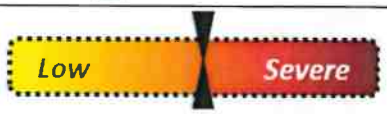
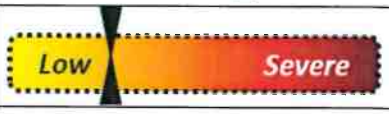
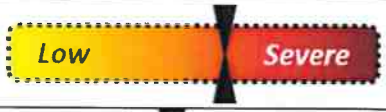
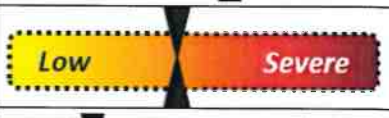
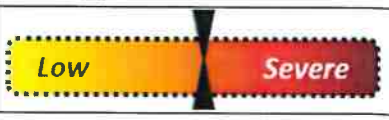
Relationship to Other Hazards

Dependent on the nature of the release, conditions may exist where an ignition source such as a fire or spark ignites a flammable or explosive substance. As the fire spreads throughout the facility or the area, structural and/or property damages will increase. Response times to a hazardous materials incident may be prolonged until all necessary information is collected detailing the type and amount of chemicals potentially involved in the incident. Depending on the nature of the incident, further delays may take place until qualified Hazardous Materials Responders with the appropriate response and monitoring equipment can be transported to the incident location. While this may increase structural losses, it may decrease the social losses such as injuries or even deaths.

3.3 HAZARD SUMMARY

For the development of this MHMP, the Committee utilized the CPRI method to prioritize the hazards they felt affected Jefferson County. Hazards were assigned values based on the probability or likelihood of occurrence, the magnitude or severity of the incident, as well as warning time and duration of the incident itself. A weighted CPRI was calculated based on the percent of the county's population present in the individual communities. **Table 27** summarizes the CPRI values for the various hazards studied within this MHMP.

Table 27: Combined CPRI

Type of Hazard	List of Hazards	Weighted Average CPRI
Natural	Drought	
	Earthquake	
	Extreme Temperatures	
	Fire/Wildfire	
	Flood	
	Hail/Thunder/Windstorm	
	Landslide/Subsidence	
	Tornado	
	Winter Storm/Ice	
Technological	Dam Failure	
	Hazardous Materials Incident	

It can be important to understand the cause-and-effect relationship between the hazards selected by the Committee. **Table 28** can be utilized to identify those relationships. For example, a winter storm (along the side of the table) can result in a flood (along the top of the table). In a similar fashion, a hazardous materials incident (along the top of the table) can be caused by an earthquake; flood; tornado; or a winter storm or ice storm (along the side of the table)

Table 28: Hazard Relationship Table

EFFECT → / CAUSE ↓	Drought	Earthquake	Extreme Temperature	Fires and Wildfire	Flood	Hailstorm/ Thunderstorm /Windstorm	Landslide / Subsidence	Tornado	Winter Storm / Ice	Dam Failure	Hazardous Materials
Drought											
Earthquake				X			X			X	X
Extreme Temperature											X
Fires and Wildfire											X
Flood							X			X	X
Hailstorm/ Thunderstorm / Windstorm				X	X		X			X	X
Landslide / Subsidence					X						X
Tornado				X						X	X
Winter Storm/ Ice					X					X	X
Dam Failure					X		X				X
Hazardous Materials				X							

As a method of better identifying the potential relationships between hazards, the community exhibits can be referenced to indicate the proximity of one or more known hazard areas such as the delineated floodplains and the locations of EHS facilities. For this reason, many of the communities in Jefferson County may be impacted by more than one hazard at a time, depending on certain conditions. It can be anticipated that if a flood were to occur within these areas, there would be a potentially increased risk of a facility experiencing a hazardous materials incident. These areas may also be at a greater risk of a dam failure.

Future development in areas where multiple known hazard areas (dam failure inundation areas, floodplains and surrounding hazardous materials facilities) overlap should undergo careful design, review, and construction protocol to reduce the risk of social, physical, and economic losses due to a hazard incident. While it may certainly be difficult, critical infrastructure should not be constructed within these regions.

CHAPTER 4: MITIGATION GOALS AND PRACTICES

This section identifies the overall goal for the development and implementation of the Jefferson County MHMP. A summary of existing and proposed mitigation practices discussed by the Committee is also provided.

4.1 MITIGATION GOAL

REQUIREMENT §201.6(c)(3)(i):
[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

The Committee reviewed the mitigation goals as outlined within the 2017 Jefferson County MHMP and determined that each of these remain valid and effective. In summary, the overall goal of the Jefferson County MHMP is to reduce the social, physical, and economic losses associated with hazard incidents through emergency services, natural resource protection, prevention, property protection, public information, and structural control mitigation practices.

4.2 MITIGATION PRACTICES

REQUIREMENT §201.6(c)(3)(ii):
[The mitigation strategy shall include a] section that identifies and analyzed a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

REQUIREMENT §201.6(c)(3)(iii):
[The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

In 2005, the Multi-Hazard Mitigation Council conducted a study about the benefits of hazard mitigation. This study examined grants over a 10-year period (1993-2003) aimed at reducing future damages from earthquake, wind, and flood. It found that mitigation efforts were cost-effective at reducing future losses; resulted in significant benefits to society; and represented significant potential savings to the federal treasury in terms of reduced hazard-related expenditures. This study found that every $1 spent on mitigation efforts resulted in an average of $4 savings for the community. The study also found that FEMA mitigation grants are cost-effective since they often lead to additional non-federally funded mitigation activities and have the greatest benefits in communities that have institutionalized hazard mitigation programs.

A more recent (2017) study by the National Institute of Building Sciences, reviewed over 20 years of federally funded mitigation grants, not only from FEMA but also from the US Economic Development Administration (EDA) and the US Department of Housing and Urban Development (HUD). From this broadened review, it has been determined that for every $1 spent on mitigation, $6 are saved on disaster costs. In addition, by designing and construction buildings which exceed select items in the 2015 International Code, $4 can be saved for every $1 invested in those changes.

Six primary mitigation practices defined by FEMA are:

- **Emergency Services** – measures that protect people during and after a hazard.

- **Natural Resource Protection** – opportunities to preserve and restore natural areas and their function to reduce the impact of hazards.
- **Prevention** – measures that are designed to keep the problem from occurring or getting worse.
- **Property Protection** – measures that are used to modify buildings subject to hazard damage rather than to keep the hazard away.
- **Public Information** – those activities that advise property owners, potential property owners, and visitors about the hazards, ways to protect themselves and their property from the hazards.
- **Structural Control** – physical measures used to prevent hazards from reaching a property.

4.2.1 Existing Mitigation Practices

As part of this planning effort, the Committee discussed the strengths and weaknesses of existing mitigation practices and made recommendations for improvements, as well as suggested new practices. The following is a summary of existing hazard mitigation practices within Jefferson County. Mitigation measures that were included in the 2017 Jefferson County MHMP are noted as such.

Emergency Services

- Maintain a database of accurate and community specific information following each hazard event including extent, magnitude, cost, response, and recovery efforts.
- Jefferson County utilizes a hazard broadcast system (RAVE) to distribute mass telephone/text/email announcements to every phone number or email in the system.
- Contingency plans for transportation were developed with the public school system to transport community members and visitors without transportation during emergencies. *(2017 Measure)*

Natural Resource Protection

- Jefferson County, the Cities of Madison, and the Towns of Brooksburg, and Hanover are in good standing with the NFIP Program and have flood protection ordinances which meets the minimum requirements.
- Jefferson County LEPC completed a transportation survey to determine the typical chemicals and quantities of chemicals being transported throughout Jefferson County.

Prevention

- Jefferson County developed a Flood Response Plan to improve response and reduces losses from a flood event.
- he Jefferson County LEPC provides training regarding the proper storage, transport, and disposal of hazardous materials.
- Information related to natural hazards has been incorporated into plans and guidance materials to better guide future growth and development *(2017 Measure)*

Property Protection

- The Jefferson County EMA has encouraged Paradise Lake and Hereford Lake dam owners to develop an IEAP for each of their structures. (*2017 Measure*)
- The City of Madison has secured a fuel reserve to ensure critical facilities can run on power back-up generators for extended periods of time. *(2017 Measure)*

Public Information

- Jefferson County established a bilingual notifications system and created hazard preparedness materials *(2017 Measure)*
- Establish procedures to alert and evacuate the population in known hazard areas.
- The EMA and response agencies utilize websites and social media to convey messages to the public prior to, during and following hazardous events. *(2017 Measure)*

Structural Control

- The County has completed drainage improvements at 4th and East Street intersection to prevent surface runoff from flooding intersection (2017 Measure)

4.2.2 Proposed Mitigation Practices

After reviewing existing mitigation practices, the Committee reviewed mitigation ideas for each of the hazards studied and identified which of these they felt best met their needs as a community according to selected social, technical, administrative, political, and legal criteria. The following identifies the key considerations for each evaluation criteria:

- **Social** – mitigation projects will have community acceptance, they are compatible with present and future community values, and do not adversely affect one segment of the population.
- **Technical** – mitigation projects will be technically feasible, reduce losses in the long-term, and will not create more problems than they solve.
- **Administrative** – mitigation projects may require additional staff time, alternative sources of funding, and have some maintenance requirements.
- **Political** – mitigation projects will have political and public support.
- **Legal** – mitigation projects will be implemented through the laws, ordinances, and resolutions that are in place.
- **Economic** – mitigation projects can be funded in current or upcoming budget cycles.
- **Environmental** – mitigation projects may have negative consequences on environmental assets such as wetlands, threatened or endangered species, or other protected natural resources.

Table 29 lists a summary of all proposed mitigation practices identified for all hazards, as well as information on the local status, local priority, benefit-cost ratio, project location, responsible entities, and potential funding sources, associated with each proposed practice. The proposed mitigation practices are listed in order of importance to Jefferson County for implementation. Projects identified by the Committee to be of "high" local priority may be implemented within five years from final Plan adoption. Projects identified to be of "moderate" local priority may be implemented within 5-10 years from final Plan adoption, and projects identified by the Committee to be of "low" local priority may be implemented within 10+ years from final Plan adoptions. However, depending on availability of funding, some proposed mitigation projects may take longer to implement.

As part of the process to identify potential mitigation projects, the Planning Committee weighed the benefit derived from each mitigation practice against the estimated cost of that practice. This basic benefit-cost ratio was based on experience and professional judgement and was utilized to identify the mitigation practices as having a high, moderate, or low benefit-cost ratio. Preparing detailed benefit-cost ratios was beyond the scope of this planning effort and the intent of the MHMP.

The update of this MHMP is a necessary step of a multi-step process to implement programs, policies, and projects to mitigate the effect of hazards in Jefferson County. The intent of this planning effort was to identify the hazards and the extent to which they affect Jefferson County and to determine what type of mitigation strategies or practices may be undertaken to mitigate for these hazards. A FEMA-approved MHMP is required to apply for and/or receive project grants under the BRIC, HMGP, and FMA. Although this MHMP meets the requirements of DMA 2000 and eligibility requirements of these grant programs additional detailed studies may need to be completed prior to applying for these grants. **Section 5.0** of this plan includes an implementation plan for all high priority mitigation practices identified by the Committee.

The CRS program credits NFIP communities a maximum of 97 points for setting goals to reduce the impact of flooding and other known natural hazards (2 points); identifying mitigation projects that include activities for prevention, property protection, natural resource protection, emergency services, structural control projects, and public information (up to 95 points).

Table 29: Proposed Mitigation Measures

Mitigation Practice	Mitigation Strategy	Hazard Addressed	Lifeline Addressed	Status	Priority	Benefit-Cost Ratio	Responsible Entity	Funding Source
Management of High Hazard Dams 1. Review regular inspection reports and maintenance records of dams regardless of ownership.	☒ Emergency Services ☐ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☐ Public Information ☒ Structural Control	☐ Drought ☐ Earthquake ☐ Extreme Temperature ☐ Fire ☐ Flood ☐ Hail/Thunder/Wind ☐ Landslide/Subsidence ☐ Tornado ☐ Winter Storm/Ice ☒ Dam Failure ☐ HazMat Incident	☒ Safety and Security ☐ Food, Water, Shelter ☐ Health & Medical ☐ Energy ☐ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Ensure inspections are reported and required improvements and repairs are completed in a timely manner.	High	High	EMA	General Budget DNR Grant Insurance
Emergency Preparedness and Warning 1. Purchase mobile dynamic message boards to provide messages during hazardous events and recovery efforts. 2. Improve disaster preparedness and emergency response at the local levels through programs the County Organizations Active in Disaster (COAD)/Voluntary Organizations Active in Disaster (VOAD). 3. Evaluate and utilize flood forecasting capabilities including stream gages, flood forecast maps, and flood alerts. *(2017 measure)* 4. Improve planning and coordination among event coordinators, facility owners, and emergency response teams. 5. Maintain a centralized system for testing, maintenance, and operation of outdoor warning sirens *(2017 measure)*	☒ Emergency Services ☒ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☒ Public Information ☐ Structural Control	☒ Drought ☒ Earthquake ☒ Extreme Temperature ☒ Fire ☒ Flood ☒ Hail/Thunder/Wind ☒ Landslide/Subsidence ☒ Tornado ☒ Winter Storm/Ice ☒ Dam Failure ☒ HazMat Incident	☒ Safety and Security ☒ Food, Water, Shelter ☐ Health & Medical ☐ Energy ☒ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Develop a list of partnering private businesses willing to display hazard related messages within other communities. 2. Improve disaster preparedness and emergency response at the local level through effective use of the COAD/VOAD. 3. Continue to assess need for additional gages and available funding. 4. Improve planning and coordination among event coordinators, facility owners, and emergency response teams. 5. Maintain a centralized system for testing, maintenance, and operation of outdoor warning sirens (2017 measure)	High # 1, 3 Moderate #2, 4, 5	High to Moderate	EMA 911/ Communications Center	IDHS General Budget Foundation Grants USGS USDA Special Interest Groups/ Fraternal Organizations
Emergency Response and Recovery 1. Add mobile data terminals (MDTs) to all emergency response vehicles. Include both hardware and software. 2. Establish a water rescue/dive team (Low – boats for water rescue) 3. Acquire and use satellite phones for emergency communications within the county. 4. Enhance/create mobile Emergency Operations Center (EOC) with additional equipment. 5. Develop and implement a sandbagging plan. This may include purchase of mobile sand bagging machine and generator; determination of storage location; procedures for deployment and activation; and communications to the public.	☒ Emergency Services ☒ Nat. Res. Protection ☒ Prevention ☐ Property Protection ☒ Public Information ☐ Structural Control	☒ Drought ☒ Earthquake ☒ Extreme Temperature ☒ Fire ☒ Flood ☒ Hail/Thunder/Wind ☒ Landslide/Subsidence ☒ Tornado ☒ Winter Storm/Ice ☒ Dam Failure ☒ HazMat Incident	☒ Safety and Security ☒ Food, Water, Shelter ☒ Health & Medical ☐ Energy ☐ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Inventory and prioritize the need for MDTs. Determine priorities for Fire Departments as well as what needs remain to be addressed for the law enforcement agencies. 2. Maintain water rescue team. Investigate and purchase equipment for the water rescue team to include a boat to be shared between the City of Madison Fire Department and the County. 3. Investigate options for communications alternatives such as satellite phones for emergency communications use. 4. Purchase Command Post vehicle with additional equipment to include cameras, communications equipment and others as determined to complement existing capabilities on hand. 5. Evaluate equipment needs for sandbagging.	High #1-2 Moderate #3-5	High	EMA All Fire Departments Health Department	Health Grants DNR Grants Assistance to Firefighter Grants Foundation Grants District 9 funding

Mitigation Practice	Mitigation Strategy	Hazard Addressed	Lifeline Addressed	Status	Priority	Benefit-Cost Ratio	Responsible Entity	Funding Source
Power Back Up Generators 1. Inventory, prioritize, and retrofit public facilities and/or all critical facilities with appropriate wiring and electrical capabilities for utilizing a large generator for power backup (2017 measure) 2. Encourage an ordinance requiring new and existing critical facilities to have generators and appropriate wiring.	☒ Emergency Services ☐ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☐ Public Information ☐ Structural Control	☐ Drought ☒ Earthquake ☒ Extreme Temperature ☒ Fire ☒ Flood ☒ Hail/Thunder/Wind ☒ Landslide/Subsidence ☒ Tornado ☒ Winter Storm/Ice ☒ Dam Failure ☒ HazMat Incident	☒ Safety and Security ☒ Food, Water, Shelter ☒ Health & Medical ☐ Energy ☒ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. In the inventory note that Hanover has only 1 generator and it is located on campus, none of the nursing homes currently hookups or equipment, and fire departments need coverage. 2. Require power backup generators for all critical facilities.	High #1-2	Moderate	EMA Health Department All Fire Departments	FEMA Grants Revolving Loan Funds General Budget Donations
Safer Rooms and Community Shelters 1. Construct safe rooms or designated shelters for schools in Jefferson County. (High) 2. Request NWS assistance to determine best areas for shelter 3. Develop and animal sheltering plan 4. Develop temporary and/or long-term shelter agreements within the County. Potential for tiered levels of shelters, domestic animal shelters, etc. especially in small communities	☒ Emergency Services ☐ Nat. Res. Protection ☐ Prevention ☐ Property Protection ☒ Public Information ☒ Structural Control	☒ Drought ☒ Earthquake ☐ Extreme Temperature ☐ Fire ☐ Flood ☒ Hail/Thunder/Wind ☒ Landslide/Subsidence ☒ Tornado ☒ Winter Storm/Ice ☐ Dam Failure ☐ HazMat Incident	☒ Safety and Security ☐ Food, Water, Shelter ☐ Health & Medical ☐ Energy ☐ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Identify options for shelters for schools in Jefferson County 2. Request NWS assistance to determine locations. At present time Red cross shelters are the only ones available 3. Assemble an animal sheltering plan development team and evaluate sheltering needs and options in the county. 4. Additional Shelters - Hanover, Dupont - N; E Brooksburg and Deputy	High #1-2 Moderate #4 Low # 3	Moderate	EMA All Building Departments Community Leaders COAD	General Budget Churches/ Shelter Locations Donations
Building Protection 1. Harden the EOC Communications center 2. Harden public buildings, critical facilities, and utilities to protect against hazards other than earthquakes. 3. Develop floodplain/Fluvial Erosion Hazard overlay district to further protect area from development while allowing passive uses. 4. Harden public buildings, critical facilities, historic structures, and utilities to protect against	☒ Emergency Services ☒ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☐ Public Information ☒ Structural Control	☐ Drought ☒ Earthquake ☒ Extreme Temperature ☒ Fire ☒ Flood ☒ Hail/Thunder/Wind ☒ Landslide/Subsidence ☒ Tornado ☒ Winter Storm/Ice ☒ Dam Failure ☒ HazMat Incident	☒ Safety and Security ☐ Food, Water, Shelter ☒ Health & Medical ☒ Energy ☐ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Key cards, bollards, cameras 2. Install security cameras at City Hall in Madison, and County. 3. Develop floodplain/Fluvial Erosion Hazard overlay district to further protect area from development while allowing passive uses. 4. Explore opportunities to better inform community members and leaders about earthquake hazards and ways to harden structures.	High #1-2 Moderate #4 Low # 3	Moderate	All Floodplain Administrators City of Madison Town of Hanover EMA Director	General Budget IDHS Grants IU or IGWS
Floodplain Management 1. Review and revise stormwater ordinances that address future development causing increased impervious surfaces	☒ Emergency Services ☒ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☒ Public Information ☒ Structural Control	☐ Drought ☐ Earthquake ☐ Extreme Temperature ☐ Fire ☒ Flood ☐ Hail/Thunder/Wind ☐ Landslide/Subsidence ☐ Tornado ☐ Winter Storm/Ice ☐ Dam Failure ☐ HazMat Incident	☒ Safety and Security ☒ Food, Water, Shelter ☐ Health & Medical ☐ Energy ☐ Communications ☒ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Encourage adoption of the new LTAP model Storm Water Ordinance	High	High to Moderate	County Floodplain Administrator	INAFSM USDA DNR OCRA

Mitigation Practice	Mitigation Strategy	Hazard Addressed	Lifeline Addressed	Status	Priority	Benefit-Cost Ratio	Responsible Entity	Funding Source
Community Rating System 1. Reduce flood insurance premiums through participation in NFIP Community Ratings System (CRS) program	☒ Emergency Services ☒ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☒ Public Information ☐ Structural Control	☐ Drought ☐ Earthquake ☐ Extreme Temperature ☐ Fire ☒ Flood ☐ Hail/Thunder/Wind ☐ Landslide/Subsidence ☐ Tornado ☐ Winter Storm/Ice ☐ Dam Failure ☐ HazMat Incident	☒ Safety and Security ☐ Food, Water, Shelter ☐ Health & Medical ☐ Energy ☐ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Evaluate participation in the CRS program to reduce flood insurance premiums	Moderate	High	City Leaders County Leaders EMA All Floodplain Administrators	General Budget FEMA Grants MRBC Grants
Public Education and Outreach 1. Provide hazard preparedness (warning sirens, radio stations, go-kits, insurance protection, etc.) literature at public facilities and events, parks	☒ Emergency Services ☒ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☒ Public Information ☐ Structural Control	☒ Drought ☒ Earthquake ☒ Extreme Temperature ☒ Fire ☒ Flood ☒ Hail/Thunder/Wind ☒ Landslide/Subsidence ☒ Tornado ☒ Winter Storm/Ice ☒ Dam Failure ☒ HazMat Incident	☒ Safety and Security ☐ Food, Water, Shelter ☐ Health & Medical ☐ Energy ☐ Communications ☐ Transportation ☐ Hazardous Materials	**Ongoing –** 1. The EMA provides year-round outreach materials through social media. **Proposed Enhancements –** 1. Continue ongoing outreach efforts, providing additional materials as needed based on community needs and recent hazard events.	Moderate	Moderate	EMA Amish Bishops Community Leaders	FEMA Grants Volunteers Donation Foundation Grants Libraries
Hazardous Materials 1. Continue LEPC reporting and training efforts as required through the SARA Title III and ensure current facility maps and response plans are on file for Tier II facilities. 2. Investigate the addition of warning (flashing lights, crossing arms, rumble strips, signage) at each intersection between rail and road to reduce the potential for train/vehicular crashes	☒ Emergency Services ☒ Nat. Res. Protection ☒ Prevention ☒ Property Protection ☒ Public Information ☐ Structural Control	☐ Drought ☐ Earthquake ☐ Extreme Temperature ☐ Fire ☐ Flood ☐ Hail/Thunder/Wind ☐ Landslide/Subsidence ☐ Tornado ☐ Winter Storm/Ice ☐ Dam Failure ☒ HazMat Incident	☒ Safety and Security ☒ Food, Water, Shelter ☒ Health & Medical ☐ Energy ☐ Communications ☒ Transportation ☒ Hazardous Materials	**Ongoing –** **Proposed Enhancements –** 1. Efforts should be strengthened to ensure requirements are met and trainings span several communities and potential hazards. 2. Investigate the addition of warning (flashing lights, crossing arms, rumble strips, signage) at each intersection between rail and road to reduce the potential for train/vehicular crashes	Moderate #1 Low #2	High	LEPC EMA All Fire Departments	Tire II Funding HMEP Grants IDHS FEMA Training

CHAPTER 5: IMPLEMENTATION PLAN

The following is a proposed plan for implementing all high priority mitigation practices identified in this Plan. It should be noted that implementation of each of these proposed practices may involve several preparatory or intermediary steps. However, to maintain clarity, not all preparatory or intermediary steps are included.

5.1 MANAGEMENT OF DAMS

Review regular inspection and maintenance of dams reports regardless of ownership. Ensure inspections are reported and required improvements and repairs are completed in a timely manner.

- Contact IDNR Dam Safety Program to assure they have corrected, up to date contact information including email address(es) for inspection reports.
- Schedule meet and greet opportunities with dam owners to establish contact information.
- Review inspection reports with owners, understand challenges and issues the owners may be aware of and encourage timely completion of repairs or improvements.
- Conduct follow up visits, as needed.

5.2 EMERGENCY PREPAREDNESS AND WARNING

Purchase mobile dynamic message boards to provide messages during hazardous events and recovery efforts.

- Inventory and evaluate available message board capabilities.
- Identify funds for such purchase of up to 3 units and acquire.

Evaluate and utilize flood forecasting abilities including stream, flood forecast maps, and flood alerts. Identify replacement needs and possible new gage locations.

- Review existing capabilities and determine areas of need for increased warning time.
- Prioritize areas and determine options for gage replacement and/or new purchases.
- Secure funding and implement recommendations.
- Provide updated information to appropriate response agencies.

5.3 EMERGENCY RESPONSE AND RECOVERY

Inventory and prioritize the need for MDTs. Determine priorities for Fire Departments as well as what needs remain to be addressed for the law enforcement agencies.

- Create a full inventory of MDTs in the County for all agencies. Assess the number and types of equipment and software being used and any outstanding needs.
- Using inventory data, prioritize agency needs and identify potential costs for each. Prioritize purchases based on available funding mechanisms if funding is discipline specific.

Maintain water rescue team. Investigate and purchase equipment for the water rescue team to include a boat to be shared between the City of Madison Fire Department and the County.

- Identify and prioritize needs to maintain the water rescue team – equipment, training, etc.
- Select a boat that best matches the needs of both the City of Madison and County team members, determine costs and funding sources. Acquire unit and necessary equipment.
- Prepare and execute a sharing agreement which includes scheduling, operating protocols, maintenance scheduling and costs.

5.4 POWER BACKUP GENERATORS

Inventory, prioritize, and retrofit public facilities and/or all critical facilities with appropriate wiring and electrical capabilities for utilizing a large generator for power backup (*2017 measure*). In the inventory note that Hanover has only 1 generator and it is located on campus, none of the nursing homes currently have hookups or equipment, and the fire departments need coverage.

- Update inventory of critical infrastructure and shelters. Include generator availability, capabilities/capacity, and potential needs (wiring, switch boxes, connectors, etc.).
- Prioritize needs based upon critical and essential services provided by the facilities. Include in priority nursing homes, fire departments and Hanover.
- Support the acquisition and installation of generators, switches, etc. to meet all the needs of the facility should long-term power generation be necessary. Recommend potential funding mechanisms.

Require power backup generators for all critical facilities.

- Prepare an ordinance for the County commissioners and City and Town leaders that requires the installation of generator hook ups and generators for all critical facilities in their jurisdictions.
- Prepare a fact sheet to help community leaders understand the importance of having these units available. Identify potential funding sources both for government and private facilities.

5.5 SAFER ROOMS AND COMMUNITY SHELTERS

Construct safe rooms or designated shelters for schools in Jefferson County. Identify options for shelters for schools in Jefferson County.

- Identify sheltering needs at the school facilities. Consider school population needs as well as public community sheltering needs. Identify needs for special needs populations to include but not be limited to ADA standards. Identify specific uses for shelter – warming or cooling centers, temporary/short term/ immediate housing, tornado protection, etc.
- Compile current shelter locations, accommodations, limitations and needs near or at school properties. Verify shelter locations are outside of known hazard areas.
- Conduct a gap analysis where additional shelter services would be useful and potential facilities that would be able to shelter people safely. Identify facilities that are ADA compliant. If none are available, identify what is needed for ADA compliance in existing facilities.

5.6 BUILDING PROTECTION

Harden the EOC Communications center. Consider access control through use of key cards, installation of safety bollards at glass entry doors, and cameras as well as other options.

- Determine best practices for hardening EOCs and primary communications centers, cost savings when protective measures are employed, and potential means to fund such actions.
- Identify which best practices will be employed and specific costs.
- Prioritize purchase and installation based on risk and desire to implement protective measures. Pursue funding opportunities to complete installation.

Install security cameras at City Hall in Madison, and County Courthouse

- Identify potential vendors and review the product(s) best suited for the applications needed at the City and County facilities. Include video storage on and off site as well as low light conditions.
- Prioritize units to be installed and secure appropriate funding. Especially in historic structures assure camera installation does not adversely impact the historic value or status of the structure.
- Schedule and install units so that future costs can be spread out over time and not be due all at once.

5.7 FLOODPLAIN MANAGEMENT

Encourage adoption of the new LTAP model Stormwater Model Ordinance and Technical Standards

- Educate community leaders on the benefits of the new model ordinance language.
- Prepare a Jefferson County specific template to be used by the county and the communities (City of Madison, and Towns of Brooksburg and Hanover) for their ordinance update and adoption.

CHAPTER 6: PLAN MAINTENANCE PROCESS

6.1 MONITORING, EVALUATING, AND UPDATING THE PLAN

REQUIREMENT §201.6(c)(4)(i):
[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

To effectively reduce social, physical, and economic losses in Jefferson County, it is important that implementation of this MHMP be monitored, evaluated, and updated. The EMA Director is responsible for the MHMP. As illustrated in Section 4.2 Mitigation Practices, this Plan contains mitigation program, projects, and policies from multiple departments within each incorporated community. Depending on grant opportunities and fiscal resources, mitigation practices may be implemented independently, by individual communities, or through local partnerships. Therefore, the successful implementation of this MHMP will require the participation and cooperation of the entire Committee to successfully monitor, evaluate, and update the Jefferson County MHMP.

The EMA Director will reconvene the MHMP Committee on an annual basis and following a significant hazard incident to determine whether:

- the nature, magnitude, and/or type of risk have changed.
- the current resources are appropriate for implementation.
- there are implementation problems, such as technical, political, legal, or coordination issues with other agencies.
- the outcomes have occurred as expected.
- the agencies and other partners participated as originally proposed.

During the annual meetings, the Implementation Checklist provided in **Appendix 10** will be helpful to track any progress, successes, and problems experienced.

The data used to prepare this MHMP was based on "best available data" or data that was readily available during the development of this Plan. Because of this, there are limitations to the data. As more accurate data becomes available, updates should be made to the list of critical infrastructure, the risk assessment, and vulnerability analysis.

DMA 2000 requires local jurisdictions to update and resubmit their MHMP within five years (from the date of FEMA approval) to continue to be eligible for mitigation project grant funding. In Jefferson County, the EMA Director will once again reconvene the MHMP Committee for a series of meetings designed to replicate the original planning process. Information gathered following individual hazard incidents and annual meetings will be utilized along with updated vulnerability assessments to assess the risks associated with each hazard common in Jefferson County. These hazards, and associated mitigation goals and practices will be prioritized and detailed as in Section 3.0 this MHMP. Sections 4.0 and 5.0 will be updated to reflect any practices implemented within the interim as well as any additional practices discussed by the Committee during the update process. The plan update process will incorporate new planning guidance and best practices as planning requirements are updated.

Prior to submission of the updated MHMP, a public meeting will be held to present the information to residents of Jefferson County and to provide them an opportunity for review and comment of the draft

MHMP. A media release will be issued providing information related to the update, the planning process, and details of the public meeting.

6.2 INCORPORATION INTO EXISTING PLANNING MECHANISMS

REQUIREMENT §201.6(c)(4)(ii):
[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as the comprehensive or capital improvements, when appropriate.

Many of the mitigation practices identified as part of this planning process are ongoing with some enhancement needed. Where needed, modifications will be proposed for each NFIP communities' planning documents and ordinances during the regularly scheduled update including comprehensive plans, floodplain management plans, zoning ordinances, site development regulations, and permits. Modifications include discussions related to hazardous material facility buffers, floodplain areas, and discouraging development of new critical infrastructure in known hazard areas.

6.3 CONTINUED PUBLIC INVOLVEMENT

REQUIREMENT §201.6(c)(4)(iii):
[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

Continued public involvement is critical to the successful implementation of the Jefferson County MHMP. Comments gathered from the public on the MHMP will be received by the EMA Director and forwarded to the MHMP Committee for discussion. Education efforts for hazard mitigation will be the focus of the annual Severe Weather Awareness Week as well as incorporated into existing stormwater planning, land use planning, and special projects/studies efforts. Once adopted, a copy of this Plan will be available for the public to review in the EMA Office and the Jefferson County website.

Updates or modifications to the Jefferson County MHMP will require a public notice and/or meeting prior to submitting revisions to the individual jurisdictions for approval.

The CRS program credits NFIP communities a maximum of 28 points for adopting the Plan (2 points); establishing a procedure for implementation, review, and updating the Plan; and submitting an annual evaluation report (up to 26 points).

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ORDINANCE NO. 2023-10 **Sponsor C. Krebs**

AN ORDINANCE OF THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA REPEALING AND REPLACING ORDINANCE NO. 2013-2 REGARDING GARBAGE COLLECTION

WHEREAS, there has been a request made upon the Common Council of the City of Madison, Indiana to repeal and replace Chapter 50 as established by Ordinance No. 2013-2 previously passed and adopted on April 2, 2013, by said Council with respect to Garbage Collection;

WHEREAS, the Common Council of the City of Madison, Indiana recommends that Chapter 50 Garbage Collection Ordinance No. 2013-2 be repealed and replaced as follows:

See Exhibit A attached hereto.

WHEREAS, it is in the best interest of the City of Madison, Indiana and its citizens that the ordinance regarding garbage collection be repealed and replaced accordingly.

NOW, THEREFORE, BE IT ORDAINED BY THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA, that Chapter 50 Garbage Collection Ordinance No. 2013-2 be repealed and replaced to reflect Exhibit A attached hereto.

The foregoing Ordinance was passed and adopted by the Common Council, City of Madison, Indiana at a regular meeting held on the _____ day of _____, 2023.

PRESENTED BY:

_____
Councilman

_____
Bob G. Courtney, Mayor

(SEAL)
ATTEST:

_____
Kathleen M. Rampy, Clerk-Treasurer

EXHIBIT A

City of Madison

Garbage Collection

City Transfer Station

Chapter 50

CHAPTER 50: GARBAGE COLLECTION; CITY TRANSFER STATION

Section

Garbage Collection

Transfer Station

Cross-reference:

Open burning of leaves, wastes, and the like, see §§ 92.40 through 92.44

GARBAGE COLLECTION

§ 50.03 COLLECTION REGULATIONS; FEES

(A) Collection regulations.

(1) Weekly pickup of garbage shall be provided by the city to each "UNIT" within the City and (County with Board of Works approval) as follows:

Options:1. One (1) 64 gallon can (max)
2. Two (2) 33 gallon cans
3. Two (2) 33 gallon bags

All cans shall have a tight cover with tied bags inside and all bags outside a can shall be securely tied. Amounts of garbage exceeding the above-stated limits may be disposed of in a 33 gallon max plastic bag with an orange sticker purchased from the city. Each can or bag shall not exceed a maximum weight of 50 pounds.

(2) Recyclables shall be picked up on the first and third weeks of each month following the first Tuesday of the week, or more frequently as determined by Board of Public Works and Safety. The following items will be accepted: office paper, junk mail, paperboard, plastic bottles and jugs, aluminum cans, steel and tin cans with labels removed, cartons with caps and straws removed, glass bottles and glass jars. Recyclables *shall* be placed in a garbage can or bin identified with a recycle only sticker not exceeding 55 gallons in size and must not exceed a maximum weight of 50 pounds. No bags will be accepted and everything must be loose.

(3) Composting materials shall be picked up once a week in May, June, and July and the second and fourth weeks in January, February, March, April, August, September, October, November, and December. Compost material must be placed in a Thirty Three (33) gallon can (maximum size) affixed with a City of Madison current composting sticker or an approved Compost Bag. Cans or Bags must not exceed the weight limit of 50 pounds.

(4) Leaves may be disposed of in the same manner as composting materials. In the fall, leaves may be placed **Curbside** where they will be picked up pursuant to a schedule established by the Street Department.

(5) Appliances, logs, carpeting, construction materials, and trash shall not be picked up by the Sanitation Department or the Street Department. Logs, carpeting, construction materials, and trash may be delivered to the Madison Transfer Station where they will be subject to a tipping fee.

(6) Brush that does not fit in a City of Madison compost bag must be placed **Curbside** and residents must call the Street Department to request pick up.

(7) Furniture shall be picked up once a week for residents that are currently paying for City of Madison Garbage pickup and each Piece of Furniture must have a City of Madison sticker located on it. Furniture must be placed **Curbside** by 7:00 am the day of pickup. Residents must call the Street Department in advance to request pick up.

(8) All items to be picked up must be placed in or immediately adjacent to a street or alley by 7:00 am on the pickup day.

(9) Garbage shall not be placed for collection at curbside or in any area *proximate* to curbside earlier than 6:00 p.m. on the day before said garbage is to be collected. Garbage must be at curbside the day of pickup by 7:00 a.m. This provision shall not be interpreted to prohibit the placement of garbage for collection at any time in an alley.

(B) Fees.

(1) Each unit, occupied or unoccupied, shall be charged a monthly fee of $ 9.85 for weekly collection, which shall not be adjustable. Such charge shall be due and payable 15 days after billing therefore and subject to a delinquent charge of 10% if not paid when due.
(2) For an additional $ 9.85 monthly fee, each unit can purchase an additional weekly collection volume as described in subsection (A)(1)
(3) City of Madison composting bags shall cost $1.00 a bag, and stickers for composting cans shall cost $ 20.00 each per year.
(4) City of Madison sticker for extra garbage bag collection shall cost $3.00 a sticker.

(5) City of Madison charge for furniture **Curbside Pick-up** shall cost $5.00 per piece.

(6) In the event a resident will be leaving his or her residence unoccupied by any person for a continuous period of not less than 180 days and, as a result, shall not require pickup, such resident may notify the City Utility Office. Any resident not requiring pickup for less than 180 days *shall have the approval of* the **Board of Public Works**. After approval resident shall be entitled to an abatement of the fees normally charged under this section. The resident must, within five days of the reoccupancy of his or her residence, after a period of suspension of charges under this subsection, notify the City Utility Office of the date of reoccupancy and charges and pickup shall resume under the normal fee and pickup schedule.

(Ord. 1993-7, passed 4-6-93; Am. Ord. 1996-9, passed 5-29-96; Am. Ord. 1999-5, passed 5-18-99) Penalty, see § 50.99, Ord. 2013-2, passed 4-2-13)

§ 50.09 SUPERVISION OF SANITATION DEPARTMENT

The Board of Public Works and Safety is responsible for the supervision of the Sanitation Department.

('66 Code, § 94.04)

TRANSFER STATION

§ 50.21 PROHIBITED ITEMS; REMOVAL BY CITY

(A) The City Transfer Station shall be used solely for refuse disposal in accordance with the City's approved Operating Plan and no person or commercial refuse hauler shall cause to be deposited at the facility the following:

(1) Liquid industrial waste;

(2) Hazardous waste;

(3) Carcasses;

(4) Sludge;

(5) Items greater than four feet in length, four feet in width, and not to exceed 48 cubic feet.

(B) Any refuse, waste, or material prohibited from being deposited *at the transfer station* but which is deposited *at the transfer station*, or any refuse or material deposited on access roads or any unauthorized location within the facility may be removed or

disposed of by city representatives or employees at the expense of the person or commercial refuse hauler depositing same.

(Ord. 1985-25, passed 11-5-85, Ord. 2013-2, passed 4-2-13) Penalty, see § 50.99

§ 50.27 TRANSFER STATION / COMPOST YARD CHARGES

Rates for individual residents and industrial and commercial refuse haulers shall be as follows:

(A) Automobile, $3.00 per bag (household trash only).
(B) Vehicles with loose trash.

(1) Up to 500 pounds: $19.00

(2) 501 - 1000 pounds: $39.00

(3) 1001 - 1500 pounds: $59.00

(4) 1501 - 2000 pounds: $79.00

(C) Compactors: $79.00

(D) Tires: (No Rims Allowed) Passenger $11.00

Non-standard passenger tires, other type tires, and any appropriate fuel surcharge fee will be charged by a rate schedule reviewed and determined by the City of Madison Board of Works and Safety. ***No tires with rims are allowed.***

(E) Compost: (County Residents Only) $20.00 per 1000 pounds or fraction thereof delivered to the Transfer Station; City Residents may deliver compost to the Transfer Station at no charge.

(Ord. 1994-13, passed 6-21-94; Am. Ord. 1996-9, passed 5-29-96; Am. Ord. 2000-4, passed 6-20-00, Ord. 2013-2, passed 4-2-13)

EXHIBIT A

City of Madison

Garbage Collection

City Transfer Station

Chapter 50

CHAPTER 50: GARBAGE COLLECTION; CITY TRANSFER STATION

Section

Garbage Collection

Transfer Station

Cross-reference:

Open burning of leaves, wastes, and the like, see §§ 92.40 through 92.44

GARBAGE COLLECTION

§ 50.03 COLLECTION REGULATIONS; FEES

(A) Collection regulations.

(1) Weekly pickup of garbage shall be provided by the city to each "UNIT" within the City and (County with Board of Works approval) as follows:

Options:1. One (1) 64 gallon can (max)
2. Two (2) 33 gallon cans
3. Two (2) 33 gallon bags

All cans shall have a tight cover with tied bags inside and all bags outside a can shall be securely tied. Amounts of garbage exceeding the above-stated limits may be disposed of in a 33 gallon max plastic bag with an orange sticker purchased from the city. Each can or bag shall not exceed a maximum weight of 50 pounds.

(2) Recyclables shall be picked up on the first and third weeks of each month following the first Tuesday of the week, or more frequently as determined by Board of Public Works and Safety. The following items will be accepted: office paper, junk mail, paperboard, plastic bottles and jugs, aluminum cans, steel and tin cans with labels removed, cartons with caps and straws removed, glass bottles and glass jars. Recyclables *shall* be placed in a garbage can or bin identified with a recycle only sticker ~~securely tied clear plastic bags~~ not exceeding 5533 gallons in size and must not exceed a maximum weight of 50 pounds. No bags will be accepted and everything must be loose.~~*Recyclables shall* be bagged separable per the following:~~

~~(a) All #1 and #2 Plastics, Glass (with caps removed and rinsed), Aluminum and Bi-Metal Cans.~~

~~(b) Clean dry rags and shoes~~

~~(c) Newspaper, Books, Magazines~~

~~(d) Cardboard must be bundled together separate~~

~~Properly packaged recyclables shall not be subject to the limitations set forth in subdivision (1) above and shall not be considered as garbage for the purpose of meeting such limitations.~~

(3) Composting materials shall be picked up once a week in May, June, and July and the second and ~~forth~~fourth weeks in January, February, March, April, August, September, October, November, and December. Compost material must be placed in a Thirty Three (33) gallon can (maximum size) affixed with a City of Madison current composting sticker or an approved Compost Bag. Cans or Bags must not exceed the weight limit of 50 pounds.

(4) Leaves may be disposed of in the same manner as composting materials. In the fall, leaves may be placed **Curbside** where they will be picked up pursuant to a schedule established by the Street Department.

(5) Appliances, logs, carpeting, construction materials, and trash shall not be picked up by the Sanitation Department or the Street Department. Logs, carpeting, construction materials, and trash may be delivered to the Madison Transfer Station where they will be subject to a tipping fee.

(6) Brush that does not fit in a City of Madison compost bag must be placed **Curbside** and residents must call the Street Department to request pick up.

(7) Furniture shall be picked up once a week for residents that are currently paying for City of Madison Garbage pickup and each Piece of Furniture must have a City of Madison sticker located on it. Furniture must be placed **Curbside** by 7:00 am the day of pickup. Residents must call the Street Department in advance to request pick up.

(8) All items to be picked up must be placed in or immediately adjacent to a street or alley by 7:00 am on the pickup day.

(9) Garbage shall not be placed for collection at curbside or in any area *proximate* to curbside earlier than 6:00 p.m. on the day before said garbage is to be collected. Garbage must be at curbside the day of pickup by 7:00 a.m. This provision shall not be interpreted to prohibit the placement of garbage for collection at any time in an alley.

(B) Fees.

(1) Each unit, occupied or unoccupied, shall be charged a monthly fee of $ 9.85 for weekly collection, which shall not be adjustable. Such charge shall be due and payable 15 days after billing therefore and subject to a delinquent charge of 10% if not paid when due.

(2) For an additional $ 9.85 monthly fee, each unit can purchase an additional weekly collection volume as described in subsection (A)(1)

(3) City of Madison composting bags shall cost $1.00~~0.50~~ a bag, and stickers for composting cans shall cost $ 20.00 each per year.

(4) City of Madison sticker for extra garbage bag collection shall cost $3~~2~~.00 a sticker.

~~City of Madison charge for furniture **Curbside Pick-up** shall cost $5.00 per piece.~~

~~(5)~~

~~(4) City of Madison sticker for Furniture **Curbside** Pick-up shall cost $2.00 a sticker.~~

~~(5)~~(6) In the event a resident will be leaving his or her residence unoccupied by any person for a continuous period of not less than 180 days and, as a result, shall

not require pickup, such resident may notify the City Utility Office. Any resident not requiring pickup for less than 180 days *shall have the approval of* the **Board of Public Works**. After approval resident shall be entitled to an abatement of the fees normally charged under this section. The resident must, within five days of the reoccupancy of his or her residence, after a period of suspension of charges under this subsection, notify the City Utility Office of the date of reoccupancy and charges and pickup shall resume under the normal fee and pickup schedule.

(Ord. 1993-7, passed 4-6-93; Am. Ord. 1996-9, passed 5-29-96; Am. Ord. 1999-5, passed 5-18-99) Penalty, see § 50.99, Ord. 2013-2, passed 4-2-13)

§ 50.09 SUPERVISION OF SANITATION DEPARTMENT

The Board of Public Works and Safety ~~and the Board of Health~~ is ~~are~~ responsible for the supervision of the Sanitation Department.

('66 Code, § 94.04)

TRANSFER STATION

§ 50.21 PROHIBITED ITEMS; REMOVAL BY CITY

(A) The City Transfer Station shall be used solely for refuse disposal in accordance with the City's approved Operating Plan and no person or commercial refuse hauler shall cause to be deposited at the facility the following:

(1) Liquid industrial waste;

(2) Hazardous waste;

(3) Carcasses;

(4) Sludge;

(5) Items greater than four~~six~~ feet in length, four feet in width, and not to exceed 48 cubic feet.

(B) Any refuse, waste, or material prohibited from being deposited *at the transfer station* but which is deposited *at the transfer station*, or any refuse or material deposited on access roads or any unauthorized location within the facility may be removed or disposed of by city representatives or employees at the expense of the person or commercial refuse hauler depositing same.

(Ord. 1985-25, passed 11-5-85, Ord. 2013-2, passed 4-2-13) Penalty, see § 50.99

§ 50.27 TRANSFER STATION / COMPOST YARD CHARGES

Rates for individual residents and industrial and commercial refuse haulers shall be as follows:

(A) Automobile, $3.~~2.~~00 per bag (household trash only).

(B) ~~(B)~~ Vehicles with loose trash.

(1) Up to 500 pounds: $19.00~~16.00 minimum.~~

(2) 501 - 1000 pounds: $39.00~~31.00~~

(3) 1001 - 1500 pounds: $59.00~~47.00~~

(4) 1501 - 2000 pounds: $79.00~~62.00~~

(C) Compactors: $79.00~~52.00 per ton.~~

(D) Tires: (No Rims Allowed) Passenger $11.00 ~~8.00~~

Non-standard passenger tires, ~~and~~ other type tires, and any appropriate fuel surcharge fee will be charged by a rate schedule reviewed and determined by the City of Madison Board of Works and Safety. ***No tires with rims are allowed.***

~~(E~~E) Compost: (~~County~~ County Residents Only) $20.00 ~~10.00~~ per 1000 pounds or fraction thereof delivered to the Transfer Station; City Residents may deliver compost to the Transfer Station at no charge.

(Ord. 1994-13, passed 6-21-94; Am. Ord. 1996-9, passed 5-29-96; Am. Ord. 2000-4, passed 6-20-00, Ord. 2013-2, passed 4-2-13)

ORDINANCE NO. 2023-8 **Sponsored by Thevenow**

AN ORDINANCE OF THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA AMENDING THE ZONING MAP OF THE CITY OF MADISON, INDIANA

WHEREAS, there has been a recommendation made by the City of Madison Plan Commission to the Common Council of the City of Madison, Indiana to amend the zoning map of the City of Madison, Indiana.

WHEREAS, the Madison Plan Commission has voted to recommend to the Common Council of the City of Madison, Indiana that the zoning of the following described property be changed from Light Manufacturing (M-1) to General Business (GB):

Address:	Parcel No.
3910 Michigan Rd	39-08-14-000-007.002-006

WHEREAS, it is in the best interest of the City of Madison, Indiana and its citizens that the zoning map be amended; accordingly, and

WHEREAS, the Common Council of the City of Madison, Indiana concurs with the recommendations submitted to it by the Plan Commission.

NOW, THEREFORE, BE IT ORDAINED BY THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA, that:
Section 1. The City of Madison zoning map be amended so that the zoning for the following described property be changed from Light Manufacturing (M-1) to General Business (GB):

Address:	Parcel No.
3910 Michigan Rd	39-08-14-000-007.002-006

Section 2. That this ordinance shall be in full force and effect from and after this date.
The foregoing Ordinance was passed and adopted by the Common Council, City of Madison, Indiana at a regular meeting held on the _____ day of _____, 2023.

PRESENTED BY:

_____
Councilman

_____
Bob G. Courtney, Mayor

(SEAL)

ATTEST:

_____
Kathleen Rampy, Clerk-Treasurer

MADISON Indiana
Planning, Preservation and Design

PC&Z-23-1

101 W Main St
Madison, IN 47250
(812) 265-8324

Application to Amend the Official Zoning Map (Rezoning)

Application Fee	$ 60.00
Ad Fee (for Legal Notice)	$ 15.00
Total Due	**$ 75.00**

Purpose: Per the City of Madison Zoning Ordinance, whenever the public necessity, convenience, general welfare, or good zoning practices require, the City Council may by ordinance after receipt of recommendations thereon from the Plan Commission, and subject to procedures provided by law, amend, supplement, change, or repeal the regulations, restrictions, and boundaries or classification of property.

This application must be filed at least 15 days prior to scheduled meeting to be eligible for consideration at that meeting. Actual deadlines vary due to holidays, office business hours and operating schedule, media publishing deadlines, etc. Deadlines are published publicly and can also be provided by contacting the Planning Office.

APPLICANT INFORMATION
Name: ATA Boy, LLC
Street: 6681 W. 900 S.
City: Milroy State: IN Zip: 46157
Phone (Preferred): 765-561-1851
Phone (Alternate): 317-416-3806
Email: Justrite1626@yahoo.com

OWNER INFORMATION (IF DIFFERENT*)
Name: Crystal Pavey
Street: 6681 W. 900 S. ~~Milroy~~
City: ~~IN~~ Milroy State: IN Zip: 46156
Phone (Preferred): 765-561-1851
Phone (Alternate): 317-416-3806
Email: Justrite1626@yahoo.com

** If Applicant is not Owner, MUST submit documentation from owner authorizing applicant on their behalf.*

PROPERTY FOR WHICH REZONING IS PROPOSED

Address and/or Legal Description of Property: 3910 N. Michigan Rd Madison, IN

Parcel I.D. (can be obtained from the office): ID 39-08-14-000-007.002-006

Present Zoning Classification: Light Manufacturing (M-1)

Description of Proposed Use: Convenience store/gasoline and restaurant

Approximate Cost of Work to be Done: $3 million

Proposed Zoning Classification: General Business (GB)

Description of the rezoning request: Requesting to change from M1 zoning to GB zoning to allow for developing a convenience store/gasoline station/restaurant.

Submit property site plan detailing all requested setbacks. The site plan should also indicate structures, parking areas, adjoining streets and neighboring land uses.

Include any other documents/information which you feel will aid the Board in making its determination.

Certified letters MUST be mailed to adjoining property owners (includes owners of real estate at corners, across streets, alleys or easements as well as others who may share a common boundary) at least ten (10) days prior to the meeting. The Planning Office can assist you in obtaining this information. Proof of the Certified Mail receipts and the corresponding returned green cards shall be given to the Planning Office at least one (1) working day prior to the scheduled meeting. The Board will not review the application unless these are received.

I certify that the information provided in this application is true and accurate to the best of my ability and I understand and agree to the Certified mail stipulations.

3/7/2023
Date

Signature of Applicant

COMPLETED BY PLANNING OFFICE

Application Accepted on: 3/13/2023

Application Accepted by: Joe Patterson JP

Meeting Information: Plan Commission

101 W Main St, Madison, IN 47250 – Council Chambers

Meeting Date: 4/10/2023 Time: 5:30PM

Documentation Review (Completed by Planning Office)

n/a Owner Authorization provided (if req'd)
JP Site plan is adequate
JP Application is complete
___ GIS Information to applicant and attached
___ Certified Mail Receipts received (attach)
___ Certified Mail Green Cards received (attach)

Staff Notes

M. Acosta made motion to accept the application as requested – seconded by R. Farris – Roll Call Vote – All ayes – Final vote is four (4) in favor and none against – Motion carries.
Application BZVD-23-1 approved in accordance with motion and vote.

6. **BZCU-23-8**: Crystal Pavey – Conditional Use Permit for a proposed gas station with convenience store and restaurant with drive thru.
   Location: **3910 N Michigan Rd** Zoned: Light Manufacturing (M-1)

Tim Ross – Representing Crystal and Steve Pavey who desire to build a gas station, convenience store, and restaurant on their property which consists of an area of wetlands which would be conserved. It could handle a couple of trucks at a time, but wouldn't really allow for any overnight or long-term parking. When researching the area, this appeared to be an ideal site to locate through-traffic as well as local traffic at the nearby manufacturing plants.

The Board and applicants reviewed the plans and discussed overall layout and design as well as the operation of this location in addition to other locations they owned and operated. There is a limited area to build due to preserving the wetlands and other natural habitats of certain species located on site. This also essentially restricts trucks from any sort of long-term parking due to the clearances required to access the pumps, placement of the storage tanks, and to navigate the fuel center and convenience store access. While the pumps would have 24-hour access, the convenience store and restaurant within this specific location would likely have hours of operation open no later than 9pm.

Devin Vest – 3786 N Michigan Rd – Own the home immediately adjacent to the planned gas station and they have concerns regarding the traffic, noise, and lighting that would be associated with this business as they have several small children in the home as well. There is already a considerable amount of noise from the nearby manufacturing plants and they have also had safety concerns with other activities that may increase with increased traffic in the area.

There was additional discussion between the applicants, Board, and Vests regarding plans and layout of the proposed use with discussion that some of the existing safety concerns might actually be abated with developing the property thereby discouraging such activities from continuing. A privacy fence and landscaping would aid in screening the business from the Vests' home.

No further questions or comments from the Board or public.

S. Baldwin noted this would be Category 553.

<u>Findings of Fact</u>

1. Is in fact a Conditional Use as established under the provisions of Article V of the City of Madison Zoning Ordinance and appears on the Official Schedule of District Regulations adopted by Section 7.00 for the zoning district involved.

M. Acosta Yes, as stated in the Ordinance.
R. Farris Yes, I do. I think it is well defined.
N. Burkhardt Yes, it's allowed with a Conditional Use.
S. Baldwin There's no doubt about that that that's the one.

2. Will be harmonious with and in accordance with the general objectives, or with any specific objective of the City's Comprehensive Plan and/or the Zoning Ordinance.

M. Acosta Yeah, it's adding more services, more conveniences to the area and contributing to the Comprehensive Plan.

R. Farris Yeah, I think it fits perfectly with the Comprehensive Plan and the Zoning Ordinance. It's new business development.

N. Burkhardt I agree it's harmonious with the Comprehensive Plan.

S. Baldwin Part of that Comprehensive Plan is that number, 553 Category, in Section 7.00.

3. Will be designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and that such use will not change the essential character of the same area.

M. Acosta Yeah, I think it will improve the area. I mean, using that vacant lot that currently gets dumped on, that type of stuff, that will be improved. I do believe I hear the concerns from the residents there, but I think I also hear that there may be more issues fixed than cost. I mean it because of some of the stuff that's going on now sounds fairly dangerous and there could be a slight impact on traffic, but I do think there's some positive to come of it as a net result.

R. Farris Yeah, I think so as well. If they're partnering with BP, BP is going to have standards that they have to meet for new construction. The maintenance part of it, I witnessed earlier that I stopped at two of their locations. They're always well maintained, always clean. I have no concerns there so I think it will actually improve some of the things like Mr. Acosta pointed out in the area.

N. Burkhardt I agree with those two prior comments and I don't think it's going to change the character of the area since it is light manufacturing.

S. Baldwin Changing the character of the general vicinity? Well, there's a plant, large plant, right across the street. Sadly, these people are stuck with their house which dates back long before there was anything there but farms so the general vicinity is industrial with a road going down to other plants. I think that one is met.

4. Will not be hazardous or disturbing to existing or future neighboring uses.

M. Acosta I think, in line with the previous comments on the previous question again, I think the net impact should be a positive impact to that area.

R. Farris Yeah, I agree as well. I think, as Mr. Acosta pointed out earlier, I think it will fix more things than cause harm.

N. Burkhardt I agree with those comments. I hope the dialogue continues with the people that own the property and the adjacent homeowners with her concerns. Certainly valid. Hope they will continue to work together and maybe come to a common denominator of what you feel is safety though I don't know if you' ever have a safe feeling which I think is the way we live today, but I hope you can get together and figure out something that would make you feel a little bit better.

S. Baldwin Hazardous or disturbing? Well, it's certainly not going to disturb the plant and doesn't sound like it's going to disturb the traffic and I do agree with the installation of fencing and maintain the place like that. When lit up like that, it is going to certainly stop the dumping and priobably stop as much of the drug dealing that could be stopped. So, on that, I kind of agree that one's met.

5. Will be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, refuse disposal, water and sewer, and schools; or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide adequately any such services.

M. Acosta I see no issue there. There are two large manufacturing plants in the immediate area obviously.
R. Farris Yeah, I agree as well. In fact, I think it's going to be providing additional services to that area.
N. Burkhardt I agree. I see adequate public facilities and services there.
S. Baldwin There are adequate utilities and so forth in that area.

6. Will not create excessive additional requirements at public expense for public facilities and services and will not be detrimental to the economic welfare of the community.

M. Acosta You should have a positive economic impact on the community.
R. Farris Yeah, I don't see any way it's going to create excessive requirements at the public expense and I think it will be a positive addition to the economic welfare of our community.
N. Burkhardt I agree. I see no detriment to the economic welfare.
S. Baldwin I think it probably won't hurt. I see no detriment to the welfare an no need for public facilities and whatnot.

7. Will not involve uses, activities, processes, materials, equipment, and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare, or odors.

M. Acosta No, based on the explanation of set-up and how they envision the operation, I don't see it having a negative impact.
R. Farris Yeah, I agree with all those comments as well and one thing that I want to point out is the diesel engines that we run today are so heavily burdened with emission control systems that you know the fumes are not going to be what they were if this would have been built back in the 70s. I do appreciate the neighbors comments about those things because I would be concerned about that too, but I just want to point out that the emission control systems on these diesels in these big trucks anymore, it is pretty efficient in reducing the fumes.
N. Burkhardt I agree with the prior comments.
S. Baldwin I just see no detriment. Excessive production of traffic? That's already heavily trafficked because of the industrial nature of that area, so I see no more traffic than what that street will be able to handle normally.

8. Will have vehicular approaches to the property which shall be so designed as not to create an interference with traffic on surrounding public thoroughfares.

M. Acosta I think the plans as presented don't show anything that's going to create an interference with the traffic.
R. Farris Yeah, I agree as well, and you know I just go back to the other aspects of this business. You know they have a vested interest in making sure that an 80-foot semi can get in unencumbered and do it safely.
N. Burkhardt Right, I don't think there will be a problem with that one.
S. Baldwin It has to be designed so that trucks can get in, so I think they will take that in account.

9. Will not result in the destruction, loss, or damage of natural, scenic, or historic features of major importance.

M. Acosta I think, again, as the builders have explained, that preservation of as much of the wetlands as possible and all that. I don't see any negative impact in those areas.

R. Farris	Yeah, I agree as well. I think that there are enough governing agencies that they have to please to stay away from damaging the wetlands and that they the are not going to do anything to jeopardize that.
N. Burkhardt	Yeah, I see no problem with destruction or loss of natural, scenic, or historic features there and there are plenty of laws that are going to protect the wetlands and so forth, so I think that one is met.
S. Baldwin	I know of no historic features there and there are plenty of laws that are going to protect the wetlands and so forth. So, I think that one is met.

M. Acosta made motion to approve the application as requested – seconded by R. Farris – S. Baldwin inquired if the motion could be modified to include the condition that a privacy fence is to be installed between the immediately adjacent neighbor and gas station to which M. Acosta and R. Farris agreed – Roll Call Vote – All ayes – Final vote is four (4) in favor and none against – Motion carries.
Application BZCU-23-8 approved in accordance with motion and vote.

S. Baldwin made motion to further approve the Conditional Use Permit for a period of two (2) years – seconded by M. Acosta – Roll Call Vote – All ayes – Final vote is four (4) in favor and none against – Motion carries.
Application BZCU-23-8 renewal term approved in accordance with motion and vote.

Mr. Ross expressed concerns and confusion on what a two-year renewal term meant considering the amount of the financial investment the Paveys would have in the project. The Board and Staff discussed with Mr. Ross how the renewal process worked and that it would take something egregious or a condition not adhered to for a renewal to be denied. The Board and Staff also discussed with Mr. Ross and the applicants that they could also seek to rezone the land to General Business. If that were successful, then the Conditional Use would no longer be required.

Business – Old or New:

1. Landmark Apostolic Bible Church, Inc. – Conditional Use permit for a church.
   Location: **3100 Landmark Ln** — Zoned: High Density Residential (R-32)
   One-Year Renewal

2. Shawn Sands – Conditional Use Permit for a wrestling facility.
   Location: **2520 Lanier Dr, Suite C** — Zoned: Heavy Manufacturing (M-2)
   One-Year Renewal

S. Baldwin noted that both renewals had been paid and are therefore renewed in accordance with original motion.

3. Discussion of changing BZA meeting start time.

There was some discussion between Board and Staff regarding changing the Board of Zoning Appeals meeting start time to 6pm in order to streamline the meeting timelines as Plan Commission meetings are usually brief in nature. This allows Staff, Board members who may serve on both Boards, as well as applicants who may have applications before both Boards to cut down on the time waiting between those meetings. Board members had a general favorable view of implementing this change. There were no comments from the public on this matter when opened for public comment. Staff and Board discussed that implementing a change to the start time for the Board of Zoning Appeals meeting would be discussed and likely voted upon at the next meeting.

No further business brought before the board.

ORDINANCE 2023-9 **sponsor L. Dattilo**

AN ORDINANCE OF THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA REPEALING AND REPLACING CITY OF MADISON CODE CHAPTER 98 STREETS AND SIDEWALKS SPECIFICALLY SECTIONS 98.01, 98.02, 98.03, 98.04, 98.05, 98.06, 98.20, 98.21, 98.22, 98.23, 98.24

WHEREAS, there has been a request made upon the Common Council of the City of Madison, Indiana to repealing and replacing portion of City of Madison Code Chapter 98: Streets and Sidewalks;

WHEREAS, the Common Council of the City of Madison, Indiana recommends that certain portions of Chapter 98 Streets and Sidewalks, specifically sections 98.01, 98.02, 98.03, 98.04, 98.05, 98.06, 98.20, 98.21, 98.22, 98.23, 98.24 be repealed and replaced as follows:

See Attached Exhibit A.

WHEREAS, it is in the best interest of the City of Madison, Indiana, and its citizens that the sections of the ordinance regarding streets and sidewalks be repealed and replaced accordingly.

NOW, THEREFORE, BE IT ORDAINED BY THE COMMON COUNCIL OF THE CITY OF MADISON, INDIANA, that Chapter 98 Streets and Sidewalks, specifically sections 98.01, 98.02, 98.03, 98.04, 98.05, 98.06, 98.20, 98.21, 98.22, 98.23, 98.24 be repealed and replaced to reflect attached Exhibit A.

The foregoing Ordinance was passed and adopted by the Common Council, City of Madison, Indiana at a regular meeting held on the _____ day of _____, 2023.

PRESENTED BY:

_____
Councilman

_____
Bob G. Courtney, Mayor

(SEAL)

ATTEST:

_____
Kathleen Rampy, Clerk-Treasurer

EXHIBIT A

CHAPTER 98: STREETS AND SIDEWALKS

Section

GENERAL PROVISIONS

§ 98.01 OBSTRUCTIONS.

(A) No person or persons, firm, or corporation, shall make or cause to be made any obstruction upon or about any sidewalk, street, alley, park, or other public place of the city, or interrupt the free use or passage of the same, or suffer to remain upon any sidewalk immediately adjacent to the premises occupied by such person or persons, firm, or corporation, any obstruction for a period longer than three hours. No person or persons, firm, or corporation, shall provide or cause to be provided any seating area or accommodation upon or about any sidewalk except by means of a bench, unless such person or persons, firm, or corporation shall be serving food or beverages pursuant to a permit issued by the Jefferson County Health Department, in which such case seating providing the use of a table may be permitted. If the use of outdoor seating is permitted, the person or persons, firm, or corporation must clear a pathway of at least 36 inches on the sidewalk. However, a portion of the sidewalk not to exceed one-third the width, may be used by the occupant of the premises immediately adjacent thereto, for the stacking or grounding of boxes, wood, barrels, coal or other fuel, lumber, brick, stone, or other materials or articles, for a necessary and reasonable time, after which same shall be removed from the sidewalk by such occupant. Further, all necessary materials used in the repair or construction, or made by the removal or tearing away of any building, may be

placed upon the sidewalk and not to exceed one-third of the street immediately adjacent to such premises, when a permit has been issued granting the right to make such repair, construction, removal, or the like of the building contemplated on such premises but only for the time specified in the permit and no longer. If scaffolding is required for repair or construction, the person or persons, firm, or corporation shall make a request to the City Building Inspector and he or she shall approve, deny, or suggest modifications to said request. Anyone who disagrees with the City Building Inspector's decision shall appeal to the Board of Public Works and Safety in writing.

(B) Whenever the excavation, construction, or repair of any building, lot, street, sidewalk, or public way interferes with normal pedestrian or vehicular traffic thereon, an alternative route shall be provided by the business, company, or persons causing such interference in accordance to rules established by the Building Inspector.

('66 Code, § 130.03) (Ord., passed 5-4-05; Am. Ord. 1998-11, passed 9-8-98; Am. Ord. 2014-14, passed 9-2-14) Penalty, see § 10.99

§ 98.02 OPENINGS IN SIDEWALKS.

No person or persons, firm, or corporation, shall keep, cause to be kept, or suffer any opening in any sidewalk, alley, street, or other walk used by the public, to be or remain open so as to endanger the safety of passers-by, except when such opening is being repaired, cleaned out, or used in the storing of articles, and then only when someone in charge is present.

('66 Code, § 130.09) (Ord., passed 5-9-05) Penalty, see § 10.99

§ 98.03 REMOVAL OF SNOW AND ICE.

(A) It is the duty of every owner, lessee, or occupant of any premises abutting or bordering upon any street in the city, to remove, or cause to be removed, all snow and ice from the sidewalk in front of such premises to the full paved width of the sidewalk within eight hours after such snow or ice shall have fallen or accumulated thereon.

('66 Code, § 130.12) Penalty, see § 10.99

§ 98.04 HEAVY TRUCKS, LOADS.

(A) No person or persons, firm, or corporation, shall haul or drag, or cause to be hauled or dragged, upon any street or alley of the city any stone, timber, or other heavy substance, in such a way or manner as to break or otherwise injure the surface of such street or alley; or drive or tow any vehicle in such a way or manner as to break or otherwise injure the surface of such street or alley; or otherwise injure or cause to be injured in any manner, any street, alley, park, sewer, drain, or bridge, belonging to the city.

(B) Further, no person shall take or cause to be taken from any street, alley, sidewalk, gutter, cemetery, park, or other public place of the city, any sand, clay, gravel, stone, brick, or other earth or material, without express permission from the authorities having charge of same; or sprinkle, throw, or deposit such sand, clay, gravel, stone, brick, or other earth or material, in, upon, or over any street, alley, sidewalk, gutter, park, sewer, or drain, of the city, without express permission from the authorities having charge of same.

('66 Code, § 131.04) (Ord., passed 5-9-05) Penalty, see § 10.99

§ 98.05 DEBRIS IN STREETS.

(A) No person, persons, firm, or corporation, shall place glass of any kind, nails, tacks, domestic ashes, or any other refuse matter destructive of or injurious to automobile tires, horses, or other animals, in the streets and alleys of the city, except in the proper containers provided. For the purpose of this section, the term "DOMESTIC ASHES" shall mean the ashes made or created in the stoves and furnaces in the homes of city residents.

(B) No person or persons shall leave the scene of any automobile accident in the streets and alleys of the city without having first removed as far as possible the fragments of any broken glass or other refuse made incident thereto of destructive nature to automobile tires or injurious to horses or other animals.

('66 Code, § 131.05) (Ord., passed 6-10-27) Penalty, see § 10.99

§ 98.06 DRIVEWAYS.

No person, firm, public utility or corporation or the agents thereof, shall locate any driveway adjacent to the streets or alleys in the right-of-ways of the city, without first making application for and obtaining a permit to do so from the Office of Planning, Preservation and Design of the city, and by making a minimum deposit as hereinafter provided in cash or approved surety bond with the Clerk-Treasurer of the city for the satisfactory performance of the work in the street or alley in accordance with the specifications outlined in this section.

(A) Application.

(1) Within the city limits, no one shall place a driveway adjacent to a city right-of-way without first obtaining a permit from the Office of Planning, Preservation and Design.

(2) The form of such permit shall be determined by the Office of Planning, Preservation and Design. Forms shall be available at the Office of Planning, Preservation and Design or online. .

(3) Applicants for a permit for any driveway adjacent to a right-of-way shall submit a sketch or drawing or otherwise clearly communicate the location and design, and the traffic control plan.

(4) Permits issued shall be valid for a period of no more than 90 days until work commences, and all work shall be performed within an additional 90-day period. Permit must be posted and visible at the job site.

(B) Driveway conditions.

(1) In the city, no one shall:

(a) Make any alteration within a public right of way, block a city street gutter or ;

(b) Construct a new driveway for the purpose of driving on and off a city street, without first obtaining the approval and written permission of the Office of Planning, Preservation and Design of the city for such driveway. A permit fee of $25 shall be imposed for each driveway permit (residential or commercial) issued. Inspections shall be done by an employee of the City of Madison, or third party as directed by the Mayor.

(2) The following specifications apply to all that portion of the driveway which falls within the right-of-way of the city street:

(a) All efforts shall be made to locate all driveways off of local streets, rather than arterial or collector streets. No driveway shall be placed within 50 feet of an intersecting public street. No driveway shall be placed closer than ten feet to another driveway as measured at the right-of-way line. All driveways shall be perpendicular to the street they are connecting to from the connection point to the right-of-way line.

(b) All new residential driveways shall meet the street with a minimum radius of ten feet. The minimum radius for driveways intended for commercial traffic or high volumes of vehicle traffic shall be 25 feet. That portion of the driveway which falls within the right-of-way of the city street shall have a minimum width of ten feet as measured at the right-of-way for residential driveways, or a minimum width of 20 feet as measured at the right-of-way for commercial or high traffic driveways.

(c) If the new driveway is to cross a drainage or roadside ditch, or for any other reason it is deemed necessary that a culvert is required to be placed in the public right-of-way, such culvert shall be no less than 12 inches in diameter and 20 feet in length. Larger diameter and length culverts may be required by the Inspector, if drainage conditions so warrant. In order to prevent impeding normal drainage, culverts for new driveways are never in any case to be smaller than the closest upstream culvert.

(d) In the construction of the new driveway, the portion which falls inside the city street right-of-way is to be composed of hard surface material of the same character as the material of the connecting street or better surface.

(e) Traffic control and safety is the responsibility of the contractor. If additional traffic control is deemed necessary by the Inspector, the contractor may be required to utilize Indiana Department of Transportation Maintenance of Traffic requirements.

(f) City sidewalks are not to be used as driveways, nor are they to be driven upon. Existing city sidewalks are not to be used as portions of the new driveway. In the construction of the new driveway, the existing city sidewalk is not to be covered over or

crossed by the new driveway material: but must be removed and the new driveway surface material must be placed flush with the remaining sidewalk surface, or, if not placed flush with the sidewalk surface, then sloping ramps must be placed in the sidewalk on each side of the drive so that there is a smooth continuation from sidewalk to driveway to sidewalk which is accessible to the handicapped.

(g) This section shall apply to any widening or reconstruction of any existing drive. This section shall not apply to the surfacing or resurfacing of existing driveways.

(C) Warranty. The applicant shall be entitled to a return of their cash bond or the release of their surety bond once the Inspector has determined that the work done as contemplated by the permit has been satisfactorily completed and the applicant has complied with all the terms and conditions of this section. If no such determination is made within 90 days of the date the bond is submitted to the city, any cash bond shall be forfeited and paid into the Local Road and Street Fund of the city and/or the city shall take appropriate action to collect any surety bond whose proceeds shall be paid into the same fund.

(D) Enforcement. Anyone found in violation of these conditions or found performing work in the right-of-way without a valid permit, shall be subject to a fine of not to exceed $2,500, along with being responsible for the cost of any and all repairs and the liability thereof, court costs and attorney's fees. Each day the applicant does not obtain the necessary permit may also be treated as a separate violation. Each and every occurrence may be treated as a separate violation.

(Ord. 2002-7, passed 6-18-02; Am. Ord. 2002-11, passed 10-8-02)

RIGHT OF WAY EXCAVATIONS

§ 98.20 PERMIT REQUIRED; FEE.

(A) No person, firm, or corporation shall excavate in a street, alley, sidewalk, or any public right of way of the city for any purpose whatsoever without first obtaining a permit from the Office of Planning, Preservation and Design. Permit must be posted and visible at the job site. ('66 Code, § 92.01)

(B) The Office of Planning, Preservation and Design shall, upon request of any person, firm, or corporation, issue a permit upon the payment of a permit fee of $25.00 and a proper showing that the applicant is bonded by a reputable surety company in the penal sum of no less than $10,000. The bond shall be conditioned to the effect that the person, firm, or corporation shall replace the surface of the street, alley, sidewalk, or other surface in the public right of way in the timeframe specified within the provisions. Such repair will be inspected and approved to ensure full compliance with the provisions of the City of Madison. The prescribed procedure and standards to fill such excavation shall be established by the Board of Public Works and Safety. Inspections shall be done by an

employee of the City of Madison or third party as directed by the Mayor. Repairs, including backfill and right of way surface, to be warranted for up to one year by the contractor. That the person, firm, or corporation will promptly pay and discharge, on demand, all damages which may be incurred to any city water main or other city property by reason of such excavation; that the person, firm, or corporation shall offer satisfactory evidence of having public liability and property damage insurance in the total sum of $10,000, which insurance shall pay all damages or claims of damage accruing to persons or property caused by the negligence of the person, firm, or corporation in making, maintaining, or refilling the excavation; and that the applicant further makes satisfactory showing of having all employees employed by the person, firm, or corporation protected under the provisions of the State Workers Compensation Law.

(C) Enforcement. Anyone found in violation of these conditions or found performing work in the right-of-way without a valid permit, shall be subject to a fine of not to exceed $2,500, along with being responsible for the cost of all repairs and the liability thereof, court costs and attorney's fees. Each day the applicant does not obtain the necessary permit may also be treated as a separate violation. Each occurrence may be treated as a separate violation.

('66 Code, § 92.02) (Ord., passed 3-6-53) Penalty, see § 10.99

§ 98.21 PLUMBING INSTALLATIONS.

Any person, firm, or corporation making any installation of plumbing shall report, within ten days from the installation, all outlets for the domestic or commercial use of water on the premises involved.

('66 Code, § 92.03) (Ord., passed 3-6-53) Penalty, see § 10.99

§ 98.22 (RESERVED).

EXHIBIT A

CHAPTER 98: STREETS AND SIDEWALKS

Section

GENERAL PROVISIONS

§ 98.01 OBSTRUCTIONS.

(A) No person or persons, firm, or corporation, shall make or cause to be made any obstruction upon or about any sidewalk, street, alley, park, or other public place of the city, or interrupt the free use or passage of the same, or suffer to remain upon any sidewalk immediately adjacent to the premises occupied by such person or persons, firm, or corporation, any obstruction for a period longer than three hours. No person or persons, firm, or corporation, shall provide or cause to be provided any seating area or accommodation upon or about any sidewalk except by means of a bench, unless such person or persons, firm, or corporation shall be serving food or beverages pursuant to a permit issued by the Jefferson County Health Department, in which such case seating providing the use of a table may be permitted. If the use of outdoor seating is permitted, the person or persons, firm, or corporation must clear a pathway of at least 36 inches on the sidewalk. However, a portion of the sidewalk not to exceed one-third the width, may be used by the occupant of the premises immediately adjacent thereto, for the stacking or grounding of boxes, wood, barrels, coal or other fuel, lumber, brick, stone, or other

materials or articles, for a necessary and reasonable time, after which same shall be removed from the sidewalk by such occupant. Further, all necessary materials used in the repair or construction, or made by the removal or tearing away of any building, may be placed upon the sidewalk and not to exceed one-third of the street immediately adjacent to such premises, when a permit has been issued granting the right to make such repair, construction, removal, or the like of the building contemplated on such premises but only for the time specified in the permit and no longer. If scaffolding is required for repair or construction, the person or persons, firm, or corporation shall make a request to the City Building Inspector and he or she shall approve, deny, or suggest modifications to said request. Anyone who disagrees with the City Building Inspector's decision shall appeal to the Board of Public Works and Safety in writing.

(B) Whenever the excavation, construction, or repair of any building, lot, street, sidewalk, or public way interferes with normal pedestrian or vehicular traffic thereon, an alternative route shall be provided by the business, company, or persons causing such interference in accordance to rules established by the Building Inspector.

('66 Code, § 130.03) (Ord., passed 5-4-05; Am. Ord. 1998-11, passed 9-8-98; Am. Ord. 2014-14, passed 9-2-14) Penalty, see § 10.99

§ 98.02 OPENINGS IN SIDEWALKS.

No person or persons, firm, or corporation, shall keep, cause to be kept, or suffer any opening in any sidewalk, alley, street, or other walk used by the public, to be or remain open so as to endanger the safety of passers-by, except when such opening is being repaired, cleaned out, or used in the storing of articles, and then only when someone in charge is present.

('66 Code, § 130.09) (Ord., passed 5-9-05) Penalty, see § 10.99

§ 98.03 REMOVAL OF SNOW AND ICE.

(A) It is the duty of every owner, lessee, or occupant of any premises abutting or bordering upon any street in the city, to remove, or cause to be removed, all snow and ice from the sidewalk in front of such premises to the full paved width of the sidewalk within eight hours after such snow or ice shall have fallen or accumulated thereon.

~~(B) If such snow and ice are not removed within the specified time, the Board of Public Works and Safety may remove or clean such snow or ice or cause the same to be removed or cleaned. The cost of such removal or cleaning shall be a lien on such property, which shall be placed on the tax duplicate and shall be collected in the same manner as taxes are collected and turned in to the City Treasury~~.

('66 Code, § 130.12) Penalty, see § 10.99

§ 98.04 HEAVY TRUCKS, LOADS.

(A) No person or persons, firm, or corporation, shall haul or drag, or cause to be hauled or dragged, upon any street or alley of the city any stone, timber, or other heavy substance, in such a way or manner as to break or otherwise injure the surface of such street or alley; or drive or tow any vehicle in such a way or manner as to break or otherwise injure the surface of such street or alley; or otherwise injure or cause to be injured in any manner, any street, alley, park, sewer, drain, or bridge, belonging to the city.

(B) Further, no person shall take or cause to be taken from any street, alley, sidewalk, gutter, cemetery, park, or other public place of the city, any sand, clay, gravel, stone, brick, or other earth or material, without express permission from the authorities having charge of same; or sprinkle, throw, or deposit such sand, clay, gravel, stone, brick, or other earth or material, in, upon, or over any street, alley, sidewalk, gutter, park, sewer, or drain, of the city, without express permission from the authorities having charge of same.

('66 Code, § 131.04) (Ord., passed 5-9-05) Penalty, see § 10.99

§ 98.05 DEBRIS IN STREETS.

(A) No person, persons, firm, or corporation, shall place glass of any kind, nails, tacks, domestic ashes, or any other refuse matter destructive of or injurious to automobile tires, horses, or other animals, in the streets and alleys of the city, except in the proper containers provided. For the purpose of this section, the term "DOMESTIC ASHES" shall mean the ashes made or created in the stoves and furnaces in the homes of city residents.

(B) No person or persons shall leave the scene of any automobile accident in the streets and alleys of the city without having first removed as far as possible the fragments of any broken glass or other refuse made incident thereto of destructive nature to automobile tires or injurious to horses or other animals.

('66 Code, § 131.05) (Ord., passed 6-10-27) Penalty, see § 10.99

§ 98.06 DRIVEWAYS.

No person, firm, public utility or corporation or the agents thereof, shall locate any driveway adjacent to the streets or alleys in the right-of-ways of the city, without first making application for and obtaining a permit to do so from the ~~Building Inspector~~Office of Planning, Preservation and Design of the city, and by making a minimum deposit as hereinafter provided in cash or approved surety bond with the Clerk-Treasurer of the city for the satisfactory performance of the work in the street or alley in accordance with the specifications outlined in this section.

(A) Application.

(1) Within the city limits, no one shall place a driveway adjacent to a city right-of-way without first obtaining a permit from the Office of Planning, Preservation and Design~~Building Inspector~~.

(2) The form of such permit shall be determined by the Office of Planning, Preservation and Design~~Building Inspector~~. Forms shall be available at the Office of Planning, Preservation and Design or online. ~~Building Inspector's Office, the Street Department and the Clerk-Treasurer's Office~~.

(3) Applicants for a permit for any driveway adjacent to a right-of-way shall submit a sketch or drawing or otherwise clearly communicate the location and design, and the traffic control plan.

(4) Permits issued shall be valid for a period of no more than 90 days until work commences, and all work shall be performed within an additional ~~90 day~~90-day period. Permit must be posted and visible at the job site.

(B) Driveway conditions.

(1) In the city, no one shall:

(a) Make any alteration within a public right of way, block a city street gutter or ~~Alter a street curb by cutting the curb or otherwise demolishing the curb~~;

~~(b) Alter or block the city street gutter;~~

~~(c) Alter a sidewalk; or~~

(~~d~~b) Construct a new driveway for the purpose of driving on and off a city street, without first obtaining the approval and written permission of the Office of Planning, Preservation and Design ~~Building Inspector~~ of the city for such driveway. A permit fee of $25 shall be imposed for each driveway permit (residential or commercial) issued. Inspections shall be done by an employee of the City of ~~Madison~~Madison, or third party as directed by the Mayor.

(2) The following specifications apply to all that portion of the driveway which falls within the right-of-way of the city street:

(a) All efforts shall be made to locate all driveways off of local streets, rather than arterial or collector streets. No driveway shall be placed within 50 feet of an intersecting public street. No driveway shall be placed closer than ten feet to another driveway as measured at the right-of-way line. All driveways shall be perpendicular to the street they are connecting to from the connection point to the right-of-way line.

(b) All new residential driveways shall meet the street with a minimum radius of ten feet. The minimum radius for driveways intended for commercial traffic or high volumes of vehicle traffic shall be 25 feet. That portion of the driveway which falls within the right-of-way of the city street shall have a minimum width of ten feet as measured at the right-of-way for residential driveways, or a minimum width of 20 feet as measured at the right-of-way for commercial or high traffic driveways.

(c) If the new driveway is to cross a drainage or roadside ditch, or for any other reason it is deemed necessary that a culvert is required to be placed in the public right-of-way, such culvert shall be no less than 12 inches in diameter and 20 feet in length. Larger diameter and length culverts may be required by the ~~Building~~ Inspector, if drainage conditions so warrant. In order to prevent impeding normal drainage, culverts for new driveways are never in any case to be smaller than the closest upstream culvert.

(d) In the construction of the new driveway, the portion which falls inside the city street right-of-way is to be composed of hard surface material of the same character as the material of the connecting street or better surface.

(e) Traffic control and safety is the responsibility of the contractor. If additional traffic control is deemed necessary by the ~~Building~~ Inspector, the contractor may be required to utilize Indiana Department of Transportation Maintenance of Traffic requirements.

(f) City sidewalks are not to be used as driveways, nor are they to be driven upon. Existing city sidewalks are not to be used as portions of the new driveway. In the construction of the new driveway, the existing city sidewalk is not to be covered over or crossed by the new driveway material: but must be removed and the new driveway surface material must be placed flush with the remaining sidewalk surface, or, if not placed flush with the sidewalk surface, then sloping ramps must be placed in the sidewalk on each side of the drive so that there is a smooth continuation from sidewalk to driveway to sidewalk which is accessible to the handicapped.

(g) This section shall apply to any widening or reconstruction of any existing drive. This section shall not apply to the surfacing or resurfacing of existing driveways.

(C) Warranty. The applicant shall be entitled to a return of their cash bond or the release of their surety bond once the ~~Building~~ Inspector has determined that the work done as contemplated by the permit has been satisfactorily completed and the applicant has complied with all the terms and conditions of this section. If no such determination is made within 90 days of the date the bond is submitted to the city, any cash bond shall be forfeited and paid into the ~~Street and Alley~~Local Road and Street Fund of the city and/or the city shall take appropriate action to collect any surety bond whose proceeds shall be paid into the same fund.

(D) Enforcement. Anyone found in violation of these conditions or found performing work in the right-of-way without a valid permit, shall be subject to a fine of not to exceed $2,500, along with being responsible for the cost of any and all repairs and the liability thereof, court costs and attorney's fees. Each day the applicant does not obtain the necessary permit may also be treated as a separate violation. Each and every occurrence may be treated as a separate violation.

(Ord. 2002-7, passed 6-18-02; Am. Ord. 2002-11, passed 10-8-02)

RIGHT OF WAY EXCAVATIONS

§ 98.20 PERMIT REQUIRED; FEE.

(A) No person, firm, or corporation shall excavate in a street, ~~or~~ alley, ~~sidewalk~~sidewalk, or any public right of way of the city for any purpose whatsoever without first obtaining a permit from the ~~Clerk-Treasurer's office~~Office of Planning, Preservation and Design. Permit must be posted and visible at the job site. ('66 Code, § 92.01)

(B) The ~~Clerk-Treasurer~~Office of Planning, Preservation and Design shall, upon request of any person, firm, or corporation, issue a permit upon the payment of a permit fee of $25.0~~5~~0 and a proper showing that the applicant is bonded by a reputable surety company ~~or personal surety signed by two resident freeholders of the county,~~ in the penal sum of no less than $10~~4~~,000. The bond shall be conditioned to the effect that the person, ~~firm~~firm, or corporation ~~shall promptly~~ replace the surface of the street, ~~or~~ alley, ~~sidewalk~~sidewalk, or other surface in the public right of way in the timeframe specified within the provisions. ~~in as good condition as it was before~~ Such repair will be inspected and approved to ~~insure~~ensure full compliance with the provisions of the City of Madison. The prescribed procedure and standards to fill such excavation shall be established by the Board of Public Works and Safety. Inspections shall be done by an employee of the City of Madison or third party as directed by the Mayor. ~~; Repairs~~ Repairs, including backfill and right of way surface, to be warranted for up to one year by the contractor. T~~t~~hat the person, firm, or corporation will promptly pay and discharge, on demand, all damages which may be incurred to any city water main or other city property by reason of such excavation; that the person, firm, or corporation shall offer satisfactory evidence of having public liability and property damage insurance in the total sum of $10,000, which insurance shall pay all damages or claims of damage accruing to persons or property caused by the negligence of the person, firm, or corporation in making, maintaining, or refilling the excavation; and that the applicant further makes satisfactory showing of having all employees employed by the person, firm, or corporation protected under the provisions of the State Workers Compensation Law.

~~(C) The prescribed procedure to fill such excavation shall be established by the Board of Public Works and Safety, and an inspection shall be made by the Superintendent of Utilities to assure that such excavation is done in a satisfactory manner.~~

(C) Enforcement. Anyone found in violation of these conditions or found performing work in the right-of-way without a valid permit, shall be subject to a fine of not to exceed $2,500, along with being responsible for the cost of ~~any and all~~all repairs and the liability thereof, court costs and attorney's fees. Each day the applicant does not obtain the necessary permit may also be treated as a separate violation. ~~Each and every~~Each occurrence may be treated as a separate violation.

('66 Code, § 92.02) (Ord., passed 3-6-53) Penalty, see § 10.99

§ 98.21 PLUMBING INSTALLATIONS.

Any person, firm, or corporation making any installation of plumbing shall report, within ten days from the installation, all outlets for the domestic or commercial use of water on the premises involved.

('66 Code, § 92.03) (Ord., passed 3-6-53) Penalty, see § 10.99

§ 98.22 (RESERVED).

~~§ 98.23 PUBLIC UTILITIES.~~

~~(A) Any public utility or private contractor excavating or digging in any street or alley of the city shall first obtain a permit from the Building Inspector to make the excavation, which permit shall describe the place or places of the work. ('66 Code, § 92.10)~~

~~(B) As a condition for the issuance of the permit, the Building Inspector shall require a cash deposit or surety company bond in the amount equal to paying the cost of resurfacing the street or alley, the cost to be computed on a basis of $3 per yard of all streets or alley surfaces to be excavated. The cash deposit or bond shall be conditioned on the replacement of the city street or alley within 30 days from the date of beginning the work. ('66 Code, § 92.11)~~

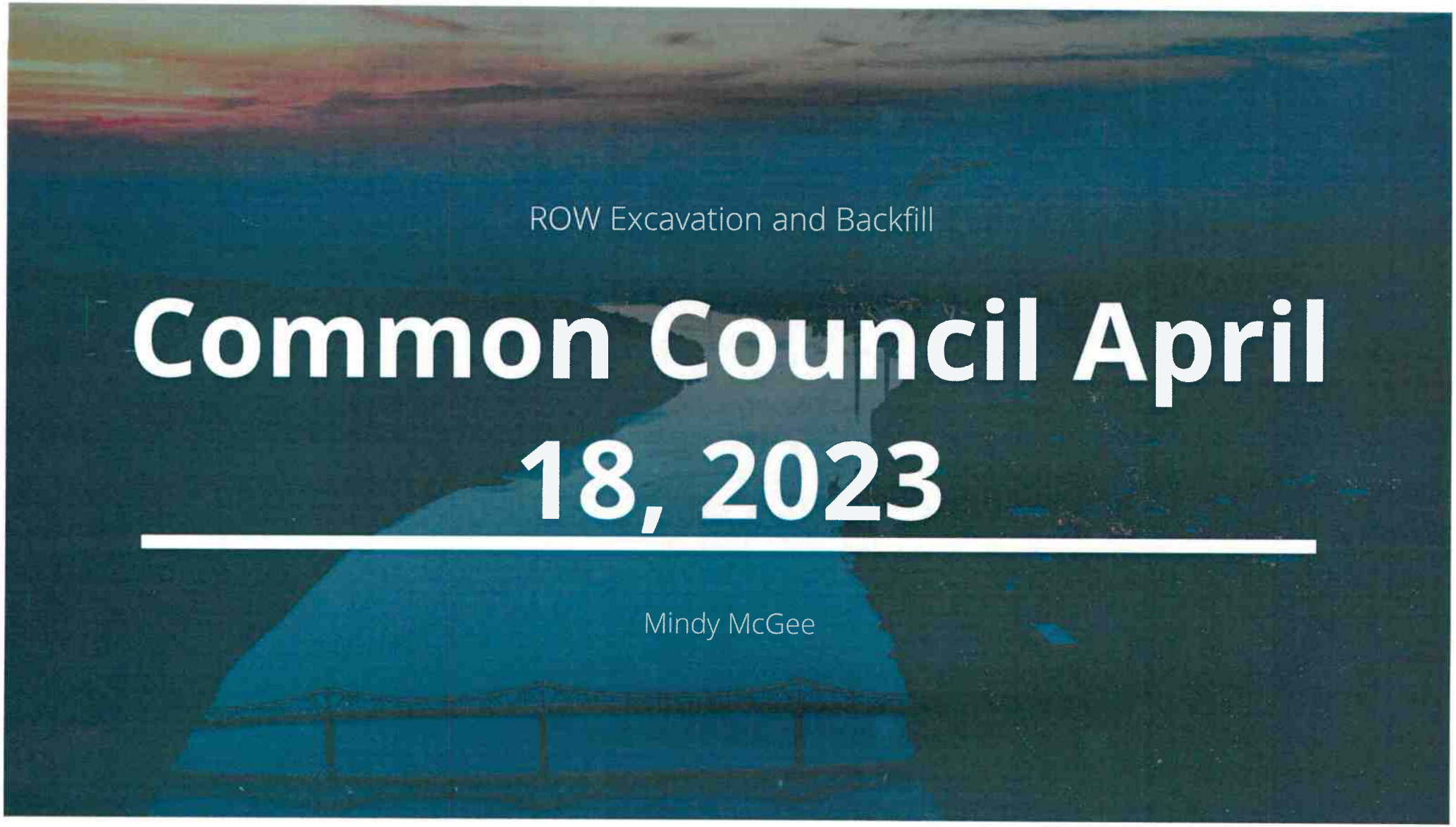
~~(C) As an alternative procedure, any public utility may maintain a surety bond in the penal sum of $1,000 payable to the city in the Clerk-Treasurer's office to cover all excavations made in the streets or alleys during the usual course of business. No projects of a major nature requiring excavations in streets or alleys shall be undertaken without first arranging for the repair and replacement of all streets and alleys excavated by bond or contract. ('66 Code, § 92.12)~~

~~(Ord., passed 10-3-52; Am. Ord. 2014-14, passed 9-2-14) Penalty, see § 10.99~~

~~§ 98.24 GRAVEL PITS.~~

~~The digging or removal of gravel in any manner and from any place or gravel bank within the city limits, or the making of a dangerous excavation of any kind or character within the city limits, shall be undertaken only after a permit has been granted by the Common Council. However, at any time the Common Council shall deem the making of any excavation or the digging or removal of gravel a menace to public or private property, or the health of the community, such permit to make such excavation or dig and remove gravel may be revoked.~~

~~('66 Code, § 99.15) (Ord., passed 12-20-24) Penalty, see § 10.99~~



ROW Excavation and Backfill

Common Council April 18, 2023

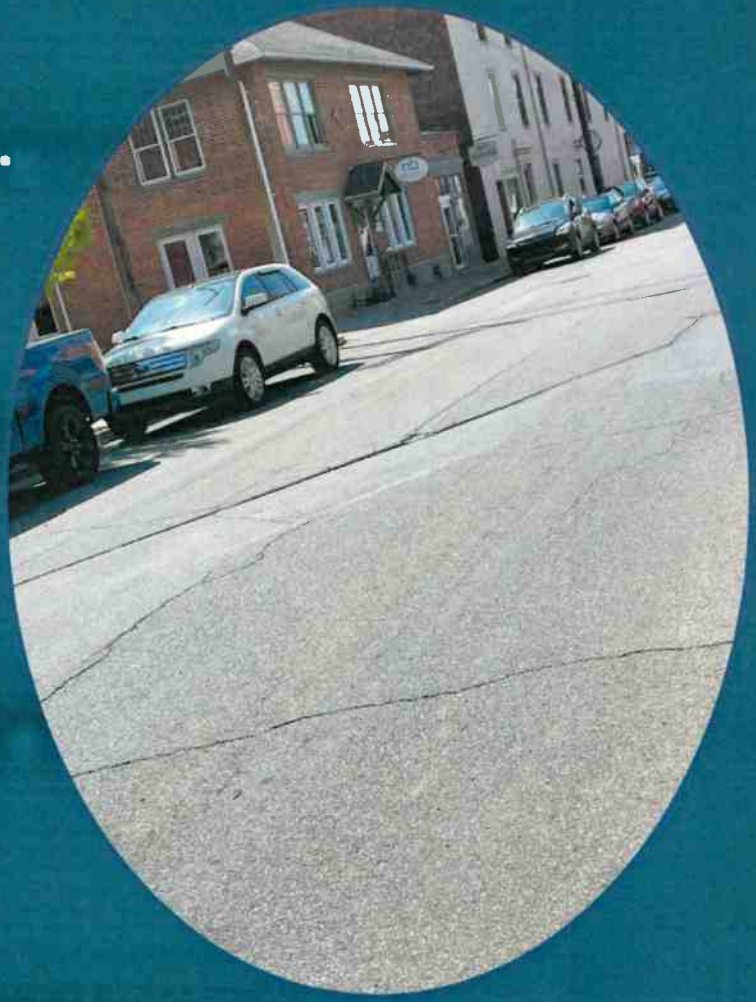
Mindy McGee

History

- Multiple street excavations not backfilled properly
- Failed backfills create poor driving conditions
  - 180 repaired and re-filled correctly as part of 2021-1 CCMG Main Street project
- Notification to City of work in ROW not happening – no inspection taking place
- Inspections on City ordered work (SWR/WTR) completed on line connection only, not backfill

Examples of failed backfill…

Vaughn Drive near East St.

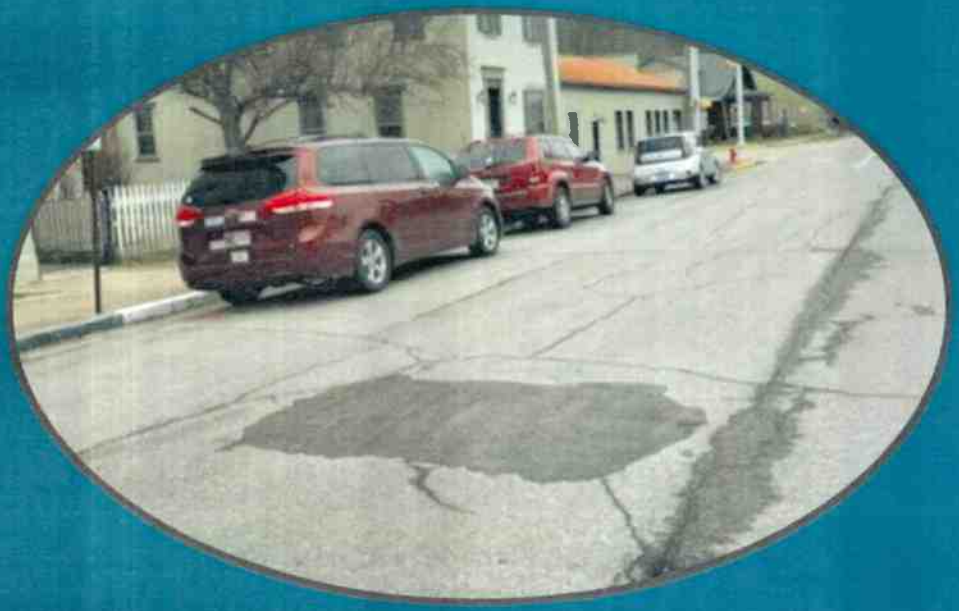


West Street near Main

Examples of failed backfill...

West 2nd Street at Broadway

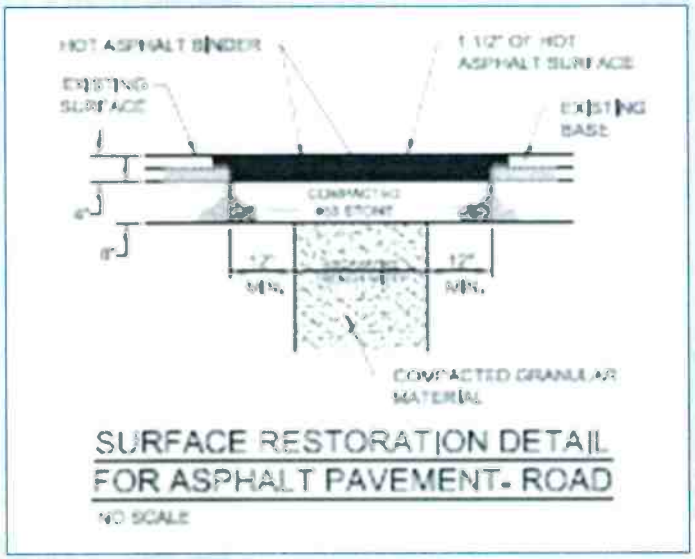
East 3rd Street near Jefferson



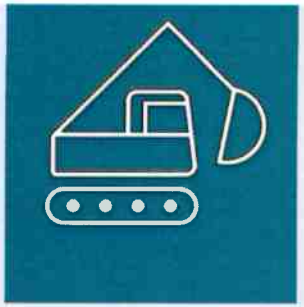
Examples of failed backfill…

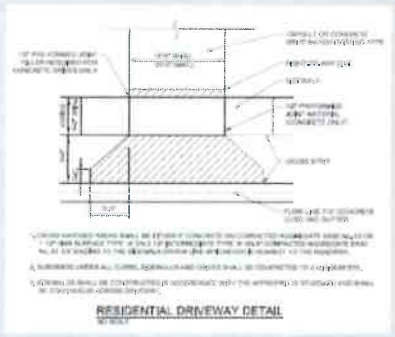
5th Street near West St.

- Current backfill requirements are already in the City's Construction Standards.
- Notification, bond and permit requirements (and fees) already in ordinance.
- All references in code are to an ordinance in 1966 with various updates with last referenced in 1997.



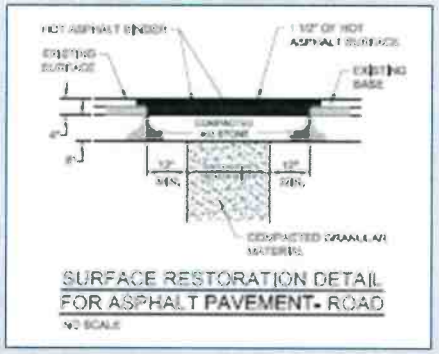
Backfill for Pavement-Road Surface



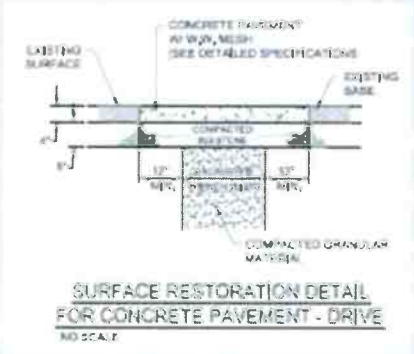


Driveway

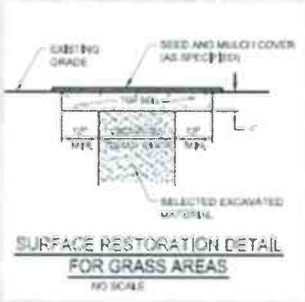
Gravel Pavement



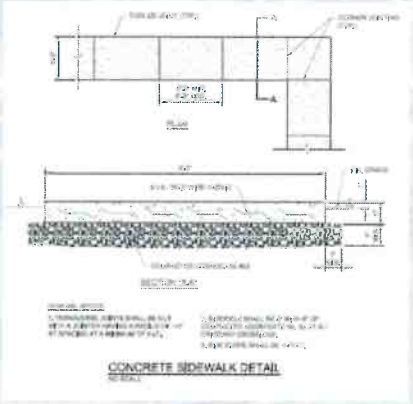
Asphalt Pavement



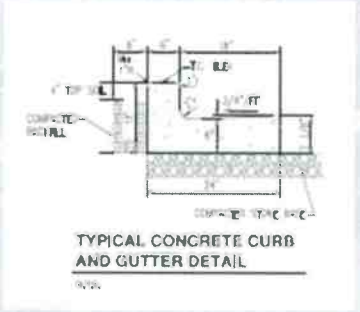
Concrete Pavement



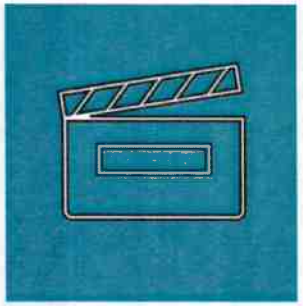
Grass



Concrete Sidewalk



Curb & Gutter



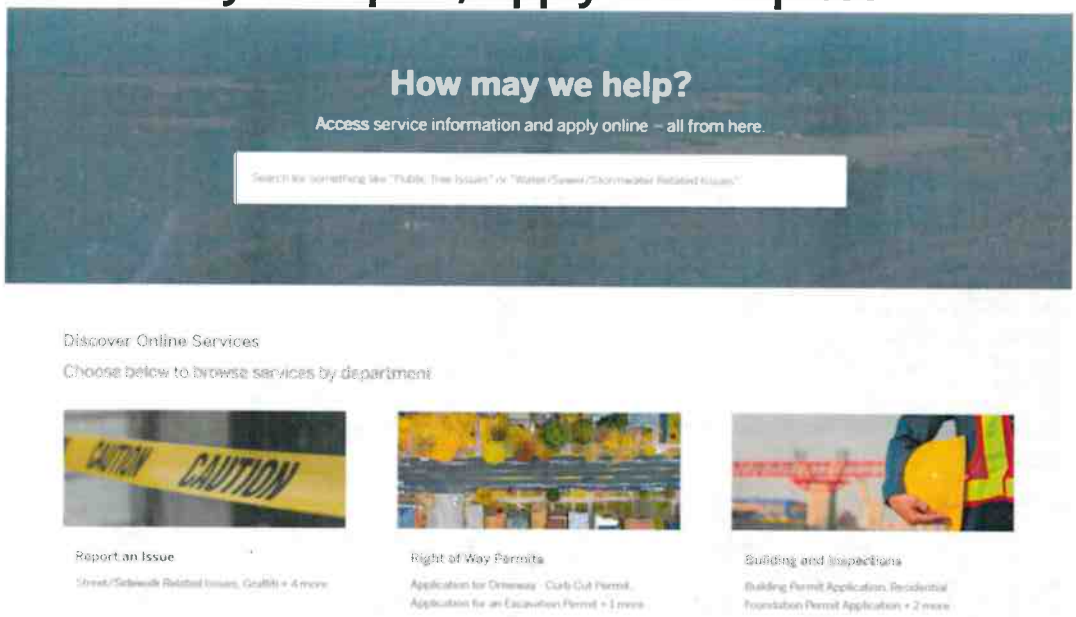
Action Needed

- Bond requirements and permit fees need to be updated.
- Permit Application updated
- Permit updated
- Notification to all registered contractors and utility companies
  - Letter prepared to go out
- City employees, including MPD, will ask for permit when work is observed.
- Inspectors need to inspect through completion of project; back to roadway surface level.
- Contractors need to warranty work for up to one year.
- Common Council: Repeal & replace Chapter 98
- BPW: Adopt updated construction standards

Madison On the Move e-newsletter

MADISON Indiana

A New Way to Report, Apply and Request



THE CITY OF MADISON LAUNCHES NEW ONLINE REPORTING PLATFORM

The Planning, Preservation, & Design (PPD) office has moved from the online IWORQ system to a new permitting and reporting platform called OpenGov. OpenGov will improve the online visibility of the PPD permitting processes, making it more accessible for contractors, property owners, and businesses to file their permits and update their licenses each year. It will also introduce a new efficient reporting system for residents, furthering the city's mission of eliminating blight in our community and making it easier for citizens to connect with us.

Thirty-two permit types for the PPD office are now automated in OpenGov, including everything from zoning approval applications to floodplain development permits, project proposal presentations, and the planning and zoning approval processes. Payments are also now accepted online, streamlining the process for individuals and city staff. Traditional paper applications are still available.

"The city's goal when adding an online system was to create a more user-friendly environment while increasing the amount of data our office could collect. OpenGov offers a better public interface with application process tracking, the ability to communicate directly through the permitting site with the reviewers, and credit card processing for application payments," said Director of Planning Nicole Schell.

Transforming civic reporting, the portal will also serve as a public hub for reports relevant to the street department for roadway and curbside pickup concerns, city-wide event guide applications, PPD nuisance violations, city parks maintenance, and more. Everything from abandoned homes to potholes can be reported, promptly notifying city staff.

"This system brings our service to a whole new level," said Madison's Mayor, Bob Courtney. "By enabling citizens to submit real-time reports to our Planning, Preservation and Design office, the paperwork processes will have a quicker turn-around rate, and we will see work being done more efficiently and in a timely manner. This new platform will make it easier for our citizens and staff while furthering our mission of increasing accessibility for all and advancing our blight elimination strategies through reporting and data collection."

OpenGov has officially launched its public portal. It can be found at Madison-in.gov/reporting.

To Visit the OpenGov Platform, Click Here!

Making Madison Clean, Safe and Beautiful

Volunteers Making a Difference:

Faculty and students from Ivy Tech worked with our code enforcement officer, Duane O'Neal, to clear away trash and debris around Crooked Creek, clean up the riverfront, and help paint the tower bases at

the City of Madison's Riverview Campground. In the end, they picked up over 25 large trash bags full of trash and debris and managed to complete the campground tower bases.

Christian Academy of Madison, Indiana kindergarteners also lent a hand. They helped us out after enjoying some tasty donuts and juice with Mayor Courtney before heading out with our Parks and Recreation Director, Scott Klein, to pick up trash and sticks around the parks by the river.

Volunteers are a vital aspect of any thriving community, and we are always incredibly thankful for the extra help. It takes an actively involved community for a city to truly prosper and grow. Everyone can contribute to helping make Madison clean, safe and beautiful.

MPD: A Growing Team

Four New Officers are Welcomed!

We are proud of how our Madison Police department is continually growing and developing every year, and this month we swore in four new officers: Aaron Watson Jr., Cody Short, Jordan Blackmore and Colton Fox.

"Public safety is a top priority for this administration, and I am proud to have these four men join the MPD team. Our local public safety officers are heroes of Madison. Thank

you for your dedication to our community," said Mayor Courtney.

Want to learn more about our police department and stay up-to-date on what's going on in the force? Follow their Facebook page: *City of Madison Police Department*.

Habitat-Clifty Woods Neighborhood

Beech Grove Street Development

On Thursday, April 20, we joined together with Habitat for Humanity of Southeast Indiana for a groundbreaking event.

The ceremony commenced the housing development project the city initiated with Habitat in June of 2022, which laid the plans for building six homes no smaller than 1,200 SF off of Beech Grove Street. The project developer will be responsible for completing three homes on Green Road with paved driveways and, at the time of completion, the city will complete the milling and paving of the street extension. The city will also replace and repair existing sidewalks for this new development.

This project coincides with our mission of investing in placemaking in our city, and we are excited to see these new homes being built. We are very grateful for the work of Habitat for Humanity and all they are doing here in Madison!

Project Page

Honoring Local Heroes

Dave Collins, Ray Black and Steve Mitchell

On Saturday, April 15, we joined the Madison Track Invitational as Mayor Courtney honored Dave Collins for his incredible record-holding state championship in 1973 and his contribution to his community. He became a three-time NCAA finalist in the 6-mile, 3-mile, and 5000 and has continued to be involved in many track events since.

On Tuesday, April 25, Mayor Courtney recognized Ray Black and Steve Mitchell who have invested 34 and 46 years in the Boys & Girls Club. Under their coaching, NCAA champion, Bubba Jenkins, began his career through the Lide White Boys & Girls Club. Approximately 4,000 wrestlers have been through the program since it's start, with thousands of youth impacted by the leadership and sacrifice of Mitchell and Black over the years.

"It's my honor to recognize such influential individuals as these men," said Madison's Mayor, Bob Courtney.

What's Happening in our Parks:

Programming Announcements

Sharing a newly created schedule, the department will offer several new programs, classes and camps for youth and adults including (but not limited to):

- Youth swim lessons,
- Water aerobics,
- Youth pickleball clinic and open gym,
- Dance and cheerleading camps,
- Youth golf programs,
- Pick-up games in the parks,
- Mid-summer classic baseball and softball,
- A princess tea party,
- Summer art classes, and
- Active adult field trips.

To check program schedules and event calendars, visit madison-in.gov/register or call our office at 812-265-8308. You can register online, or in the office! To stay informed on new and upcoming programming, follow the City of Madison Parks and Recreation page on Facebook.

Create, Paint and Sew!

From 9-11 AM and 1-3 PM on July 18, 19, and 20th, select classes will be taught in partnership with Little Golden Fox. Children 12 and under must be accompanied by an adult, but no experience is required!

July 18th, Driftwood sun catcher $15
July 19, Paint on canvas $20
July 20th, Sewing apron $30 *children must be 12 years of age or older for the sewing class*

Afternoon Tea Party

This fun Afternoon Tea Party, sponsored by the City of Madison Senior Center, is Saturday, June 10th, 3 PM at Hunter Hall (located on the second floor of the Crystal Beach Pool House at 400 W. Vaughn Dr).

Scones, cookies and finger sandwiches will be served and local royalty from the Regatta and County pageants will be at the tables with participants. Limited seating available: first 100 spots available on a first-come-first-serve basis. Free event for all ages, registration required!

Register for a Class or Event

FirstTee Golf Lessons!

Registration is now open for our summer golf clinics in June & July.

Session registration includes: 6 hours of instruction on a 6 to 1 student-to-coach ratio, registration in the Youth on Course program for $5 green fees all year, and USGA handicap through the

Swim Lessons are Back!

This June & July we will be offering swim lessons at the Madison Consolidated Junior High School pool. Sessions include 2 weeks of instruction with 30 minute classes 4 days a week between 10 AM - 12:30 PM and cost $50 per child.

Summer Cheer and Dance Camps!

DANCE:
June 12-16, children ages 3-6 will have lessons from 5:30-6:30 PM and 7-10 year-olds will have classes from 6:30-7:30 PM. After their full week of study, students will have the opportunity to show what they have learned in a showcase event. $20

Indiana PGA. Registration is $75 per Session.

Questions? We love hearing from you! Reach out to our parks department at (812) 265-8308.

Register Now!

Please note there are 6 available lesson times you may choose for each session:
10 AM, 10:30 AM, 11 AM,11:30 AM, 12 PM (noon), and 12:30 PM.

Register Here!

CHEER:
July 10-14, children ages 3-6 will have lessons from 5:30-6:30 PM and 7-10 year-olds will have classes from 6:30-7:30 PM. Following a week of practice, students will have the opportunity to participate in a showcase event to celebrate the camp together. $20

Sign Up!

Save the Date!

We are excited to host these summer and fall events! Under the stars and located near our scenic riverfront in Bicentennial Park, these are free events from the community, and for the community.

This season is brought to you by **Sedam Contracting!**
Movie will play at dusk, and Food Trucks will begin serving around 6 PM.

COFFEE WITH COURTNEY

An open discussion with Mayor Courtney to talk about subjects revolving around the city's growth over a cup of coffee from Madison's local coffee shops. This quarter, joined by Parks Director, Scott Klein!

MAY. 18 2022 | REO ROASTER | 8-9 A.M.

MADISON Indiana

JOIN US ON MAY 18, FROM 8-9 AM!

THANK YOU FOR READING!

To learn more details and information about any City Hall event or operation, visit our website @ Madison-in.gov

We'll be back next month with more, so stay tuned!

Not subscribed? Sign up for the e-newsletter here!