



## **MULTI-HAZARD MITIGATION PLAN**

Prepared for:

**Noble County, Indiana  
Town of Albion, Indiana  
City of Kendallville, Indiana  
City of Ligonier, Indiana  
Town of Rome City, Indiana  
Maumee River Basin Commission**

**March 2008**

Prepared by:

**Christopher B. Burke Engineering, Ltd.  
National City Center, Suite 1368-South  
115 W. Washington Street  
Indianapolis, Indiana 46204**

CBBEL Project Number 05-513

**DISCLAIMER:** Exhibits and any GIS data used within this report are not intended to be used as legal documents or references. They are intended to serve as an aid in graphic representation only. Information shown on exhibits is not warranted for accuracy or merchantability.

**LOCAL PROJECT CONTACTS:**

Michael "Mick" Newton, Director  
Noble County Emergency Management Agency  
210 South Seventh Street  
Albion, IN 46701  
260-636-2938  
[mnewton@nobleco.org](mailto:mnewton@nobleco.org)

Rodney Renkenberger, Director  
Maumee River Basin Commission  
3864 New Vision Drive  
Ft. Wayne, IN 46845  
260.449.7226  
[rrenken-mrbc@verizon.net](mailto:rrenken-mrbc@verizon.net)

**TABLE OF CONTENTS**

**1.0 INTRODUCTION ..... 1**

1.1 PROJECT SCOPE AND PURPOSE ..... 1

1.2 PLANNING PROCESS ..... 2

1.3 PLANNING COMMITTEE ..... 2

1.4 PUBLIC INVOLVEMENT IN THE PLANNING PROCESS ..... 3

1.5 INVOLVEMENT OF OTHER INTERESTED PARTIES ..... 4

**2.0 COMMUNITY INFORMATION ..... 5**

2.1 NFIP PARTICIPATION ..... 5

2.2 POPULATION & DEMOGRAPHICS ..... 5

2.3 LAND USE & DEVELOPMENT TRENDS ..... 5

2.4 EMPLOYMENT ..... 6

2.5 CRITICAL & NON-CRITICAL FACILITIES ..... 7

2.6 MAJOR WATERWAYS AND WATERSHEDS ..... 7

2.7 TOPOGRAPHY ..... 10

2.8 CLIMATE ..... 10

**3.0 RISK ASSESSMENT ..... 11**

3.1 HAZARD IDENTIFICATION ..... 11

3.2 HAZARD PROFILES ..... 14

3.2.1 HAZARDOUS MATERIALS ..... 14

3.2.2 HAILSTORMS, THUNDERSTORMS, & WINDSTORMS ..... 21

3.2.3 TORNADO ..... 26

3.2.4 SEVERE WINTER STORM / ICE ..... 31

3.2.5 FLOODING ..... 35

3.2.6 DAM FAILURE ..... 43

3.2.7 DROUGHT ..... 47

3.2.8 EXTREME TEMPERATURE ..... 49

3.2.9 EARTHQUAKE ..... 53

3.3 HAZARD SUMMARY ..... 56

**4.0 MITIGATION GOAL & PRACTICES ..... 58**

4.1 MITIGATION GOAL ..... 58

4.2 MITIGATION PRACTICES ..... 58

**5.0 IMPLEMENTATION PLAN ..... 64**

**6.0 PLAN MAINTENANCE PROCEDURES ..... 64**

6.1 MAINTENANCE PROCESS ..... 67

6.2 INCOPRORATION INTO EXISTING PLANS ..... 67

6.3 CONTINUED PUBLIC INVOLVEMENT ..... 67

**LIST OF TABLES**

Table 1-1: MHMP Planning Committee.....3  
 Table 1-2: Additional Local Leaders ..... 3  
 Table 2-1: NFIP Participation.....5  
 Table 2-2: Land Use .....6  
 Table 2-3: List of Major Employers .....6  
 Table 2-4: List of Major Waterways .....8  
 Table 2-5: List of 14-Digit HUC Watersheds & Acres .....8  
 Table 2-6: List of Major Lakes.....10  
 Table 3-1: Hazards Identification .....11  
 Table 3-2: Determination of Weighted Values for NFIP Communities.....12  
 Table 3-3: Combined CPRI for Noble County and NFIP Communities.....13  
 Table 3-4: United States Hazardous Materials Incidents by Transportation Mode .....36  
 Table 3-5: CPRI for Hazardous Materials .....16  
 Table 3-6: Hazardous Materials Handlers, Neighboring Facilities, & Estimated Replacement  
 Costs .....17  
 Table 3-7: Historic Hailstorms, Thunderstorms, & Windstorms .....27  
 Table 3-8: CPRI for Hailstorms, Thunderstorms, and Windstorms.....23  
 Table 3-9: Fujita Scale of Tornado Intensity .....27  
 Table 3-10: Historic Tornado Data .....27  
 Table 3-11: CPRI for Tornado.....28  
 Table 3-12: Summary Hypothetical Tornado Damages and Estimated Economic Costs .....29  
 Table 3-13: Historic Severe Winter Storm/Ice Events.....32  
 Table 3-14: CPRI for Severe Winter Storm/Ice .....33  
 Table 3-15: Historic Flooding.....36  
 Table 3-16: Repetitive Loss Properties, Claims, and Payments.....37  
 Table 3-17: Flood Insurance Premiums and Coverage .....38  
 Table 3-18: CPRI for Flooding Data.....38  
 Table 3-19: Residential Structures within the 100-year Floodplain.....39  
 Table 3-20: CPRI for Dam Failure .....44  
 Table 3-21: CPRI for Drought .....48  
 Table 3-22: Historic Extreme Temperature Events.....51  
 Table 3-23: CPRI for Extreme Temperatures .....51  
 Table 3-24: CPRI for Earthquake.....54  
 Table 3-25: Comparative Hazard Ranking, Noble County.....57  
 Table 4-1: Summary of Mitigation Practices .....60

**LIST OF EXHIBITS**

- 1 Noble County Critical Facilities
- 1a Noble County Critical Facilities, Municipalities
- 2 Flood Zones, USGS Stream Gages, and Dam Locations
- 3 Hazardous Materials Transport & Storage
- 4 Historic Tornado Activity with Existing Outdoor Warning Siren Locations

**LIST OF APPENDICES**

- 1 List of Acronyms
- 2 Planning Committee Meeting Agendas and Meeting Summaries
- 3 List of Critical Facilities
- 4 Media Releases, Coverage, Public Survey, and Summary of Responses
- 5 Promulgation Authorities
- 6 Resolutions for Adoption
- 7 Potential Funding Sources for MHMP Mitigation Measures

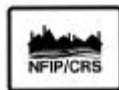
**1.0****INTRODUCTION****1.1 PROJECT SCOPE AND PURPOSE**

The development of a Multi-Hazard Mitigation Plan (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 resources.

In order 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 U.S. Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) Region V offices administer the MHMP program in Indiana. All future references in the plan to the U.S. DHS/FEMA will be denoted as FEMA.

The Noble County MHMP is a multi-jurisdictional planning effort led jointly by the Maumee River Basin Commission (MRBC) and the Noble County Commissioners. This Plan was prepared in partnership with Noble County, Town of Albion, City of Kendallville, City of Ligonier, and Town of Rome City. Representatives from each of these communities attended Planning 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 communities had an equal opportunity for participation and representation in the planning process, the process used to develop the Noble County MHMP satisfies the requirements of DMA 2000 in which multi-jurisdictional plans may be accepted.

The development of this MHMP is the necessary first step of a multi-step process to implement programs, policies, and projects to mitigate the effect of hazards in Noble County. The intent of this planning effort was to identify the hazards and the extent that they affect Noble County and its member communities, and to formulate mitigation strategies or projects that could be undertaken to mitigate these hazards. Although this MHMP meets the requirements of DMA 2000 and eligibility requirements of the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) Grant, Pre-Disaster Mitigation (PDM) Grant, Repetitive Flood Claims (RFC) Grant, as well as other FEMA programs including the NFIP Community Ratings System (CRS), additional detailed studies will need to be completed prior to applying for these grants or programs.



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 are necessary to enter the CRS program and receive a 5% flood insurance premium discount. This Plan could contribute as many as 294 points toward participation in the CRS. At this time, no communities in Noble County participate in the CRS.

Funding to prepare this MHMP was made available through a PDM Planning grant that the IDHS awarded to the Noble County Commissioners. The local match contribution was provided by the MRBC in the form of a grant awarded to the Noble County Commissioners. Christopher B. Burke Engineering, Ltd. (CBBEL) was hired to facilitate the planning process and prepare the Noble County MHMP under the direction of an American Institute of Certified Planners (AICP) certified planner.

## **1.2 PLANNING PROCESS**

Preparation for the Noble County MHMP began in March of 2004 when the MRBC in partnership with the Noble County Commissioners requested PDM grant funds from DHS/FEMA to prepare an MHMP for the County and NFIP communities. CBBEL was hired in July of 2006.

In September 2006, MRBC in cooperation with the Noble County Commissioners compiled a list of Planning Committee members that would meet in September 2006, February 2006, March 2007, and May 2007. From September 2006 through January 2007, the Noble County GIS Coordinator updated the critical facilities information with accurate local data. From January 2007 through March 2007, CBBEL researched and compiled historic hazard data necessary to prepare the MHMP. In April 2007, a media release describing the development of the MHMP was distributed to local media outlets. In August 2007, CBBEL provided the full draft of the Noble County MHMP to the Planning Committee for their review and comment. A public meeting was scheduled in September 2007 to present the draft Plan to the public and other interested parties. Public comments were accepted, suggestions were incorporated, and then the Plan was forwarded to IDHS and FEMA for their review and comment. Comments from FEMA were incorporated into the draft Plan and reviewed by the Planning Committee. Local adoption of the MHMP by the Noble County Commissioners was complete in [date] 2007.

## **1.3 PLANNING COMMITTEE**

The Noble County MHMP Planning Committee was a new committee specifically formed to develop this Plan. Members included representatives from Noble County, Town of Albion, City of Kendallville, City of Ligonier, and Town of Rome City. These representatives were knowledgeable of local hazards; had been involved in hazard mitigation; and/or had the tools necessary to reduce the impact of future hazard events. The Planning Committee included representatives from all NFIP communities and the offices of emergency management, fire, law enforcement, planning, zoning and code enforcement, public health, public utilities, and various elected officials. **Table 1-1** lists the individuals that participated on the Planning Committee and the entity they represented.

The Planning Committee convened at the Noble County Sheriff's Department in Albion and the Noble County Library in Albion. Representatives from the NFIP communities attended the meetings and worked efficiently to discuss and make decisions on the information presented. During these meetings, the Planning Committee successfully identified critical facilities and local hazards; reviewed the State's mitigation goals and set local mitigation goals; reviewed local hazard data and maps; identified and assessed the effectiveness of existing mitigation measures; established mitigation projects; and 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 Planning Committee attended the public meeting in September 2007 and assisted with adoption of the Noble County MHMP.

Table 1-1: MHMP Planning Committee

Name	Title	Representing
Gary Bishop	Mayor	City of Ligonier
Brenda Conley	Clerk Treasurer	Town of Rome City
Judy Fox	Advisory Board Chair	Noble County EMA
Steve Hook	Coordinator	Noble County GIS
Steve Kirkpatrick	Planning Director	Noble County Planning
David Lange	Floodplain Administrator	City of Kendallville
Gary Leatherman	Sheriff	Noble County Law Enforcement
Joy LeCount	Councilwoman	Noble County Council
Katherine MacAuley	Executive Director	Northeast Indiana Red Cross
Richard Moser	Commissioner	City of Ligonier Street Dept
Scott Mosley	Superintendent	City of Kendallville Water Dept
Michael Newton	Director	Noble County EMA
Rodney Renkenberger	Executive Director	Maumee River Basin Commission
Mike Riehm	Chief	City of Kendallville Fire Dept
Brian Shearer	Chief	City of Ligonier Police Dept
Beth Shellman	Town Manager	Town of Albion
Tom Shoemaker	Director	Noble County EMS
Hal Stump	Commissioner	Noble County Commissioner's Office
Rob Wiley	Chief	City of Kendallville Police Dept
Scott Zeigler	Surveyor	Noble County Surveyor's Office

Several additional local leaders attended for the Planning Committee meetings. These individuals are listed in **Table 1-2** below.

Table 1-2: Additional Local Leaders

Name	Title	Representing
Robert Bair	Deputy Director	Noble County EMA
Bob Braley	Reporter	Kendallville News Sun
Nelle Carteaux		Noble County EMA
Tom Doty	Noble County Liaison	Northeast Indiana Red Cross
Mitch Fiandt	E-911 Director	Noble County Communications
Wayne Fox		City of Ligonier
Pat Gensic	Noble Co Health Nurse	Noble County Health Department
Jack Sieber	Member	Noble County EMA

#### 1.4 PUBLIC INVOLVEMENT IN THE PLANNING PROCESS

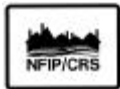
In April 2007, a media release was distributed to local news media in Noble County and was titled, "How do tornados, floods, and severe winter storms affect you?" The article identified the communities participating in the MHMP effort, the requirements of DMA 2000, and 5 questions about hazard awareness to which interested residents could respond. The questions regarding hazard awareness in Noble County were also distributed in the form of a survey and provided to local stakeholders through the Planning Committee. **Appendix 4** includes a copy of the media release as well as associated coverage, public survey, and a summary of survey results.



A draft of the Noble County MHMP was placed in the Noble County library in Albion, Indiana. Press releases announcing the placement of the plan were provided to local media and the Planning Committee members were also provided with an information flyer to display in their respective offices. This was an attempt to provide the public with a copy of the MHMP and allow them to review and comment on the contents. Those in attendance for the public meeting held on September 18, 2007 were provide with information related to the development of the Noble County MHMP, the hazards affecting Noble County, as well as the proposed mitigation measures developed by the Planning Committee. Several members of the Planning Committee were present to describe details of the plan as well as to answer questions presented by attendees. Attendance was moderate; however, those in attendance were interested citizens and representative of the public.

### **1.5 INVOLVEMENT OF OTHER INTERESTED PARTIES**

Neighboring EMA Directors in Allen, DeKalb, Elkhart, Kosciusko, LaGrange, and Whitley Counties, as well as interested agencies, businesses, academia, and nonprofits were invited to review and comment on the draft Noble County MHMP.



The CRS program credits NFIP communities a maximum of 100 points for organizing a planning committee composed of staff from various departments; involving the public in the planning process; and coordinating among other agencies and departments to resolve common problems relating to flooding and other known natural hazards.

## 2.0 COMMUNITY INFORMATION

Noble County is a highly agricultural county with approximately 84% of land involved in agriculture from open fields and pastures to farmsteads, and the remaining portion of the county is considered to be urbanizing. Noble County ranks 32<sup>nd</sup> in 92 counties in Indiana regarding size. The Town of Albion is the county seat and county's 4<sup>th</sup> largest urban center. Albion is home of the Chain of Lakes State Park, a series of 11 lakes created as the glaciers retreated over 10,000 years ago. The Town of Albion is the geographic center of Noble County and is approximately 30 miles northwest of the City of Ft. Wayne, Indiana.

### 2.1 NFIP PARTICIPATION

The Town of Albion, City of Kendallville, City of Ligonier, Town of Rome City, and Noble County are participants in the National Floodplain Insurance Program (NFIP). At the time of preparing this Multi-Hazard Mitigation Plan (MHMP), none of the NFIP communities in Noble County participates in the Community Rating System (CRS) program. **Table 2-1** lists the NFIP number and the date they joined the program for each community.

**Table 2-1: NFIP Participation**

NFIP Communities	NFIP Number	Join Date
Noble County	180183	01-03-1979
Town of Albion	180184	08-19-1986
City of Kendallville	180185	01-06-1983
City of Ligonier	180186	01-06-1983
Town of Rome City	180385	10-15-1982

(FEMA, 2006)

### 2.2 POPULATION & DEMOGRAPHICS

Noble County has an above average population growth for Indiana, and ranks 5<sup>th</sup> among 92 counties with a growth rate of 22.2% between 1990 and 2000. The most recent census data for Noble County estimates that the 2005 population was 47,448. Of the 92 counties in Indiana, Noble County is the 32<sup>nd</sup> largest in geographical size and 29<sup>th</sup> largest for population in Indiana. Approximately 21% of the population in Noble County lives in the City of Kendallville.

In 2004, the median age of the population in Noble County was 34.2 years of age. Similar to the rest of Indiana, the largest demographic age groups in the county were young adults (25 - 44 years), older adults (45 - 64 years), and school aged (5 -17 years) with a distribution within the county of 27.9%, 23.2%, and 20.8%, respectively. The ethnic majority in Noble County is white which comprises 88.7% of the county population followed by a growing black ethnicity. Similar to the rest of Indiana, 29% of the population in Noble County is married with children. The average household size is 2.83 persons compared to the average family size of 2.91. Homeownership is higher in Noble County than elsewhere in the state. Approximately 71.4% of the population owns their home compared to 65.9% statewide.

### 2.3 LAND USE AND DEVELOPMENT TRENDS

The most common land use classification is row crop, which covers roughly 71.4% of all land area in Noble County. Following agricultural production areas in geographic extent is low intensity residential, which covers approximately 5.2% of the County. Residential development, both low intensity and high intensity, covers approximately 5.7% of the total land use in the County and is concentrated primarily near the City of Kendallville, the City of Ligonier, and the

smaller incorporated areas of Albion, Avilla, and Ligonier. **Table 2-2** displays the distribution of land-use types within Noble County.

**Table 2-2: Land Use**

Description	Acres	% of County
Row Crops	206762.65	71.37
Pasture/Hay	39878.70	13.76
Low intensity Residential	15162.95	5.23
Deciduous Forest	11579.44	4.00
Urban/Recreational Grasses	7010.97	2.42
Commercial/Industrial/Transportation	3527.11	1.22
Wetlands	3406.36	1.18
High intensity Residential	1312.17	0.45
Open Water	930.66	0.32
Bare Rock/Sand/Clay	124.20	0.04
Evergreen Forest	16.18	0.01
Mixed Forest	4.15	<0.01
<b>TOTAL</b>	<b>289715.54</b>	<b>100.00</b>

(USGS, 2006)

**2.4 EMPLOYMENT**

Census data from 2004 shows that of the total working force in Noble County, 87.7% worked in the private sector that includes retail trade, construction, professional technical services, and health care and social services. The annual per capita personal income in 2004 was \$25,016 and the median household income in 2003 was \$43,116. The number of individuals commuting out of the County for work was significantly higher (8,220) than those commuting into the County for work (5,590). In 2005, employment numbers were 22,350 individuals and conversely, in June 2006, the unemployment rate for Noble County was 5.6%. **Table 2-3** lists the major employers including large office buildings and industrial complexes with 300 or more occupants as indicated by the Noble County Economic Development Corporation.

**Table 2-3: List of Major Employers**

Busche Enterprise Corporation	Millennium Industries Corporation
Courier Kendallville	Silgan Plastics Corporation
Dexter Axle	Teleflex Automotive Group
Kautex Textron	Tower Automotive
Kraft Foods	Vibracoustic North America

(Noble County Economic Development Corporation, 2007)

The manufacturing industry employs 39.3% of the workforce; other private industries employ an additional 17.1% of the population, while retail trade is the third largest employer with 9.1% of the county's workforce. Approximately 13% of the workforce in Noble County is employed in local government and public administration positions.

## 2.5 CRITICAL AND NON-CRITICAL FACILITIES

Critical facilities are those that are vital to the health, safety, and welfare of the population. These facilities 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.

There are approximately 350 critical facilities identified for the development of the Noble County MHMP:

- **Governmental Facilities** – *9 facilities* – essential for the delivery of critical services and crisis management including data and communication centers and key government complexes.
- **Essential Facilities** – *21 medical facilities, 1 emergency operation center, 8 law enforcement facilities, 10 fire stations, 37 schools* – vital to health and welfare of entire population including hospitals and other medical facilities, police and fire, emergency operations centers, evacuation shelters, and schools.
- **Transportation Systems** – *12 airports* – necessary for transport of people and resources including airports, highways, railways, and waterways.
- **Lifeline Utility Systems** – *11 communications facilities, 5 potable water facilities, 4 electric power substations, 11 wastewater treatment plants* – vital to public health and safety including potable water, wastewater, oil, natural gas, electric power, and communication systems.
- **High Potential Loss Facilities** – *32 dams* – failure or misoperation may have significant physical, social, and/or economic impact to neighboring community including nuclear power plants, high hazard dams, and military installations.
- **Hazardous Material Facilities** – *187 facilities* – involved in the production, storage, and/or transport of corrosives, explosives, flammable materials, radioactive materials, and toxins.

The HAZUS-MH program combines current scientific and engineering knowledge with the latest geographic information systems (GIS) technology to produce estimates of hazard-related damage before, or after a disaster occurs. This program as well as information provided by the Noble County GIS Department, and the Planning Committee was utilized to identify preliminary types and locations of critical facilities. These databases included information on critical facilities such as hospitals, police and fire stations, emergency operations centers, shelters, and schools; transportation systems; utility lifelines; high potential loss facilities such as potable water, wastewater, oil, natural gas, electric power, communication systems, and hazardous material facilities. The Planning Committee reviewed both the database information and maps for police stations, fire stations, schools, and medical facilities. After further discussion, the Planning Committee modified the existing list and added or modified the locations of critical facilities.

**Exhibit 1** illustrates the location of critical facilities and **Appendix 3** lists the critical facilities by NFIP community. Non-critical facilities include residential, industrial, commercial, and other structures not meeting the definition of a critical facility and are not required for a community to function. Approximately 50,000 non-critical facilities were identified using the Noble County GIS databases. The development of this MHMP focused on critical facilities; thus, non-critical facilities are not mapped or listed.

## 2.6 MAJOR WATERWAYS AND WATERSHEDS

According to the Indiana Department of Environmental Management (IDEM), there are 60 waterways in Noble County. **Table 2-4** lists the waterways identified. The most prominent

waterway in the County is the Elkhart River. The Elkhart River (South Branch) begins in Noble County southwest of the Town of Albion near US Hwy 33. As the South Branch joins the mainstem east of the City of Ligonier, the Elkhart River then travels in a northwesterly direction into Elkhart County.

**Table 2-4: List of Major Waterways**

Akers Ditch	Gandy Ditch	Rimmell Branch
Beal Branch	Gretzinger Ditch	Schwab Ditch
Bigler Ditch	Heltzel Ditch	Sell Branch
Bixler Lake Ditch	Henderson Lake Ditch	Smalley Ditch
Black Creek	Hinkley Ditch	Solomon Creek
Black Ditch	Hosler Ditch	South Branch Elkhart River
Blue River	Huston Ditch	Sparta Lake Ditch
Boughey Ditch	Hutchins Ditch	Steffy Ditch
Boyd Ditch	Iden Branch	Summers Ditch
Brown Ditch	Jacobs Ditch	Sycamore Creek
Carrol Creek	Little Cedar Creek	Tippecanoe River
Clock Creek	Long Ditch	Uhl Ditch
Croft Ditch	Maumee Ditch	Waterhouse Ditch
Cromwell Ditch	McNutt Ditch	Whan Ditch
Crothers Ditch	Mud Run River	Willow Creek
Dillon Creek	North Branch Elkhart River	Winebrenner Branch
Dry Run	Oviatt Ditch	Yarde Ditch
Elkhart River	Parker Ditch	Yarian Ditch
Forker Creek	Piper Branch	
Friskney Ditch	Roush Ditch	

(IDEM, 2006)

According to IDEM, there are 38 14-digit Hydrologic Unit Code (HUC) watersheds in Noble County. The largest watershed is the North Branch Elkhart River–Boyd/Huston Ditches (18,474 acres) and the smallest is the Blue River-Thorn Creek (43 acres). **Table 2-5** lists the 14-digit HUC watersheds in Noble County.

**Table 2-5: List of 14-Digit HUC Watersheds and Acres**

14-Digit HUC #	14-Digit HUC NAME	Acres
04050001170080	North Branch Elkhart River–Boyd/Huston Ditches	18,474
04050001170070	Waldron Lake-Clock Creek/Dry Run	16,861
04050001180040	Croft Ditch-Skinner Lake-Rimmell Branch	15,893
04050001190050	Solomon Creek-Headwaters	14,092
04050001180060	South Branch Elkhart River-Diamond-Eagle Lakes	14,040
04100003090060	Little Cedar Creek-Black Creek	13,996
04050001170050	Henderson Lake Ditch-Waterhouse Ditch	12,787
04050001180010	Forker Creek-River Lake-Long Lake	11,955
04050001180020	Carrol Creek-Winebrenner Branch	11,804

14-Digit HUC #	14-Digit HUC NAME	Acres
04050001170060	Middle Branch Elkhart River-Oviatt Ditch	11,089
04050001190020	Elkhart River-Ligonier	10,957
04050001180030	South Branch Elkhart River-Muncie Lake	10,524
05120104020010	Blue River Headwaters (Noble)	10,021
04050001200010	Turkey Creek-Headwaters (Noble)	9,584
0405001170010	Little Elkhart Creek-Tamarack-Cree Lakes	9,326
04050001180050	South Branch Elkhart River-Long Ditch-Long lake	8,866
04100003090040	Little Cedar Creek-Sycamore Creek	8,860
04050001190010	Elkhart River-Sparta Lake Outlet	6,907
05120106010030	Tippecanoe River-Smalley Lake/Wilmot Pond	6,763
04100003090050	Little Cedar Creek-King Lake	6,703
04100003090070	Willow Creek-Yant Ditch	5,911
05120106010010	Tippecanoe River-Crooked Lake/Big Lake	4,565
04050001170040	North Branch Elkhart River-Jones Lake	3,952
04050001190060	Solomon Creek-Meyer/Hire Ditches	3,754
04100003090010	John Diehl Ditch-Headwaters	3,326
04050001170020	Little Elkhart Creek-Dallas Creek	2,598
04050001200020	Turkey Creek-Lake Wawasee	2,375
04050001190030	Stony Creek-Phillips Ditch	2,189
05120104020020	Blue River-Clue Lake/Mud Run	2,060
05120106010040	Tippecanoe River-Webster Lake	1,708
04100003080010	Cedar Lake-Leins Ditch-McCullough Ditch	1,151
04050001140050	Rowe Eden Ditch	1,018
04050001140030	Little Elkhart River Ditch (Topeka)	999
04050001110110	Little Turkey L-Big Long L/Lake of the Woods	699
05120106010020	Loon Lake-Goose lake/Old Lake	656
04050001190040	Elkhart River-Dry Run	610
04100003090070	Willow Creek-Willow Creek Ditch	54
05120104020030	Blue River-Thorn Creek	43

(IDEM, 2006)

Noble County has several natural lakes within the County boundaries providing residents and visitors with numerous opportunities such as fishing, boating, and camping. Due to these opportunities, the lake population significantly rises during the summer months. **Table 2-6** indicates the largest lakes in Noble County.



**Table 2-6: List of Major Lakes**

Bear Lake	Engle Lake	Skinner Lake
Big Lake	Indian Village Lake	Smalley Lake
Crane Lake	Knapp Lake	Sparta Lake
Cree Lake	Loon Lake	Sylvan Lake
Crooked Lake	Mallard Roost on Elkhart River	Upper Long Lake
Diamond Lake	Sacarider Lake	West Lakes
Eagle Lake	Sand-River Lakes, Chain-O-Lakes	

(Noble County Convention & Visitor’s Bureau, 2007)

**2.7 TOPOGRAPHY**

The relief in Noble County is considered gently sloping or moderately sloping with some areas that are nearly level or steep. In the northwestern part of the county is mostly level or gently sloping outwash plains. The areas around drainage ways and lakes are more sloping; the largest area of strongly sloping to steep soils is in Green Township, extending into York, Perry, and Elkhart Townships. Elevation ranges from 1,060 feet above sea level in the north central Noble County, to less than 850 feet above sea level in the southeastern portion. The predominant drainage in Noble County is to the Elkhart River and as part of the St. Joseph River watershed, drains to Lake Michigan.

**2.8 CLIMATE**

The Midwestern Regional Climate Center (MRCC) provided climate data that includes information retrieved from a weather station located in Auburn, and is identified as station 120334. No information specific to Noble County was available, necessitating the need to utilize a neighboring county’s data. Information presented is data present for DeKalb County. It can be assumed that the information will not be significantly different as they are within the same climate region. The average annual mean temperature for Noble/DeKalb County is 50.3 °F. Mean precipitation is 35.47 inches a year, with the wettest month being June with 4.17 inches mean total, and the driest month is February, with 1.42 inches mean total. The highest 1-day maximum precipitation was 3.65 inches on October 31, 1898. Mean snowfall is 32.4 inches per year. The highest monthly amount of snowfall recorded at this station is 30.0 inches for January 1982. On average, there are 118.5 days of rain greater than, equal to 0.01 inches, 23.6 days of rain greater than, or equal to 0.5 inches, and 6.5 days of rain greater than or equal to 1.0 inches of depth. There are approximately 164 days in the growing season for Noble/DeKalb County, based on a base temperature of 32 °F and falls between May 5 and October 8.

**3.0 RISK ASSESSMENT**

The goal of mitigation is to reduce the future impacts of a hazard. These include property damages, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. To realize this goal, a comprehensive examination of natural hazard risk in a community is required. A risk assessment measures the potential loss from a hazard event 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 will be affected by a hazard, and the impact on community assets.

**3.1 HAZARD IDENTIFICATION**

The MHMP Planning Committee reviewed the list of natural hazards prepared by the Federal Emergency Management Agency (FEMA) Region V, identified those hazards that affected Noble County, and agreed upon which hazards they would like to study in detail as part of this planning effort. Threats of terrorism, pandemic/epidemic outbreaks, and pipeline utility failure were also mentioned as potential hazards having a significant impact on Noble County. However, due to the sensitive nature of the information and the fact that these events have been detailed in other non-public documents, the Planning Committee decided not to include them in this report.

As illustrated in **Table 3-1**, the Planning Committee decided to study dam failure, drought, earthquake, extreme temperature, flooding, hailstorms, thunderstorms, windstorms, hazardous materials incidents, severe winter storms including ice storms, and tornados in detail as part of this planning effort. While the FEMA Region V listing included landslide and wildfire, the Planning Committee felt that these hazards had very little impact and would not study them as a part of this planning effort.

**Table 3-1: Hazards Identification**

List of Hazards	Hazards with Local Impact	Hazards for Detailed Study
<b>Dam Failure</b>	<b>Yes</b>	<b>Yes</b>
<i>Drought</i>	<b>Yes</b>	<b>Yes</b>
<b>Earthquake</b>	<b>Yes</b>	<b>Yes</b>
<i>Extreme Temperature</i>	<b>Yes</b>	<b>Yes</b>
<b>Flooding</b>	<b>Yes</b>	<b>Yes</b>
<b>Hailstorms, Thunderstorms, and Windstorms</b>	<b>Yes</b>	<b>Yes</b>
<i>Hazardous Materials</i>	<b>Yes</b>	<b>Yes</b>
Landslide	No	No
<b>Severe Winter Storm (Ice)</b>	<b>Yes</b>	<b>Yes</b>
<b>Tornado</b>	<b>Yes</b>	<b>Yes</b>
Wildfire	No	No

Note: Hazards shown in bold are studied in detail. Hazards shown in Italics were added by the Planning Committee.

The Planning Committee then prioritized these hazards in terms of importance and potential for disruption to the community using the Calculated Priority Risk Index (CPRI). The CPRI, adopted from MitigationPlan.com, is a tool by which individual hazards are evaluated and



ranked according to an indexing system. The CPRI value can be obtained by assigning varying degrees of risk to four categories (probability, magnitude/severity, warning time, and duration) for each hazard, and then calculating an index value based on a weighting scheme. To determine the CPRI, a value of 1 through 4 is assigned to the categories for probability (unlikely – highly likely), magnitude/severity (negligible – catastrophic), warning time (more than 24 hours – less than 6 hours), and duration of event (less than 6 hours – greater than 1 week). The following is how the index values are weighted and the CPRI value is calculated.

$$\text{CPRI} = \text{Probability} \times 0.45 + \text{Magnitude/Severity} \times 0.30 + \text{Warning Time} \times 0.15 + \text{Duration of Event} \times 0.10.$$

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

- **Unlikely** – Event is possible within the next ten years.
- **Possible** – Event is probable within the next five years.
- **Likely** – Event is probable within the next three years.
- **Highly Likely** – Event is probable within the calendar year.

Magnitude/Severity is defined by the extent of injuries, shutdown of critical facilities, and the extent of property damage sustained.

- **Negligible** – Injuries and/or illnesses are treatable with first aid, minor quality of life is lost, shutdown of critical facilities and services for 24 hours or less, less than 10% property is severely damaged.
- **Limited** – Injuries and/or illnesses do not result in permanent disability, complete shutdown of critical facilities for more than one week, more than 10% property is severely damaged.
- **Critical** – Injuries and/or illnesses result in permanent disability, complete shutdown of critical facilities for at least 2 weeks, more than 25% property is severely damaged.
- **Catastrophic** – Multiple deaths, complete shutdown of facilities for 30 or more days, and more than 50% property is severely damaged.

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 National Floodplain Insurance Program (NFIP) community in Noble County, and then a weighted CPRI value was computed based on the population size of each community. **Table 3-2** 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 as that percentage of the population of the community of the total population of the County. Thus, the results reflect the relative population influence of each community on the overall priority rank.

**Table 3-2: Determination of Weighted Value for NFIP Communities**

NFIP Community	2004 Population	% of Total Population	Weighed Value
Noble County (w/o other NFIP)	29,039	61.2	0.612
Town of Albion	2,323	5.0	0.050
City of Kendallville	10,018	21.1	0.211
City of Ligonier	4,423	9.3	0.093
Town of Rome City	1,645	3.4	0.034
<b>TOTAL</b>	<b>47,448</b>	<b>100.0</b>	<b>1.000</b>

**Table 3-3** illustrates the combined CPRI values for Noble County and NFIP communities. According to the combined CPRI, hazardous materials incidents, at 3.9, ranked as the number one hazard in Noble County followed by hailstorms, thunderstorms, and windstorms (3.2), tornado (3.1), severe winter storms including ice storms (2.9), flooding (2.5), dam failure, drought, and extreme temperature (all ranked at 2.1), and earthquake (1.2). In those cases where hazard received the same CPRI value, the Planning Committee discussed and selected that hazard considered a higher priority for Noble County. **Section 3.2** includes a profile of the individual hazards as well as a CPRI value for both Noble County as a whole, and the specific communities within the County.

**Table 3-3: Combined Calculated Priority Risk Index (CPRI) for Noble County and NFIP Communities**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	<b>Duration of Event</b> <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	<b>Weighted Average CPRI</b>
Hazardous Materials	Highly Likely	Catastrophic	< 6 hrs	< 1 wk	3.9
Hailstorm/ Thunderstorm/ Windstorm	Highly Likely	Limited	< 6 hrs	< 1 wk	3.2
Tornado	Highly Likely	Limited-Critical	< 6 hrs	< 6 hrs	3.1
Severe Winter Storm (Ice)	Highly Likely	Limited	12-24 hrs	< 1 wk	2.9
Flooding	Unlikely - Highly Likely	Negligible-Limited	> 24 hrs	> 1 wk	2.5
Dam Failure	Unlikely	Limited- Catastrophic	< 6 hrs	< 6 hrs	2.1
Drought	Possible	Limited	> 24 hrs	> 1 wk	2.1
Extreme Temperature	Possible	Limited	> 24 hrs	> 1 wk	2.1
Earthquake	Unlikely	Negligible	< 6 hrs	< 1 wk	1.2

The hazards studied for this report are not equally threatening to all communities throughout Noble County. While it would be difficult to focus the probability of an earthquake, hailstorm, thunderstorm, windstorm, tornado, or a severe winter storm 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 an area downstream of a dam. The magnitude and severity of the same hazard may cause varying levels of damages in different communities.

For example, the City of Ligonier may be at a higher risk than other communities for flood related damage as the Elkhart River bisects the community. Similarly, the South Branch of the Elkhart River approaches the Town of Albion, increasing the risk of flood related damages for those properties along the southeastern portion of the community. Based on the number of hazardous materials facilities, the City of Kendallville would have a higher potential of an incident occurring than the Town of Rome City. The magnitude and severity of such an event in either of these communities would vary as well based on population, proximity of hazardous

materials handlers to other critical facilities, and again, the number of such facilities. Detailed information regarding areas of concern will be provided within each hazard profile, along with the CPRI value for each of the NFIP communities.

In order to assess the risk of individual hazards affecting Noble County, the Noble County Emergency Management Agency (EMA) Director completed an Emergency Operations Center Assessment Checklist indicating the identified hazards, the stated risk percentage, and the information source. As found on the Assessment Checklist, tornado, flooding, winter storm, and power outages are anticipated to have a 100% stated risk (based on the EMA Director's experience). Chemical spills originating from both fixed sites and transportation incidents have a stated risk of 75%, (also based on experiences within the County), acts of terrorism have a risk of 10% (based on information obtained from Homeland Security), while plane crashes and earthquakes have risks of 5% and 1% respectively (EMA Director's estimation). These values are compared with the CPRI values calculated by the MHMP Planning Committee, historical losses, and estimated damages for each hazard in **Table 3-26** at the end of this chapter.

### 3.2 HAZARD PROFILES

The following sections describe in detail each of the hazards selected for additional investigation by the Planning Committee. The Committee examined each hazard in terms of the causes, effects, and characteristics that the hazard presents to the communities. Also provided was information on hazard extent, historic occurrence, and probable future event occurrence. A community vulnerability assessment follows the hazard profile and describes, in general terms, the current exposure, or risk, to the community regarding potential losses to critical facilities and infrastructure. Finally, the Planning Committee explored the future risks related to new development and land use for each hazard.

#### 3.2.1 HAZARDOUS MATERIALS

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, storages, use, and disposal, accidental releases are bound to occur. These releases create a serious hazard for workers, neighbors, and emergency response personnel. Emergency response may require fire, safety/law enforcement, search and rescue, and hazardous materials response teams.

As materials are mobilized for treatment, disposal, or transport to another facility, all infrastructure, facilities, and residences in close proximity to the transportation routes are at an elevated risk of being affected by a hazardous materials release. Often these releases can cause serious harm to Noble County and its residents if proper and immediate actions are not taken. Most releases are the result of human error, 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 for the event of derailments, train/vehicle crashes, and/or general leaks and spills from transport cars. Additionally, there are several facilities located in Noble County that utilize or produce materials listed as hazardous by the United States Environmental Protection Agency (USEPA). It is possible that other facilities in Noble County also utilize or produce hazardous materials. However, these facilities may fall below the reporting limits.

Facilities are required to report if they meet the following criteria: 1) the facility is either a manufacturing facility or a federal facility, 2) the facility has the equivalent of 10 full time employees, 3) the chemical produced or utilized is included on the list of 650 chemicals or chemical categories deemed hazardous, and 4) the facility must manufacture or process 25,000 pounds of the chemical or otherwise use greater than 10,000 pounds of the chemical per year.

### **Hazardous Materials: Historic Data**

Historically, Noble County has experienced few hazardous materials releases from fixed locations or during transportation with injuries or loss of life. Likewise, these releases or events have not been the cause of serious injuries or death to those involved or those responding to the incident. However, there have been many minor releases that have activated local firefighters, hazardous materials responders, emergency management, and local law enforcement into action to stabilize the event and reduce harm to Noble County residents.



An event occurring in January of 1996 resulted in the release of over 6,000 gallons of naphtha distillate from an overturned semi-tanker near LaOtto on State Road 205. Naphtha distillate is a petroleum-based substance commonly utilized as a raw material in gasoline and solvents. Only one injury, the driver of the car impacting the semi-trailer, was reported. More recently, in September of 1998, the Noble County Emergency Operations Center was activated as over 14 agencies and 125 personnel responded to a leak in a railway tank car located 3 miles east of the Town of Albion. The leak

in the top of the tank car was found and repaired with only a minimum amount of damage to the population and environment of Noble County. No deaths or injuries were reported because of this event. Numerous releases of gasoline, diesel, and anhydrous ammonia have occurred throughout Noble County over the years. These events, while serious in potential damages, have not resulted in impacts to the environment or the residents of Noble County and its communities.

According to the US Department of Transportation (DOT), Office of Hazardous Materials Safety (OHMS), there were 14,745 transportation related hazardous materials incidents nationally during the calendar year 2004. **Table 3-4**, identifies hazardous materials incidents in the United States by mode of transportation for the year of 2004.

**Table 3-4: United States Hazardous Materials Incidents by Transportation Mode**

Transportation Mode	Number of Accidents	Associated Deaths	Associated Injuries
Air	996	0	12
Highway	12,979	10	156
Railway	755	121	3
Water	15	0	0
Other	0	0	0
<b>TOTAL</b>	<b>14,745</b>	<b>131</b>	<b>171</b>

(OHMS, 2005)

US Highway 6 travels through Noble County east/west and passes through the City of Kendallville and the City of Ligonier. US Highway 33 diverges from US 6 near the southern border of the City of Ligonier and travels in a southeasterly direction to DeKalb County.

According to the Planning Committee, the probability of a hazardous materials release or event is highly likely for the unincorporated areas and the NFIP communities within Noble County. This is due primarily to the number of hazardous materials handlers, the extent to which they are disbursed throughout the County, and the communities near to the critical facilities. If this type of event were to occur anywhere in the County, it would be considered catastrophic due to the unpredictable factors of location, substance involved, time of day, and weather conditions. The warning time for a hazardous materials incident can be significantly less than 6 hours while containment procedures and evacuations may take up to one week. **Table 3-5** identifies the CPRI for a hazardous materials event within the County and the other NFIP Communities.

**Table 3-5: CPRI for Hazardous Materials**

	Probability • Unlikely • Possible • Likely • Highly Likely	Magnitude / Severity • Negligible • Limited • Critical • Catastrophic	Warning Time • > 24 hrs • 12-24 hrs • 6-12 hrs • <6 hrs	Duration of Event • <6hrs • <1day • <1wk • >1wk	CPRI
Noble County	Highly Likely	Catastrophic	< 6 hrs	< 1 wk	3.9
Town of Albion	Highly Likely	Catastrophic	< 6 hrs	< 1 wk	3.9
City of Kendallville	Highly Likely	Catastrophic	< 6 hrs	< 1 wk	3.9
City of Ligonier	Highly Likely	Catastrophic	< 6 hrs	< 1 wk	3.9
Town of Rome City	Highly Likely	Catastrophic	< 6 hrs	< 1 wk	3.9

As shown by the CPRI, the probability, severity, warning time, and duration for a hazardous materials incident are equal throughout Noble County. This information is based on the diffuse locations of hazardous materials handlers, and the proliferation of transportation routes such as rail lines and vehicle routes such as US Highways 6 and 33 traveling throughout Noble County.



**Hazardous Materials: Vulnerability Assessment**

According to Indiana Department of Environmental Management’s (IDEM) Hazardous Waste Notifiers List, there are 149 hazardous waste handlers within Noble County. Eighty-four of those facilities are considered active generators and only 12 are considered Large Quantity Generators (LQG). Of those 12, 2 are located within the City of Kendallville, 8 are located in the City of Ligonier, and 2 are located in the Town of Avilla. Eight facilities are considered active transporters of hazardous materials and 4 of those facilities are located in the City of Kendallville while the Town of Albion, the Town of Wawaka, the Town of LaOtto, and the Town of Cromwell each have 1 active hazardous waste transporter. These hazardous materials facilities, along with major transportation routes and rail lines are identified on **Exhibit 3**.



To estimate the physical and economic cost of a hazardous materials incident at any of the fixed-site hazardous materials handlers, a 500-yard buffer zone was imposed surrounding each Tier II facility. The number of critical and non-critical facilities within those areas was estimated utilizing digital aerial photography and Geographic Information System (GIS) data analysis. Replacement costs were derived by assuming that 25% of all critical and non-critical structures in the buffer area would be completely damaged, 35% would be 50% damaged, and 40% would have only 25% damage. **Table 3-6** below indicates the critical and non-critical facilities located within the buffer areas for each NFIP community and the graduated replacement costs.

**Table 3-6: Hazardous Materials Handlers, Neighboring Facilities, and Estimated Replacement Costs**

NFIP	Critical Facilities		Non-critical Facilities	
	#Facilities	Est. Replacement Cost	# Facilities	Est. Replacement Cost
Noble County	100	\$11.4M	230	\$20.5M
Town of Albion	22	\$2.5M	18	\$1.6M
City of Kendallville	68	\$8.0M	286	\$25.3M
City of Ligonier	42	\$4.7M	175	\$15.7M
Town of Rome City	0	0	0	0
<b>Total</b>	<b>232</b>	<b>\$26.6M</b>	<b>709</b>	<b>\$63.1M</b>

While the possibility of an incident occurring may be highly likely, the vulnerability of Noble 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 Commission (LEPC). This commission has the responsibility for preparing and implementing emergency

response plans, cataloging Material Safety Data Sheets (MSDS), chemical inventories of local industries and businesses, and reporting materials necessary for compliance.

In 1990, Congress enacted a compliment to EPCRA, known as the Risk Management Program (RMP), which is found under Section 112(r) of the Clean Air Act (CAA). This program makes information available to the public on how accidental releases of hazardous chemicals could affect communities. While EPCRA focuses on response once an emergency occurs, the RMP focuses on facility planning before an emergency occurs. The RMP seeks to reduce the risk of airborne chemical accidents by instituting measures to prevent hazardous chemical releases. The RMP addresses the management of 77 acutely toxic chemicals and 63 flammable gasses and volatile liquids. According to the regulation, any facility producing, processing, handling, or storing these substances in amounts above threshold quantities is required to develop and implement a RMP. The RMP must include a hazard assessment as it relates to the release of a regulated substance, which includes off site consequences, programs to prevent accidental losses, emergency action in response to accidental releases, and communication with federal, state, and local governments and the public. There are currently 4 facilities in Noble County regulated under Section 112(r) of the CAA.

Predicting potential losses associated with hazardous materials incidents is subjective and difficult. However, based on a study conducted by the Federal Motor Carrier Safety Administration, the average cost per year per hazardous material transportation accident and incident that results in the release of a hazardous material is \$536.0K. When hazardous material accidents and incidents result in fire, the average cost per event increases to \$1.2M, and when the accident or incident results in an explosion, the cost per event increases to \$2.1M. These costs are indicative of the economic impact that can result from hazardous materials incident in Noble County.

While no historic losses were provided, the estimated losses based on the Federal Motor Carrier Safety Administration study for a hazardous materials incident ranges from \$536K to \$2.1M. Within the Noble County Assessment checklist, chemical spills from both fixed sites and transportation incidents is assessed with a 75% stated risk estimate, the fourth highest estimate determined through this process. As determined by the MHMP Planning Committee, a hazardous materials incident has been scored as the highest hazard affecting Noble County.

### **Hazardous Materials: Existing Mitigation Practices**



Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in **Section 4.0** of this Plan.

The Noble County LEPC is the local entity responsible for planning, training, and implementing exercise activities within the County. Over 185 facilities in Noble County 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, the response it would require, and prevent serious affects to the community involved.

The Noble County GIS Department has a well-developed GIS inventory that is actively used to aid in planning and land use decision-making. Available GIS information includes the location of the hazardous materials handlers, transportation routes, parcel data, and chemical information. These layers should be made available to Noble County communities to create a comprehensive database to be utilized to develop “what if” scenarios regarding individual municipalities and collectively throughout the County. This information may also be beneficial when used in conjunction with the Comprehensive Land Use Plan to prohibit future construction of critical facilities within close proximity to a hazardous materials handler. Exhibit 3 depicts the location of the hazardous materials facilities in Noble County, the critical management zones surrounding these facilities, and the major transportation routes in Noble County.

The City of Kendallville Fire Department currently utilizes the Computer-Aided Management of Emergency Operations (CAMEO®) program developed by the EPA’s Chemical Emergency Preparedness and Prevention Office (CEPPO) and the National Oceanic & Atmospheric Administration (NOAA). Response agencies can utilize the CAMEO program to access, store, and evaluate information critical for developing emergency plans. In addition, CAMEO supports regulatory compliance by helping users meet the chemical inventory reporting requirements.

In recognition of the risks associated with hazardous materials, the Noble County Hazardous Materials Response Team (HMRT) was formed in 1998. Within Noble County, there are currently 3 individuals trained in compliance with Occupational Safety and Health Administration (OSHA) Level III Technician. This level of training provides in-depth practical experience with detection devices, personal protection equipment, and control, containment, and confinement of the hazardous material. In addition, it is planned for 10 individuals to receive this training in the next 5 years. According to the Noble County Emergency Management Service (EMS), there are 46 individuals trained in compliance with the OSHA Level II Operations. This includes training on methods for identifying hazardous materials and securing the scene in response to a hazardous materials incident.

In addition to the HMRT, the Planning Committee discussed the importance of developing a Community Emergency Response Team (CERT). This program would provide training to volunteers throughout Noble County and the communities in order to educate citizens about disaster preparedness for the hazards that may affect their areas. This training also focuses on basic disaster response skills such as fire safety, light search and rescue, team organization, and basic first aid. An immunization program designed to protect



building inspectors and emergency responders would reduce the potential health risks associated with hazard response and recovery efforts. In order to best promote health, wellness, and safety of response personnel, immunizations should be completed for *Tetanus*, Hepatitis A & B, Rabies, Influenza, Measles, *Varicella*, Chicken pox, Whooping Cough, Typhoid, Cholera, and Yellow Fever. Committee members also expressed an interest in researching the



possibilities of establishing reciprocal agreements between neighboring counties and municipalities to complete damage assessments following hazardous events.

The mission of an HMRT is to provide high quality, comprehensive emergency hazmat response training to meet current standards and produce safe knowledgeable emergency responders. In order to increase preparedness within Noble County, the number of full-time, paid positions for local fire departments and emergency response teams capable of responding to a hazardous materials incident needs to be increased. Along with the increase in positions, realistic exercises and trainings for response to incidents needs to continue and adequate equipment for response efforts and personnel needs to be obtained and maintained for optimum use.

To provide as much advance warning as possible to the residents of Noble County, the Noble County Primary Warning Point was created, designating the Sheriff's Department/911 Central Dispatch as the Primary Warning Point for civil disturbances and severe weather situations. This information is imperative to hazardous materials facilities so that they may take appropriate precautions to reduce the risk of spills or releases caused by severe weather. The NOAA, the Law Enforcement Information Network, and the National Weather Service (NWS) are monitored and the warning center will warn the public when information has been received. This is in effort to protect the public and minimize damages to public and private properties in Noble County.

One option to alert the residents of Noble County of hazardous situations such as necessary evacuations, where to go for temporary shelter, or how to protect themselves in-home is a system designed to provide pre-recorded telephone messages to businesses or residents in a GIS identified area. These systems can generate thousands of calls per hour and can be updated as the situation progresses. Public alerts such as hazardous materials incidents, impending severe weather conditions, community updates, and other public safety information can be quickly and efficiently delivered via telephone.

Depending on the significance of the hazardous material incident, safe havens and community shelters may be needed to provide evacuated residents with temporary shelter. Information regarding the location of these facilities should be well advertised for both residents and visitors to Noble County as needed. The Northeast Indiana Red Cross, covering Noble County, currently has agreements with facilities such as schools and community centers throughout the County for both temporary and long-term shelter.

Hazardous materials spills or releases may have serious effects on above ground utilities such as electricity or communication lines. To prevent a disruption of service, back-up power is essential and should be encouraged for all critical facilities especially medical care, police, fire, and community shelter facilities. Noble County EMA currently is able to borrow mobile generators from DeKalb County. However, the Planning Committee agreed that it would be beneficial for Noble County to pursue funding and purchase mobile generators.

Social, physical, and economic losses from hazardous materials incidents will most likely increase as more people choose to live, work, and visit Noble County. The threat of exposure to dangerous chemicals and hazardous materials is increasingly at the forefront in much of the planning and risk management efforts currently underway. Through the diligent training and strict adherence to State and Federal regulations, Noble County will continue to provide a comprehensive means to mitigate against, prepare for, respond to, and recover from hazardous materials releases. Ensuring that residents and visitors are well informed about the potential impacts from hazardous materials and proper methods to protect themselves and their property

will help reduce future losses and damage. Information related to hazardous materials incidents, the risks to vulnerable locations, and basic steps to protect themselves in emergencies should be provided to residents and visitors through community events and outreach programs.

### **3.2.2 HAILSTORMS, THUNDERSTORMS & WINDSTORMS**

Hail occurs when frozen water droplets form inside a thunderstorm cloud, then grow into ice formations held aloft by powerful thunderstorm updrafts, and when the weight of the ice formations becomes too heavy they fall as hail to the ground. Hail size ranges from smaller than a pea to as large as a softball, and can be very destructive to buildings, vehicles, and crops. Even small hail can cause significant 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, lightening, 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, an average of 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 include 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 (43.45 knots) or greater, either sustained or gusting. According to the NWS, winds reaching or exceeding 58 mph are classified as a windstorm.

#### **Hailstorm, Thunderstorm, & Windstorm: Historic Data**

In Noble County, 64 hailstorms, 68 thunderstorms, and 34 windstorms have been recorded by the NCDC through July of 2006. The largest reported hail was 1.75 inches in diameter and occurred on several occasions. The average diameter of hailstone produced by storms occurring in Noble County is 0.75 inches. Significant windstorms are characterized by the top wind speeds achieved during the event, characteristically occur in conjunction with thunderstorms, and have historically occurred year round with the greatest frequency and damage occurring in May, June, and July.

Regarding hailstorms, thunderstorms, and windstorms, **Table 3-7** provides detailed information recorded by the National Climatic Data Center (NCDC) that have resulted in injuries, deaths, or property damages. The NCDC did not indicate any crop damages in Noble County because of a hailstorm, thunderstorm, or windstorms. Very few NCDC hailstorm reports included information specific to Noble County as several counties were typically affected at one time. However, hail reports were also given during thunderstorm and windstorm events detailed in later paragraphs.

Total NCDC recorded damages for hailstorms, thunderstorms, and windstorms in all of Noble County between 1956 and 2006 are \$4.9M along with 2 injuries. It is possible that additional

damages were experienced but not reported to local officials, insurance companies, or the NCDC. While not all hailstorms, thunderstorms, or windstorms are specifically listed, they are included in the assessment of vulnerability and future risk to the communities.

**Table 3-7: Historic Hailstorm, Thunderstorm, and Windstorms**

Location	Date	Type	Magnitude	Death/ Injury	Property Damage**
Noble County	07/15/1988	Thndr/Wind	0 mph	0/2	0
Noble County	04/27/1994	Thndr/Wind	NA	0/0	\$5.0K
Noble County + (87 Counties)	11/21/1994	High Wind	NA	0/0	\$50.0K
Noble County + (87 Counties)	11/27/1994	High Wind	NA	0/0	\$120.0K
Noble County	10/31/1996	High Wind	58 mph	0/0	\$6.0K
Near Ligonier	5/18/1997	Thndr/Wind	0 mph	0/0	\$4.0M
Rome City	07/08/1997	Hail/Thndr/Wind	NA	0/0	\$1.0K
Albion	07/27/1997	Hail/Thndr/Wind	0 mph	0/0	\$20.0K
Kendallville	08/24/1998	Thndr/Wind	0 mph	0/0	\$30.0K
Wolcottville	08/24/1998	Thndr/Wind	0 mph	0/0	\$25.0K
Noble County	11/10/1998	Thndr/Wind	0 mph	0/0	\$10.0K
Albion	04/10/1999	Thndr/Wind	0 mph	0/0	\$50.0K
Rome City	06/12/1991	Thndr/Wind	0 mph	0/0	\$2.0K
Rome City	08/06/2000	Thndr/Wind	0 mph	0/0	\$5.0K
Ligonier	06/12/2001	Thndr/Wind	0 mph	0/0	\$15.0K
Rome City	06/19/2001	Thndr/Wind	0 mph	0/0	\$5.0K
Noble County	10/24/2001	Thndr/Wind	0 mph	0/0	\$400.0K
Noble County + (24 Counties)	11/12/2003	High Wind	64 mph	0/0	\$50.0K
Noble County	07/18/2005	Thndr/Wind	63 mph	0/0	\$10.0K
Kendallville	07/25/2005	Thndr/Wind	63 mph	0/0	\$2.0K
Albion	06/21/2006	Thndr/Wind	69 mph	0/0	\$10.0K
Avilla	06/21/2006	Thndr/Wind	69 mph	0/0	\$10.0K
LaOtto	06/21/2006	Thndr/Wind	69 mph	0/0	\$40.0K
Albion	06/21/2006	Thndr/Wind	63 mph	0/0	\$10.0K
<b>TOTAL</b>				<b>0/2</b>	<b>\$4.9M</b>

(NCDC, 2006)

(\*\*): K=1,000; M=1,000,000)

There have been several significant hailstorms, thunderstorms, and windstorms that have occurred throughout Noble County resulting in injuries and several hundred thousand dollars in property damages. These events have been described in the NCDC data and in local news media reports.

The most damaging event, occurring on May 18, 1997 near the City of Ligonier resulted in approximately \$4.0M in property damages. As reported by the NCDC large trees, numerous

power lines, and several utility poles were downed by high winds and falling tree limbs. Throughout the area, several farm outbuildings were severely damaged as was a nearby church and several homes. While no injuries or deaths were attributed to this event, significant amounts of property damages were realized throughout Noble County. On April 10, 1999, a thunder/windstorm passed through the Town of Albion resulting in approximately \$50.0K in property damages and luckily, no deaths or injuries. During this event, several homes in the area received minor damages while a mobile home southeast of the Town of Albion was destroyed. Also reported because of this event, a rural barn was destroyed, along with 2 grain bins.

According to the Planning Committee, the probability of a future hailstorm, thunderstorm, or windstorm occurring in Noble County is highly likely and will typically affect broad portions of the County at one time. As advancements in technologies such as radar weather systems, broadcast alerts, and outdoor warning sirens are continually made, the warning time for such events may increase. Currently, the typical warning provided for hailstorms, thunderstorms, and windstorms in Noble County is less than 6 hours. **Table 3-8** provides the CPRI for hailstorms, thunderstorms, and windstorms and their effects on Noble County and the communities within.

**Table 3-8: CPRI for Hailstorms, Thunderstorms & Windstorms**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly Likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt;24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt;6 hrs</li> </ul>	<b>Duration Of Event</b> <ul style="list-style-type: none"> <li>• &lt;6hrs</li> <li>• &lt;1day</li> <li>• &lt;1wk</li> <li>• &gt;1wk</li> </ul>	<b>CPRI</b>
Noble County	Highly Likely	Limited	< 6 hrs	< 1 wk	3.2
Town of Albion	Highly Likely	Limited	< 6 hrs	< 1 wk	3.2
City of Kendallville	Highly Likely	Limited	< 6 hrs	< 1 wk	3.2
City of Ligonier	Highly Likely	Limited	< 6 hrs	< 1 wk	3.2
Town of Rome City	Highly Likely	Limited	< 6 hrs	< 1 wk	3.2

Indicative of a regional hazard risk, the probability, magnitude/severity, warning time, and duration for hailstorm, thunderstorm, and windstorm events are the same for all communities in Noble County. As determined by the Planning Committee, the probability of a future hailstorm, thunderstorm, or windstorm occurring in Noble County is highly likely for all communities. The magnitude or severity of a hailstorm, thunderstorm, or windstorm in any area of Noble County is anticipated to be limited as many newer homes in the area are of better construction and should be able to withstand high winds. The warning time preceding the hailstorm, thunderstorm, or windstorm is expected to be less than 6 hours, while the duration of the event is anticipated to be less than one week. Hailstorms, thunderstorms, and windstorms are highly unpredictable and the occurrences are distributed throughout the county. Therefore, the CPRI values reflect the equally distributed risk and associated priority for a hailstorm, thunderstorm, or windstorm event.

**Hailstorm, Thunderstorm & Windstorm: Vulnerability Assessment**

Due to the unpredictability of this hazard, all 350 critical and 50,000 non-critical facilities in Noble County are at risk of damage including temporary or permanent loss of function. Critical facilities include those associated with emergency services, transportation systems, lifeline



utility systems, high potential loss facilities, and hazardous material handlers. Non-critical facilities include residential, industrial, commercial, and other structures not meeting the definition of critical facility and are not necessary for a community to function. For hailstorms, thunderstorms, and windstorms, it is not possible to isolate specific critical or non-critical facilities that would be more or less vulnerable to damages. However, based on the information obtained regarding previous events of this nature, future storms are likely to cause monetary damages to structures in excess of \$10.0K-\$4.0M. It should also be noted that perhaps not all property owners reported damages caused by the events recorded by the NCDC. Therefore, damages to property should be expected to be significantly higher than the above range.



When comparing historical losses reported by the NCDC for hailstorms, thunderstorms, and windstorms, as well as estimated future damages, this hazard should be expected to result in the 7<sup>th</sup> largest amount of monetary damages to Noble County. Hailstorms, thunderstorms, and windstorms were not assessed in the Noble County EOC Assessment Checklist. However, the MHMP Planning Committee determined the CPRI of these events is the second highest concerning Noble County. In order to better assess the community's vulnerability, future property and crop damages caused by hailstorms, thunderstorms, and windstorms should be carefully

recorded and reported to the NCDC.

#### **Hailstorm, Thunderstorm & Windstorm: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.

The warning time associated with hailstorms, thunderstorms, and windstorms is very short and advanced warning systems, such as outdoor warning sirens in conjunction with the NWS Emergency Alert Systems (EAS) is an effective mitigation practice to reduce loss of life and property. The existing outdoor warning sirens are currently only activated for tornado warnings and are not activated for hailstorms, thunderstorms, or windstorms.

Residents and businesses, especially critical facilities, should stay abreast of current weather conditions with a signal alert weather radio. This radio continuously broadcasts NWS forecasts, warnings, and other crucial weather information and is the primary trigger for activating the EAS on commercial radio, television, and cable systems. Many of the critical facilities, including schools, hospitals, and government offices in Noble County currently own and operate weather radios. However, to further reduce losses and protect citizens, they should be encouraged in all critical facilities. This type of comprehensive measure could help to ensure that all residents and visitors of Noble County are fully aware of approaching and developing hailstorms, thunderstorms, and windstorms.

Noble County also participates in the Severe Weather Awareness Week created by the NWS. The Severe Weather Awareness Week, which occurs in March, is a multi-agency education and

awareness event focusing on severe weather. Along with the County representatives, the Indiana State Police, the NWS, and the Indiana Department of Homeland Security (IDHS) provide and distribute information to schools, hospitals, community groups and facilities, and the public. This information is meant to provide citizens with information regarding what warnings to listen for, emergency supplies, sheltering in-place, and various important facts related to surviving severe weather events.

As required by the State of Indiana, all buildings in Noble County are constructed to meet the standards set by the International Building Code. These codes specifically address anchoring and wind forces that structures must be able to withstand. In addition, mobile homes need to be certified that the minimum installation standards set forth by the State of Indiana specifically for these structures are being met to ensure the safety of those residents.

Safe rooms may be necessary during a hailstorm, thunderstorm, or windstorm (due to high winds and the potential for the development of tornados) especially for structures without basements or sound interior rooms. Information regarding the location of safe rooms and shelters should be well advertised for both residents and visitors to Noble County as needed. Safe rooms should be incorporated into all new public facilities as these facilities are typically centrally located, are accessible for all levels of mobility, and regularly occupied by a large percentage of the population that may need to seek shelter. Additionally, the Northeast Indiana Red Cross, covering Noble County, has agreements with local facilities such as schools and community centers throughout the County for both temporary and long-term shelter.

Currently, public buildings such as schools, hospitals, and government facilities in Noble County may have designated safe areas such as hallways or interior rooms for occupants to gather during a hailstorm, thunderstorm, or windstorm. However, in areas such as mobile home parks, campgrounds, developments without basements, and community parks, there are no requirements for such facilities to be provided. To further protect the residents and visitors of Noble County, all public buildings, critical facilities, and other buildings with a high volume of employees or visitors should be equipped with safe rooms. Mobile home facilities, campgrounds, developments without basements, and community parks also need to have severe weather shelters in place and well marked for those not familiar with the area.



Much of the damage caused by hailstorms, thunderstorms, and windstorms is the result of fallen and broken limbs from trees. While even healthy trees may not be able to withstand high winds, maintaining trees in the road right-of-way, utility corridors, and public property will reduce the potential for dead and dying limbs from falling and injuring people and damaging property and utility lines during a thunderstorm or a windstorm. Electric providers in Noble County have developed an extensive tree maintenance program to maintain necessary clearance around both low voltage and high voltages utility lines, to remove trees that interfere with utility lines, and to remove those that are diseased and/or dead near power lines. In order to complete tree maintenance prior to a hailstorm, thunderstorm, or windstorm and to repair damaged areas following an event, many of the utility providers rely on professional subcontractors to assist with regular maintenance of the trees near to or under over-head power lines.

To further reduce the potential of future power outages, utility lines in areas of new development should be buried. Noble County and the Town of Albion promote the burial of utility lines, while the City of Kendallville requires this to be done. Many areas are doing so in conjunction with the installation of underground fiber optic lines. Although access to buried utility lines may be more difficult when the ground is frozen, they are less likely to be damaged by windstorms. The benefit to bury all existing above ground utility lines may not currently outweigh the associated cost. However, it may make sense for new development and reconstruction projects.

As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies, created a comprehensive GIS database utilized in land use planning and decision-making efforts, and developed agreements with several local facilities to provide temporary shelter as needed. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, the placement of back up power generators in all critical facilities, and the ability to provide automated public alerts via telephone or electronic communications.

Social, physical, and economic losses from hailstorms, thunderstorms, and windstorms will most likely increase as more people choose to live, work, and visit Noble County. Increases in damages, losses, and injuries can be expected as the population and number of facilities continues to rise in Noble County. Ensuring that residents and visitors are well informed about the potential impacts from these events as well as proper methods to protect themselves and their property will help to reduce future losses and damages. Information related to severe weather, the risks to vulnerable locations, and basic steps to protect themselves in emergencies should be provided to residents and visitors through community events and outreach programs.

### **3.2.3 TORNADO**

Tornados 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 violently rotating column of air 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 it is a tornado event.

A tornado is generated when conditions in a strong thunderstorm cell are produced that exhibit a mass 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 tornados can occur at any time of year. They tend to occur in the afternoons and evenings: over 80 percent of all tornados strike between 3 and 9, but can occur at any time of day or night. Tornados occur most frequently in the United States east of the Rocky Mountains. Tornados in Indiana generally come from the south through the west and move to the north through the east. In Noble County, the predominant tornado path seems to be from the southwest to the northeast.

While most tornados (69%) have winds of less than 100 miles per hour, they can be much stronger. Although violent tornados (winds greater than 205 mph) account for only 2% of all tornados, they cause 70% of all tornado deaths. In 1931, a tornado in Minnesota lifted an 83-ton railroad train 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.

**Tornado: Historic Data**

Noble County has experienced 12 tornados since April 1954. The classification of tornados utilizes the Fujita Scale of tornado intensity, described in **Table 3-9**. Tornado intensity ranges from low intensity (F0) tornados with effective wind speeds of 40-70 mph to high intensity (F5+) tornados with effective wind speeds of 261 to over 318 mph. Tornado intensities recorded for Noble County include 1 – F0, 5 - F1, 2 - F2, 1 - F3, and 1 - F4 tornados. An additional 2 tornados were not classified according to the Fujita Scale. **Table 3-10** lists the historical tornado data available from the NCDC that have reported injuries, deaths, and/or property damages. Historical data identified by the NCDC is the best available data specific to Noble County and the NFIP communities. **Exhibit 4** illustrates the historical tornado activity in Noble County, the existing outdoor warning sirens, and the estimated area of coverage.

**Table 3-9: Fujita Scale of Tornado Intensity**

F-Scale	Winds	Character of Damage	Relative Freq.
F0 (weak)	40-72 mph	light damage	29%
F1 (weak)	73-112 mph	moderate damage	40%
F2 (strong)	113-157 mph	considerable damage	24%
F3 (strong)	158-206 mph	severe damage	6%
F4 (violent)	207-260 mph	devastating damage	2%
F5 (violent)	261-318 mph	incredible damage	< 1%

(NWS, Storm Prediction Center, 2007)

**Table 3-10: Historic Tornado Data**

Location	Date	Magnitude	Death/Injury	Property Damage **
Noble County	04/07/1954	F1	0/0	\$25.0K
Noble County	04/07/1954	F0	0/0	\$3.0K
Noble County	04/03/1956	F1	0/0	\$25.0K
Noble County	04/03/1974	F4	1/24	0/0
Noble County	04/03/1974	F3	3/38	\$25.0M
Noble County	08/08/1979	F1	0/1	\$250.0K
Noble County	06/02/1990	F2	0/9	\$250.0K
Noble County	07/14/1992	F2	0/28	\$25.0M
Indian Village	10/24/2001	F1	0/0	\$400.0K
Kendallville	10/24/2001	F1	0/0	\$1.2M
<b>Totals</b>			<b>4/100</b>	<b>\$52.0M</b>

(NCDC, 2006)

(\*\*: K=1,000; M=1,000,000)

Table 3-10 above provides a comparative listing of the events affecting Noble County. From here, it can be observed that tornados appear to be widespread throughout the County and can cause significant amounts of destruction, potential injuries, and even death.





The most significant tornado with reported damages occurring in Noble County, was an F2 event on July 14, 1992, and was responsible for 28 injuries and \$25.0M in property damages. The tornado touched down near the City of Kendallville destroying over 30 residential structures, and damaging an additional 200 residential and 20 business structures. Arvada Hills, a subdivision located east of the City of Kendallville on US 6 received much of the reported damage.

Another F2 tornado touched down near the southwest portion of Noble County on June 2, 1990. This event is responsible for a reported \$250.0K in property damages and 9 injuries. With winds estimated to range from 113-157 mph, mobile homes were removed from their foundations and twisted to pieces throughout the 3.5-mile path. Numerous power lines, poles, and trees were snapped near the City of Kendallville blocking city streets and resulting in scattered power outages.

According to the Planning Committee, the probability of a tornado touching down in Noble County or any of the NFIP communities is highly likely while the magnitude and severity of the event is estimated to be critical for any of the individual NFIP municipalities considered. The unincorporated portions of Noble County are anticipated to receive limited damages should a tornado touch down in this area. While it is difficult to predict precisely where the tornado will touch down, advancements in meteorological technologies may provide up to 6 hours of warning time for residents and visitors of Noble County to seek proper shelter. In most cases, a tornado is a short-lived hazard and may progress to other locations relatively quickly. **Table 3-11** identifies the CPRI for a tornado for all NFIP communities in Noble County.

**Table 3-11: CPRI for Tornado**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	<b>Duration of Event</b> <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	<b>CPRI</b>
Noble County	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0
Town of Albion	Highly Likely	Critical	< 6 hrs	< 6 hrs	3.4
City of Kendallville	Highly Likely	Critical	< 6 hrs	< 6 hrs	3.4
City of Ligonier	Highly Likely	Critical	< 6 hrs	< 6 hrs	3.4
Town of Rome City	Highly Likely	Critical	< 6 hrs	< 6 hrs	3.4

Indicative of a regional hazard risk, the probability, magnitude/severity, warning time, and duration for tornado events are mostly similar for all NFIP communities and the unincorporated areas within Noble County. The magnitude or severity of a tornado in any area of Noble County is considered critical due to the number of people and businesses that could be affected. Tornadoes are unpredictable and could touch down in any area of the County. Thus, the CPRI values reflect the equally distributed risk and associated priority for a tornado event.

**Tornado: Vulnerability Assessment**

Due to the unpredictability of this hazard, all 350 critical and 50,000 non-critical facilities in Noble County are at risk of future damage or loss of function. Critical facilities include those associated with emergency services, transportation systems, lifeline utility systems, high potential loss facilities, and hazardous materials handlers. Non-critical facilities include residential, industrial, commercial, and other structures not meeting the definition of a critical facility and are not required for a community to function. As the path of the tornado is not predefined, it is difficult to isolate specific critical or non-critical facilities that would be more or less vulnerable to a tornado.



Estimates of potential physical, economic, and/or social losses were determined through the following hypothetical exercises. Particular tornado magnitudes and paths were selected based on a majority of reported tornado events within Noble County. The hypothetical tornado touchdowns were assumed to travel through the City of Kendallville and the City of Ligonier.

The estimated physical and economic cost of the hypothetical tornados were derived by assuming that 25% of all critical and non-critical structures in the path of the tornado would be completely destroyed, 35% would be 50% damaged, and 40% would have only 25% damage.

**Table 3-12** provides summary data for two hypothetical tornados through the City of Kendallville (and the associated portions of Noble County) and the City of Ligonier (and the associated portions of Noble County).

**Table 3-12: Summary Hypothetical Tornado Damages and Estimated Economic Costs**

NFIP	Critical Facilities		Non-Critical Facilities		Total
	# Facilities	Est. Replacement Cost*	# Facilities	Est. Replacement Cost*	
City of Kendallville (County)	7 (0)	\$0.8M (0)	361 (37)	\$29.0M (\$2.9M)	<b>\$32.7M</b>
City of Ligonier (County)	4 (0)	\$0.4M (0)	207 (29)	\$16.1M (2.2M)	<b>\$18.7M</b>

(\*: K=1,000; M=1,000,000)

The City of Kendallville’s estimated damage for 361 non-critical facilities is \$29.0M while an additional \$0.8M in damages is estimated for the 7 critical facilities (1 fire station, 1 government facility, 2 medical facilities, 2 hazardous materials facilities, and 1 law enforcement facility) affected by the hypothetical tornado. Damages for the City of Ligonier’s 207 non-critical facilities are estimated at \$16.1M with 4 critical facilities (1 school, 2 hazardous materials facilities, and 1 medical facility) anticipated to be damaged. Social losses are likely to be related to the total disruption of living conditions, employment, and the home and are not quantified in this study.

When comparing historical losses reported by the NCDRC for tornados, this hazard has resulted in the 3<sup>rd</sup> highest amount of historic monetary damages to Noble County. Tornados were estimated to have a 100% stated risk indicated in the Noble County EOC Assessment Checklist.

Consistent with the NCDC historical data, the MHMP Planning Committee determined the CPRI of these events is the third highest concerning Noble County. In order to better assess the community's vulnerability, future property and crop damages caused by tornados should be carefully recorded and reported to the NCDC.

**Tornado: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.

The warning time associated with tornados is very short and advanced warning systems, such as outdoor warning sirens in conjunction with the NWS-EAS is an effective mitigation practice to reduce loss of life and property. Within Noble County, the City of Ligonier is completely covered by 5 outdoor warning sirens, as is the Town of Albion, which also has 5 sirens. However, the Town of Rome City has only 2 outdoor warning sirens located on the western edge of the municipal boundary. Little protection is provided to Rome City from these sirens. Further, within the City of Kendallville, a coverage gap is located near the eastern edge of the city, leaving several hazardous materials facilities and 2 medical facilities unprotected. Sites should be determined for installation of sirens to cover the remainder of the City of Kendallville, the Town of Rome City and the large lake shoreline communities such as Bear Lake, Cree Lake, and Knapp Lake. The Planning Committee discussed the possibility of developing an outdoor warning siren fund for developers to provide funding for installation and/or long-term maintenance of outdoor warning sirens. Currently, outdoor warning sirens are activated only for tornado warnings. It is important to note that outdoor warning sirens are only one method of alerting residents and visitors of impending weather situations.

Much of the damage caused by tornados is the result of fallen and broken limbs from trees. While even healthy trees may not be able to withstand 200 mph winds, maintaining trees in good condition in road right-of-way, utility corridors, and public property will reduce the potential for dead or dying limbs from falling and injuring people and damaging property and utility lines during a tornado. Electric providers in Noble County have developed an extensive tree maintenance program to maintain 10 feet of clearance around utility lines, to remove trees that interfere with utility lines, and to remove those that are diseased and/or dead near to power lines.

As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies, created a comprehensive GIS database utilized in land use planning and decision-making efforts, and developed agreements with several local facilities to provide temporary shelter as needed. Several agencies and offices throughout Noble County actively participate in Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, the ability to provide automated public alerts via telephone or electronic communications, as well as the need to provide safe rooms in vulnerable locations to further protect and provide for the residents and visitors of Noble County.

The MHMP Planning Committee agreed that owners and operators of critical facilities within Noble County need to be encouraged to acquire back up power generators and weather radios. Further, developers, municipal officials, and utility providers within the communities need to be encouraged to continue to adhere to the State of Indiana Building Codes, to continue to perform preventative tree maintenance, bury utility lines in areas of new or re-development, and evaluate and install outdoor warning sirens to provide increased coverage for new developments.

Social, physical, and economic losses from tornados will most likely increase as more people choose to live, work, and visit Noble County. With the increased population and increase in number of critical and non-critical facilities, the potential for damage from a tornado also increases. Ensuring that residents and visitors are well informed about the potential impacts from tornados as well as proper methods to protect themselves and their property will help reduce future losses and damage. Information related to severe weather, the risks to vulnerable locations, and basic steps to protect themselves in emergencies should be provided to residents and visitors through community events and outreach programs.

#### **3.2.4 SEVERE WINTER STORM/ICE**

A severe 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. All winter storms are accompanied by cold temperatures and blowing snow, which can severely reduce visibility. A severe winter storm is one that drops 4 or more inches of snow during a 12-hour period, or 6 or more inches during a 24-hour span. An ice storm occurs when freezing rain falls from clouds and freezes immediately on impact. 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.

Storm effects such as extreme cold, flooding, and snow accumulation can cause hazardous conditions and hidden problems for people in the affected area. 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 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.



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. A winter storm warning indicates that severe winter weather conditions are definitely on the way. A blizzard warning means that large amounts of falling or blowing snow and sustained winds of at least 35



miles-per-hour are expected for several hours. Severe winter storms are common during the winter months in Noble County. Such conditions can result in substantial personal and property damage, even death.

#### **Severe Winter Storm/Ice: Historic Data**

The NCDC has recorded 13 heavy snow, 2 ice storms, and 6 severe winter storm events in Noble County from January 1993. **Table 3-13** illustrates the historical severe winter storm data collected by NCDC that have resulted in deaths, injuries, and property damages. While information on the Blizzard of 1978 was not found through the NCDC, it was worst event on record for Indiana according to the NWS, Weather Forecast Office. This categorical event occurred from January 25 through January 27, 1978 when Noble County, the State of Indiana, and other mid-western states experienced blizzard conditions as between 20 to 40 inches of snow fell throughout Indiana. In addition to the extreme measurements of snow, wind gusts reached in excess of 55 mph and the wind chill dropped to a deadly low of -50°F. The deaths of 9 people were attributed to this disaster.

Information was also obtained regarding a December 2004 winter storm effecting more than 30 counties northern Indiana. While monetary damages specific to Noble County were not reported, it was estimated that this event resulted in 3 deaths and over \$30.0M in damage statewide. Additional losses may have been incurred due to business interruptions throughout the effected area.

**Table 3-13: Historic Severe Winter Storm / Ice Data**

Location	Date	Type	Death/ Injury	Property Damage**
Statewide	02/15/1993	Heavy Snow	0/0	\$50.0K
North Central and Northeast Indiana	02/22/1993	Heavy Snow	0/0	\$100.0K
Noble County + (14 Counties)	01/31/2002	Ice Storm	0/1	\$10.0K
<b>TOTAL</b>			<b>0/1</b>	<b>\$160.0K</b>

(NCDC, 2006)

(\*\*): K=1,000; M=1,000,000)

During the 2002 ice storm, southwest lower Michigan, northern Indiana, and northwest Ohio observed ice accumulations ranging from 1/4 inch to 1/2 inch on trees and power lines with extreme accumulations of 1 ½ inches of ice. At one point, over 250,000 homes in the affected area were without electric power, and some residences for up to 3 days. According to American Electric Power (AEP), the number of outages reported during this ice storm, far surpassed the previous severe weather event. The heavy snow event occurring in February 1993 resulted in snow accumulations ranging from 4 to 11 inches throughout north central and northeastern Indiana. Several roads were closed due to blowing and drifting snow with drifts reported as high as 3 feet in areas.

According to the Planning Committee, the probability of a severe winter storm causing disruption to residents and businesses in Noble County is highly likely, and typically will affect the entire County, and possibly several surrounding counties, at one time. According to the Planning Committee, the anticipated damages associated with severe winter storms, including ice storms, are considered limited. With advancements in weather forecasting, the warning time

associated with severe winter storms is usually generally 12-24-hours with the duration of the event lasting for up to one week. **Table 3-14** identifies the CPRI for a severe winter storm for all NFIP communities in Noble County.

**Table 3-14: CPRI for Severe Winter Storm/Ice**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	<b>Duration of Event</b> <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	<b>CPRI</b>
Noble County	Highly Likely	Limited	12-24 hrs	< 1wk	2.9
Town of Albion	Highly Likely	Limited	12-24 hrs	< 1wk	2.9
City of Kendallville	Highly Likely	Limited	12-24 hrs	< 1wk	2.9
City of Ligonier	Highly Likely	Limited	12-24 hrs	< 1wk	2.9
Town of Rome City	Highly Likely	Limited	12-24 hrs	< 1wk	2.9

As shown by the CPRI, the type, severity, warning time, and duration for severe winter storm and ice storm events are the same for all NFIP communities and the unincorporated areas within Noble County due to the regional extent and diffuse severity of this hazard event.

Damages and losses specific to Noble County were not provided by the NCDC. Statewide damages were reported at approximately \$3.0M, but no indication was provided for the percentage of those damages realized within Noble County. Severe winter weather was assessed in the Noble County EOC Assessment Checklist as having a stated risk index of 100%. However, the MHMP Planning Committee determined the CPRI of these events is the fourth highest concerning Noble County. In order to better assess the community’s vulnerability, future property and crop damages caused by severe winter storms and ice storms should be carefully recorded and reported to the NCDC.

**Severe Winter Storm/Ice: Vulnerability Assessment**



A severe winter storm typically affects a large regional area with potential for physical, economic, and/or social losses. Given the nature and complexity of a regional hazard event such as a severe winter storm, it is difficult to quantify potential losses to property and infrastructure. Only 3 severe winter storms, 2 events in February 1993, and January 2002, as recorded by the NCDC have losses associated with them (\$160.0K collectively). Based on these events, Noble County communities should expect similar losses as well as significant disruption to all community functions, and should anticipate that all functions will be affected

simultaneously. Thus, mitigation measures should consider that the extent and severity of this hazard could render many, and possibly all, facilities non-functional during a severe winter storm event.

Around the nation, severe winter storms have resulted in substantial physical, social and economic damages. For example, a March 2003 snowstorm in Denver, Colorado dropped

approximately 31 inches of snow and caused an estimated \$34.0M 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 \$17.0M 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.

The most recent Denver Colorado area snowstorms from December 2006 through January 2007 surpassed the expenses and damages of the 2003 winter storms. In snow removal costs alone, it is estimated that over \$19.0M was spent throughout the area, with approximately \$6.4M of that spent clearing Denver International Airport. In addition to these expenses, economic revenues are realized when an event bringing up to 57 inches of snow and ice closes businesses and Denver International Airport for nearly 48 hours. Total estimates of damages, expenses, and losses are not expected to be reported until late 2007.

While the above examples indicated the wide-ranging and large-scale impact that severe winter storms can have on a community or region, in general, severe winter storms 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, severe 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.

However, severe winter storms can also result in substantial indirect costs. According to a report by the National Center for Environmental Predictions, 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 nations 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.

### **Severe Winter Storm/Ice: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.



The probability of at least one severe winter storm in Noble County per year is highly likely. Fortunately, the warning time associated with severe winter storms ranges from 12-24 hours,

which should give residents, business owners, and visitors enough time to protect themselves and their property.

While no consistent levels of snow advisories or emergencies exist within Noble County or the municipalities, it may be beneficial to develop consistent and tiered levels of advisory throughout the IDHS District 3, which includes Noble County. A travel advisory, travel warning, and a snow emergency alert would restrict the amount and type of traffic throughout the city, thereby reducing the number of weather related crashes, injuries and even deaths during a severe winter storm. This system of restricting traffic flow would further ensure a clear roadway allowing snow removal and clean up crews to provide safe travel once the advisories have been lifted.



As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies, created a comprehensive GIS database utilized in land use planning and decision-making efforts, and developed agreements with several local facilities to provide temporary shelter as needed. Several agencies and offices throughout Noble County actively participate in Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, as well as the ability to provide automated public alerts via telephone or electronic communications.

The MHMP Planning Committee agreed that owners and operators of critical facilities within Noble County need to be encouraged to acquire back up power generators and weather radios. Further, developers, municipal officials, and utility providers within the communities need to be encouraged to continue to perform preventative tree maintenance and to bury utility lines in areas of new or re-development.

Social, physical, and economic losses from severe winter storms will most likely increase as more people choose to live, work, and visit Noble County. Ensuring that residents and visitors are well informed about the potential impacts from severe winter storms and proper methods to protect themselves and their property will help reduce future losses and damage. Information related to severe weather, the risks to vulnerable locations, and basic steps to protect themselves in emergencies should be provided to residents and visitors through community events and outreach programs.

### **3.2.5 FLOODING**

Floods are the most common and widespread of all natural disasters. Most communities in the United States have experienced some kind of flooding, after spring rains, heavy thunderstorms, or winter snow thaws. A flood, as defined by the NFIP, is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waters and unusual and rapid accumulation or runoff of surface waters from any source, or a mudflow. Floods can be slow or fast rising but generally develop over a period of days.



River flooding, flash flooding, and urban flooding are the predominant types of flooding that occur in Noble County. Flooding and associated flood damage is 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 are capable of producing damaging flash flood conditions.

The standard for flooding is a 1% annual chance of flooding or a 100-year flood. This is a benchmark used by the FEMA to establish a standard of flood protection in communities throughout the country. The 100-year flood is referred to as the "regulatory" or "base" flood. The term 100-year flood is often incorrectly used and can be misleading. It does not mean that only one flood of that size will occur every 100 years. What it actually means is that 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 period.



**Flooding: Historic Data**

Flooding is a relatively common occurrence in Noble County. The NCDC has identified 3 significant floods in Noble County between January 1993 and June 2006. Estimated total property loss figures reported for all flood events is approximately \$5.0M with no deaths or injuries attributed to the events occurring during the 13-year period. **Table 3-15** lists flood events listed by the NCDC for Noble County. Additional information regarding 8 significant flood events was found in the Noble County Comprehensive Hazard Analysis. Two of these events had damage estimates associated with them; approximately \$500.0K in total.

The primary sources of flooding in Noble County are the Elkhart River and various tributaries, as shown in **Exhibit 2**. In addition to larger streams systems, areas impacted by development become increasingly prone to flooding. This type of flooding is becoming more prevalent in Noble County as drainage is hindered by increasing development causing flooding throughout entire communities. Many Noble County residents and officials credit the Sylvan Lake Dam project with dramatically reducing the damages associated with flooding in Noble County.

**Table 3-15: Historic Floods**

Location	Date	Type	Death/Injury	Property/Crop Damage
Noble County + (9 counties affected)	01/01/1993	Flood	0/0	\$5.0M
Noble County + (3 counties affected)	04/10/1995	Flood	0/0	0/0
Noble County (12 counties affected)	04/21/1995	Flood	0/0	0/0
<b>TOTALS</b>			<b>0/0</b>	<b>\$5.0M/0</b>

(NCDC, 2007)  
(M=1,000,000)

According to NCDC, the worst recorded event occurred in January of 1993 leading to \$5.0M in property damages. This damage was spread among only 9 counties, including Noble County. The Town of Rome City was especially hard hit in Noble County as damages here were estimated at \$2.0M and numerous lake homes were flooded as lake levels countywide rose. According to the Noble County Comprehensive Hazard Analysis, more than 200 homes surrounding Steinbarger, Jones, and Waldron Lakes west of Rome City were affected. Temporary shelters for those residents affected by the flood were activated for each Township. In the West Lake area, water was recorded 53 inches above normal lake level nearing the 1982 record of 56 inches above lake level.

Information regarding several other flood events was also found in the Analysis. In January 1998, flooding near Waldron Lake was caused by several inches of rainfall. Piers along the inlet to the lake and mobile homes along the shoreline were damaged by rising lake levels. Near the City of Kendallville, nearly 4 inches of rain fell. In May of 1996, County Road 100S collapsed as culverts were washed away by floodwaters and several homes in the Town of Avilla were damaged. A disaster declaration was issued in December of 1991 as nearly 50 homes in Rome City, 20 homes near Wolf Lake, and several homes scattered throughout the County experienced flood damages. According to the Comprehensive Hazard Analysis, many of the damaged homes did not have flood insurance.



A repetitive loss property is defined as a 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. These properties are important to the NFIP because they account for one-third of the country's flood insurance payments. Within Noble County, there are 6 properties designated as repetitive loss properties; 2 are located in the Town of Albion and the remaining 4 properties are located in the Town of Rome City. While there does not appear to be a large number of repetitive loss properties, there have been numerous claims made for damages associated with flooding.

Within the unincorporated areas of Noble County, there have been 95 claims for more than \$460,000. In addition, there have been 11 claims in the Town of Albion resulting in the payment of nearly \$47,000 in payments. **Table 3-16** identifies the number of claims per NFIP community as well as the payments made.

**Table 3-16: Repetitive Loss Properties, Claims, and Payments**

NFIP Community	# of Rep Loss Properties	Claims Since 1978	\$\$ Paid
Noble County	0	95	\$467.0K
Town of Albion	2	11	\$47.0K
City of Kendallville	0	2	0
City of Ligonier	0	0	0
Town of Rome City	4	9	\$27.0K
<b>TOTALS</b>	<b>6</b>	<b>117</b>	<b>\$541.0K</b>

(IDNR, Division of Water, 2006)

(\*\*: K=1,000)

Currently, the approximate flood insurance coverage required primarily for structures located in the A-zone is \$17.8M. As found in the Comprehensive Hazard Analysis, completed in 2003, approximately 160 homeowners hold flood insurance. The A-zone is the 100-year floodplain, or the area with a 1% annual chance of flooding. These areas are determined in the Flood Insurance Study (FIS) by either detailed or approximate methods of analysis, and mandatory flood insurance purchase requirements apply to structures in this delineated area. Of that total, \$15.6M is flood insurance coverage for the unincorporated areas of Noble County, and an additional \$830.0K is coverage for the Town of Rome City. **Table 3-17** further indicated the premiums and coverage totals for individual NFIP Communities and the unincorporated portions of Noble County.

**Table 3-17: Flood Insurance Premiums and Coverage**

NFIP Community	Flood Insurance Premiums	Coverage
Noble County	\$79.0K	\$15.6M
Town of Albion	\$233	\$140.0K
City of Kendallville	\$2.0K	\$619.0K
City of Ligonier	\$2.0K	\$665.0K
Town of Rome City	\$3.0K	\$830.0K
<b>TOTALS</b>	<b>\$86.2K</b>	<b>\$17.9M</b>

(IDNR, Division of Water, 2007)  
 (\*\*: K=1,000; M=1,000,000)

According to the Planning Committee, the probability of a flood in Noble County varies from unlikely to highly likely. The magnitude or severity of flooding determines the extent to which there is substantial damage and/or disruption to homes, businesses, and transportation corridors. For Noble County, the Planning Committee determined the magnitude to be negligible to limited. Through the accuracy of the NWS Doppler radar, there can be as much as a 24-hour or greater warning time that a flood event will occur. In Noble County, the duration of a rain event or snowmelt that results in flood event has the potential to disrupt normal activities and businesses in the County for more than a week at a time. **Table 3-18** identifies the CPRI for a flood in Noble County and other NFIP communities within the County.

**Table 3-18: CPRI for Flooding**

	Probability <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	Magnitude/ Severity <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	Warning Time <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	Duration of Event <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	CPRI
Noble County	Highly Likely	Limited	>24 hrs	>1 wk	2.9
Town of Albion	Unlikely	Negligible	>24 hrs	>1 wk	1.3
City of Kendallville	Possible	Limited	>24 hrs	>1 wk	2.5
City of Ligonier	Possible	Negligible	>24 hrs	>1 wk	1.7
Town of Rome City	Unlikely	Negligible	>24 hrs	>1 wk	1.3

As shown in the table, index values differ by community. The Planning Committee assessed the communities separately to arrive at the calculated index values.

**Flooding: Vulnerability Assessment**

Based on visual inspection of digital aerial photography and FEMA floodplain maps, and extensive data analysis provided by the Noble County GIS Department, there are no critical facilities located within the FEMA 100-year floodplain of Noble County. There are approximately 1,250 non-critical facilities that are identified as being within the 100-year FEMA floodplain. Approximately 926 of the 1,250 non-critical facilities (75%) are residential and of those, approximately 830 or 90% are located in the unincorporated areas of Noble County. The Town of Rome City has an approximate 46 (5%) residences within the 100-year floodplain, while the remaining residences are located in the City of Kendallville: 40 structures (5%), and the City of Ligonier: 10 structures (1%). This information is provided for reference in **Table 3-19**.

**Table 3-19: Residential Structures within 100-year Floodplain**

NFIP Community	Residences in 100-year Floodplain	Percentage of All Residences in 100-year Floodplain
Noble County	830	90%
Town of Rome City	46	5%
City of Kendallville	40	4%
City of Ligonier	10	1%
Town of Albion	0	0
<b>TOTAL</b>	<b>926</b>	<b>100%</b>

Of all identified structures in the 100-year floodplain, it can be estimated for the purpose of this planning effort that during a 1% chance flood, 25% of all critical and non-critical structures are expected to be completely damaged, 35% would be 50% damaged, and 40% would have only 25% damage. Replacement and repair costs for the 1,250 non-critical facilities, such as residential, commercial, and other structures is \$96.8M. Social losses are difficult to quantify, though interrupted services associated with critical facilities would cause hardship for many residents.

When comparing historical losses reported by the NCDC for flood events affecting Noble County, this hazard should be expected to result in the largest amount of monetary damages to Noble County. Flooding events were assessed as having a 100% stated risk in the Noble County EOC Assessment Checklist. However, the MHMP Planning Committee determined the CPRI of these events is the fifth highest concerning Noble County. In order to better assess the community’s vulnerability, future property and crop damages caused by flooding should be carefully recorded and reported to the NCDC.

**Flooding: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.



The Maumee River Basin Commission (MRBC) was established in 1986 by State Law (I.C. 36-7-6.1) to assist communities in the Indiana portion of the Maumee River Basin to reduce flood losses by exercising sound watershed management. Critical to the success of reducing flooding is the implementation of comprehensive structural and non-structural flood control measures basin wide. The MRBC is able to provide assistance in the areas of flood control project planning and administration, flood mitigation assistance grant writing, 319 water quality improvement grant writing, erosion and sediment control, flood insurance, floodplain ordinances, inventories of flood prone properties, stormwater and erosion control ordinances, soil and water conservation, and public information programs.



Optional provisions have been established as part of the State of Indiana's Model Ordinance for Flood Hazard Areas. These provisions, when adopted, require that when any portion of the Special Flood Hazard Area (SFHA) is authorized for use, the volume of space, which will be occupied by the authorized fill or structure below the Base Flood Elevation (BFE), shall be compensated for and balanced by an equivalent volume of excavation taken below the BFE. The excavation volume must be equal to the volume of storage lost (or a replacement ratio of 1 to 1) due to the fill or structure. The MRBC Flood Control Masterplan

recommends adoption of compensatory storage provisions by all communities in the Maumee River Basin. Noble County and the City of Kendallville have adopted this additional language and the Town of Rome City, at the time of this planning effort, is in the process of developing a new flood ordinance. The City of Ligonier should be strongly encouraged to adopt this or a more restrictive language.

With the optional language added, these ordinances will be an effective method to control development activity within outlined floodplains by prohibiting development unless it has been deemed a permitted use, such as agriculture, parks or roadways, or the proposed development is considered a special use, such as a public well, golf course, or sewage treatment plant. These ordinances would require measures to be taken to prevent increased damages by outlining that no development activities within the flood hazard area may increase the flood height or velocity.

The Planning Committee also determined that the area surrounding West Lakes, downstream of Sylvan Lake, needs to be studied in detail to determine accurate BFE levels. This information could then be utilized to develop and propose an amendment to the Noble County Floodplain Ordinance requiring structures in this area to be constructed 4 feet above the BFE. The current state standard requires a minimum of 2 feet above BFE and this amendment would reduce the potential damages caused by a flood event.

In January of 2007, the Noble County Board of Commissioners adopted a new flood ordinance, replacing the previous ordinance passed in 1998. This newly adopted ordinance contains language specifically indicating that the construction of new critical facilities should be, to the extent possible, located outside of the SFHA. The term critical facility, as defined within the ordinance includes and is not limited to schools, nursing homes, hospitals, police, fire, and emergency response installations, installations which produce, use, or store hazardous materials or those facilities that produce, use, or store hazardous wastes. The Planning



Committee also discussed the need for such an ordinance restricting further development within the 100-year and 500-year floodplain within the Town of Rome City to reduce the risk of damages and losses associated with flooding.

Detailed floodplain studies, including hydrology and hydraulic modeling, have been completed by the MRBC for the Little Cedar Creek, Black Creek, and Willow Creek. Additionally, detailed floodplain studies were completed on the Eley Drain, located on the western border of the Town of Avilla and the VanGorder Drain, located near the eastern border of the Town of Avilla. Detailed FIS studies typically include more accurate estimations of the 10-year, 50-year, 100-year, and 500-year flow rates; detailed hydraulic analyses; and delineation of floodway and floodway fringe areas based on best available topographic mapping. This type of study should be completed as new development is proposed within the unstudied stream portions of Noble County.

The MRBC is a Cooperative Technical Partner (CTP) with FEMA and as a result, has been continually performing needs assessment studies, detailed floodplain studies, and floodplain refinement studies throughout the Maumee River Basin. Noble County has recently acquired 2-foot interval topographical contours. This provides an enhanced ability to determine areas prone to flooding as the previous contours were set at 10-foot intervals. The County and NFIP communities should allocate additional funding so that a larger number of detailed studies can be conducted each year. In addition, these studies can provide the needed data to regulatory agencies to update the Flood Insurance Rate Maps (FIRMs). The process of updating the Noble County Digital FIRMs (DFIRMs) is scheduled to begin in 2007, with preliminary DFIRMs anticipated to be released in 2008.



At the time of this document, the Noble County Comprehensive Plan is in the process of being updated. This plan may be a powerful planning tool for flood mitigation, as it has the possibility to define how and where a community should plan for development, to outline special hazard areas, and to restrict development in those identified sensitive areas. As Noble County continues to grow, the countywide Plan may help prevent flood losses by restricting development, especially of critical facilities, in flood hazard areas. Opportunities should also be provided for relevant County and municipal staff to become Certified Floodplain Managers (CFM). This extended knowledge of the importance of proper floodplain management will assist Noble County, as well as the communities within.

As a designated Stormwater Phase II community, the City of Kendallville is required to enforce erosion and sediment control practices during construction and post-construction activities. Without proper systems in place to trap soil carried by stormwater, soil will settle at the bottom of streams and detention basins restricting the volume of floodwaters held and cause localized flooding. As floodwaters rise, the storm sewer system becomes infiltrated with sanitary sewer effluent and the combined waters are directed to an open stream or watercourse, posing a potential health risk to residents and visitors of Noble County.

Regulated drains and channels within Noble County should be routinely inspected, inventoried, and prioritized for maintenance to provide the optimum conveyance of stormwater. Regular maintenance may also alleviate damages to residences and structures located in areas outside

of flood zones and within areas of poorly drained soils. The detention or diversion of stormwater on a regional scale may also serve useful in low-lying areas in Noble County.

In 2006, the Indiana Department of Natural Resources (IDNR), Division of Water reported \$86.0K flood insurance premiums in Noble County (\$79.0K for the unincorporated portions and \$3.0K in the Town of Rome City). The total coverage for the county was estimated at \$17.9M. In order to reduce the premiums paid on flood insurance, the NFIP communities in Noble County should consider joining FEMA's CRS. The CRS is a voluntary incentive program that recognizes and encourages community floodplain activities that exceed the minimum NFIP requirements. At this time, no communities in Noble County participate in CRS program.

There are several FEMA programs encouraging communities to identify and mitigate repetitive loss properties. The MRBC Flood Control Masterplan did not identify any acquisition projects within the Maumee River Basin portion of Noble County. However, of the 6 repetitive loss properties identified, one was retrofitted. The property, located in the floodway fringe of Little Cedar Creek had sustained numerous flood damages and was elevated to mitigate future flood losses. This project utilized over \$90K as a combination of funding obtained through the FMA grant program, MRBC cost-share funding, and individual homeowner contributions. Other structures located along the Little Cedar Creek SFHA and several properties in the SFHA of Waldron and Steinbarger Lakes may be eligible for the MRBC cost-share assistance for retrofitting properties. These areas may also benefit from participating in (or developing a similar program) the MRBC voluntary acquisition, relocation, elevation, and retrofitting program.

Flood monitoring systems such as the United States Geological Survey (USGS) stream gages, field observation, and vigilant attention to local weather systems are used in Noble County to monitor continuous changes in water levels on local waterways. These monitoring systems, in partnership with local media weather warnings and advisories reduce potential losses by providing needed time to prepare and take action to remove persons and protect property and mobilize emergency response personnel. Currently there are 2 real-time stream gages for Noble County.



The locations of these gages are on the Elkhart River at Cosperville and Sylvan Lake Dam at Rome City. The Planning Committee discussed the need for increasing the flood forecasting capabilities within Noble County, especially for the area between Rome City and Ligonier, downstream of the Sylvan Lake Dam. As Noble County continues to grow, there may be a need for additional stream gages to provide sufficient flood warning for vulnerable areas, or to provide more accurate information regarding flood levels for enhanced floodplain management and protection.

As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies, created a comprehensive GIS database utilized in land use planning and decision-making efforts, and developed agreements with several local facilities to provide temporary shelter as needed. Several agencies and offices throughout Noble County actively participate in Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, as well as the ability to provide automated public

alerts via telephone or electronic communications. The MHMP Planning Committee agreed that owners and operators of critical facilities within Noble County need to be encouraged to acquire back up power generators and weather radios.

Social, physical, and economic losses from flooding could be significantly reduced with better land use planning, floodplain management, and stormwater management in Noble County. The NCDRC data reports nearly \$5.0M in flood damage in Noble County, while the GIS analysis estimates a potential of nearly \$96.8M, creating a vast range of potential damages. As the population of the County and individual communities continues to grow, the potential for damages to facilities, infrastructure, and human losses will also increase. Actions should be taken to ensure that critical and non-critical facilities alike are located beyond the 100-year floodplain. Ensuring that residents and business owners are well informed about the potential impacts from flooding and proper methods to protect themselves and their property will help reduce future losses and damage.

### **3.2.6 DAM FAILURE**

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 the 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 (NID), the majority are privately owned. Federal agencies own 2,131; States own 3,627; local agencies own 12,078; public utilities own 1,626; and private entities or individuals own 43,656. Ownership of over 15,000 is undetermined. The Inventory categorizes the dams according to their primary function: Recreation (31%), Fire and farm ponds (17%), Flood control (15%), Irrigation (14%), Water supply (10%), Tailings and other (8%), Hydroelectric (3%), and Undetermined (2%).

Each dam in the NID 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 hazard classification is not an indicator of the adequacy of a dam or its physical integrity. Dam failures typically occur when spillway capacity is inadequate and excess flow overtops the dam, or when internal erosion (piping) through the dam or foundation occurs.

#### **Dam Failure: Historic Data**

There is 1 recorded high hazard dam in Noble County as shown in Exhibit 2; the Sylvan Lake Dam. The Sylvan Lake Dam, approximately 30 feet in height, is located on the Elkhart River near the western border of the Town of Rome City, on Sylvan Lake. As of the last dam

inspection report in 2006, the Sylvan Lake Dam was given a rating of fair. This indicates that no existing safety deficiencies were recognized for normal conditions. There have been no recorded dam failures in Noble County.

The Planning Committee also discussed the potential damages that would result from a failure of the Marvin Morgan Dam, Wilmot Pond Dam, Lake Barbara Dam, or the Bixler Lake Dam. As these structures are not regulated by the IDNR, the condition of these structures is unknown at this time. Further, the Planning Committee, based on their estimation of affected areas and associated damages, estimated the probability, magnitude, and severity specific to these structures.

According to the Planning Committee, the probability of a dam failure on the Sylvan Lake Dam is unlikely due to routine inspections, but remains possible. If a failure of a dam were to occur within Noble County, the magnitude is anticipated by the Planning Committee to range from limited to catastrophic for the areas in close proximity to the dams. Warning times and durations for a dam failure are estimated to be less than 6 hours. **Table 3-20** identifies the CPRI for dam failure for all NFIP communities in Noble County.

**Table 3-20: CPRI for Dam Failure**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	<b>Duration of Event</b> <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	<b>CPRI</b>
Noble County	Unlikely	Critical	< 6 hrs	< 6 hrs	2.2
Town of Albion	Unlikely	Limited	< 6 hrs	< 6 hrs	1.8
City of Kendallville	Unlikely	Critical	< 6 hrs	< 6 hrs	2.2
City of Ligonier	Unlikely	Limited	< 6 hrs	< 6 hrs	1.8
Town of Rome City	Unlikely	Catastrophic	< 6 hrs	< 6 hrs	2.5

The CPRI index for the unincorporated areas of Noble County, the City of Kendallville, and the Town of Rome City are increased due to the location of the associated dams. The impacts of a dam failure to the downstream area of the Sylvan Lake Dam are anticipated to be critical concerning property damages, while the Town of Rome City is anticipated to realize great economic impacts associated with recreational losses because of a failure of the Sylvan Lake Dam. The City of Kendallville, as provided by the Planning Committee, will likely receive damages of a critical nature should the Bixler Lake Dam fail. The City of Ligonier may experience limited damages should a failure occur on the Indian Lake structure, while the Marvin Morgan Dam is located within the Town of Albion and a failure of this structure may cause damages to a downstream school building.

**Dam Failure: Vulnerability Assessment**

Due to conditions beyond the control of the dam owner or engineer, there are unforeseen structural problems, natural forces, mistakes in operation, negligence, or vandalism that may cause the dam to fail. According to the Noble County Comprehensive Hazard Analysis, the Sylvan Lake Dam, constructed in the 1830's, failed 3 times between 1839 and 1855. Later, in 1993, risk of dam failure was increased as seepage through the embankment was observed. Emergency repairs were completed to reinforce the North Street embankment and the lake level



was lowered from 916 feet National Geodetic Vertical Datum (NGVD) to 910 feet NGVD. Reconstruction of the Sylvan Lake Dam took place from January 1995 to December 1996 and according to IDNR-Division of Water, the estimated cost for the entire project including the embankment, repairs, and the new ogee spillway was approximately \$6.0M.

Unfortunately, none of the dams in Noble County has an Emergency Action Plan (EAP) with a detailed dam failure inundation area identified. However, the EAP associated with the Sylvan Lake Dam is being developed at the time this plan was developed. Therefore, the estimated sunny day dam failure inundation zone delineated as part of the EAP development was overlaid onto recent aerial photography to estimate the number of critical and non-critical facilities that would be affected by a dam failure. The magnitude and extent of damage depend on the type of dam break, volume of water that is released, and width of the floodplain valley to accommodate the dam break flood wave. Based on preliminary analysis of vulnerable facilities in the approximate dam failure inundation zone, over 1,100 non-critical structures and no critical structures were identified through GIS data analysis as located within the estimated Sylvan Lake Dam failure inundation area.



Assuming that 25% of all non-critical structures in the dam failure inundation zone would be destroyed, 35% would be 50% damaged, and 40% would have only 25% damage. The estimated replacement value for the non-critical structures is \$79.5M. These do not include bridges and roadways that are in the floodway and floodplains throughout the County that could be damaged or destroyed by a sunny day dam failure event.

While no historic losses associated with dam failure were reported, the estimated losses for a failure of

the Sylvan Lake Dam (\$79.7M) places this hazard as having the second highest potential damages. Dam failure was not assessed by the Noble County EMA as a part of the stated risk assessment. However, the MHMP Planning Committee determined the CPRI for this type of event is the sixth highest concerning Noble County.

#### **Dam Failure: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.

The IDNR requires inspection and maintenance of a high hazard dam every 2 years throughout the State. The storage of water is a potentially hazardous activity. Under Indiana law, the owner of a dam is responsible for operating and maintaining the dam in a safe manner to prevent harm to others and their property. Dam inspection includes formal technical inspections, maintenance inspections, informal inspections, and special inspections. Based on the last inspection report for the Sylvan Lake Dam, it has been classified as Fair, indicating no safety deficiencies were recognized at the time of inspection.



The IDNR also encourages the development of an EAP for high or significant hazard dams. An EAP is a very good planning tool to understand the impact that a dam failure could have on people and property downstream. These Plans include details about the volume and velocity of the water as well as accurately delineating the dam inundation zone. At the time this MHMP was developed, the development of an EAP for the Sylvan Lake Dam was underway. Although not a high hazard dam, the Planning Committee also determined that it would be beneficial to Noble County to have an EAP including a precise delineation of the dam failure inundation areas for the significant hazard dams: Lake Barbara Dam and Wilmot Pond Dam. The dam inundation zone delineated as part of the EAPs could be used in conjunction with the Comprehensive Land Use Plan to prohibit future construction of critical facilities downstream from a high or significant hazard dam. Further, the dam owner should develop and exercise an EAP indicating the specific roles and responsibilities of local agencies during an impending or realized dam failure. In addition, access to high hazard and significant hazard dams needs to be limited to avoid disruptions to the integrity of the structure.

The Planning Committee discussed the need for increasing the flood forecasting capabilities within Noble County, especially for the area between Rome City and Ligonier, downstream of the Sylvan Lake Dam. This ability may also provide increased warning time for the City of Ligonier during flood events and those events stressing the storage capacity of the Sylvan Lake Dam.

As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies, created a comprehensive GIS database utilized in land use planning and decision-making efforts, and developed agreements with several local facilities to provide temporary shelter as needed. Several agencies and offices throughout Noble County actively participate in Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, as well as the ability to provide automated public alerts via telephone or electronic communications. The MHMP Planning Committee agreed that owners and operators of critical facilities within Noble County need to be encouraged to acquire back up power generators and weather radios.

Social, physical, and economic losses from dam failures will most likely increase as more people choose to live, work, and visit Noble County. Ensuring that residents and visitors are well informed about the potential impacts from a dam failure and proper methods to protect themselves and their property downstream of a high hazard dam will help reduce future losses and damage. If future measures were undertaken to protect those structures currently located in the inundation zones of the dam, and to prohibit new construction in those same areas, social, physical and economical losses could be reduced.

### **3.2.7 DROUGHT**

Drought, in general, means a moisture deficit extensive enough to have social, environmental or economic effects. There are varied definitions of drought and may be considered in two ways; a conceptual definition, and/or an operational definition. The conceptual definition describes the climate phenomenon in terms that are general and with clear impacts to the community. For example, drought is a protracted period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield. On the other hand, an operational definition defines a drought in terms of its beginning, end, and magnitude or severity. For example, the deficiency in rainfall or moisture conditions could be compared to the long-term average for a region and

identified as outside the range of typical climate pattern. Both definitions are useful for defining a climate phenomenon that is difficult to isolate from normal climate patterns for a region.

Drought is not a rare and random climate event; rather, it is a normal, naturally recurring feature of climate. Drought may occur in virtually all climatic zones, but its characteristics vary significantly from one region to another. Drought is a temporary aberration, is different from aridity, which is restricted to low rainfall regions, and is a permanent feature of climate.

There are four academic approaches to examining droughts; these are meteorological, hydrologic, 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; focusing 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 to the supply and demand of some economic good with elements of meteorological, hydrological, and agricultural drought. This last approach relates the lack of moisture to community functions in the full range of societal function, including power generation, the local economy, and food sources.



### **Drought: Historic Data**

According to NCDC reports, there have been 8 statewide droughts since 1999 with no specific information to Noble County, and only one event indicates related property and crop damages. In August of 2002, a drought affecting the southwestern portion of Indiana resulted in crop losses estimated at \$70.0M, \$50.0M of which was corn crop losses. The drought was eased in September when the effects of Tropical Storm Isidore were realized locally with nearly 3 inches of rain falling late in the month. Although information was not found through the NCDC, reports show that one of the most severe drought events was between the years 1988 and 1989. Crop yields in 1988 were 50% to 86% less than in the previous year. Additionally, the IDNR issued a 90-day water conservation decree for the northwest quadrant of Indiana. State surface-water reservoirs approached, and some reached, record low water levels. Some power plants reduced, or shut down, operations temporarily where cooling reservoirs fell to a level that could not support the capacity to cool discharge waters from the plants.

According to the Planning Committee, the perceived probability of a drought occurring in Noble County is possible while the anticipated magnitude and severity of the drought would produce limited damages. As drought events are progressive in nature, the Planning Committee expects that greater than 24 hours and the duration of the event is expected to last greater than 1 week. **Table 3-21** identifies the CPRI for a drought event for all NFIP communities and the unincorporated areas within Noble County. As the table shows, there is no significant difference in CPRI values is due to the wide regional impact of a drought event. Thus, all communities in Noble County will share the same CPRI value.

**Table 3-21: CPRI for Drought**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	<b>Duration of Event</b> <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	<b>CPRI</b>
Noble County	Possible	Limited	> 24 hours	> 1 week	2.1
Town of Albion	Possible	Limited	> 24 hours	> 1 week	2.1
City of Kendallville	Possible	Limited	> 24 hours	> 1 week	2.1
City of Ligonier	Possible	Limited	> 24 hours	> 1 week	2.1
Town of Rome City	Possible	Limited	> 24 hours	> 1 week	2.1

**Drought: Vulnerability Assessment**

Considering agricultural losses, Noble County typically produced approximately 6.2M bushels of grain according to the National Agricultural Statistics Service (NASS). Further, the value of the grains sold in 2002 was approximately \$22.9M. Using the range of crop yield decrease reported in 1988 and 1989, just after the 1988 drought period, (50–86%) and assuming a typical year, economic losses could range between \$11.5M - \$19.5M; depending on the crop produced and market demand. Estimates of other losses associated with a severe drought are difficult to determine with readily available information. However, based on estimated crop damages, this type of hazard can produce the fourth highest amount of monetary damages in Noble County. Droughts, according to the Planning Committee, are anticipated to be the 6<sup>th</sup> most damaging hazard to Noble County.

**Drought: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the existing and proposed mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.



Although rare, it is possible that a drought could affect broad portions of Noble County. There are very few mitigation practices for reducing losses associated with drought. As noted in the Indiana Water Shortage Plan, water conservation may be necessary to ensure there is adequate water for fire fighting purposes and proper operation of critical facilities. These strategies are developed to ensure adequate water reserves are available for firefighting efforts and to sustain the elderly, children, and hospitals in the area. Water conservation can be accomplished day-to-day using water-saving measures such as installing low-flow water saving

showerheads and toilets in all critical and non-critical facilities where applicable. The City of Kendallville may be especially vulnerable as water shortages can result in business disruptions and economic losses.

As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies and created a comprehensive GIS database utilized in land use planning and decision making efforts. Several agencies and offices throughout Noble County actively participate in Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, as well as the ability to provide automated public alerts via telephone or electronic communications. The MHMP Planning Committee agreed that owners and operators of critical facilities within Noble County need to be encouraged to acquire back up power generators and weather radios.

The United States Department of Agriculture (USDA) has a variety of programs that may provide assistance to landowners and agricultural businesses within Noble County who may be adversely impacted by natural disasters; specifically drought. The USDA Farm Service Agency (FSA) can provide emergency loans to operators and landowners having suffered significant property damages or economic losses.

Social, physical, and economic losses from drought will most likely increase as more people choose to live, work, and visit Noble County and utilize water resources. Increases in damages and losses can be expected as the population and number of facilities continues to rise in Noble County. Ensuring that residents and visitors are well informed about the potential impacts from drought and proper methods to conserve water will help reduce future losses and damage. Information related to drought events, the risks to vulnerable locations, and basic steps to protect themselves should be provided to residents and visitors through community events and outreach programs.

### **3.2.8 EXTREME TEMPERATURE**

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.

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 a week or more. Sustained extreme cold poses a physical danger to all individuals in a community and can affect infrastructure function as well.



**Extreme Temperature: Historic Data**



The effects of extreme temperatures extend across large regions, typically affecting several counties, or states, during a single event. Three recorded cases of extreme temperature have affected Noble County between January 1994 and August 1995. These events include 2 heat waves and 1 extreme cold event. **Table 3-22**, identifies the extreme temperature events recorded by the NCDC that have reportedly resulted in deaths, injuries, or property damages. The 2 extreme heat events have resulted in a combination of 18 deaths and more than \$6.0M in economic damages. The extreme cold event resulted in 3 deaths and a reported \$5.0M in economic losses. The deaths associated with these events did not occur in Noble County, and it is unclear to what extent the reported property damages occurred in Noble County.

The January 1994 extreme cold event resulted in numerous low temperature records between January 14<sup>th</sup> and January 21<sup>st</sup>. Temperatures ranged from -17°F to -36°F, throughout Indiana, including a state record low of -36°F recorded in New Whiteland. Because of the extremely cold temperatures, three people in Vanderburgh County died; a 46-year-old male and a 77-year-old male due to exposure, and a 79-year-old female due to hypothermia. The July 1995 heat wave resulted in temperatures exceeding 95°F, with heat indices between 100°F and 120°F for several days across the most of the state. Nearly all of the heat related deaths occurred in northwest Indiana among the sick and the elderly population. In addition, Rose Acre Farms in Seymour Indiana reported that nearly 800,000 baby chickens died because of the extreme heat, totaling more than \$1.0M in losses.

In August of that same year, heat wave conditions affected nearly all of Indiana between August 12<sup>th</sup> and August 21<sup>st</sup>, 2005. Heat index values ranged between 100°F and 115°F. An elderly male suffered from heat stroke and ultimately died as a result. It is estimated that the Indiana State Fair experienced over \$400.0K in economic losses due to greatly reduced attendance during these temperature conditions.

**Table 3-22: Historic Extreme Temperature Events**

Location	Date	Type	Death/ Injury	Property/ Crop Damage**
Entire State	1/14/1994	Extreme Cold	3/0	\$5.0M/0
Entire State	7/13/1995	Heat Wave	14/0	\$1.0M/0
Entire State	8/21/1995	Heat Wave	1/0	0/0
<b>TOTAL</b>			<b>18/0</b>	<b>\$6.0M/0</b>

(NCDC, 2007)  
(\*\*: M=1,000,000)

It is difficult to predict the probability that an extreme temperature event will affect Noble County residents in any given year. However, based on historic information the Planning Committee felt that an extreme temperature event is certainly possible in any given year. Although the warning time associated with extreme temperatures is typically greater than 24 hours, it can be expected that the duration of the event could last for more than a week. **Table 3-23** identifies the CPRI for extreme temperature events for all NFIP communities in Noble County.



**Table 3-23: CPRI for Extreme Temperature**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	<b>Duration of Event</b> <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	<b>CPRI</b>
Noble County	Possible	Limited	> 24 hours	> 1 week	2.1
Town of Albion	Possible	Limited	> 24 hours	> 1 week	2.1
City of Kendallville	Possible	Limited	> 24 hours	> 1 week	2.1
City of Ligonier	Possible	Limited	> 24 hours	> 1 week	2.1
Town of Rome City	Possible	Limited	> 24 hours	> 1 week	2.1

As shown in the table, index values remain identical throughout each NFIP Community and the unincorporated portions of Noble County due to the regional extent and diffuse severity of this hazard event.

**Extreme Temperature: Vulnerability Assessment**

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, populations in poor physical condition, and people without heat and air conditioning are at an increased risk to be impacted by extreme temperatures. The affects of extreme temperatures are also experienced by livestock within Noble County and may adversely effect crop production as well during times of extreme heat.

By assessing the demographics of Noble County, we can gain a better understanding of the relative risk that extreme temperatures may pose to certain populations. In total, nearly 11.0% of the County’s population is over 65 years of age, more than 7.0% of the population is below the age of 5, and approximately 9.0% are considered to be living below the poverty line. People in these demographic groups are more susceptible to the health or social impacts associated with extreme temperatures.

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. Elderly people and infants are most susceptible to suffering from extreme heat events and it is important that these populations keep well hydrated and cool during these events.



At the other extreme, very cold temperatures also pose a threat to human health if they cause core body temperature to fall much below normal levels (98.6°) for an extended period. Lowered core body temperatures can lead to hypothermia and eventually cardiac arrest or respiratory failure resulting in death. Keeping the core body temperature in the normal range typically requires an operational and reliable heat source other than the body. Those who are not able to access a proper heat source could be in danger as well as individuals over 65, young children, those with impaired mental status or substance abusers.

Due to the nature of extreme temperature events, it is difficult to assess the economic losses that might result from an extreme temperature event in Noble County. However, based on historic losses reported to the NCDC, extreme temperatures have been the cause of the 6th highest amount of monetary damages in Noble County. The effects of extreme temperatures on agricultural production for both crop and livestock will also greatly affect associated businesses and industries. Extreme temperature was not assessed as part of the development of stated risk % checklist for Noble County.

Many times, losses or damages are attributed to associated events such as extreme cold temperatures during an ice storm or severe winter storm. Extremely high temperatures and resulting losses or damages may be reported as an effect of drought, increased field or forest fires, and/or electrical outages.

#### **Extreme Temperature: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.

As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies and created a comprehensive GIS database utilized in land use planning and decision making efforts. Several agencies and offices throughout Noble County actively participate in Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, as well as the ability to provide automated public alerts via telephone or electronic communications. The MHMP Planning Committee agreed that owners and operators of critical facilities within Noble County need to be encouraged to acquire back up power generators and weather radios.

Social, physical, and economic losses from extreme temperatures will most likely increase as more people choose to live, work, and visit Noble County. Increases in damages, losses and injuries can be expected as the population and number of facilities continues to rise in Noble County. Ensuring that residents and visitors are well informed about the potential impacts from extreme temperatures as well as proper methods to protect themselves and their property will help reduce future losses and damage. Information related to extreme temperature conditions, the risks to vulnerable locations, and basic steps to protect themselves should be provided to residents and visitors through community events and outreach programs.

### 3.2.9 EARTHQUAKE

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 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.

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 to 75 damaging earthquakes occur throughout the world. Estimates of losses from a future earthquake in the United States approach \$200.0 billion (B).

There are 45 states and territories in the United States at moderate to very high risk from earthquakes, and they are located in every region of the country. 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 included three quakes larger than a magnitude of 8 on the Richter scale. These earthquakes occur over the entire Eastern United States, with Missouri, Tennessee, Kentucky, Indiana, Illinois, Ohio, Alabama, Arkansas, and Mississippi experiencing the strongest ground shaking.



#### **Earthquake: Historical Data**

According to the Noble County Comprehensive Plan, Indiana as well as several other Midwestern states lies in the most seismically active region east of the Rocky Mountains. These zones are not made up of one fault line, but many geologic faults that are capable of producing earthquake. Noble County is not expected to be directly affected by these potentially unstable faults.

Although there has not been a previous occurrence of an earthquake epicenter recorded for Noble County, it is possible that the County could experience an earthquake or the aftershock of an earthquake at some point in the future. The most recent earthquake recorded in central Indiana was on 12 September 2004 in Shelbyville, IN, approximately 40 miles south of Anderson. The earthquake recorded 3.6 on the Richter scale of earthquake intensity.

Earthquake related damages might also be the result of earthquakes occurring in neighboring states. An earthquake centered near Dale, Illinois on November 9, 1968 was felt throughout Indiana and 22 other states. Damages ranged from groceries falling off shelves in Fort Branch IN, toppled chimneys in Cynthiana IN, and fish jumped out of the rivers, ponds and lakes.

The probability of an earthquake event according to the Planning Committee is unlikely in Noble County. The magnitude and severity of the hazard is estimated to be only negligible in nature due to the distance between Noble County and the other NFIP communities and the nearest fault lines and historical epicenters. Warning time associated with an earthquake is minimal at best and realistically less than 6 hours, with the duration of the event lasting less than 1 week. **Table 3-24** identifies the CPRI for an earthquake event for all NFIP communities in Noble County.

**Table 3-24: CPRI for Earthquake**

	<b>Probability</b> <ul style="list-style-type: none"> <li>• Unlikely</li> <li>• Possible</li> <li>• Likely</li> <li>• Highly likely</li> </ul>	<b>Magnitude/Severity</b> <ul style="list-style-type: none"> <li>• Negligible</li> <li>• Limited</li> <li>• Critical</li> <li>• Catastrophic</li> </ul>	<b>Warning Time</b> <ul style="list-style-type: none"> <li>• &gt; 24 hrs</li> <li>• 12-24 hrs</li> <li>• 6-12 hrs</li> <li>• &lt; 6 hrs</li> </ul>	<b>Duration of Event</b> <ul style="list-style-type: none"> <li>• &lt; 6 hrs</li> <li>• &lt; 1 day</li> <li>• &lt; 1 wk</li> <li>• &gt; 1 wk</li> </ul>	<b>CPRI</b>
Noble County	Unlikely	Negligible	< 6 hrs	< 1 wk	1.2
Town of Albion	Unlikely	Negligible	< 6 hrs	< 1 wk	1.2
City of Kendallville	Unlikely	Negligible	< 6 hrs	< 1 wk	1.2
City of Ligonier	Unlikely	Negligible	< 6 hrs	< 1 wk	1.2
Town of Rome City	Unlikely	Negligible	< 6 hrs	< 1 wk	1.2

As shown in the CPRI table, all communities share the same value due to the large-scale regional impact of this hazard. With the complexity of this hazard it is difficult determine the probability and the magnitude and severity of the event. However, as Noble County is some distance from the aforementioned fault lines, the probability of an earthquake occurring in the future is unlikely. The magnitude and severity of the earthquake in Noble County would be far less than communities located near to the epicenter or along the fault lines. Therefore, damages and related injuries are not expected to be more than negligible in nature for all communities in Noble County.

**Earthquake: Vulnerability Assessment**

All structures in Noble County, all 350 critical and 50,000 non-critical, are potentially vulnerable to an earthquake. These structures were identified by the MHMP Planning Committee and the Noble County GIS Department.

Scientists are currently studying the New Madrid fault area paying close attention to seismic activity and have predicted that the chances of another earthquake in the 8.0 range occurring within the next 50 years are approximately 7-10%. However, the chances of an event at 6.0 or greater are at 90% within the next 50 years. According to some scientists, this provides the needed justification for further structure protection, additions to building codes, and education and outreach for earthquake awareness in the Mid-west states.

Earthquakes were ranked by the Planning Committee through the CPRI exercise as the least of 9 hazards affecting Noble County. Likewise, through the completion of the Comprehensive



Hazard Analysis earthquakes were considered a hazard that is unlikely to occur in Noble County. No losses associated with earthquake damages were reported by NCDL and no damages were estimated for future events

### **Earthquake: Existing Mitigation Practices**

Mitigation practices are projects, policies, or programs that reduce the social, physical, and economic impact of hazards. As part of this 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. The following is a summary of the mitigation practices discussed. A chart detailing all of the mitigation practices, hazards addressed, local priority, benefit-cost ratio, location, responsible entity, and funding can be found in Section 4.0 of this Plan.



There are few mitigation practices to reduce losses in the event of an earthquake. The State of Indiana requires all buildings in Noble County to be constructed to meet the standards set by the International Building Code. These codes specifically address the seismic energy that each structure must be able to withstand in this region.

The HAZUS-MH program combines current scientific and engineering knowledge with the latest GIS technology to produce estimates of hazard-related damage before, or after a disaster occurs. The HAZUS-MH Earthquake Model can be updated with local information regarding critical facilities, proximity to fault lines and rift zones, soil types, and property values to provide more accurate “what if” earthquake scenarios.

As discussed previously, officials in Noble County have established a primary warning point to alert the public of emergencies, created a comprehensive GIS database utilized in land use planning and decision-making efforts, and developed agreements with several local facilities to provide temporary shelter as needed. The MHMP Planning Committee has identified the local need for the development and continued training of a CERT program, the development of a voluntary program to immunize emergency responders, the ability to provide automated public alerts via telephone or electronic communications, as well as the need to provide safe rooms in vulnerable locations to further protect and provide for the residents and visitors of Noble County.. The MHMP Planning Committee agreed that owners and operators of critical facilities within Noble County need to be encouraged to acquire back up power generators.

Social, physical, and economic losses from earthquake will most likely increase as more people choose to live, work, and visit Noble County. Ensuring that residents and visitors are well informed about the potential impacts from earthquake and proper methods to protect themselves and their property will help reduce future losses and damage. Information related to earthquakes, the risks to vulnerable locations, and basic steps to protect themselves in emergencies should be provided to residents and visitors through community events and outreach programs.

### **3.3 HAZARD SUMMARY**

For the development of the MHMP, the Planning Committee utilized the CPRI method to prioritize the hazards that they felt affected Noble County. Hazards were assigned values



based on the probability or likelihood of occurrence, the magnitude or severity of the event, as well as warning time and duration of the event itself. A weighted CPRI was calculated based on the percent of the County’s population present in the individual NFIP communities. **Table 3-25** indicates the results of the CPRI values for each hazard affecting Noble County.

Prior to developing the MHMP, the Noble County EMA completed a similar process as part of the Comprehensive Emergency Management Plan (CEMP) to provide an overall stated risk of hazards within the County. These rankings are also based on probability of the hazard occurring, although a different set of parameters were utilized throughout the process. Those results for the hazards studied in detail for the MHMP are also found in Table 3-26.

Furthermore, rankings based on historic losses as reported to the NCDL, as well as ranking according to the estimated potential damages for each of the hazards as developed as a part of this planning process, are provided within the table for comparative purposes. These latter two ranking systems are considered more objective than the CPRI and CEMP methodology.

**Table 3-25: Comparative Hazard Rankings, Noble County**

Hazard	MHMP				CEMP		NCDL	
	Initial	CPRI	Est. Damages*		Risk %		Historic Losses*	
Dam Failure	8	6	2	\$79.5M	NA	NA	NA	NA
Drought	7	7	5	\$11.5M-\$19.5M	NA	NA	1	\$70.0M**
Earthquake	9	8	7	\$0	3	1%	NA	NA
Extreme Temperature	6	7	NA	NA	NA	NA	4	\$1.0-\$5.0M**
Flooding	4	5	1	\$96.8M	1	100%	3	\$5.0M
Hail/Thunder/Wind	1	2	6	\$10.0K-4.0M	NA	NA	5	\$4.0M
Hazardous Materials	5	1	4	\$1.6M-\$25.3M	2	75%	NA	NA
Severe Winter Storm	2	4	NA	NA	1	100%	6	\$3.0M**
Tornado	3	3	3	\$18.7-\$37.7M	1	100%	2	\$52.0M

(NA=Not Available)

(\*: K=1,000; M=1,000,000)

(\*\*): Values represent reported statewide damages)

Although different indices were utilized in the CPRI completed for the MHMP, and the CEMP completed for the Noble County Comprehensive Hazard Analysis, the results are generally similar. For example according to the CPRI and the Stated Risk percentage, flooding and tornados are within the top hazards affecting Noble County. Further, tornados have historically produced the most damages to property and crops specific to Noble County, while flooding is the second most historically damaging utilizing values specific to Noble County. Damages and economic losses provided as statewide values were not included in the overall ranking based on historic losses. Estimated damages for flooding tops the hazards affecting the County, while a Sylvan Lake Dam failure has the potential to produce the next largest amount of damages in Noble County. Because of information specific to Noble County tornados, flooding, hailstorms, thunderstorms, and windstorms are the top 3 historically damaging hazards. Concerning

potential damages estimated for this planning effort (utilizing the high estimated values), the top 3 hazards affecting Noble County are flooding, dam failure, and hazardous materials incidents.

The total number of housing units in 2000 according to US Census data was reported at 18,233 and the 2006 estimates show an increase to 19,573. As Noble County and the communities within continue to grow in population, structures, and infrastructure services, it can be expected that future property and crop damages may be increased. However, due to programs such as those provide by the MRBC and increased protection efforts developed in ordinance and code updates, damages associated with properties in identified hazard areas such as floodplains, dam inundation areas, and close proximities to hazardous materials handlers can be reduced.



The CRS program credits NFIP communities a maximum of 55 points for mapping flooding as well as other known natural hazards; summarizing the impact of natural hazards; identifying the number, type, and estimated value of buildings subject to natural hazards; and development, the community.

## 4.0 MITIGATION GOAL & PRACTICES

This Section identifies the mitigation goals and a summary of the mitigation practices discussed in the Risk Assessment section of this Multi-Hazard Mitigation Plan (MHMP).

### 4.1 MITIGATION GOAL

The overall goal throughout the development of the Noble County MHMP has been to protect the citizens, visitors, and properties within Noble County from the impacts of hazards through actions associated with emergency services, natural resource protection, prevention, property protection, public information, and structural controls.

### 4.2 MITIGATION PRACTICES

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 damage 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 Federal Emergency Management Agency (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. Six primary mitigation measures defined by FEMA are:

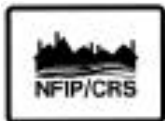
- **Emergency Services** - measures that protect people during and after a hazard.
- **Natural Resource Protection** - opportunities to preserve and restore natural areas and their function to reduce the impact of hazards.
- **Prevention** – measures that are designed to keep the problem from occurring 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.

The Noble County Planning Committee reviewed the list of mitigation ideas from FEMA for each of the hazards studied as part of this planning effort 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** – the proposed 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** – the proposed mitigation project will be technically feasible, reduce losses in the long-term, and will not create more problems than they solve.
- **Administrative** – the proposed mitigation projects may require additional staff time, alternative sources of funding, and have some maintenance requirements.
- **Political** – the proposed mitigation projects will have political and public support.
- **Legal** – the proposed mitigation projects will be implemented through the laws, ordinances, and resolutions that are in place.

**Table 4-1** lists a summary of all existing mitigation practices identified for all hazards, as well as information on the local status, local priority, benefit-cost ratio, project location, responsible entity, and potential funding source, associated with each proposed practice. The proposed mitigation practices are listed in order of importance to the Noble County National Floodplain Insurance Program (NFIP) communities for implementation. Projects identified by the Planning Committee to be of “high” local priority may be implemented within 2-3 years from final Plan adoption. Projects identified to be of “medium” local priority may be implemented within 4-5 years from final Plan adoption, and projects identified by the Planning Committee to be of “low” local priority may be implemented with 5+ 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 mitigation practices, the Planning Committee weighed the benefit derived from each mitigation practice with the estimated cost of that practice. The Planning Committee identified the mitigation practices as having a high, medium, or low benefit cost ratio based on their experience and professional judgment. Preparing detailed benefit cost ratios was beyond the scope of this planning effort and the intent of the MHMP. The development of this MHMP is the necessary first step of a multi-step process to implement programs, policies, and projects to mitigate the effect of hazards in Noble County communities. The intent of this planning effort was to identify the hazards and the extent to which they affect Noble County communities and to determine what type of mitigation strategies or practices may be undertaken to mitigate these hazards. Although this MHMP meets the requirements of Disaster Mitigation Act (DMA) 2000 and eligibility requirements of the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) Grant, Pre-Disaster Mitigation (PDM) Grant, as well as other FEMA programs including the NFIP’s Community Ratings System (CRS), additional detailed studies may need to be completed prior to applying for these grants or programs. Section 5 of this plan includes an implementation plan for all high priority mitigation practices identified by the Planning Committee.



The CRS program credits NFIP communities a maximum of 72 points for setting goals to reduce the impact of flooding and other known natural hazards; identifying mitigation projects that include activities for prevention, property protection, natural resource protection, emergency services, structural control projects, and public information.

Table 4-1: Summary of Mitigation Practices

MITIGATION PRACTICE	MITIGATION STRATEGY	HAZARD ADDRESSED	STATUS	PRIORITY	BENEFIT - COST RATIO	PROJECT LOCATION	RESPONSIBLE ENTITY	FUNDING SOURCE
<p><b>Hazardous Materials Response Teams</b></p> <ul style="list-style-type: none"> <li>▪ Increase number of personnel certified to OSHA III Technician level responding to HazMat incidents</li> <li>▪ Pursue funding for full-time paid positions and equipment for emergency response</li> <li>▪ Ensure response agencies have current Tier II facility information</li> <li>▪ Utilize realistic training and exercises that simulate response conditions and scenarios</li> </ul>	<input checked="" type="checkbox"/> Prevention <input checked="" type="checkbox"/> Property Protection <input checked="" type="checkbox"/> Nat. Res. Protection <input checked="" type="checkbox"/> Emergency Services <input checked="" type="checkbox"/> Structural Control <input type="checkbox"/> Public Information	<input type="checkbox"/> Dam Failure <input type="checkbox"/> Drought <input type="checkbox"/> Earthquake <input type="checkbox"/> Extreme Temp <input type="checkbox"/> Flooding <input type="checkbox"/> Hail/Thunder/Wind <input checked="" type="checkbox"/> HazMat Incident <input type="checkbox"/> Severe Winter Storm <input type="checkbox"/> Tornado	<p><b>Ongoing</b> – 5 OSHA technicians, Research funding opportunities to increase number of paid, full-time responders, Tier II Facility information, trainings</p> <p><b>Proposed Enhancement</b> – Additional OSHA technicians, responders, and equipment</p>	High	High	City of Kendallville and City of Ligonier only paid Fire Department staff. Remainder are volunteers	Fire Department <i>Noble County</i> <i>Albion</i> <i>Kendallville</i> <i>Ligonier</i> <i>Orange Twp.</i>  EMS  EMA/LEPC	Existing budget  Operational cost
<p><b>Community Emergency Response Teams</b></p> <ul style="list-style-type: none"> <li>▪ Establish a Community Emergency Response Team (CERT) program</li> </ul>	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Property Protection <input type="checkbox"/> Nat. Res. Protection <input checked="" type="checkbox"/> Emergency Services <input type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input checked="" type="checkbox"/> Drought <input checked="" type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Extreme Temp <input checked="" type="checkbox"/> Flooding <input checked="" type="checkbox"/> Hail/Thunder/Wind <input checked="" type="checkbox"/> HazMat Incident <input checked="" type="checkbox"/> Severe Winter Storm <input checked="" type="checkbox"/> Tornado	<p><b>Ongoing</b> –</p> <p><b>Proposed Enhancement</b> – Investigate and complete establishment of program</p>	High	High	Countywide	EMA	Existing budget  FEMA  Citizen Corps
<p><b>Building Protection</b></p> <ul style="list-style-type: none"> <li>▪ Prohibit construction of critical facilities in known hazard areas</li> <li>▪ Encourage power back-up generators in all critical facilities</li> <li>▪ Investigate reciprocal agreements for damage assessment following hazardous events</li> <li>▪ Ensure mobile homes are anchored to meet State of Indiana’s installation and manufacturer’s specifications.</li> <li>▪ Develop voluntary buyout/retrofit program</li> <li>▪ Encourage areas of new development to bury utility lines</li> </ul>	<input checked="" type="checkbox"/> Prevention <input checked="" type="checkbox"/> Property Protection <input type="checkbox"/> Nat. Res. Protection <input type="checkbox"/> Emergency Services <input checked="" type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input checked="" type="checkbox"/> Drought <input checked="" type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Extreme Temp <input checked="" type="checkbox"/> Flooding <input checked="" type="checkbox"/> Hail/Thunder/Wind <input checked="" type="checkbox"/> HazMat Incident <input checked="" type="checkbox"/> Severe Winter Storm <input checked="" type="checkbox"/> Tornado	<p><b>Ongoing</b> – many facilities with back-up power source, mobile homes; State of Indiana responsible for mobile home parks; City of Kendallville requires burial while Noble County and Town of Albion promote burial</p> <p><b>Proposed Enhancement</b> – all critical facilities with generators, prohibit construction of future critical facilities and protect existing structures in known hazards areas such as flood zones and dam failure inundation areas, develop buyout/retrofit program, City of Ligonier to promote burial of utility lines.</p>	High <i>(back-up power, critical facilities, reciprocal agreements, mobile home inspections)</i>  Moderate <i>(buyout/retrofit program, burial of utility lines)</i>	Moderate	Noble County plans to update ZO/SCO in August 2007.  Back up generators in all critical facilities especially medical care, police, fire, and community shelters  Inundation areas downstream of Sylvan Lake Dam and Hamilton Lake Dams  Target repetitive loss properties, areas prone to flooding, and properties within the dam failure inundation area for acquisition, relocation, elevation, or flood proofing (non-residential)	Floodplain Administrators <i>Noble County</i> <i>Albion</i> <i>Kendallville</i> <i>Ligonier</i> <i>Rome City</i>  MRBC  Planning/Building <i>Noble County</i> <i>Albion</i> <i>Kendallville</i> <i>Ligonier</i> <i>Rome City</i>  Building owners <i>(Public &amp; private)</i>  EMA	Owner  FEMA



MITIGATION PRACTICE	MITIGATION STRATEGY	HAZARD ADDRESSED	STATUS	PRIORITY	BENEFIT - COST RATIO	PROJECT LOCATION	RESPONSIBLE ENTITY	FUNDING SOURCE
<p><b>Public Education &amp; Outreach</b></p> <ul style="list-style-type: none"> <li>▪ Increase participation in community events and outreach opportunities.</li> <li>▪ Become certified as an NWS StormReady Community</li> <li>▪ Provide information related to dam failures to property owners in the failure inundation areas.</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Prevention</li> <li><input type="checkbox"/> Property Protection</li> <li><input type="checkbox"/> Nat. Res. Protection</li> <li><input type="checkbox"/> Emergency Services</li> <li><input type="checkbox"/> Structural Control</li> <li><input checked="" type="checkbox"/> Public Information</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Dam Failure</li> <li><input checked="" type="checkbox"/> Drought</li> <li><input checked="" type="checkbox"/> Earthquake</li> <li><input checked="" type="checkbox"/> Extreme Temp</li> <li><input checked="" type="checkbox"/> Flooding</li> <li><input checked="" type="checkbox"/> Hail/Thunder/Wind</li> <li><input checked="" type="checkbox"/> HazMat Incident</li> <li><input checked="" type="checkbox"/> Severe Winter Storm</li> <li><input checked="" type="checkbox"/> Tornado</li> </ul>	<p><b>Ongoing</b> – literature, school and community programs, newspapers</p> <p><b>Proposed Enhancement</b> – StormReady Communities, Dam failure information</p>	<p>High <i>(Literature, Severe Weather Awareness Week)</i></p> <p>Low <i>(StormReady, Dam Failure information)</i></p>	<p>High</p>	<p>Maintain hazard preparedness literature at public libraries, Red Cross, and government offices</p> <p>Severe Weather Awareness Week held in March each year</p>	<p>EMA</p> <p>Red Cross</p> <p>Noble County</p> <p>Albion</p> <p>Kendallville</p> <p>Ligonier</p> <p>Rome City</p> <p>Local Media</p>	<p>Existing budget</p> <p>FEMA</p> <p>IDEM</p> <p>IDNR</p> <p>MRBC</p>
<p><b>Flooding/Floodplain Management</b></p> <ul style="list-style-type: none"> <li>▪ Update FIRMs/provide funding for additional study capabilities</li> <li>▪ Continue to maintain waterways and regulated drains to prevent localized flooding.</li> <li>▪ Provide opportunities for staff members to become a CFM.</li> <li>▪ Encourage the City of Ligonier to adopt the optional provisions of the State of Indiana Model Floodplain Ordinance language or a more restrictive standard.</li> <li>▪ Remove log jams to prevent localized flooding.</li> <li>▪ Develop a voluntary structure buyout/flood proofing program to include all structures within the 100-year floodplain.</li> <li>▪ Participation in the CRS program</li> <li>▪ Increase flood forecasting capabilities (gaging stations, flood alerts)</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Prevention</li> <li><input checked="" type="checkbox"/> Property Protection</li> <li><input checked="" type="checkbox"/> Nat. Res. Protection</li> <li><input type="checkbox"/> Emergency Services</li> <li><input type="checkbox"/> Structural Control</li> <li><input checked="" type="checkbox"/> Public Information</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Dam Failure</li> <li><input type="checkbox"/> Drought</li> <li><input type="checkbox"/> Earthquake</li> <li><input type="checkbox"/> Extreme Temp</li> <li><input checked="" type="checkbox"/> Flooding</li> <li><input type="checkbox"/> Hail/Thunder/Wind</li> <li><input type="checkbox"/> HazMat Incident</li> <li><input type="checkbox"/> Severe Winter Storm</li> <li><input type="checkbox"/> Tornado</li> </ul>	<p><b>Ongoing</b> –FIRM update process (approx. 2009), channel and waterway maintenance, Rome City and Noble County with CFMs on staff</p> <p><b>Proposed Enhancement</b> – Provide funding for additional stream study capabilities, Obtain additional CFM certifications, adoption of optional provisions, increased log jam removal</p>	<p>High <i>(FIRMs, waterway maintenance, optional provisions, log jams)</i></p> <p>Moderate <i>(structure buyout)</i></p> <p>Low <i>(CRS, flood forecasting)</i></p>	<p>High</p>	<p>FIRM update and stream studies to be completed throughout Noble County as prioritized and funded.</p> <p>CFM certifications for the Town of Albion, the City of Kendallville, and the City of Ligonier and additional certifications as needed for the Town of Rome City and Noble County.</p> <p>City of Ligonier to adopt State of Indiana optional provisions of the Model Floodplain Ordinance.</p> <p>Along the Elkhart River, 19 areas have been prioritized for removal of log jams. In certain areas, a barge is being utilized for removal of downed trees.</p>	<p>Noble County Surveyor</p> <p>MRBC</p> <p>Planning</p> <p>Noble County</p> <p>Albion</p> <p>Kendallville</p> <p>Ligonier</p> <p>Rome City</p> <p>Floodplain Administrators</p> <p>Noble County</p> <p>Albion</p> <p>Kendallville</p> <p>Ligonier</p> <p>Rome City</p>	<p>Existing budget</p> <p>IDNR</p> <p>FEMA</p> <p>MRBC</p>

MITIGATION PRACTICE	MITIGATION STRATEGY	HAZARD ADDRESSED	STATUS	PRIORITY	BENEFIT - COST RATIO	PROJECT LOCATION	RESPONSIBLE ENTITY	FUNDING SOURCE
<p><b>Emergency Warning Systems</b></p> <ul style="list-style-type: none"> <li>▪ Develop consistent tiered level of snow emergencies/advisories within municipalities, County, and IDHS District 3.</li> <li>▪ Promote weather radios in all critical facilities</li> <li>▪ Install additional outdoor warning sirens where pockets of development are not covered.</li> <li>▪ Propose and adopt ordinance to develop a warning sirens fund</li> <li>▪ Increase flood forecasting capabilities (gaging stations, flood alerts)</li> <li>▪ Determine adequate location for reverse 911 warning system</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Prevention</li> <li><input checked="" type="checkbox"/> Property Protection</li> <li><input checked="" type="checkbox"/> Nat. Res. Protection</li> <li><input checked="" type="checkbox"/> Emergency Services</li> <li><input type="checkbox"/> Structural Control</li> <li><input checked="" type="checkbox"/> Public Information</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Dam Failure</li> <li><input type="checkbox"/> Drought</li> <li><input type="checkbox"/> Earthquake</li> <li><input type="checkbox"/> Extreme Temp</li> <li><input checked="" type="checkbox"/> Flooding</li> <li><input checked="" type="checkbox"/> Hail/Thunder/Wind</li> <li><input type="checkbox"/> HazMat Incident</li> <li><input checked="" type="checkbox"/> Severe Winter Storm</li> <li><input checked="" type="checkbox"/> Tornado</li> </ul>	<p><b>Ongoing</b> –Kendallville has snow emergency ordinance to restrict parking on main routes; test and maintain outdoor warning sirens ; NWS storm warnings; weather radios, EAP development</p> <p><b>Proposed Enhancement</b> – encourage radios in critical facilities, Develop DHS District- wide snow advisory levels, adopt ordinance, additional sirens through public safety line item or lake community matching funds, develop flood forecasting abilities</p>	<p>High <i>(consistent levels, radios, outdoor warning sirens, siren fund-Kendallville)</i></p> <p>Moderate <i>(warning sirens, siren fund-Ligonier)</i></p> <p>Low <i>(siren fund-Rome City and Noble County, forecasting, reverse 911)</i></p>	<p>High</p>	<p>Additional sirens needed near Rome City, Bear Lake, Creek Lake, Knapp Lake</p> <p>Warning siren fund has been developed in City of Kendallville.</p> <p>Throughout Noble County, and the DHS District 3 snow advisory levels should be consistent to avoid confusion</p> <p>Encourage weather radios in all critical facilities</p> <p>Increased flood forecasting for area between Rome City and Ligonier</p> <p>Additional siren coverage for Rome City, Kendallville, and lake communities</p>	<p>EMA</p> <p>Surveyor</p> <p>MRBC</p> <p>Dam Owner</p> <p>Planning <i>Noble County Albion Kendallville Ligonier Rome City</i></p>	<p>Existing budget</p> <p>FEMA</p> <p>USGS</p> <p>MRBC</p>
<p><b>Safe Rooms</b></p> <ul style="list-style-type: none"> <li>▪ Promote safe rooms in mobile home parks, public parks, and developments without basements.</li> <li>▪ Promote safe rooms in critical facilities and large population centers (baseball fields, lake communities, etc).</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Prevention</li> <li><input type="checkbox"/> Property Protection</li> <li><input type="checkbox"/> Nat. Res. Protection</li> <li><input type="checkbox"/> Emergency Services</li> <li><input type="checkbox"/> Structural Control</li> <li><input checked="" type="checkbox"/> Public Information</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Dam Failure</li> <li><input type="checkbox"/> Drought</li> <li><input type="checkbox"/> Earthquake</li> <li><input type="checkbox"/> Extreme Temp</li> <li><input type="checkbox"/> Flooding</li> <li><input checked="" type="checkbox"/> Hail/Thunder/Wind</li> <li><input type="checkbox"/> HazMat Incident</li> <li><input type="checkbox"/> Severe Winter Storm</li> <li><input checked="" type="checkbox"/> Tornado</li> </ul>	<p><b>Ongoing</b> – Town of Avilla mobile home park has a safe room established.</p> <p><b>Proposed Enhancement</b> – establish safe rooms in all vulnerable locations.</p>	<p>Moderate</p>	<p>High</p>	<p>Mobile home parks, public parks, developments without basements, critical facilities, and large centers of populations in Noble County</p>	<p>Planning Department <i>Noble County Albion Kendallville Ligonier Rome City</i></p> <p>EMA</p>	<p>FEMA</p> <p>Developers</p>
<p><b>Immunization</b></p> <ul style="list-style-type: none"> <li>▪ Immunize all emergency responders, inspection staff, and families</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Prevention</li> <li><input type="checkbox"/> Property Protection</li> <li><input type="checkbox"/> Nat. Res. Protection</li> <li><input checked="" type="checkbox"/> Emergency Services</li> <li><input type="checkbox"/> Structural Control</li> <li><input type="checkbox"/> Public Information</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Dam Failure</li> <li><input checked="" type="checkbox"/> Drought</li> <li><input checked="" type="checkbox"/> Earthquake</li> <li><input checked="" type="checkbox"/> Extreme Temp</li> <li><input checked="" type="checkbox"/> Flooding</li> <li><input checked="" type="checkbox"/> Hail/Thunder/Wind</li> <li><input checked="" type="checkbox"/> HazMat Incident</li> <li><input checked="" type="checkbox"/> Severe Winter Storm</li> <li><input checked="" type="checkbox"/> Tornado</li> </ul>	<p><b>Ongoing</b> – none</p> <p><b>Proposed Enhancement</b> – immunize all emergency responders and inspection staff</p>	<p>Moderate</p>	<p>High</p>	<p>All emergency response and inspection staff countywide</p>	<p>EMA</p> <p>Noble Health Department</p>	<p>Existing budget</p> <p>FEMA</p>

MITIGATION PRACTICE	MITIGATION STRATEGY	HAZARD ADDRESSED	STATUS	PRIORITY	BENEFIT - COST RATIO	PROJECT LOCATION	RESPONSIBLE ENTITY	FUNDING SOURCE
<p><b>Geographic Information Systems</b></p> <ul style="list-style-type: none"> <li>▪ Increase GIS usage between municipalities and agencies</li> <li>▪ Use HAZUS-MH Flood and Earthquake to model “what if” scenarios</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Prevention</li> <li><input checked="" type="checkbox"/> Property Protection</li> <li><input checked="" type="checkbox"/> Nat. Res. Protection</li> <li><input checked="" type="checkbox"/> Emergency Services</li> <li><input type="checkbox"/> Structural Control</li> <li><input checked="" type="checkbox"/> Public Information</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Dam Failure</li> <li><input checked="" type="checkbox"/> Drought</li> <li><input checked="" type="checkbox"/> Earthquake</li> <li><input checked="" type="checkbox"/> Extreme Temp</li> <li><input checked="" type="checkbox"/> Flooding</li> <li><input checked="" type="checkbox"/> Hail/Thunder/Wind</li> <li><input checked="" type="checkbox"/> HazMat Incident</li> <li><input checked="" type="checkbox"/> Severe Winter Storm</li> <li><input checked="" type="checkbox"/> Tornado</li> </ul>	<p><b>Ongoing</b> – Noble County GIS maintains layers used for planning efforts</p> <p><b>Proposed Enhancement</b> – Layers made accessible to NFIP communities. Update with new information as it is obtained or developed</p>	<p>Moderate (GIS usage)</p> <p>Low (HAZUS-MH)</p>	<p>Low</p>	<p>Countywide</p>	<p>GIS Department <i>Noble County</i></p>	<p>Existing budget</p> <p>FEMA</p>

## 5.0 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 involved several preparatory or intermediary steps. However, to maintain clarity, not all preparatory or intermediary steps are included.

### Hazardous Materials Response Teams

Increase number of personnel certified to Occupational Safety & Health Administration (OSHA) II Technician Level.

- A. Determine appropriate staff for additional training.
- B. Secure funding and provide opportunities for staff to attend training.

Pursue funding for full-time paid positions and equipment for emergency responders.

- A. Determine personnel and equipment needs of each fire station.
- B. Prioritize personnel and equipment needs throughout municipalities.
- C. Pursue funding, obtain equipment, and hire additional staff.

Continue training and realistic exercises for emergency personnel.

- A. Identify types of training needed, venues, and personnel in need of training.
- B. Ensure exercises are realist and comprehensive.
- C. Compete post exercise debriefing and review.

Ensure local response agencies (Fire and Emergency Medical Service (EMS)) have current facility maps and response plans for Superfund Amendments & Reauthorization Act (SARA) Tier II facilities.

- A. Update Tier II information for Noble County and municipalities as needed.
- B. Ensure maps and plans are current and on file with the Emergency Management Agency (EMA).
- C. Provide maps and plans to other response agencies (Fire, EMS, etc.)

### Building Protection

Prohibit construction of new critical facilities in known hazard areas, such as the 100-year and 500-year floodplains and dam failure inundation areas.

- A. Complete Flood Insurance Rate Maps (FIRMs) / Flood Insurance Studies (FIS) updates.
- B. Adopt updates locally.
- C. Develop and propose language to amend existing ordinances to prohibit construction of new critical facilities in known hazard areas.

Ensure mobile homes are anchored to meet the State of Indiana's minimum installation and the manufacturer's specifications.

- A. Ensure that staff is available and properly trained to perform and enforce installation inspections.
- B. Develop procedural protocols for enforcement of installation standards and make available to all current residents and owners of mobile home facilities, as well as new residents moving into Noble County.

Encourage power back up generators in all Critical Facilities

- A. Identify Critical Facilities with and without back up generators.
- B. Provide education and outreach regarding the importance of power back up generators in critical facilities.

- C. Pursue and secure funding to purchase power back-up generators.
- D. Provide training similar to the fire extinguisher training for proper use of power back up generators.
- E.

Check into reciprocal agreements between neighboring counties for damage assessment inspections following hazard events.

- A. Develop and establish mutual aid agreements between Department of Homeland Security (DHS) District 3 Counties and Municipalities for assistance with building inspections following hazard events.
- B. Provide adequate training (CEUs) and staff to inspect facilities to ensure structures are sound.
- C. Provide authority and enforcement ability for inspection staff.

### **Public Education & Outreach**

Increase participation in community events and outreach opportunities.

- A. Develop, maintain, and distribute hazard preparedness literature for all public facilities and community events.
- B. Continue to participate in community events
- C. Provide a multi-media outreach campaign for hazards and the proper response actions for residents and visitors if a hazard were to occur.
- D. Provide post disaster information relevant to safety and health concerns as residents re-enter affected areas.

Establish a Community Emergency Response Team (CERT).

- A. Create needs assessments for areas and municipalities.
- B. Create list of volunteers within each area identified.
- C. Provide proper training for volunteers related to basic first aid and steps to follow during emergencies.

### **Flooding/Floodplain Management**

Update FIRMs and provide funding for additional study capabilities.

- A. Continue to provide support for the updated FIRMs/FIS restudy to be completed in 2009.
- B. Adopt FIRMs/FIS
- C. Dedicate annual funding to complete post FIRM floodplain studies after the FIS study according to FEMA guidelines

Continue to maintain waterways and regulated drains to prevent localized flooding.

- A. Prioritize waterways and regulated drains in need of maintenance.
- B. Develop protocol for responding to complaints or investigations.
- C. Develop and secure funding mechanism for maintenance.
- D. Institute a program to inspect and maintain regulated waterways.
- E. Prepare and complete bidding/sub-contractual process.

Provide the opportunity for staff members to become a Certified Floodplain Manager (CFM).

- A. Initiate research to determine requirements for eligibility for certification
- B. Develop listing of current staff members interested in the certification.
- C. Provide training and opportunities for certification.

Encourage the City of Ligonier to adopt the optional provisions of the State of Indiana Model Floodplain Ordinance language or a more restrictive standard.

- A. Review optional provisions and determine suitability.



- B. Incorporate provisional language into existing Floodplain Ordinance or consider language that is more restrictive.
- C. Adopt and enforce the updated Floodplain Ordinance.

Remove log jams to prevent flooding.

- A. Inventory and prioritize areas with existing log jams and areas prone to in-stream obstructions.
- B. Investigate funding opportunities for removal of jams and obstructions.
- C. Complete or sub-contract removal of jams and obstructions.

### **Emergency Warning Systems**

Develop consistent tiered levels of snow emergencies/advisories etc. within municipalities, County, and IDHS District 3.

- A. Develop protocols regarding specific situations in which snow emergencies are to be declared and distribute to all municipalities and local governmental agencies responsible for emergency response.
- B. Develop snow emergency routes for those areas to be cleared first, second, etc.
- C. Develop public outreach and educational component to inform residents and visitors of what conditions will prompt activation of snow emergencies and where to turn for more information that is detailed.
- D. Propose to IDHS District 3 protocol to ensure consistency among Counties and Municipalities within the District.

Install outdoor warning sirens where pockets of development are not covered.

- A. Prepare listing of all critical facilities currently not covered by outdoor warning sirens.
- B. Prioritize uncovered areas for future outdoor warning protection.
- C. Research various outdoor warning system funding mechanisms.
- D. Submit proposal to purchase/maintain appropriate warning systems.

Promote weather radios in all Critical Facilities.

- A. Identify Critical Facilities with and without weather alert radios.
- B. Provide outreach and education regarding the importance of weather alert radios in Critical Facilities.
- C. Provide training similar to the fire extinguisher training for proper use of weather alert radios.
- D. Pursue funding opportunities to provide Critical Facilities with weather radios.

## 6.0 PLAN MAINTENANCE PROCEDURES

### 6.1 MAINTENANCE PROCESS

Throughout the 5-year planning cycle, the Noble County Emergency Management Agency (EMA) will reconvene the Multi-Hazard Mitigation Plan (MHMP) Planning Committee on an annual basis in order to monitor, evaluate, and update the Plan as needed. Members of the Planning Committee are readily available to engage in meet between annual meetings. Depending on grant opportunities and fiscal resources, mitigation projects may be implemented independently by individual National Floodplain Insurance Program (NFIP) communities or through local partnerships.

This is the first MHMP that Noble County and NFIP communities have prepared. The data used to prepare the Noble County 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 better data becomes available, updates should be made to the risk assessment and vulnerability analysis.

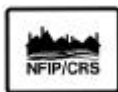
### 6.2 INCOPRORATION INTO EXISTING PLANS

Many of the mitigation projects identified as part of this planning process are on going with some enhancement needed. Where needed, modifications will be made to NFIP communities’ planning documents and ordinances during the regularly scheduled update. Among other things, local planning documents and ordinances may include comprehensive plans, floodplain management plans, capital improvement plans, zoning ordinances, building codes, site development regulations or permits.

### 6.3 CONTINUED PUBLIC INVOLVEMENT

Continued public involvement is critical to the successful implementation of the Noble County MHMP. Comments from the public on the MHMP will be received by the EMA Director and forwarded to the MHMP Planning 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 at the Noble County EMA Office.

Updates or modifications to the Noble County MHMP during the 5-year planning process 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 37 points for adopting the Plan; establishing a procedure for implementation, review, and updating the Plan; and submitting an annual evaluation report.

---

### SOURCES REFERENCED

Association of State Floodplain Managers (ASFPM). No Adverse Impact: A Toolkit for Common Sense Floodplain Management. 2003. [www.floods.org](http://www.floods.org)

Britt, Robert Roy. "New Data Confirms Strong Earthquake Risk to Central U.S.". *Live Science*. June 22, 2005. [www.livescience.com/forcesofnature/050622\\_new\\_madrid.html](http://www.livescience.com/forcesofnature/050622_new_madrid.html)

Business Courier. "Ohio Winter Storm Losses hit \$17.5 Million." March 11, 2003

Christopher B. Burke Engineering, Ltd. "Maumee River Basin Flood Control Master Plan." May 1995.

Clean Air Act, Section 112(r). 40 CFR 68

Denver Post. "Storms' One-Two Punch More Costly Than '03." December 31, 2006.

Denver Post. "Storm Costs Drift Higher." January 9, 2007.

Environmental Protection Agency. Multi-Resolution Land Characteristics Consortium. [www.epa.gov/mrlc/](http://www.epa.gov/mrlc/), and <http://gisdata.usgs.net/MRLC/>

Federal Emergency Management Agency (FEMA). "Community Ratings System (CRS)" <http://www.fema.gov/business/nfip/crs.shtm>

Federal Emergency Management Agency (FEMA). Federal Register 44 CFR Parts 201 and 206 Hazard Mitigation Planning and Hazard Mitigation Grant Program; Interim Final Rule. February 26, 2002.

Federal Emergency Management Agency (FEMA). "HAZUS-MH 2000 Census Database". 2005.

Federal Emergency Management Agency (FEMA). "HAZUS-MH Earthquake Model". 2005.

Federal Emergency Management Agency (FEMA). "HAZUS-MH Flood Model". 2005

Federal Emergency Management Agency (FEMA). "Mitigation Ideas: Possible Mitigation Measures by Hazard Type". September 2002.

Federal Emergency Management Agency (FEMA). "National Flood Insurance Program". <http://www.fema.gov/business/nfip>

Federal Emergency Management Agency (FEMA). State and Local Mitigation Planning: How-to Guides. September 2002.

Fowler, Kathleen K., 1992. "Description and Effect of 1988 Drought on Groundwater Flows, Streamflow, and Reservoir Levels in Indiana." US Geological Survey, Water Resource Investigations Report 91-4100. pp91.

Indiana Department of Environmental Management (IDEM) Office of Land Quality. "Facilities List". <http://www.in.gov/idem/programs/land/hazwaste/notifiers/county.pdf>

Indiana Department of Environment Management (IDEM) Office of Water Quality. "Streams". [www.in.gov/idem/programs/water](http://www.in.gov/idem/programs/water)

Indiana Department of Environment Management (IDEM) Office of Water Quality. "Drinking Water". [www.in.gov/idem/programs/water](http://www.in.gov/idem/programs/water)

Indiana Department of Environment Management (IDEM) Office of Water Quality. "NPDES Compliance". [www.in.gov/idem/programs/water](http://www.in.gov/idem/programs/water)

Indiana Geological Survey. "Earthquakes in Indiana". <http://igs.indiana.edu/geology/earthquakes/eqinindiana>

Kocin, Paul J. National Centers for Environmental Prediction. "*Some Thoughts on the Societal and Economic Impact of Winter Storms.*" 1997

Midwest Regional Climate Center. "Climate Summaries". [http://mcc.sws.uiuc.edu/climate\\_midwest/mwclimate\\_data\\_summaries.htm#](http://mcc.sws.uiuc.edu/climate_midwest/mwclimate_data_summaries.htm#)

National Inventory of Dams. <http://crunch.tec.army.mil/nid/webpages/nid.cfm>

National Oceanic and Atmospheric Administration (NOAA) National Data Climatic Center (NCDC). "Natural Hazard Query Results". <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevents~storms>

Noble County Indiana Emergency Management Agency. Comprehensive Emergency Management Plan. August 2003.

Noble County Indiana. Surveyor's Office. Listing of Regulated Drains in Noble County.

St. Joseph County Indiana. St Joseph County Code, Ordinance No.50-99. Early Warning Systems.

State Emergency Management Agency (IDHS). "Indiana Tornado Facts". [http://www.in.gov/dhs/safetyfirst/tornado/indiana\\_facts.html](http://www.in.gov/dhs/safetyfirst/tornado/indiana_facts.html)

State of Indiana. Model Ordinance for Flood Hazard Areas: Article 5, Section A. <http://www.in.gov/dnr/water/publications/pdf/IndianaModelOrdinance.pdf>

STATS Indiana. "Noble County IN Depth Profile". <http://www.stats.indiana.edu/profiles/pr18113.html>

Superfund Amendments and Reauthorization Act (SARA) & Emergency Planning and Community Right to Know Act (EPCRA). 40 CFR 350-372.

U.S. Department of Agriculture, Natural Resources Conservation Service. Soil Survey of Noble County.

U.S. Department of Transportation, Office of Hazardous Materials Safety. "2005 Hazardous Materials Incident Data". [http://hazmat.dot.gov/pubs/inc/data/2005/2005cause\\_mode.pdf](http://hazmat.dot.gov/pubs/inc/data/2005/2005cause_mode.pdf)

U.S. Geological Survey. "Indiana Earthquake Information".  
<http://earthquake.usgs.gov/regional/states.phop?regionID=14&region=Indiana>

U.S. Geological Survey. "Stream Gage Data". <http://waterdata.usgs.gov/nwis/si>

U.S. Geological Survey. "14-Digit Watershed Boundaries".  
[http://igs.indiana.edu/arcims/statewide/dload\\_page/hydrology.html](http://igs.indiana.edu/arcims/statewide/dload_page/hydrology.html)

U.S. Geological Survey, various topo-quadrangle maps of Noble County.

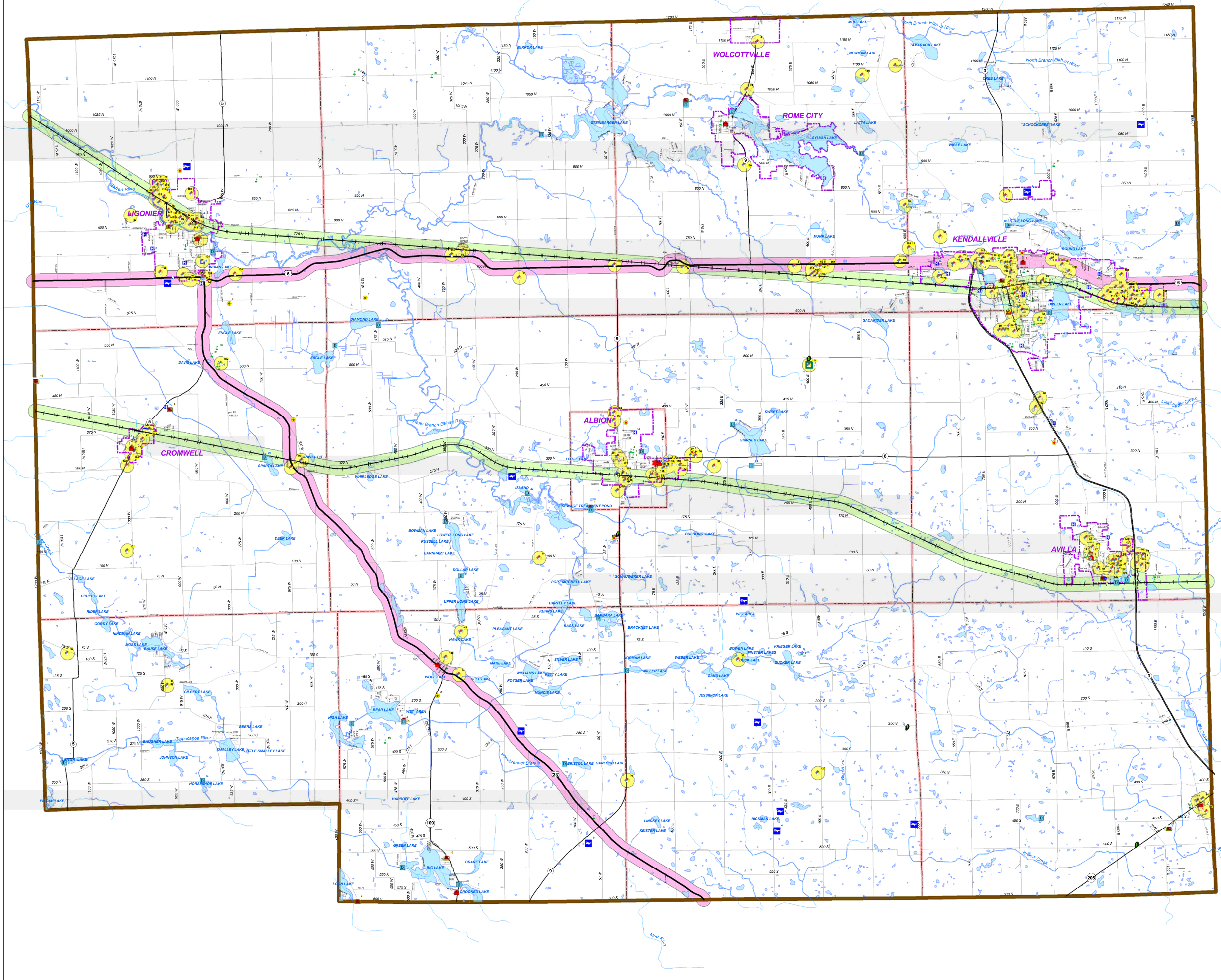
U.S. Weather Research Program, et. al. *Executive summary of the Workshop in the Social and Economic Impacts of Weather*. Boulder Colorado. April 2-4, 1997

Visual Risk. "MitigationPlan.com". [www.mitigationplan.com](http://www.mitigationplan.com)



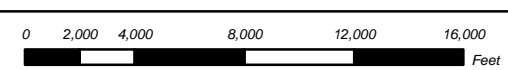
# Hazardous Materials Transport & Storage

## Noble County, Indiana



ID	Name	ID	Name
1	A-1 PRODUCTION INC.	96	LACTO FARM SUPPLIES INC
2	ADVANCED METAL ETCHING	97	LASSUSHANDY DANDY
3	ADVANCED THERMAL TECHS. INC.	98	AGGREGATE INDUSTRIES
4	AGGREGATE INDUSTRIES	99	LOGONER WASTE WATER
5	ALBION WIRE REEL WAREHOUSE	100	LINCOLNWAY MOTORS
6	ALUMINUM RECOVERY	101	MANUFACTURED HOUSING COMMUNITY
7	AMERICAN REBUILDERS	102	MARLE LEAF HATCHERY
8	AMERICAN TOWER	103	MASCOPY CORP
9	AMERIGAS PROPANE LP	104	MCI AVIATION
10	AMERIGAS PROPANE LP, INC	105	MELCHING INVESTMENT VENTURE III LLC
11	ARCHIMEDES INC	106	METALCRAFT INC
12	AT & T	107	MILER MOTORS KENDALLVILLE
13	AT & T	108	MITTLER SUPPLY INC
14	AUTOELECTORS INC	109	MILLINUM INDUSTRIES CORP
15	AUTOELECTORS INC (INDIANA PHOENIX INC)	110	MONARCH SPECIALIZED MOTOR COACH
16	AUTOMOTIVE COLOR & SUPPLY CORP	111	MORRY J O INC
17	AVILLA CITY OF	112	NATIONAL REEL SVCS
18	AVILLA CITY OF	113	NEWELL INDUSTRIAL CORP
19	AVILLA GRAIN INC	114	NFL CROSSROAD ALBION REG. STA.
20	AVILLA DAVIS	115	NO SAG PRODUCTION CO INC
21	AVILLA SERVICE CENTER	116	NOBLE CO REMAC
22	AYR-WAY INDUSTRIES	117	NOBLE STEEL FABRICATORS
23	BAKERS BODY SHOP	118	NORTH CENTRAL CO-OP ALBION BULK PLANT
24	BRC RUBBER & PLASTICS	119	NORTH CENTRAL CO-OP ALBION LP
25	BROWN'S CONSTRUCTION CO. INC.	120	NOVOZYMES BIOLOGICALS INC.
26	BROWNS AMOCO FOOD SHOP	121	OMNISOURCE
27	BURD CO. PLASTICS DIV.	122	ONE INC. INC.
28	BURNWORTH ZOLLARS CHEVROLET	123	PAK A SAK
29	BURNWORTH ZOLLARS FORD	124	PARKER HANFMAN CORP. - BRASS PRODUCT DIV
30	BUSISSE ENTERPRISE	125	PARKER HANFMAN-POWERTRAIN DIVISION
31	BUTCHES BODY SHOP	126	PARKEVIN NOBLE HOSPITAL
32	CHAIN O LAKES STATE PARK	127	PARTS FINISHING GROUP-INDIANA INC
33	CITY OF KENDALLVILLE	128	PENT ASSEMBLY CUSTOM MOLDING
34	COLOR MASTER INC	129	PENT PLASTICS INC
35	COLOR MASTER INC	130	PEPSI-COLA GENERAL BOTTLERS
36	CONSOLIDATED RAIL	131	PGF FOOD DISTRIBUTION PLANT
37	CORPERRFIELD LLC	132	PLASTECH ENGINEERED PRODUCTS
38	CORNERSTONE INC	133	PLATT MAX FORD-LINCOLN-MERCURY
39	CREATIVE WOOD DESIGN INC	134	PRINCE MFG. CORP.
40	CROMWELL MUNICIPAL UTILITIES	135	PT HOLDINGS
41	CROMWELL PRODUCTS	136	PVC COMPOUNDERS
42	CROP PRODUCTION SERVICES	137	QUICK TANKS PLANT NO 1
43	CROWN GROUP FORT WAYNE PLANT	138	QUICK TANKS PLANT NO 2
44	DALTON CORP. KENDALLVILLE MFG. FACILITY	139	RAD SERV DRY
45	DANA CORPORATION	140	RALPHS BODY SHOP
46	DEBS LAUNDRY BASKET DBA SUNBRITE	141	ROBERT BOSCH CORPORATION
47	DEKHO HEATING TECHNOLOGIES	142	ROYAL MIRRISITS
48	DIETRICH E INC	143	RYDER TRANSPORTATION
49	DOW CORNING	144	SAC
50	DRIVESOL WORLDWIDE INC	145	SCHWAN FOOD COMPANY
51	EAST NOBLE SCHOOL CORPORATION	146	SEA TD MFG INC
52	ENGINEERED TOOLING INC	147	SILGAN PLASTICS CORP
53	ENGINEERED TOOLING INC	148	SMITH AUTOMOTIVE CTR
54	EPIC TECHNICAL GROUP INC	149	SMOKER CRAFT
55	ESSEX GROUP INC	150	SNAX IN PAX INC
56	FEDERAL-MOGUL CORP	151	SPEEDWAY S171
57	FERRELEAS	152	STEELE HEALTHCARE PRODUCTS LLC
58	FLEX FAB INC	153	STAR OF THE WEST MILLING CO
59	FLEX OHM INC	154	STEVE WEST MOTORS
60	FOUR INC	155	STRUCTURAL COMPOSITES OF INDIANA, INC.
61	FREUDENBERG-NOK LIGONER PLANT I	156	SUNOCO SERVICE STATION
62	FREUDENBERG-NOK LIGONER PLANT II	157	SUPREME SAMPLE CO
63	FRICK SERVICES	158	SUPREME PROPERTIES NORTH INC
64	GAS AMERICA #93	159	SYMMETRY MEDICAL ULTRATEX
65	GAS AMERICA SERVICES INC. #70	160	TEN KWIK MINUTES INC
66	GDI PUBLICATIONS	161	TENNECO
67	GRAPHIC PACKAGING INTL INC	162	TERNET METAL FINISHING INC
68	GUARDIAN AUTOMOTIVE PRODUCTS INC.	163	TERNET METAL FINISHING INC.
69	HELENA CHEMICAL COMPANY	164	TOUGHER TRUCK SUSP. SYS. - PLANT 1
70	HENDRICKSON TRUCK SUSP. SYS. - PLANT 1	165	TOMKINS IN DEXTER AXLE
71	HENDRICKSON TRUCK SUSPENSION - SYS. PLANT	166	TOWER AUTOMOTIVE
72	HI TECH	167	TOWER AUTOMOTIVE
73	HYMATIC MANUFACTURING	168	TOWER STRUCTURAL LAMINATING
74	INDOT BRIDGE 8-57-0208C/020492	169	TRACTOR SUPPLY COMPANY
75	INERGY PROPANE LLC	170	TRELOVE BROS INC
76	INNOVAK PLASTICS CORPORATION	171	UNITED TELEPHONE
77	INTERNATIONAL WIRE - ALBION	172	UNION PROD INTERNATIONAL
78	INTERNATIONAL WIRE - KENDALLVILLE	173	UNITED TELEPHONE
79	INTERNATIONAL WIRE - SILICONES	174	UNITED TELEPHONE
80	IRVING GRAVEL CO INC	175	VERIZON ALBION CO
81	JACK DE CHEVROLET	176	VERIZON WIRELESS
82	JEL-AUTO INC	177	VIBRAACOUSTIC NORTH AMERICA
83	JELD-WEN EXTERIOR	178	VIBRATION CONTROL TECHNOLOGIES LLC
84	JOHN LEY MONUMENT SALES	179	VICTOR REINE VALVE SEALS, LLC
85	KENDALLVILLE CASING INC	180	WAL-MART STORE 1388
86	KENDALLVILLE IRON & METAL INC	181	WAL-MART SUPERCENTER #1388
87	KENDALLVILLE LAUNDRY DRYCLEAN	182	WEST NOBLE SCHOOL CORP
88	KENDALLVILLE PUBLISHING CO INC	183	WICKERS BODY & PAINT SHOP
89	KENDALLVILLE TIRE & AUTO SVC	184	WILBY'S GAS & COODIES
90	KML INC.	185	WOLF LAKE PRODUCTS INC
91	KRAFT FOODS GLOBAL INC	186	WYBONS BOB CHEV INC
92	KRIEGER MANUFACTURING	187	X Y TOOL AND DIE INC
93	KUNCE BROS. INC.	188	
94	LADOTTO FARM SUPPLIES	189	

- Airport
- Communication/Broadcast Facility
- Dams
- Emergency Operation Center
- Fire Station
- Government Facility
- Hazardous Material Handler
- Medical Facility
- Natural Gas Utility
- Law Enforcement Facility
- Potable Water Facility
- Power Plant
- Power Substation
- School
- Wastewater Treatment Plant
- Corporate Limits
- Hazardous Material Handler Buffer
- US Highway Buffer
- Railroad Buffer
- Township Boundary



Sources of Data:  
 1. Facility Data adapted from HAZLUS (FEMA, 2002), adjusted by CBREL and Noble County GIS Department, 2006  
 2. Roads, Railroads, Townships from TIGER Files (US Bureau of the Census, 2000)  
 3. Streams from USGS National Hydrography Dataset, 2006

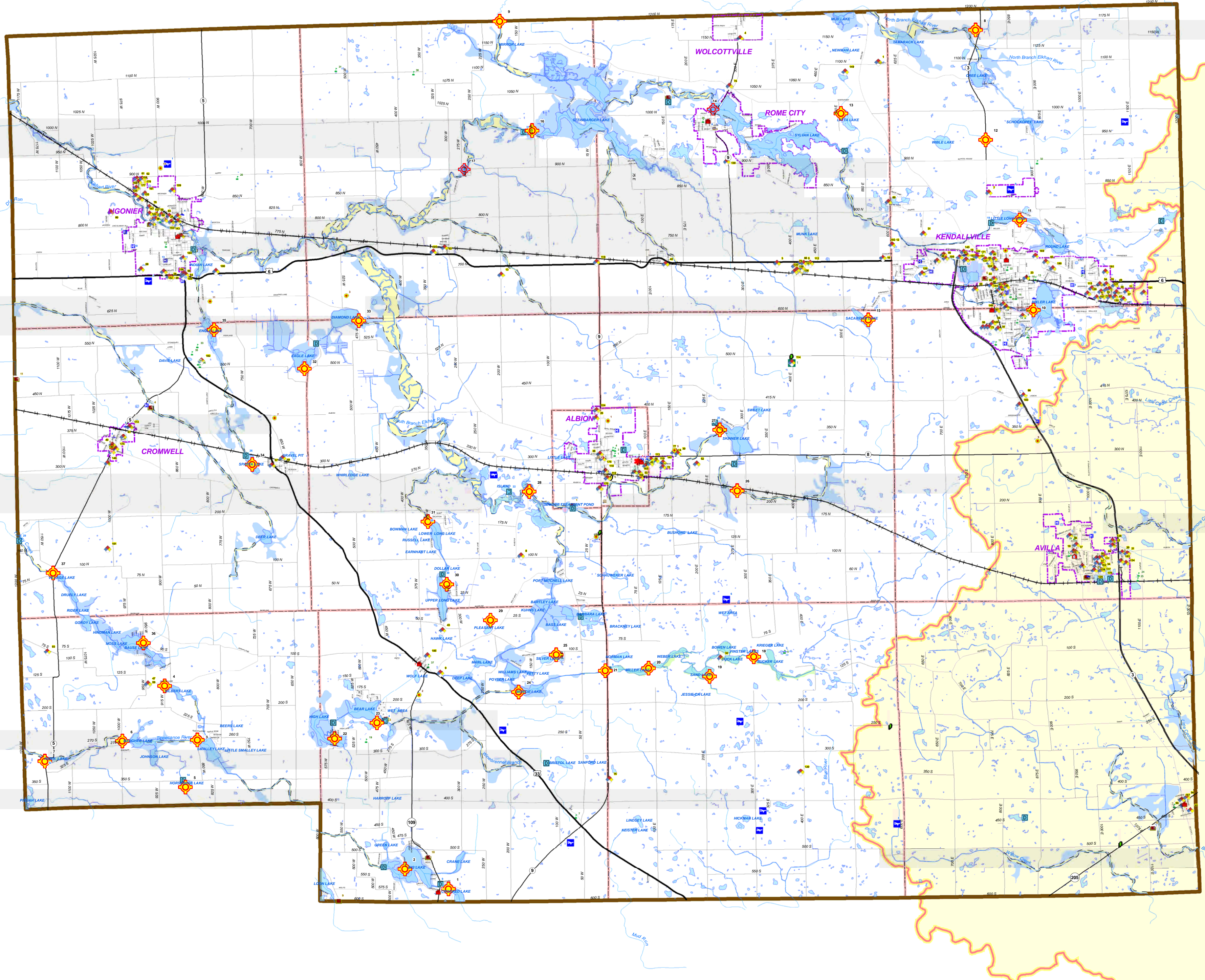
<b>CHRISTOPHER B. BURKE ENGINEERING, LTD.</b> National City Center, Suite 1368 South 115 West Washington Street Indianapolis, Indiana 46204 (tel) 317.266.8000 (fax) 317.632.3306	<b>PROJECT:</b> Noble County, Indiana Multi-Hazard Mitigation Plan	<b>PROJECT NO.:</b> 05-513	<b>APPROX. SCALE:</b> 1" = 7000' <b>DATE:</b> 03/08 <b>EXHIBIT:</b> 3
	<b>TITLE:</b> Hazardous Materials Transport & Storage		
	Noble County, Indiana Multi-Hazard Mitigation Plan		





# Flood Zones, USGS Stream Gages & Dams

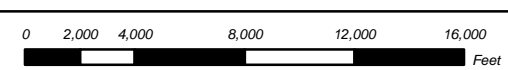
## Noble County, Indiana



Map ID	Station Number	Station Name
1	3330020	Crooked Lake near Wolflake, IN
2	3330040	Big Lake near Wolflake, IN
3	3330140	Smalbert Lake near Washington Center, IN
4	3330180	Horseshoe Lake near Washington Center, IN
5	3330200	Baugher Lake near Washington Center, IN
6	3330220	Wilmot Pond at Wilmot, IN
7	4100010	Cree Lake near Kendallville, IN
8	4100125	North Branch Elkhart River near Wolcottville, IN
9	4100140	Bixler Lake at Kendallville, IN
10	4100160	Little Long Lake at Kendallville, IN
11	4100165	Wible Lake Inlet near Kendallville, IN
12	4100170	Latta Lake near Rome City, IN
13	4100180	Sylvan Lake at Rome City, Ind
14	4100190	Sacardier Lake near Kendallville, IN
15	4100220	Waldron Lake near Cosperville, IN
16	4100222	NB Elkhart River at Cosperville, IN
17	4100230	Long Lake near Burr Oak, IN
18	4100240	Sand Lake near Burr Oak, IN
19	4100250	Rivir Lake near Burr Oak, IN
20	4100252	Forker Creek near Burr Oak, IN
21	4100258	High Lake near Wolflake, IN
22	4100260	Bear Lake near Wolflake, IN
23	4100280	Muncie Lake near Burr Oak, IN
24	4100290	Silver Lake near Wolflake, IN
25	4100295	Rimmell Branch near Albion, IN
26	4100300	Skinner Lake near Albion, IN
27	4100303	South Branch Elkhart River near Albion, IN
28	4100310	Pleasant Lake near Wolflake, IN
29	4100320	Upper Long Lake near Wolflake, IN
30	4100330	Lower Long Lake near Albion, IN
31	4100340	Eagle Lake near Kimmel, IN
32	4100350	Diamond Lake near Wawaka, IN
33	4100360	Sparta Lake at Kimmel, IN
34	4100370	Engle Lake near Ligonier, IN
35	4100390	Knapp Lake near Washington Center, IN
36	4100440	Village Lake near Cromwell, IN
37		

ID	Name
1	ALBION SEWAGE PONDS
2	AVILLA SEWER POND DAM
3	AVILLA SEWER POND DAM
4	BEAR LAKE DAM
5	BIG LAKE DAM
6	BIXLER LAKE DAM
7	BRISTOL LAKE DAM
8	CHAIN O LAKES DAM
9	CROOKED LAKE DAM
10	DIAMOND LAKE CMP
11	EAGLE LAKE CMP
12	HENDERSON LAKE DAM
13	HIGH LAKE DAM
14	HORSESHOE LAKE DAM
15	INDIAN LAKE CMP
16	LAKE BARBARA DAM
17	LAKE MAXLER DAM
18	LEGENDS LAKE DAM
19	LITTLE LONG LAKE DAM
20	LOWER LONG LAKE DAM
21	MARVIN MORGAN DAM
22	RICHARD GRIEGER DAM
23	ROME CITY SEWER PONDS DAM
24	SKINNER LAKE DAM
25	SKINNER LAKE DAM
26	SPARTA LAKE DAM
27	SYLVAN LAKE DAM
28	SYLVAN LAKE WETLANDS DAM
29	TURKEY CREEK DAM
30	UPPER LONG LAKE DAM
31	WALDRON LAKE DAM
32	WILMOT POND

	Floodway
	100-Year Floodplain
	500-Year Floodplain
	Unnumbered Zone A Floodplain
	USGS Stream Gage (Active)
	USGS Stream Gage (Inactive)
	Airport
	Communication/Broadcast Facility
	Dams
	Emergency Operation Center
	Fire Station
	Government Facility
	Hazardous Material Handler
	Medical Facility
	Natural Gas Utility
	Law Enforcement Facility
	Potable Water Facility
	Power Plant
	Power Substation
	School
	Wastewater Treatment Plant
	<all other values>
	Township Boundary
	MRBC 8-Digit HUC Boundary



Sources of Data:  
 1. Facility Data adapted from HAZUS (FEMA, 2002), adjusted by CBREL and Noble County GIS Department, 2006  
 2. Roads, Railroads, Townships from TIGER Files (US Bureau of the Census, 2000)  
 3. Streams from USGS National Hydrography Dataset, 2006  
 4. Stream Gages from USGS, 2006

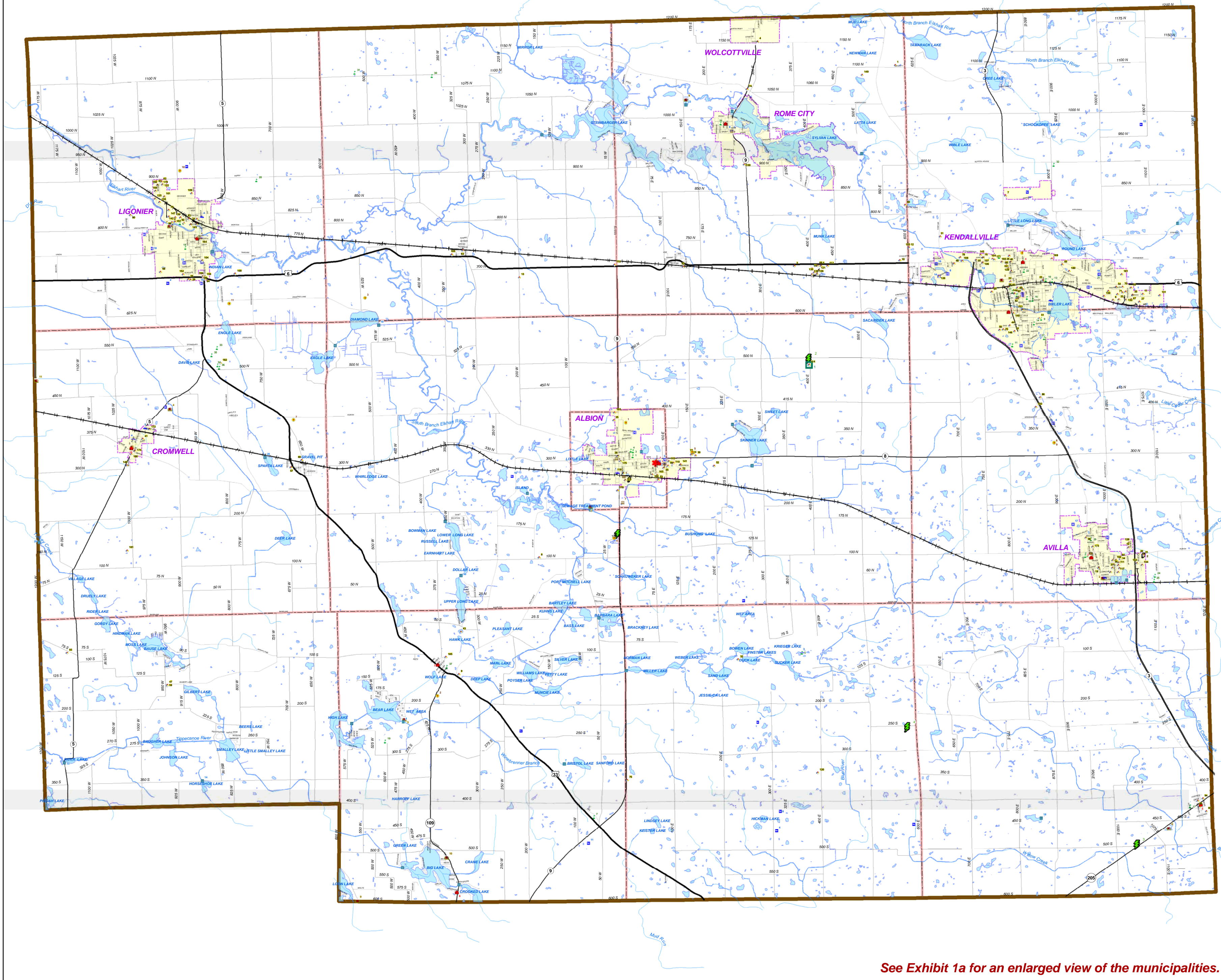
<b>CHRISTOPHER B. BURKE ENGINEERING, LTD.</b> National City Center, Suite 1368 South 115 West Washington Street Indianapolis, Indiana 46204 (tel) 317.286.9900 (fax) 317.632.3306	PROJECT: Noble County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.: 05-513 DATE: 03/08	APPROX. SCALE: 1" = 7000' EXHIBIT: 2
	TITLE: Flood Zones, USGS Stream Gages & Dams		





# Critical Facilities

## Noble County, Indiana

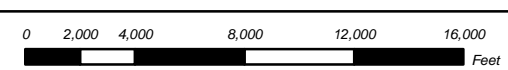


Name	Address	Name	Address
1 BRUNNEN JOURNAL	1100 N. W. 1000 W.	14 AUTOCENTERS INC	1400 N. W. 1000 W.
2 CLIPPER PETIT	1100 N. W. 1000 W.	15 AUTODIAGNOSTIC & SUPPLY CORP	1400 N. W. 1000 W.
3 ADVANCED METAL ETCHING	1100 N. W. 1000 W.	16 AVILLA CITY OF	1400 N. W. 1000 W.
4 AGRIQUEST INDUSTRIES	1100 N. W. 1000 W.	17 AVILLA CITY OF	1400 N. W. 1000 W.
5 ALUMINUM REEL WAREHOUSE	1100 N. W. 1000 W.	18 AVILLA CITY OF	1400 N. W. 1000 W.
6 AMERICAN PROPERTIES	1100 N. W. 1000 W.	19 AVILLA CITY OF	1400 N. W. 1000 W.
7 AMERICAN PROPERTIES	1100 N. W. 1000 W.	20 AVILLA CITY OF	1400 N. W. 1000 W.
8 AMERICAN PROPERTIES	1100 N. W. 1000 W.	21 AVILLA CITY OF	1400 N. W. 1000 W.
9 AMERICAN PROPERTIES	1100 N. W. 1000 W.	22 AVILLA CITY OF	1400 N. W. 1000 W.
10 AMERICAN PROPERTIES	1100 N. W. 1000 W.	23 AVILLA CITY OF	1400 N. W. 1000 W.
11 AMERICAN PROPERTIES	1100 N. W. 1000 W.	24 AVILLA CITY OF	1400 N. W. 1000 W.
12 AMERICAN PROPERTIES	1100 N. W. 1000 W.	25 AVILLA CITY OF	1400 N. W. 1000 W.
13 AMERICAN PROPERTIES	1100 N. W. 1000 W.	26 AVILLA CITY OF	1400 N. W. 1000 W.
14 AMERICAN PROPERTIES	1100 N. W. 1000 W.	27 AVILLA CITY OF	1400 N. W. 1000 W.
15 AMERICAN PROPERTIES	1100 N. W. 1000 W.	28 AVILLA CITY OF	1400 N. W. 1000 W.
16 AMERICAN PROPERTIES	1100 N. W. 1000 W.	29 AVILLA CITY OF	1400 N. W. 1000 W.
17 AMERICAN PROPERTIES	1100 N. W. 1000 W.	30 AVILLA CITY OF	1400 N. W. 1000 W.
18 AMERICAN PROPERTIES	1100 N. W. 1000 W.	31 AVILLA CITY OF	1400 N. W. 1000 W.
19 AMERICAN PROPERTIES	1100 N. W. 1000 W.	32 AVILLA CITY OF	1400 N. W. 1000 W.
20 AMERICAN PROPERTIES	1100 N. W. 1000 W.	33 AVILLA CITY OF	1400 N. W. 1000 W.
21 AMERICAN PROPERTIES	1100 N. W. 1000 W.	34 AVILLA CITY OF	1400 N. W. 1000 W.
22 AMERICAN PROPERTIES	1100 N. W. 1000 W.	35 AVILLA CITY OF	1400 N. W. 1000 W.
23 AMERICAN PROPERTIES	1100 N. W. 1000 W.	36 AVILLA CITY OF	1400 N. W. 1000 W.
24 AMERICAN PROPERTIES	1100 N. W. 1000 W.	37 AVILLA CITY OF	1400 N. W. 1000 W.
25 AMERICAN PROPERTIES	1100 N. W. 1000 W.	38 AVILLA CITY OF	1400 N. W. 1000 W.
26 AMERICAN PROPERTIES	1100 N. W. 1000 W.	39 AVILLA CITY OF	1400 N. W. 1000 W.
27 AMERICAN PROPERTIES	1100 N. W. 1000 W.	40 AVILLA CITY OF	1400 N. W. 1000 W.
28 AMERICAN PROPERTIES	1100 N. W. 1000 W.	41 AVILLA CITY OF	1400 N. W. 1000 W.
29 AMERICAN PROPERTIES	1100 N. W. 1000 W.	42 AVILLA CITY OF	1400 N. W. 1000 W.
30 AMERICAN PROPERTIES	1100 N. W. 1000 W.	43 AVILLA CITY OF	1400 N. W. 1000 W.
31 AMERICAN PROPERTIES	1100 N. W. 1000 W.	44 AVILLA CITY OF	1400 N. W. 1000 W.
32 AMERICAN PROPERTIES	1100 N. W. 1000 W.	45 AVILLA CITY OF	1400 N. W. 1000 W.
33 AMERICAN PROPERTIES	1100 N. W. 1000 W.	46 AVILLA CITY OF	1400 N. W. 1000 W.
34 AMERICAN PROPERTIES	1100 N. W. 1000 W.	47 AVILLA CITY OF	1400 N. W. 1000 W.
35 AMERICAN PROPERTIES	1100 N. W. 1000 W.	48 AVILLA CITY OF	1400 N. W. 1000 W.
36 AMERICAN PROPERTIES	1100 N. W. 1000 W.	49 AVILLA CITY OF	1400 N. W. 1000 W.
37 AMERICAN PROPERTIES	1100 N. W. 1000 W.	50 AVILLA CITY OF	1400 N. W. 1000 W.
38 AMERICAN PROPERTIES	1100 N. W. 1000 W.	51 AVILLA CITY OF	1400 N. W. 1000 W.
39 AMERICAN PROPERTIES	1100 N. W. 1000 W.	52 AVILLA CITY OF	1400 N. W. 1000 W.
40 AMERICAN PROPERTIES	1100 N. W. 1000 W.	53 AVILLA CITY OF	1400 N. W. 1000 W.
41 AMERICAN PROPERTIES	1100 N. W. 1000 W.	54 AVILLA CITY OF	1400 N. W. 1000 W.
42 AMERICAN PROPERTIES	1100 N. W. 1000 W.	55 AVILLA CITY OF	1400 N. W. 1000 W.
43 AMERICAN PROPERTIES	1100 N. W. 1000 W.	56 AVILLA CITY OF	1400 N. W. 1000 W.
44 AMERICAN PROPERTIES	1100 N. W. 1000 W.	57 AVILLA CITY OF	1400 N. W. 1000 W.
45 AMERICAN PROPERTIES	1100 N. W. 1000 W.	58 AVILLA CITY OF	1400 N. W. 1000 W.
46 AMERICAN PROPERTIES	1100 N. W. 1000 W.	59 AVILLA CITY OF	1400 N. W. 1000 W.
47 AMERICAN PROPERTIES	1100 N. W. 1000 W.	60 AVILLA CITY OF	1400 N. W. 1000 W.
48 AMERICAN PROPERTIES	1100 N. W. 1000 W.	61 AVILLA CITY OF	1400 N. W. 1000 W.
49 AMERICAN PROPERTIES	1100 N. W. 1000 W.	62 AVILLA CITY OF	1400 N. W. 1000 W.
50 AMERICAN PROPERTIES	1100 N. W. 1000 W.	63 AVILLA CITY OF	1400 N. W. 1000 W.
51 AMERICAN PROPERTIES	1100 N. W. 1000 W.	64 AVILLA CITY OF	1400 N. W. 1000 W.
52 AMERICAN PROPERTIES	1100 N. W. 1000 W.	65 AVILLA CITY OF	1400 N. W. 1000 W.
53 AMERICAN PROPERTIES	1100 N. W. 1000 W.	66 AVILLA CITY OF	1400 N. W. 1000 W.
54 AMERICAN PROPERTIES	1100 N. W. 1000 W.	67 AVILLA CITY OF	1400 N. W. 1000 W.
55 AMERICAN PROPERTIES	1100 N. W. 1000 W.	68 AVILLA CITY OF	1400 N. W. 1000 W.
56 AMERICAN PROPERTIES	1100 N. W. 1000 W.	69 AVILLA CITY OF	1400 N. W. 1000 W.
57 AMERICAN PROPERTIES	1100 N. W. 1000 W.	70 AVILLA CITY OF	1400 N. W. 1000 W.
58 AMERICAN PROPERTIES	1100 N. W. 1000 W.	71 AVILLA CITY OF	1400 N. W. 1000 W.
59 AMERICAN PROPERTIES	1100 N. W. 1000 W.	72 AVILLA CITY OF	1400 N. W. 1000 W.
60 AMERICAN PROPERTIES	1100 N. W. 1000 W.	73 AVILLA CITY OF	1400 N. W. 1000 W.
61 AMERICAN PROPERTIES	1100 N. W. 1000 W.	74 AVILLA CITY OF	1400 N. W. 1000 W.
62 AMERICAN PROPERTIES	1100 N. W. 1000 W.	75 AVILLA CITY OF	1400 N. W. 1000 W.
63 AMERICAN PROPERTIES	1100 N. W. 1000 W.	76 AVILLA CITY OF	1400 N. W. 1000 W.
64 AMERICAN PROPERTIES	1100 N. W. 1000 W.	77 AVILLA CITY OF	1400 N. W. 1000 W.
65 AMERICAN PROPERTIES	1100 N. W. 1000 W.	78 AVILLA CITY OF	1400 N. W. 1000 W.
66 AMERICAN PROPERTIES	1100 N. W. 1000 W.	79 AVILLA CITY OF	1400 N. W. 1000 W.
67 AMERICAN PROPERTIES	1100 N. W. 1000 W.	80 AVILLA CITY OF	1400 N. W. 1000 W.
68 AMERICAN PROPERTIES	1100 N. W. 1000 W.	81 AVILLA CITY OF	1400 N. W. 1000 W.
69 AMERICAN PROPERTIES	1100 N. W. 1000 W.	82 AVILLA CITY OF	1400 N. W. 1000 W.
70 AMERICAN PROPERTIES	1100 N. W. 1000 W.	83 AVILLA CITY OF	1400 N. W. 1000 W.
71 AMERICAN PROPERTIES	1100 N. W. 1000 W.	84 AVILLA CITY OF	1400 N. W. 1000 W.
72 AMERICAN PROPERTIES	1100 N. W. 1000 W.	85 AVILLA CITY OF	1400 N. W. 1000 W.
73 AMERICAN PROPERTIES	1100 N. W. 1000 W.	86 AVILLA CITY OF	1400 N. W. 1000 W.
74 AMERICAN PROPERTIES	1100 N. W. 1000 W.	87 AVILLA CITY OF	1400 N. W. 1000 W.
75 AMERICAN PROPERTIES	1100 N. W. 1000 W.	88 AVILLA CITY OF	1400 N. W. 1000 W.
76 AMERICAN PROPERTIES	1100 N. W. 1000 W.	89 AVILLA CITY OF	1400 N. W. 1000 W.
77 AMERICAN PROPERTIES	1100 N. W. 1000 W.	90 AVILLA CITY OF	1400 N. W. 1000 W.
78 AMERICAN PROPERTIES	1100 N. W. 1000 W.	91 AVILLA CITY OF	1400 N. W. 1000 W.
79 AMERICAN PROPERTIES	1100 N. W. 1000 W.	92 AVILLA CITY OF	1400 N. W. 1000 W.
80 AMERICAN PROPERTIES	1100 N. W. 1000 W.	93 AVILLA CITY OF	1400 N. W. 1000 W.
81 AMERICAN PROPERTIES	1100 N. W. 1000 W.	94 AVILLA CITY OF	1400 N. W. 1000 W.
82 AMERICAN PROPERTIES	1100 N. W. 1000 W.	95 AVILLA CITY OF	1400 N. W. 1000 W.
83 AMERICAN PROPERTIES	1100 N. W. 1000 W.	96 AVILLA CITY OF	1400 N. W. 1000 W.
84 AMERICAN PROPERTIES	1100 N. W. 1000 W.	97 AVILLA CITY OF	1400 N. W. 1000 W.
85 AMERICAN PROPERTIES	1100 N. W. 1000 W.	98 AVILLA CITY OF	1400 N. W. 1000 W.
86 AMERICAN PROPERTIES	1100 N. W. 1000 W.	99 AVILLA CITY OF	1400 N. W. 1000 W.
87 AMERICAN PROPERTIES	1100 N. W. 1000 W.	100 AVILLA CITY OF	1400 N. W. 1000 W.

- Airport
- Communication/Broadcast Facility
- Dams
- ★ Emergency Operation Center
- ★ Fire Station
- Government Facility
- Hazardous Material Handler
- Medical Facility
- Law Enforcement Facility
- Natural Gas Utility
- Potable Water Facility
- Power Plant
- Power Substation
- School
- Wastewater Treatment Plant
- Corporate Limits
- Township Boundary

See Exhibit 1a for an enlarged view of the municipalities.

Sources of Data:  
 1. Facility Data adapted from HAZUS (FEMA, 2002), adjusted by CBEL and Noble County GIS Department, 2006  
 2. Roads, Railroads, Townships from TIGER Files (US Bureau of the Census, 2000)  
 3. Streams from USGS National Hydrography Dataset, 2006



**CB** CHRISTOPHER B. BURKE ENGINEERING, LTD.  
 National City Center, Suite 1368 South  
 115 West Washington Street  
 Indianapolis, Indiana 46204  
 (tel) 317.286.8000 (fax) 317.632.3306

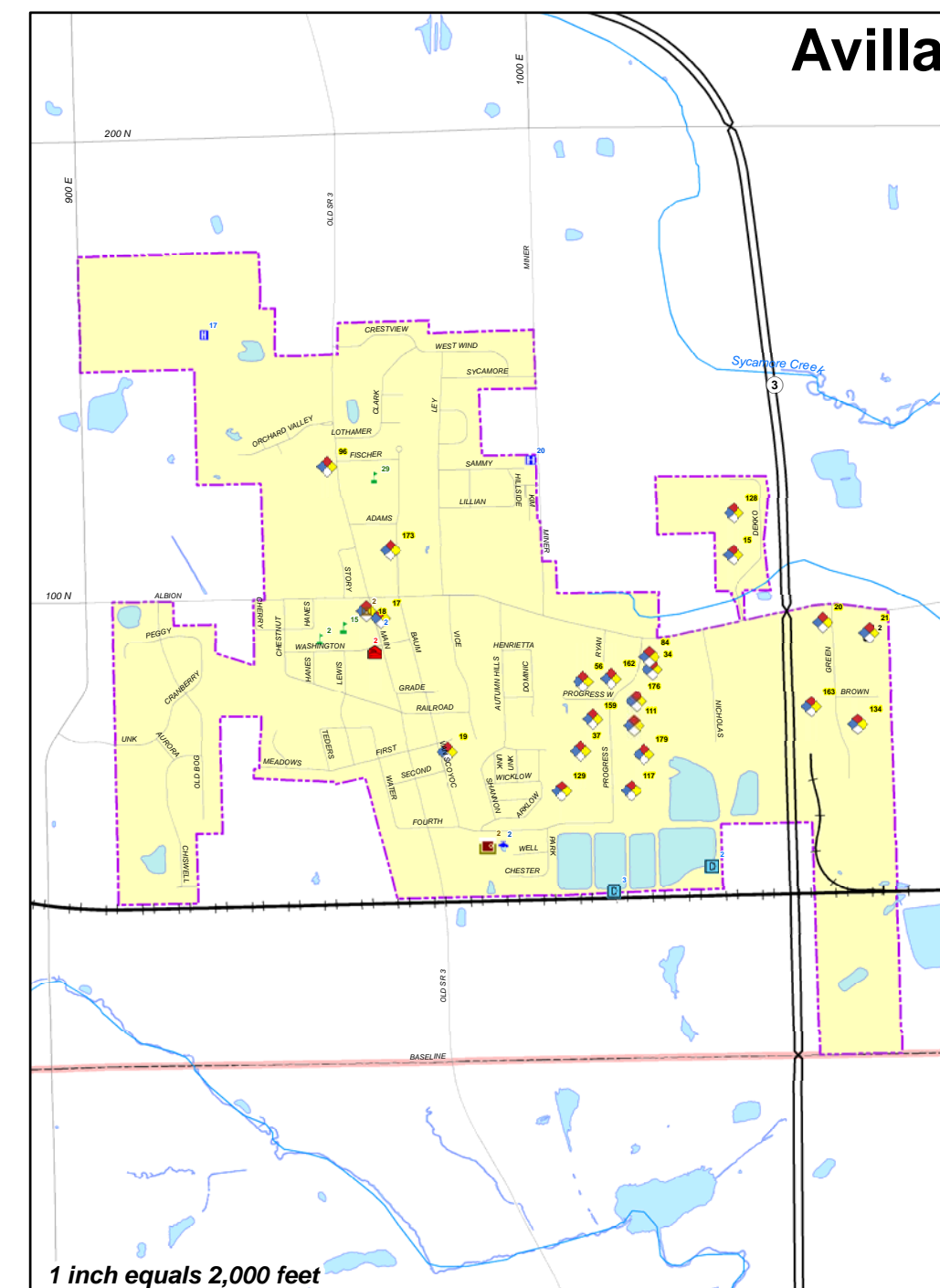
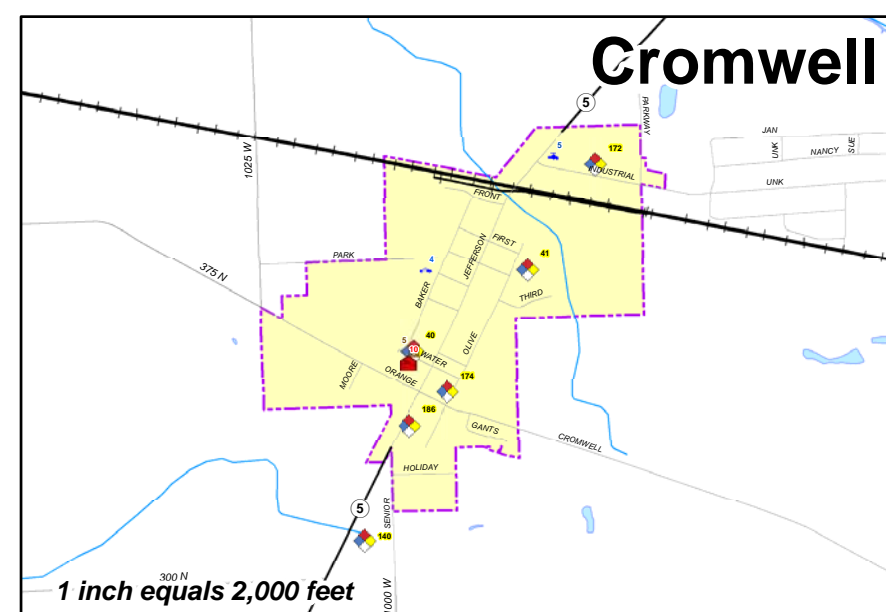
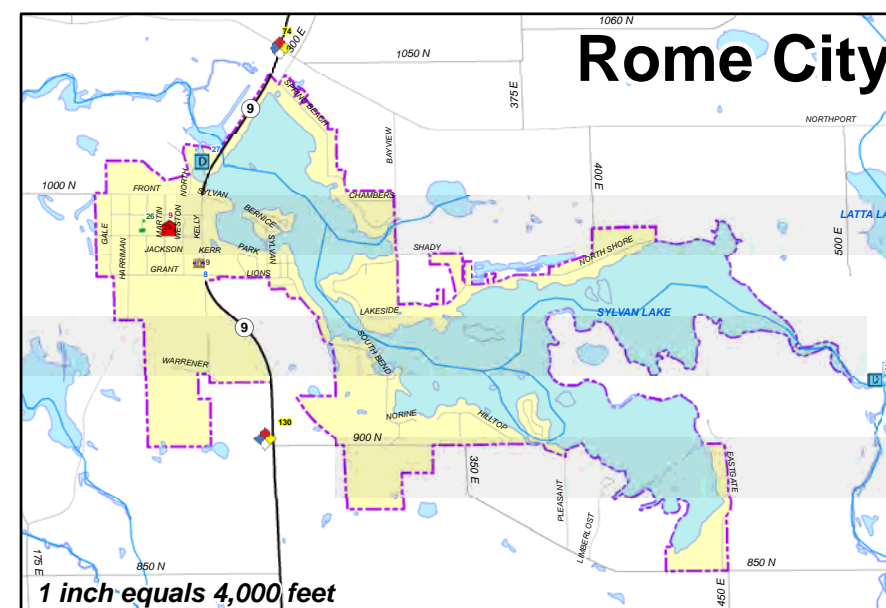
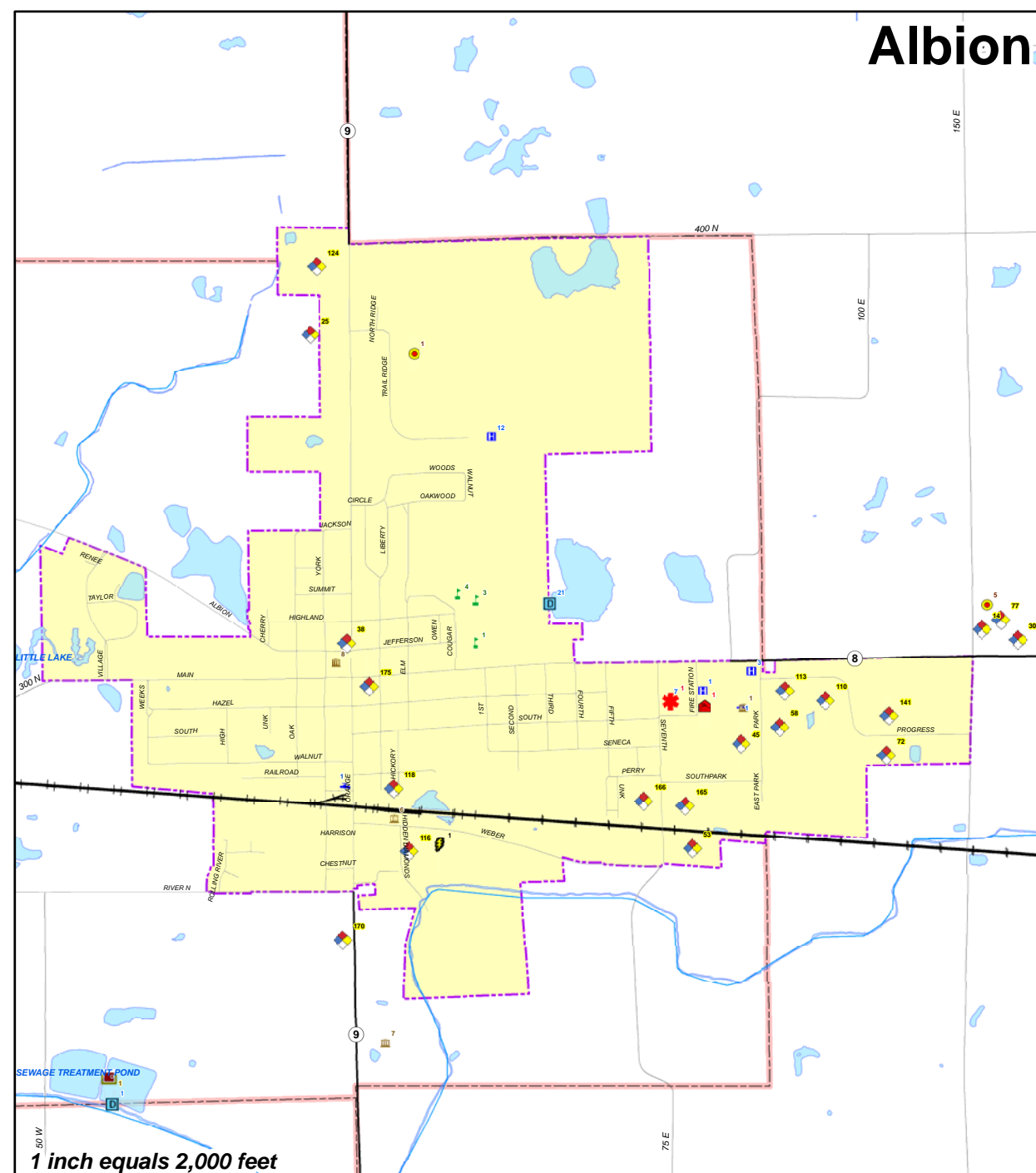
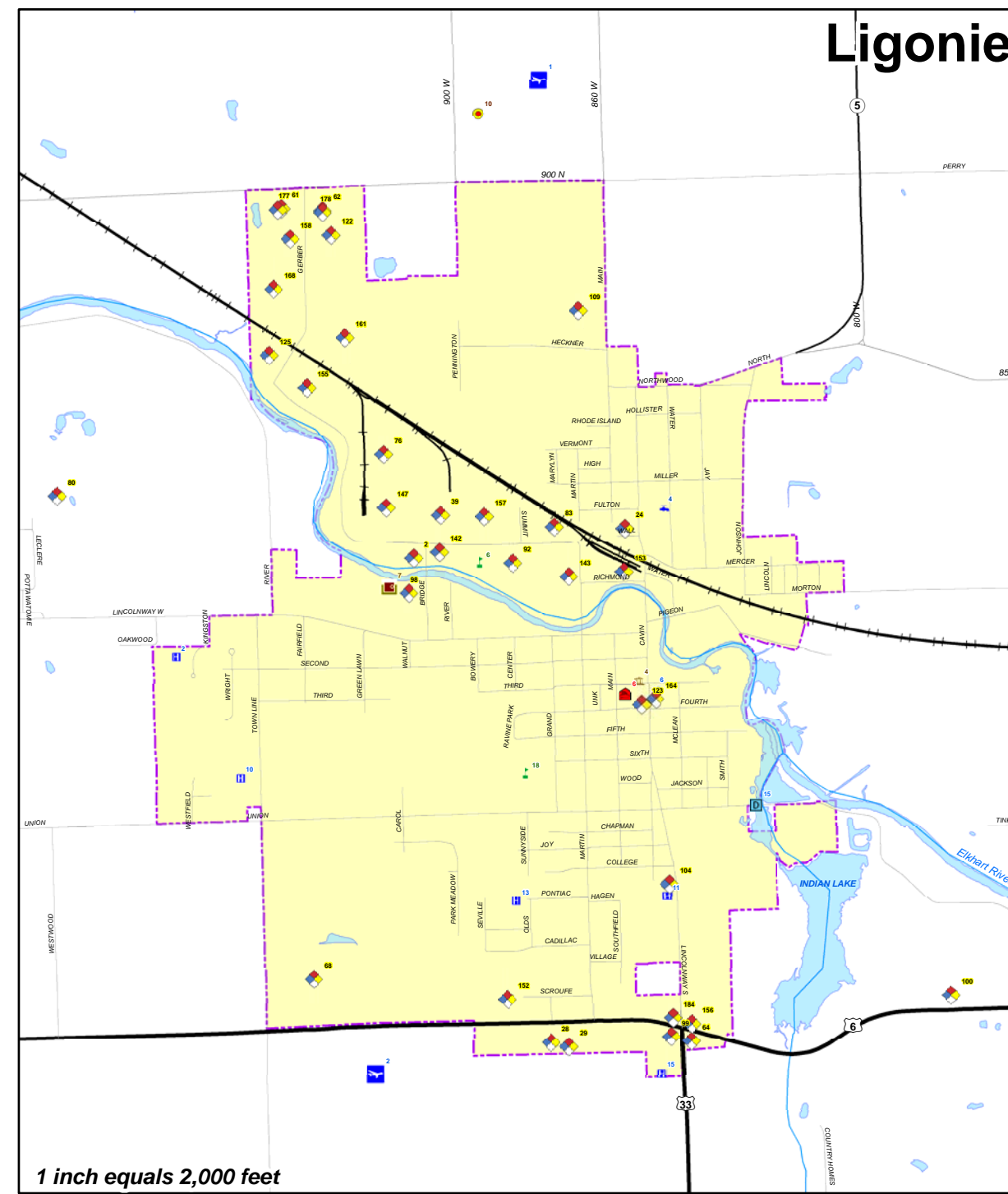
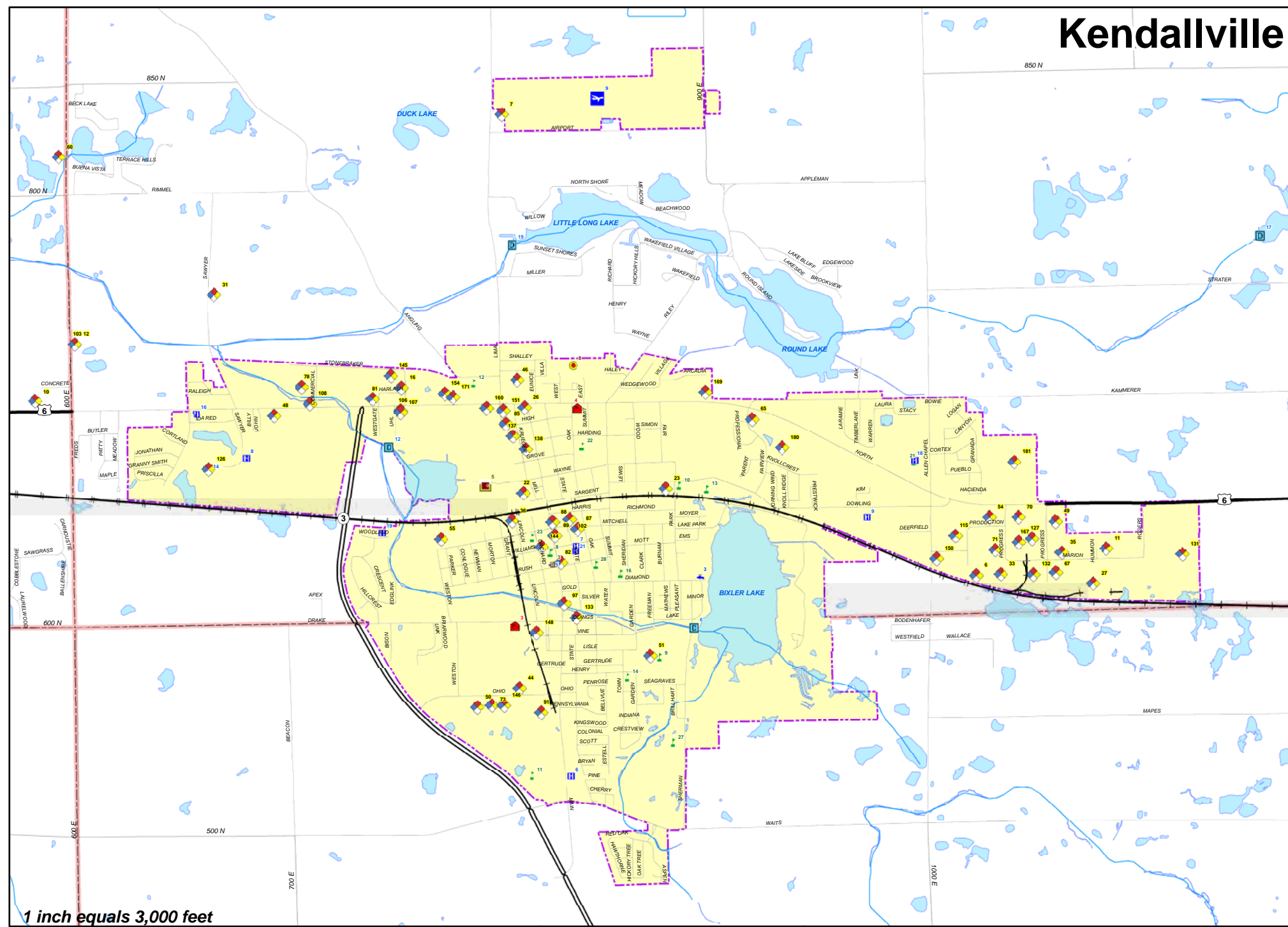
PROJECT: Noble County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.: 05-513	APPROX. SCALE: 1" = 7000'
TITLE: Critical Facilities	DATE: 03/08	EXHIBIT: 1





# Critical Facilities

## Noble County, Indiana



Name	Address	Name	Address
1 BROWN & JOHN HILL	100 N. WASHINGTON	171 AT PRODUCTION, INC.	100 N. WASHINGTON
2 DAVID REISER	100 N. WASHINGTON	172 ADVANCED METAL FITTING	100 N. WASHINGTON
3 JAMES JACKSON	100 N. WASHINGTON	173 ADGATE INDUSTRIES, INC.	100 N. WASHINGTON
4 JAMES S. WYNNER	100 N. WASHINGTON	174 ALUMINUM RECOVERY	100 N. WASHINGTON
5 JIM PETERSON	100 N. WASHINGTON	175 AMERICAN RELIABLES	100 N. WASHINGTON
6 KENDALLVILLE MUNICIPAL	100 N. WASHINGTON	176 AMERICAN TOWER	100 N. WASHINGTON
7 KENDALLVILLE MUNICIPAL	100 N. WASHINGTON	177 AMERICAN PROFOUND LP, INC.	100 N. WASHINGTON
8 RICHARD E. SHAPIRO	100 N. WASHINGTON	178 ARCHDESIGN, INC.	100 N. WASHINGTON
9 STEVE BERTON	100 N. WASHINGTON	179 AT & T	100 N. WASHINGTON
10		180 AUTOTECHNICS INC.	100 N. WASHINGTON
11		181 AUTOTECHNICS INC. INDIANA PHENOL INC.	100 N. WASHINGTON
12		182 AUTOTECHNICS INC. INDIANA PHENOL INC.	100 N. WASHINGTON
13		183 AVILA CITY OF	100 N. WASHINGTON
14		184 AVILA CITY OF	100 N. WASHINGTON
15		185 AVILA CITY OF	100 N. WASHINGTON
16		186 AVILA CITY OF	100 N. WASHINGTON
17		187 AVILA CITY OF	100 N. WASHINGTON
18		188 AVILA CITY OF	100 N. WASHINGTON
19		189 AVILA CITY OF	100 N. WASHINGTON
20		190 AVILA CITY OF	100 N. WASHINGTON
21		191 AVILA CITY OF	100 N. WASHINGTON
22		192 AVILA CITY OF	100 N. WASHINGTON
23		193 AVILA CITY OF	100 N. WASHINGTON
24		194 AVILA CITY OF	100 N. WASHINGTON
25		195 AVILA CITY OF	100 N. WASHINGTON
26		196 AVILA CITY OF	100 N. WASHINGTON
27		197 AVILA CITY OF	100 N. WASHINGTON
28		198 AVILA CITY OF	100 N. WASHINGTON
29		199 AVILA CITY OF	100 N. WASHINGTON
30		200 AVILA CITY OF	100 N. WASHINGTON
31		201 AVILA CITY OF	100 N. WASHINGTON
32		202 AVILA CITY OF	100 N. WASHINGTON
33		203 AVILA CITY OF	100 N. WASHINGTON
34		204 AVILA CITY OF	100 N. WASHINGTON
35		205 AVILA CITY OF	100 N. WASHINGTON
36		206 AVILA CITY OF	100 N. WASHINGTON
37		207 AVILA CITY OF	100 N. WASHINGTON
38		208 AVILA CITY OF	100 N. WASHINGTON
39		209 AVILA CITY OF	100 N. WASHINGTON
40		210 AVILA CITY OF	100 N. WASHINGTON
41		211 AVILA CITY OF	100 N. WASHINGTON
42		212 AVILA CITY OF	100 N. WASHINGTON
43		213 AVILA CITY OF	100 N. WASHINGTON
44		214 AVILA CITY OF	100 N. WASHINGTON
45		215 AVILA CITY OF	100 N. WASHINGTON
46		216 AVILA CITY OF	100 N. WASHINGTON
47		217 AVILA CITY OF	100 N. WASHINGTON
48		218 AVILA CITY OF	100 N. WASHINGTON
49		219 AVILA CITY OF	100 N. WASHINGTON
50		220 AVILA CITY OF	100 N. WASHINGTON
51		221 AVILA CITY OF	100 N. WASHINGTON
52		222 AVILA CITY OF	100 N. WASHINGTON
53		223 AVILA CITY OF	100 N. WASHINGTON
54		224 AVILA CITY OF	100 N. WASHINGTON
55		225 AVILA CITY OF	100 N. WASHINGTON
56		226 AVILA CITY OF	100 N. WASHINGTON
57		227 AVILA CITY OF	100 N. WASHINGTON
58		228 AVILA CITY OF	100 N. WASHINGTON
59		229 AVILA CITY OF	100 N. WASHINGTON
60		230 AVILA CITY OF	100 N. WASHINGTON
61		231 AVILA CITY OF	100 N. WASHINGTON
62		232 AVILA CITY OF	100 N. WASHINGTON
63		233 AVILA CITY OF	100 N. WASHINGTON
64		234 AVILA CITY OF	100 N. WASHINGTON
65		235 AVILA CITY OF	100 N. WASHINGTON
66		236 AVILA CITY OF	100 N. WASHINGTON
67		237 AVILA CITY OF	100 N. WASHINGTON
68		238 AVILA CITY OF	100 N. WASHINGTON
69		239 AVILA CITY OF	100 N. WASHINGTON
70		240 AVILA CITY OF	100 N. WASHINGTON
71		241 AVILA CITY OF	100 N. WASHINGTON
72		242 AVILA CITY OF	100 N. WASHINGTON
73		243 AVILA CITY OF	100 N. WASHINGTON
74		244 AVILA CITY OF	100 N. WASHINGTON
75		245 AVILA CITY OF	100 N. WASHINGTON
76		246 AVILA CITY OF	100 N. WASHINGTON
77		247 AVILA CITY OF	100 N. WASHINGTON
78		248 AVILA CITY OF	100 N. WASHINGTON
79		249 AVILA CITY OF	100 N. WASHINGTON
80		250 AVILA CITY OF	100 N. WASHINGTON
81		251 AVILA CITY OF	100 N. WASHINGTON
82		252 AVILA CITY OF	100 N. WASHINGTON
83		253 AVILA CITY OF	100 N. WASHINGTON
84		254 AVILA CITY OF	100 N. WASHINGTON
85		255 AVILA CITY OF	100 N. WASHINGTON
86		256 AVILA CITY OF	100 N. WASHINGTON
87		257 AVILA CITY OF	100 N. WASHINGTON
88		258 AVILA CITY OF	100 N. WASHINGTON
89		259 AVILA CITY OF	100 N. WASHINGTON
90		260 AVILA CITY OF	100 N. WASHINGTON
91		261 AVILA CITY OF	100 N. WASHINGTON
92		262 AVILA CITY OF	100 N. WASHINGTON
93		263 AVILA CITY OF	100 N. WASHINGTON
94		264 AVILA CITY OF	100 N. WASHINGTON
95		265 AVILA CITY OF	100 N. WASHINGTON
96		266 AVILA CITY OF	100 N. WASHINGTON
97		267 AVILA CITY OF	100 N. WASHINGTON
98		268 AVILA CITY OF	100 N. WASHINGTON
99		269 AVILA CITY OF	100 N. WASHINGTON
100		270 AVILA CITY OF	100 N. WASHINGTON

- Airport
- Communication/Broadcast Facility
- Dams
- Emergency Operation Center
- Fire Station
- Government Facility
- Hazardous Material Handler
- Medical Facility
- Law Enforcement Facility
- Natural Gas Utility
- Potable Water Facility
- Power Plant
- Power Substation
- School
- Wastewater Treatment Plant
- Corporate Limits
- Township Boundary

Sources of Data:  
 1. Facility Data adapted from HAZLUS (FEMA, 2002), adjusted by CBEL and Noble County GIS Department, 2006  
 2. Roads, Railroads, Townships from TIGER Files (US Bureau of the Census, 2000)  
 3. Streams from USGS National Hydrography Dataset, 2006







**NOBLE COUNTY MHMP**  
LIST OF ACRONYMS

AEP	American Electric Power
BFE	Base Flood Elevation
BMP	Best Management Practices
CAA	Clean Air Act
CAMEO	Computer Aided Management of Emergency Operations
CBBEL	Christopher B. Burke Engineering, Ltd.
CEMP	Comprehensive Emergency Management Plan
CEPPO	Chemical Emergency Preparedness & Prevention Office
CERT	Community Emergency Response Team
CFM	Certified Floodplain Manager
CPRI	Calculated Priority Risk Index
CRS	Community Rating System
CTP	Cooperative Technical Partner
DFIRM	Digital Flood Insurance Rate Map
DHS	Department of Homeland Security (US)
DOT	Department of Transportation
DMA	Disaster Mitigation Act
EAP	Emergency Action Plan
EAS	Emergency Alert System
EMA	Emergency Management Agency
EMS	Emergency Management Service
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
ERP	Emergency Response Plan
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMA	Flood Mitigation Act
FSA	Farm Services Agency
GDP	Gross Domestic Product
GIS	Geographic Information System
HAZUS-MH	Hazard US – Multi-Hazard
HMGP	Hazard Mitigation Grant Program
HMRT	Hazardous Materials Response Team
HUC	Hydrologic Unit Code
IDEM	Indiana Department of Environmental Management
IDHS	Indiana Department of Homeland Security
IDNR	Indiana Department of Natural Resources
LEPC	Local Emergency Planning Commission
LQG	Large Quantity Generator
MHMP	Multi-Hazard Mitigation Plan
MPH	Miles Per Hour
MRBC	Maumee River Basin Commission
MSDS	Material Safety Data Sheet
NCDC	National Climatic Data Center
NGVD	National Geodetic Vertical Datum
NID	National Inventory of Dams
NFIP	National Flood Insurance Program

NOAA	National Oceanic Atmospheric Administration
NWS	National Weather Service
OHMS	Office of Hazardous Materials Safety
OSHA	Occupational Safety and Health Administration
PDM	Pre-Disaster Mitigation
RFC	Repetitive Flood Claims
RMP	Risk Management Program
SARA	Superfund Amendment Reauthorization Act
SFHA	Special Flood Hazard Area
USDA	United States Department of Agriculture
USGS	United States Geological Service
WCT	Wind Chill Temperature

**Noble County Multi-Hazard Mitigation Plan**  
Planning Committee Meeting

7:30 pm Wednesday, September 27, 2006  
Noble County Sheriff's Department  
210 South 7<sup>th</sup> Street, Albion

**AGENDA**

1. Overview of the Multi-Hazard Mitigation Plan (MHMP) Requirements
2. Overview of the MHMP Planning Process and Project Timeline
3. Identify Local Hazards
4. Identify Critical Facilities
5. Schedule Next Planning Committee Meeting

**Noble County Multi-Hazard Mitigation Plan**  
Planning Committee Meeting

7:30 pm Wednesday, September 27, 2006

Noble County Sheriff's Department  
210 South 7th Street, Albion

**MEETING SUMMARY**

**Planning Committee Members Present:**

Russell Carteaux, Noble EMA  
Bob Braley, Kendallville News Sun  
Judy Fox, Noble County EMA  
Pat Gensic, Noble County Health Department  
Steve Hook, Noble County GIS  
Steve Kirkpatrick, Noble County Planning Department  
Joy LeCount, Noble County Council  
Richard Moser, City of Ligonier Street Commissioner  
Rodney Renkenberger, Maumee River Basin Commission  
Mike Riehm, City of Kendallville Fire Department  
Tom Shoemaker, Noble County EMS  
Hal Stump, Noble County Commissioner

**Others Present:**

Nelle Carteaux, Noble EMA  
Robert Bair, Noble County EMA  
Heather Buck, Christopher Burke Engineering, Ltd. (CBBEL)  
Tom Doty, Noble County Red Cross Liaison  
Mitch Fiandt, Noble County E-911  
Wayne Fox, City of Ligonier  
Pat Gensic, Noble County Health Department  
Jack Herendeen, Noble County Commissioner  
Sheila McKinley, Christopher Burke Engineering, Ltd. (CBBEL)  
Mark Pankop, Noble County Commissioner  
Jack Sieber, Noble County EMA  
Jerry Sprague, City of Ligonier Fire & EMA

**1. Overview of the Multi-Hazard Mitigation Plan (MHMP) Requirements**

CBBEL staff explained that the Disaster Mitigation Act of 2000 (DMA 2000) requires both the state and local communities to prepare for disasters through pre and post disaster planning. This process reinforces the importance of mitigation planning and the need for communities to plan for a disaster before it occurs in order to reduce the physical, social, and economical impact.

In order 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 development of a MHMP is the necessary first step of a multi-step process to implement programs, policies, and projects to mitigate the effect of hazards in Noble County. The intent of this planning effort is to identify the hazards, the extent of damage, and to determine what type of mitigation strategies or projects may be undertaken to mitigate for these hazards. The MHMP prepared for Noble County by CBBEL will meet the requirements of DMA 2000 and eligibility requirements of the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), Pre-Disaster Mitigation Competitive (PDMC) Grant, as well as other FEMA programs including the NFIP's Community Ratings System (CRS), however, additional detailed studies will need to be completed prior to applying for these grants or programs.

## **2. Overview of the MHMP Planning Process and Project Timeline**

Planning Committee members introduced themselves. CBBEL staff explained that the MHMP Planning Committee is composed of a diverse group of local leaders and decision-makers. Members of the Planning Committee are knowledgeable about various hazards and/or have tools necessary to reduce the impact of the hazards. These members may include representation from:

- Planning/Community Development
- Engineering
- Red Cross
- Surveyor
- GIS
- Emergency Management
- Public Information/Community Relations
- Public Safety/Police/Fire
- Public Works/Streets/Highway
- Building/Zoning/Code Enforcement
- Parks/Recreation
- Residents/Business Owners/Stakeholders
- NFIP Communities:
  - Noble County
  - Town of Albion
  - City of Kendallville
  - City of Ligonier
  - Town of Rome City

Those members of the Planning Committee present discussed the importance of comprehensive representation and created a list of others who may serve an integral role in the development of the MHMP. Those mentioned will be contacted prior to the next meeting.

A 15 month project timeline was distributed to the Planning Committee. This includes 9 months to prepare a draft MHMP, 3 months for IDHS and FEMA to review and comment, 1 month for local stakeholder review and comment, and 2 months for local adoption. The participation of the Planning Committee will be predominantly from September 2006 through March 2007.

As indicated in the projected timeline, the Planning Committee members will meet in September, November, January, and March. From September 2006 through January 2007, CBBEL will research and compile historic hazard data necessary to prepare the MHMP. In January 2007, a media release describing the development of the MHMP will be distributed to local media outlets. In April 2007, CBBEL will provide the draft Noble County MHMP to the Planning Committee for their review and comment. A public meeting will be scheduled in June



2007 to present the draft Plan to the public and other interested parties. Public comments will be accepted through the end of June 2007 and then the Plan will be forwarded to IDHS and FEMA for their review and comment. Comments from IDHS and FEMA will then be incorporated into the draft Plan and reviewed by the Planning Committee. Local adoption of the MHMP by the Noble County Commissioners is slated for in November 2007.

### 3. Identify Local Hazards

CBBEL staff presented a list of hazards that FEMA Region V has identified for potential study. The Planning Committee reviewed the list of hazards and determined which hazards affect Noble County and which hazards they would like to study in detail as part of this MHMP effort. Additional hazards were added to FEMA’s list and considered for detailed study. The Planning Committee agreed to study dam failure, drought, earthquake, extreme temperatures (heat & cold), flooding, ice storm, severe winter storm, thunderstorm, tornado, windstorm, hailstorm, and hazardous materials (storage and transport) in detail as part of this planning effort.

List of Hazards	Hazards with Local Impact	Hazards for Detailed Study
<b>Dam Failure</b>	<b>Yes</b>	<b>Yes</b>
<b>Earthquake</b>	<b>Yes</b>	<b>Yes</b>
<b>Flooding</b>	<b>Yes</b>	<b>Yes</b>
<b>Ice Storm</b>	<b>Yes</b>	<b>Yes</b>
Landslide	No	No
<b>Sever Winter Storm</b>	<b>Yes</b>	<b>Yes</b>
<b>Thunderstorm</b>	<b>Yes</b>	<b>Yes</b>
<b>Tornado</b>	<b>Yes</b>	<b>Yes</b>
Wildfire	No	No
<b>Windstorm</b>	<b>Yes</b>	<b>Yes</b>
<b>Drought</b>	<b>Yes</b>	<b>Yes</b>
<b>Extreme Temperatures (Heat &amp; Cold)</b>	<b>Yes</b>	<b>Yes</b>
<b>Hailstorm</b>	<b>Yes</b>	<b>Yes</b>
<b>Hazardous Materials (storage &amp; transport)</b>	<b>Yes</b>	<b>Yes</b>

Note: Hazards shown in bold will be studied in detail. Hazards shown in italics were added by the Planning Committee

### 4. Identify Critical Facilities

There are **140** critical facilities within Noble County, further described in the Critical Facilities attachment. FEMA defines critical facilities as:

- Government Facilities (6)– essential services, data & communication, key government complexes
- Essential Facilities (58) – hospitals and other medical facilities, police and fire, emergency operations centers, evacuation shelters, and schools.
- Transportation Systems (10) – airports, highways, railways, and waterways.
- Lifeline Utility Systems (18) – potable water, wastewater, oil, natural gas, electric power, and communication systems.
- High Potential Loss Facilities (6) – nuclear power plants, dams, and military installations.
- Hazardous Material Facilities (42) – storage and/or transport of corrosives, explosives, flammable materials, radioactive materials, and toxins.

Others to consider:

- Local government services

- Vulnerable populations – non-English speaking, very young, elderly, restricted mobility, or incarcerated populations
- Economic elements – major employers or financial centers
- High density residential, commercial, or industrial developments
- Support facilities – grocery, hardware, gas stations
- Historic, cultural, and natural resource areas

Large 24" x 36" maps of critical facilities including emergency facilities, hospitals, schools, power facilities, airports, and dams in Noble County were presented to the Planning Committee. The locations of these critical facilities came from a national database available through FEMA's HAZUS GIS program and The POLIS Center, and have been verified using aerial photography and local GIS data. The Planning Committee came up with several additions, deletions and corrections to the critical facilities that were identified on the maps. CBBEL staff will make the necessary corrections suggested by the Planning Committee.

#### **5. Schedule Next Meeting**

The next Planning Committee meeting will be held from 6:00 – 7:30 pm on Thursday, November 16, 2006 at the Noble County Library in Albion.

*\* This meeting was postponed and rescheduled for Tuesday, January 9, 2007 at the Noble County Public Library in Albion to begin at 9:30 am.*

**Noble County Multi-Hazard Mitigation Plan**  
Planning Committee Meeting  
9:30 am Wednesday, February 14, 2007  
**Noble County Public Library, Cole Room**

**AGENDA**

1. Review Final Critical Facilities List
2. Review Historic Hazard Data, Inventory Assets, and Estimated Potential Losses
3. Rank Hazards based on Probability, Magnitude, Warning Time, and Duration of Event
4. Discuss Community Capability Assessment
5. Schedule Next Planning Committee Meeting

**Noble County Multi-Hazard Mitigation Plan  
Planning Committee Meeting**

1:30 pm, Wednesday, April 11, 2007

**Noble County Public Library, Cole Room**  
813 E. Main St., Albion

**AGENDA**

1. Discuss completed sections of DRAFT MHMP
2. Review Media Release and Distribution of Hazard Survey
3. Identify and Prioritize Proposed Mitigation Practices
4. Schedule Next Planning Committee Meeting

**Noble County Multi-Hazard Mitigation Plan**  
PLANNING COMMITTEE MEETING

1:30 pm Wednesday, April 11, 2007  
**Noble County Public Library, Cole Room**  
813 E. Main St., Albion

**MEETING SUMMARY**

**Planning Committee Members Present:**

Russell Carteaux, Noble EMA  
Tom Doty for Kathrine MacAulay, Northeast Indiana Red Cross  
Judy Fox, Noble County EMA  
Steve Hook, Noble County GIS  
Steve Kirkpatrick, Noble County Planning Department  
Richard Moser, City of Ligonier Street Commissioner  
Michael Newton, Noble County Health Department  
Rodney Renkenberger, Maumee River Basin Commission  
Mike Riehm, City of Kendallville Fire Department  
Mark Pankop, Noble County Commissioner  
Leigh Pranger, Town of Rome City  
Hal Stump, Noble County Commissioner  
Rob Wiley, City of Kendallville Police Department

**Others Present:**

Siavash Beik, Christopher Burke Engineering, Ltd. (CBBEL)  
Sheila McKinley, Christopher B. Burke Engineering, Ltd. (CBBEL)

**1. Discuss Completed Sections of DRAFT MHMP**

Two completed sections of the DRAFT MHMP (Section 1: Introduction and Section 2: Community Information) have been posted on CBBEL's ftp site for the Planning Committee to review. CBBEL staff anticipates having Section 3: Risk Assessment and Section 4: Mitigation Goals & Practices ready for review by the next Planning Committee meeting. A full DRAFT MHMP should be available to the Planning Committee early July. Instructions for accessing the documents were provided to those in attendance.

**2. Review Media Release and Distribution of Hazard Survey**

The Planning Committee reviewed a media release intended for The News-Sun to be released immediately. The Hazard Survey was also discussed and modifications were suggested. CBBEL will create check boxes to make it easier for survey participants and email it to the Planning Committee members for them to distribute to colleagues and the general public. Completed surveys are to be sent to Rodney Renkenberger for CBBEL to include in the MHMP.

**3. Identify and Prioritize Proposed Mitigation Practices**

The Planning Committee participated in an exercise to identify and prioritize mitigation practices to mitigate the social, physical, and economic impacts from flooding, dam failure,



hailstorm/thunderstorm/windstorm/tornado, severe winter storm/ice, hazardous materials, and earthquake. Many of the mitigation practices identified are on-going and would benefit from continued support or additional resources. Each mitigation practice was discussed and evaluated based on its overall priority. Projects identified by the MHMP Planning Committee to be of “high” local priority should be implemented within 5 years from final Plan adoption. Projects identified to be of “medium” local priority may be implemented within 5-10 years from final Plan adoption, and projects identified by the Planning Committee to be of “low” local priority may be implemented within 10+ years from final Plan adoptions. The successful implementation of these projects is dependent on grant opportunities and available fiscal resources. Implementation of high priority projects will be discussed at the next Planning Committee meeting. The following is a summary of mitigation practices discussed.

## FLOODING

Priority	Proposed Mitigation Project
LOW	<p>Participation in the Community Ratings System (CRS) program</p> <ul style="list-style-type: none"> <li>• <i>Program allows for flood insurance premium reductions for National Flood Insurance Program (NFIP) communities that go above and beyond federal minimums</i></li> <li>• <i>Noble County, Town of Albion, City of Kendallville, City of Ligonier, and Town of Rome City eligible to participate</i></li> <li>• <i>182 flood insurance premiums (162 County, 8 Rome City, 7 Kendallville, 3 Ligonier, and 2 Albion)</i></li> <li>• <i>Floodplain Administrators (each community) responsible for implementation</i></li> </ul>
HIGH	<p>Prohibit development of new Critical Facilities in 100 &amp; 500-year floodplains</p> <ul style="list-style-type: none"> <li>• <i>Reduce potential for physical, social, and economic losses by prohibiting development of Critical Facilities in known hazard areas</i></li> <li>• <i>Planning (each community) responsible for implementation</i></li> </ul>
LOW	<p>Increase flood forecasting capabilities (gaging stations, flood alerts, dynamic inundation mapping)</p> <ul style="list-style-type: none"> <li>• <i>Current flood forecasting system depends on alerts from NWS, stream gages monitoring, and visual inspection of river levels</i></li> <li>• <i>3 active stream gages in Noble County (Elkhart River @ Cosperville, Sylvan Lake @ Rome City, and Skinner Lake)</i></li> <li>• <i>Surveyor, EMA, and MRBC responsible for implementation</i></li> </ul>
HIGH	<p>Continue to maintain channels and regulated drains to prevent localized flooding</p> <ul style="list-style-type: none"> <li>• <i>Reduce potential for physical, social, and economic losses by maintaining conveyance systems for flood waters</i></li> <li>• <i>Surveyor responsible for implementation</i></li> </ul>
HIGH	<p>Update Flood Insurance Rate Maps (FIRMs)/provide funding for additional study capabilities</p> <ul style="list-style-type: none"> <li>• <i>New digital FIRMs anticipated through FEMA Map Modernization program in 2008</i></li> </ul>

- *Planning, Surveyor, and GIS responsible for implementation*

HIGH Provide the opportunity for staff members to become a Certified Floodplain Manager (CFM)

- *Nationally recognized certification for floodplain managers*
- *Floodplain Administer responsible for implementation*

HIGH Encourage the City of Ligonier to adopt the State of Indiana model Comprehensive Storage Floodplain Ordinance language

- *Optional language in State Model Floodplain Management Ordinance*
- *Result in consistency floodplain management throughout County*
- *City of Ligonier Floodplain Administrator responsible for implementation*

MEDIUM Develop a voluntary structure buyout/retrofitting program to include all structures within the 100-year floodplain

- *Possible to adopt/incorporate the existing MRBC buyout/retrofitting program*
- *1248 non-Critical Facilities in 100-year floodplain*
- *Floodplain Administrator (each community) responsible for implementation*

## **DAM FAILURE**

<b>Priority</b>	<b>Proposed Mitigation Project</b>
HIGH	Encourage dam owners to prepare Emergency Action Plan (EAP)/Emergency Response Plan (ERP) for High Hazard dam <ul style="list-style-type: none"> <li>• <i>Inspection and maintenance is enforced by IDNR however EAPs and ERPs are not required at this time</i></li> <li>• <i>Plans identify dam failure inundation zone and emergency response procedures</i></li> <li>• <i>1 High Hazard dam (Sylvan Lake Dam)</i></li> <li>• <i>Dam owner responsible for implementation</i></li> </ul>
HIGH	Prohibit construction of new Critical Facilities in High Hazard dams failure inundation areas <ul style="list-style-type: none"> <li>• <i>Reduce potential for physical, social, and economic losses by prohibiting development of Critical Facilities in know hazard areas</i></li> <li>• <i>Planning (each community) responsible for implementation</i></li> </ul>
LOW	Provide information related to dam failure to property owners within the dam inundation areas <ul style="list-style-type: none"> <li>• <i>People living or working downstream of a High Hazard dam maybe unaware of the potential danger if that dam failed</i></li> <li>• <i>170 non-Critical Facilities in the estimated Sylvan Lake dam failure inundation zone</i></li> <li>• <i>Dam owner responsible for implementation</i></li> </ul>

## **HAILSTORM / THUNDERSTORM / WINDSTORM / TORNADO**

<b>Priority</b>	<b>Proposed Mitigation Project</b>
HIGH	Install outdoor warning sirens where pockets of development are not covered.

- *Developed areas of Rome City and lake communities are not adequate covered*
- *EMA responsible for implementation*

MEDIUM Propose and adopt an ordinance to require developers to pay into an outdoor siren warning fund as part of new development

- *A new fund that would ensure that new sirens are installed where needed and that existing sirens are properly maintained or replaced when needed*
- *EMA responsible for implementation*

MEDIUM Promote safe rooms in mobile home parks, public parks, and developments without basements

- *Create safe places for people to quickly take refuge*
- *Avilla trailer park has an underground safe room*
- *The total number of mobile home parks and communities without basements is unknown at this time*
- *Planning (each community) responsible for implementation*

MEDIUM Promote safe rooms in Critical Facilities and areas where large populations congregate (baseball fields, seasonal lake communities, etc.)

- *Create safe places for people to quickly take refuge*
- *Planning (each community) responsible for implementation*

HIGH Ensure mobile homes are anchored to meet State installation and manufacturers' specifications

- *Anchoring may vary from manufacturer to manufacturer*
- *Planning (each community) responsible for implementation*

### **SEVERE WINTER STORM**

<b>Priority</b>	<b>Proposed Mitigation Project</b>
-----------------	------------------------------------

HIGH	Develop consistent tiered level of snow emergencies/advisories etc within the municipalities, County and IDHS District 3 <ul style="list-style-type: none"> <li>• <i>Consistent message across neighboring entities allows for coordinated response</i></li> <li>• <i>EMA responsible for implementation</i></li> </ul>
------	---

### **HAZARDOUS MATERIALS**

<b>Priority</b>	<b>Proposed Mitigation Project</b>
-----------------	------------------------------------

HIGH	Increase number of personnel certified to OSHA III Technician level <ul style="list-style-type: none"> <li>• <i>Enhanced level of training for Hazardous Material Response Team (HMRT) personnel to minimize impact of a release and reduce the potential exposure to nearby people, property, and environment.</i></li> <li>• <i>Currently 3 Level III, plus 10 to be added</i></li> <li>• <i>EMA and Fire Department (each community) responsible for implementation</i></li> </ul>
------	---

HIGH	Pursue funding for full-time paid positions and equipment for emergency responders
------	--

- *Funding for full-time paid staff as well as to purchase and maintain necessary response equipment*
- *All emergency responders volunteer staff except for Kendallville and Ligonier*
- *Fire Department (each community) responsible for implementation*

HIGH Continued training and realistic exercises for emergency personnel

- *Realistic training and exercises can improve emergency personnel readiness as well as the success of emergency response and recovery efforts*
- *EMA (via LEPC) responsible for implementation*

HIGH Ensure local response agencies (Fire, Police, and EMS) have current facility maps and response plans for SARA Tier II facilities

- *Current facility maps and response plans are critical for the safety facility staff and emergency responders*
- *EMA (via LEPC) responsible for implementation*

## **EARTHQUAKE**

<b>Priority</b>	<b>Proposed Mitigation Project</b>
-----------------	------------------------------------

LOW	Update HAZUS – MH Earthquake model to include local soils data, structure values, etc to accurately predict damages and losses to Noble County <ul style="list-style-type: none"> <li>• <i>HAZUS-MH free GIS software available from FEMA but needs local data to produce the best results – unless readily available this could be time-consuming</i></li> <li>• <i>GIS responsible for implementation</i></li> </ul>
-----	--

## **ALL HAZARDS**

<b>Priority</b>	<b>Proposed Mitigation Project</b>
-----------------	------------------------------------

MEDIUM	Encourage immunization for all first responders, inspection staff, and families <ul style="list-style-type: none"> <li>• <i>Immunize staff (and families for transmissible diseases) involved in disaster management for Tetnus toxoid, Hepititus A &amp; B, Rabies, Influenza, Measles, Varicella, Chickenpox, Whooping Cough, Typhoid, Cholera, and Yellow Fever to promote good health, wellness, and safety</i></li> <li>• <i>Health Department responsible for implementation</i></li> </ul>
--------	---

HIGH	Promote weather alert radios in all Critical Facilities <ul style="list-style-type: none"> <li>• <i>Weather alert radios broadcast NWS warnings, watches, forecasts, and post-event information for all types of hazards (natural and manmade) 24 hours a day</i></li> <li>• <i>NOAA has provided weather radios to all the schools in Noble County</i></li> <li>• <i>Several Critical Facilities have weather radios (number unknown)</i></li> <li>• <i>EMA responsible for implementation</i></li> </ul>
------	--

HIGH	Encourage power back-up generators to all Critical Facilities <ul style="list-style-type: none"> <li>• <i>Back-up power generators allow Critical Facilities to remain somewhat functional during a power outage</i></li> <li>• <i>Several Critical Facilities have back-up generators (number unknown)</i></li> </ul>
------	--



- *EMA responsible for implementation*
- MEDIUM Encourage areas of new development to bury utility lines
- *Overhead lines are susceptible to wind, snow, ice*
  - *New development is required to bury utility lines (for lines that can be safely buried)*
  - *Planning (all communities) responsible for implementation*
- LOW Determine adequate location for Reverse 911 warning system
- *Reverse 911 is an outbound emergency notification system that utilizes phone lines (cell and land) and GIS to quickly alert people in a precise geographic area or individuals with common characteristics about an emergency situation*
  - *EMA responsible for implementation*
- HIGH Increase participation in community events and outreach opportunities
- *Education of the general public, decision-makers, and community leaders can be very effective to reduce physical, social, and economic losses*
  - *All municipal offices and agencies (each community) responsible for implementation*
- LOW Become certified as StormReady Community (County)
- *NWS program that results in improved preparedness, response, and recovery efforts*
  - *EMA responsibility for implementation*
- HIGH Check into reciprocal agreements between neighboring counties and municipalities for structural inspections following hazardous events
- *The ability to borrow trained inspection staff (without additional liability) from neighboring communities following a hazard event*
  - *EMA responsibility for implementation*
- MEDIUM Increase GIS usage between municipal agencies and offices create one centralized system
- *Provides for consistent data throughout County*
  - *GIS responsible for implementation*
- HIGH Establish a Community Emergency Response Team (CERT) Program in Noble County
- *FEMA program that educates citizens about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills (fire safety, light search and rescue, team organization, and disaster medical operations)*
  - *EMA responsibility for implementation*

#### **4. Schedule Next Planning Committee Meeting**

The next Noble County MHMP Planning Committee meeting is to be held on Thursday, May 24, 2007 at 9:00 am in the Cole Room of the Noble County Public Library (813 E. Main St., Albion).

**Noble County Multi-Hazard Mitigation Plan**  
PLANNING COMMITTEE MEETING

9:00 am Thursday, May 24, 2007

**Noble County Public Library, Cole Room**  
813 E. Main St., Albion

**AGENDA**

1. Discuss Completed Sections of DRAFT MHMP
2. Discuss Implementation of High Priority Mitigation Practices
3. Discuss Long-term Maintenance and Evaluation of Plan
4. Discuss Next Steps in Planning Process

**Noble County Multi-Hazard Mitigation Plan**  
PLANNING COMMITTEE MEETING  
9:00 am Thursday, May 24, 2007  
**Noble County Public Library, Cole Room**  
813 E. Main Street, Albion

**MEETING SUMMARY**

**Planning Committee Members Present:**

Judy Fox, Noble County EMA  
Steve Hook, Noble County GIS  
Steve Kirkpatrick, Noble County Planning Department  
Gary Leatherman, Noble County Sheriff  
Katherine MacAulay, Northeast Indiana Red Cross  
Richard Moser, City of Ligonier Street Commissioner  
Michael Newton, Noble County EMA  
Rodney Renkenberger, Maumee River Basin Commission  
Mike Riehm, City of Kendallville Fire Department  
Tom Shoemaker, Noble County EMS  
Hal Stump, Noble County Commissioner

**Others Present:**

Siavash Beik, Christopher Burke Engineering, Ltd. (CBBEL)  
Sheila McKinley, Christopher B. Burke Engineering, Ltd. (CBBEL)

**1. Discuss Completed Sections of DRAFT MHMP**

CBBEL staff will continue to complete the remaining sections of the MHMP and following an internal review and approval, the full DRAFT of the MHMP posted on CBBEL's ftp site for the Planning Committee to review. The Planning Committee will be given time to review the document and provide their individual comments and suggestions for incorporation into the plan.

**2. Discuss Implementation of High Priority Mitigation Projects**

The Planning Committee discussed mitigation measures that were identified as high priorities during the previous Planning Committee meeting. Details were developed to determine responsible entities for implementation of high priority mitigation measures and the initial steps to be taken to implement those mitigation measures. During the discussion, additional information was provided by those in attendance on activities occurring within the County and NFIP Communities.

**3. Discuss Long-term Maintenance and Evaluation of Plan**

The Planning Committee discussed which entity would be responsible for the regular update and maintenance of the MHMP and the Noble County EMA agreed to that undertaking. Throughout the 5-year planning cycle, the Noble County EMA will reconvene the MHMP Planning Committee on an annual basis in order to monitor, evaluate, and update the Plan as needed. Members of the Planning Committee will be readily available to engage in meetings for annual review. Depending on grant opportunities and fiscal resources, mitigation projects may be implemented independently by individual NFIP communities or through local partnerships.

#### **4. Discuss Next Steps in Planning Process**

Planning Committee members discussed the estimated timeline for the review and comment period prior to the public meeting. It is anticipated that the Planning Committee will receive the full draft to review in and comments will be accepted for several weeks. When individual comments have been incorporated into the plan, a public meeting will be scheduled to present the MHMP to the residents of Noble County. Following the public meeting, comments will be accepted from the public for several weeks. Once the comments have been incorporated into the plan, a final DRAFT will be submitted to FEMA for review and comment.



**NOBLE COUNTY MHMP**  
Critical Facilities & NFIP Community

<b>Government Facilities</b>	
Albion Offices	Albion
Avilla Offices	Avilla
City of Kendallville	Kendallville
City of Ligonier	Ligonier
Cromwell Offices	Noble County
Noble County Government Annex Building	Albion
Noble County Gov't Office Complex South	Noble County
Noble County Auditor	Albion
Rome City Offices	Rome City

<b>Essential Facilities</b>	
<b>SCHOOLS</b>	
Albion Elementary School	Albion
Avilla Elementary & Middle School	Avilla
Central Noble High School	Albion
Central Noble Middle School	Albion
Chain O'Lakes Rehabilitation Camp	Noble County
Christian's Prep School	Ligonier
Cornerstone Wesleyan Christian School	Noble County
East Noble Alternative School	Kendallville
East Noble High School	Kendallville
East Noble School Corporation	Kendallville
First Christian Academy	Kendallville
Four County Cosmetology, Ind, Mechanics	Kendallville
Four County Welding and Machine Trades	Kendallville
Harvest Preschool	Kendallville
Immanuel Lutheran Preschool	Avilla
Kendallville Central Middle School	Kendallville
LaOtto Elementary School	Noble County
Ligonier Elementary School	Ligonier
Merry Lea Environmental Learning Center	Noble County
Nature Hill Amish School	Noble County
New Adventures Early Learning Center	Kendallville
North Side Elementary School	Kendallville
Northeast IN Spec Ed Coop	Kendallville
Oak Bridge Montessori Middle School	Noble County
Oak Farm Montessori School	Noble County
Rome City Elementary/Middle School	Rome City
South Side Elementary School	Kendallville
St John Lutheran School	Kendallville
St Marys Catholic School	Avilla
Stoney Acres Parochial	Noble County
Sunny Slope School	Noble County
Wayne Center Elementary School	Noble County

West Noble Elementary School	Noble County
West Noble High School	Noble County
West Noble Middle School	Noble County
West Noble School Corporation	Noble County
Wolf Lake Elementary School	Noble County
<b>EOC</b>	
Noble County Emergency Management Agency	Albion
<b>FIRE STATIONS</b>	
Albion Fire Dept	Albion
Avilla Fire Dept	Avilla
Kendallville Fire Dept #1	Kendallville
Kendallville Fire Dept #2	Kendallville
LaOtto Fire Dept	Noble County
Ligonier Fire Dept	Ligonier
Noble Township North Fire Dept	Noble County
Noble Township South Fire Dept	Noble County
Rome City Fire Dept	Rome City
Sparta Township Fire Dept	Noble County
<b>LAW ENFORCEMENT</b>	
Albion Police Dept	Albion
Avilla Police Dept	Avilla
Chain O'Lakes Correctional Facility	Noble County
Cromwell Police Dept	Noble County
Kendallville Police Dept	Kendallville
Ligonier Police Dept	Ligonier
Noble County Sheriff's Dept	Albion
Rome City Police Dept	Rome City
<b>MEDICAL CARE</b>	
Albion EMS Station	Albion
Avalon Village Kingston of Ligonier	Ligonier
Bowen Center	Albion
Chandler House	Noble County
Cromwell EMS Station	Noble County
Hickory Creek at Kendallville	Kendallville
Kendallville WIC Office	Kendallville
Kendallville EMS Station	Kendallville
Kendallville Manor Healthcare	Kendallville
Ligonier WIC Office	Ligonier
Northeastern Center	Ligonier
Northridge Nursing Home	Albion
Oak Leaf Village	Ligonier
Parkview Noble Hospital	Kendallville
Parkview Noble Lab & X-ray	Ligonier
Parkview Occupational Health Center	Kendallville
Provena Sacred Heart Home	Avilla
Shepherd of the Hill	Kendallville
Your Friends & Neighbors, Inc	Kendallville
Your Friends & Neighbors, Inc	Avilla
Your Friends & Neighbors, Inc	Kendallville

Transportation System Facilities	
<b>AIRPORTS</b>	
Brian & John Hull	Noble County
Clifford Petit	Noble County
David Paige	Noble County
David Resler	Noble County
Donald H Stangland	Noble County
James Jackson	Noble County
Jason Pippenger	Noble County
Jim Pippenger	Noble County
Kendallville Municipal	Kendallville
Mike Shellman	Noble County
Richard Shaffer	Noble County
Steve Robertston	Noble County

Lifeline Utility System Facilities	
<b>WASTEWATER TREATMENT PLANT</b>	
Albion Municipal WWTP	Noble County
Avilla Municipal WWTP	Avilla
Bear, High, & Wolf Lake Reg. Sewer Dist.	Noble County
Cromwell Municipal WWTP	Noble County
Kendallville WWTP	Kendallville
LaOtto Regional Sewer District	Noble County
Ligonier WWTP	Ligonier
Rome City WWTP	Noble County
Tri Lakes Regional Sewer District	Noble County
Tri Lakes Regional Sewer District	Noble County
Turkey Creek Regional Sewer District	Noble County
<b>POTABLE WATER</b>	
Albion Water Works	Albion
Avilla Public Water Supply	Avilla
Kendallville WTP	Kendallville
Ligonier Water Works	Ligonier
Town of Cromwell Public Water	Noble County
<b>COMMUNICATIONS</b>	
Centennial	Albion
Tower	Noble County
Tower	Noble County
Tower	Noble County
Verizon	Noble County
W209BA	Noble County
W258BD	Noble County
WAWK 1140	Kendallville
WBTU Ch 227	Noble County
WGSN Ch 274	Noble County
WNRL-LP	Noble County
<b>POWER SUBSTATIONS</b>	
Indiana Michigan Electric Substation	Noble County
REMC Power Substation	Noble County

REMC Substation	Noble County
REMC Substation	Noble County

High Potential Loss Facilities	
<b>DAMS</b>	
Albion Sewage Ponds	
Avilla Sewer Pond Dam	
Avilla Sewer Pond Dam	
Bear Lake Dam	
Big Lake Dam	
Bixler Lake Dam	
Bristol lake Dam	
Chain O'Lakes Dam	
Crooked Lake Dam	
Diamond Lake Dam	
Eagle Lake Dam	
Henderson Lake Dam	
High Lake Dam	
Horseshoe Lake Dam	
Indian Lake Dam	
Lake Barbara Dam	
Lake Maxler Dam	
Legends Lake Dam	
Little Long Lake Dam	
Lower Long Lake Dam	
Marvin Morgan Dam	
Richard Grieger Dam	
Rome City Sewer Ponds Dam	
Skinner Lake Dam	
Skinner Lake Dam	
Sparta Lake Dam	
Sylvan Lake Dam	
Sylvan Lake Wetlands Dam	
Turkey Creek Dam	
Upper Long Lake Dam	
Waldron Lake Dam	
Wilmot Pond	

Hazardous Materials Facilities	
A-1 Production, Inc	Noble County
Advanced Metal Etching	Ligonier
Advanced Thermal Techs	Noble County
Aggregate Industries	Noble County
Albion Wire Reel Warehouse	Noble County
Aluminum Recovery	Kendallville
American Rebuilders	Noble County
American Tower	Noble County



Amerigas Propane	Noble County
Amerigas Propane	Noble County
Archimedes Inc	Kendallville
AT&T	Noble County
AT&T	Noble County
Autojectors Inc	Noble County
Autojectors Inc	Avilla
Automotive Color & Supply Corp	Kendallville
Avilla City of	Avilla
Avilla Grain Inc.	Avilla
Avilla Oasis	Avilla
Avilla Service Center	Avilla
Ayr-Way Industries	Kendallville
Bowens Body Shop	Kendallville
BRC Rubber & Plastics	Ligonier
Brooks Construction	Noble County
Browns Amoco Food Shop	Kendallville
Budd Co, Plastics Division	Kendallville
Burnworth Zollars Chevrolet	Ligonier
Burnworth Zollars Ford	Ligonier
Busche Enterprise	Noble County
Butches Body Shop	Noble County
Chain O Lakes State Park	Noble County
City of Kendallville	Kendallville
Color Master Inc	Avilla
Colwell General Inc	Kendallville
Consolidated Rail	Kendallville
Copperfield LLC	Avilla
Corner Stop #1`	Albion
Creative Wood Designs	Ligonier
Cromwell Municipal Utilities	Noble County
Cromwell Products	Noble County
Crop Production Services	Noble County
Crown Group	Noble County
Dalton Corp, Kendallville	Kendallville
Dana Corporation	Albion
Debs Laundry Basket	Kendallville
Dekko Heating Technologies	Noble County
Dietrich L E Inc	Kendallville
Dow Corning	Kendallville
Drivesol Worldwide, Inc	Kendallville
East Noble School Corp	Kendallville
Engineered Tooling	Noble County
Engineered Tooling	Albion
Epic Technical Group	Kendallville
Essex Group	Kendallville
Federal-Mogul Corp	Avilla
Ferrell Gas	Noble County
Flex Fab	Albion
Flex Ohm	Noble County
Four Inc	Noble County
Freudenberg-NOK #1	Ligonier

Freudenberg-NOK #2	Ligonier
Frick Services	Noble County
Gas America#93	Ligonier
Gas America \$70	Kendallville
GDI Publications	Noble County
Graphic Packaging, Intl	Kendallville
Guardian Automotive	Ligonier
Helena Chemical Corp	Noble County
Hendrickson Truck	Kendallville
Hendrickson Suspension	Kendallville
Hi Tech	Albion
Hymatic Manufacturing	Kendallville
INDOT Bridge	Noble County
Inergy Propase	Noble County
Innopak Plastics Corp	Ligonier
International Wire – Albion	Noble County
International Wire – Kendallville	Kendallville
International Wire – Silicones	Noble County
Irving Gravel	Noble County
Jack De Chevrolet	Kendallville
Jehl Auto	Kendallville
Jeld-Wen Exterior	Ligonier
John Ley Monument Sales	Avilla
Kendallville Castings	Kendallville
Kendallville Iron & Metal	Noble County
Kendallville Laundry Dry Clean	Kendallville
Kendallville Publishing Co	Kendallville
Kendallville Tire & Auto	Kendallville
KML Inc	Noble County
Kraft Foods Global	Kendallville
Krieder Manufacturing	Ligonier
Kunce Brothers	Noble County
LaOtto Farm Supplies	Noble County
LaOtto Farm Supplies, Inc	Noble County
Lassus/Handy Dandy	Avilla
Levin & Sons	Kendallville
Ligonier Waste Water	Ligonier
Lincolnway Motors	Ligonier
Maple Leaf Hatchery	Noble County
MASCOFW	Kendallville
MCI	Noble County
Melching Investment	Ligonier
Metal Craft	Noble County
Migler Inc	Kendallville
Miller Motors	Kendallville
Mittler Supply	Kendallville
Millenium Industries	Ligonier
Monarch Specialized Motor Coach	Albion
Mory JO	Avilla
National Reel	Noble County
Newell Industrial Group	Albion
NIFL Crossroad	Noble County

No Sag Productions	Kendallville
Noble Co REMA	Albion
Noble Steel Fabricators	Avilla
North Central Co-Op Bulk Plant	Kendallville
North Central Co-Op LP	Noble County
Novozymes Biological	Noble County
Omnisource	Noble County
P&J Ind	Ligonier
Pak A Sak	Ligonier
Parker Hannifin Brass Production	Albion
Parker Hannifin Powertrain	Ligonier
Parkview Noble Hospital	Kendallville
Parts Finishing Group	Kendallville
Pent Assembly Custom Molding	Avilla
Pepsi-Cola	Noble County
PFG Food Distribution Plant	Kendallville
Plastech Engineered Products	Kendallville
Platt Mx Ford	Kendallville
Prince Mfg	Avilla
PT Holdings	Noble County
PVC Compounders	Noble County
Quick Tanks Plant #1	Kendallville
Quick Tanks Plant #2`	Kendallville
Rad Services Division	Noble County
Ralphs Body Shop	Noble County
Robert Bosch Corporation	Albion
Royal Imprints	Ligonier
Ryder Transportation	Ligonier
SBC	Kendallville
Schwann Food Company	Kendallville
Shea TD Mfg	Kendallville
Silgan Plastics Corp	Ligonier
Smith Automotive	Kendallville
Smoker Craft	Noble County
Snax in Pax	Kendallville
Speedway	Kendallville
Sroufe Healthcare Products	Ligonier
Star of the West Milling	Ligonier
Steve West Motors	Kendallville
Structural Composites	Ligonier
Sunoco Service Station	Ligonier
Superior Sample	Ligonier
Supreme Properties	Ligonier
Symmetry Medical	Avilla
Ten Kwik Minutes	Kendallville
Tenneco	Ligonier
Ternet Metal	Avilla
Ternet Metal	Avilla
Toggerly Cleaners	Ligonier
Tomkins Dexter Axle	Albion
Tomkins Industries	Albion

Tower Automotive	Kendallville
Tower Structural Laminating	Ligonier
Tractor Supply	Kendallville
Truelove Bros	Noble County
Uniform Printing & Supply	Kendallville
Union Production International	Noble County
United Telephone	Avilla
United Telephone	Noble County
Verizon Albion	Albion
Verizon Wireless	Avilla
Vibracoustic North America	Ligonier
Vibration Control Technologies	Ligonier
Victo Reinz Valve Seals	Avilla
Wal Mart Supercenter	Kendallville
West Noble School Corp	Noble County
Wickers Body & Paint	Noble County
Wilby's Gas & Goodies	Ligonier
Wolf Lake Products	Noble County
Wysong Bob Chevrolet	Noble County
XY Tool & Die	Noble County



## **MEDIA RELEASE**

### **For Immediate Release**

**Media Release Date:** April 12, 2007

**Contact:** Heather Buck, Christopher B. Burke Engineering, Ltd. (317) 266-8000

### **How Do Tornadoes, Floods and Severe Winter Storms Affect You?**

**Albion, IN** (April 12, 2007) – Noble County, in cooperation with the Town of Albion, the City of Kendallville, the City of Ligonier, and the Town of Rome City, is preparing a Multi-Hazard Mitigation Plan, and your input is very important to the planning process.

The Disaster Mitigation Act of 2000 (DMA 2000) requires communities to prepare a Multi-Hazard Mitigation Plan in order to be eligible for any future mitigation funding through the State and Federal Department of Homeland Security. The intent of this planning process is to plan for a disaster before it occurs in order to reduce the physical, social and economical impact of that disaster.

Noble County has had its share of natural disasters in the past. Flooding events have resulted in over \$5 million in property damages since 1993. Additionally, numerous tornado events have caused approximately \$52 million in property damages in Noble County since 1954. Furthermore, there is a high hazard dam (Sylvan Lake Dam) located within the county that could pose a threat to homes and communities directly downstream from this dam. These are just some of the potential hazard threats to Noble County.

The Multi-Hazard Mitigation Planning Committee would like your input regarding natural hazards in Noble County. Information about your experience with hailstorms, thunderstorms, windstorms, severe winter storms, flooding, tornadoes, hazardous materials incidents, earthquake, or a dam failure would be particularly helpful.

Please respond to the following questions and send your response to Maumee River Basin Commission, Attention: Rodney Renkenberger, Executive Director, 3864 New Vision Drive, Fort Wayne IN, 46845 or by email at [rrenken-mrbc@verizon.net](mailto:rrenken-mrbc@verizon.net)

1. While in Noble County, have you ever experienced a hailstorm, thunderstorm, windstorm, severe winter storm, flooding, tornado, hazardous materials incident, earthquake, drought, extreme temperatures, or a dam failure? Please identify all that apply; include dates and specific locations when possible.
2. Did your experience result in a personal or financial loss? If so, to what extent was the damage?
3. Of the hazards mentioned in question 1, please indicate all hazards that you feel could occur in Noble County in the near future.
4. Please feel free to include any further comments you have regarding local hazards in Noble County.
5. Do you feel that your household is prepared (own a weather radio, have a safe spot in your home, know the locations of temporary shelter, etc) in the event of a local hazard such as a severe winter storm, tornado, or flood? How so?

The County will host a public meeting in the summer of 2007 to present the draft-version of the Noble County Multi-Hazard Mitigation Plan to the public and gather additional public input. The meeting date and time has not been determined but will be widely published in the near future.

# THE NEWS-SUN

**SAVE UP TO 70%**  
on your printer supplies

**INKFORCHEAP.com**

The News-Sun

## Group looks at disaster hazards

**BY BOB BRALEY**

[bobb@kpcnews.net](mailto:bobb@kpcnews.net) (Created: Thursday, September 28, 2006 10:35 AM EDT)

Text Size | 

 print |  e-mail

ALBION - A new committee intended to help reduce the impact and improve the response to disasters in Noble County met for the first time Wednesday in Albion.

The Noble County Multi-Hazard Mitigation Planning Committee is putting together a plan to help with the impact of disasters that might hit the county and surrounding area, explained Sheila McKinley of Indianapolis-based Christopher Burke Engineering.

The engineering firm will act as a consultant in the process of developing the plan, which is being paid with a grant procured by the Maumee River Basin Commission, McKinley said.

"The principle behind this is to mitigate the physical, social and economic loss," said McKinley.

The plan crosses jurisdictional lines and includes communities identified as requiring the National Flood Insurance Program, McKinley said. It covers the county, the cities of Kendallville and Ligonier and the towns of Albion and Rome City.

By completing the mitigation plan, the county, cities and towns become eligible for several kinds of federal grants and the Community Rating System, a program that for communities that go above and beyond what the Federal Emergency Management Agency requires, McKinley said.

"Every five years this plan needs to be updated," McKinley said.

Wednesday, committee members identified hazards the county may face in the future.

The list of hazards proposed for the study was dam failure, earthquakes, flooding, ice storms, severe winter storms, thunderstorms, tornadoes, windstorms, hazardous material spills, extreme temperatures (high or low), drought, hailstorms and high-tension lines.

While earthquakes are not common in the area, there was one that caused some minor damage to buildings, so it should be investigated, the committee said.

There is no additional charge for looking at more possible concerns, McKinley said.

## How is Noble County affected by hazards?

Noble County, in cooperation with the Town of Albion, the City of Kendallville, the City of Ligonier, and the Town of Rome City, is preparing a Multi-Hazard Mitigation Plan (MHMP), and your input is very important to the planning process! The intent of this planning process is to plan for a disaster before it occurs in order to reduce the physical, social and economical impact to the county and communities.

Noble County has had its share of natural disasters in the past; floods, tornadoes, and windstorms have caused millions of dollars in damages. The MHMP Planning Committee would like your input regarding both natural and man-made hazards in Noble County.

1. While in Noble County, have you ever experienced one or more of the following hazard events? Please check all that apply and provide dates and location if known.

- |   |  |
|---|--|
| <input type="checkbox"/> Dam Failure              | <input type="checkbox"/> Severe Winter Storm |
| <input type="checkbox"/> Drought                  | <input type="checkbox"/> Tornado             |
| <input type="checkbox"/> Earthquake               | <input type="checkbox"/> Hailstorm           |
| <input type="checkbox"/> Extreme Temperature      | <input type="checkbox"/> Thunderstorm        |
| <input type="checkbox"/> Flood                    | <input type="checkbox"/> Windstorm           |
| <input type="checkbox"/> Hazardous Material Spill |  |

2. For each hazard identified above, did your experience result in a personal or financial loss? If so, approximately to what extent was the damage?

- Personal Loss (please describe)
- Financial Loss (please estimate dollar amount)

3. Please indicate all hazards that you feel could occur in Noble County in the near future.

- |   |  |
|---|--|
| <input type="checkbox"/> Dam Failure              | <input type="checkbox"/> Severe Winter Storm |
| <input type="checkbox"/> Drought                  | <input type="checkbox"/> Tornado             |
| <input type="checkbox"/> Earthquake               | <input type="checkbox"/> Hailstorm           |
| <input type="checkbox"/> Extreme Temperature      | <input type="checkbox"/> Thunderstorm        |
| <input type="checkbox"/> Flood                    | <input type="checkbox"/> Windstorm           |
| <input type="checkbox"/> Hazardous Material Spill |  |

4. Please feel free to include any further comments you have regarding local hazards in Noble County.

5. Do you feel that your household is prepared in the event of a local hazard such as a dam failure, earthquake, flood, severe winter storm, tornado, hailstorm, thunderstorm, and/or windstorm? Please check all that apply.

- Own a Weather Alert Radio
- Have a designated safe place in your home
- know the location of the closest temporary shelter
- Able to hear outdoor warning siren (if outside)
- Sufficient supply of food, water, and medication (if needed)

Other \_\_\_\_\_

## How is Noble County affected by hazards?

Noble County, in cooperation with the Town of Albion, the City of Kendallville, the City of Ligonier, and the Town of Rome City, is preparing a Multi-Hazard Mitigation Plan (MHMP), and your input is very important to the planning process! The intent of this planning process is to plan for a disaster before it occurs in order to reduce the physical, social and economical impact to the county and communities.

Noble County has had its share of natural disasters in the past; floods, tornadoes, and windstorms have caused millions of dollars in damages. The MHMP Planning Committee would like your input regarding both natural and man-made hazards in Noble County.

1. While in Noble County, have you ever experienced one or more of the following hazard events? Please check all that apply and provide dates and location if known.

Dam Failure (5)

Drought (15)

Earthquake (9)

Extreme Temperature (17)

Flood (10)

Hazardous Material Spill (10)

Severe Winter Storm (67)

Tornado (41)

Hailstorm (45)

Thunderstorm (69)

Windstorm (58)

2. For each hazard identified above, did your experience result in a personal or financial loss? If so, approximately to what extent was the damage?

Personal Loss (please describe)

- a. Damage to home and truck
- b. Garden loss (farmers market produce)
- c. Carport destroyed, downed tree
- d. Farm related losses
- e. Lightning hit house, lost personal appliances
- f. House hit by lightning, lost large tree and some appliances
- g. Trees down
- h. (3)

Financial Loss (please estimate dollar amount)

- Increase expense of doing business
- Missed day of work \$1,200
- \$1,500
- \$10,000
- Tornado damage to house
- Underinsured \$25,000
- Several thousand dollars from hailstorm
- \$2,000
- (5)
- Reduced crop 1/3 – 1/2
- Replace equipment lost due to lightning, wind, and hail
- Crops-buildings-lightning killed livestock, most covered by insurance
- Not much



3. Please indicate all hazards that you feel could occur in Noble County in the near future.

Dam Failure (10)	Tornado (62)
Drought (17)	Hailstorm (58)
Earthquake (9)	Thunderstorm (67)
Extreme Temperature (34)	Windstorm (62)
Flood (21)	
Hazardous Material Spill (38)	All (7)
Severe Winter Storm (65)	

4. Please feel free to include any further comments you have regarding local hazards in Noble County.

- Terrorist Attack (2)
- Tornado most likely; hazardous spills frequent and have potential severe impact
- Many highways-good chance for a person “passing through” to create a situation

5. Do you feel that your household is prepared in the event of a local hazard such as a dam failure, earthquake, flood, severe winter storm, tornado, hailstorm, thunderstorm, and/or windstorm? Please check all that apply.

- Own a Weather Alert Radio (21)
- Have a designated safe place in your home (48)
- Know the location of the closest temporary shelter (21)
- Able to hear outdoor warning siren (if outside) (32)
- Sufficient supply of food, water, and medication (if needed) (52)
- Other \_\_\_\_\_
  - Fireman
  - Yes
  - Proper clothing

# **MEDIA RELEASE**

## **For Immediate Release**

**Media Release Date:** August 28, 2007

**Contact:** Rodney Renkenberger, Maumee River Basin Commission, (260) 449-7226

## **Public Presentation of the DRAFT Multi-Hazard Mitigation Plan**

**Albion, IN** (August 28, 2007) – Noble County, in cooperation with the Maumee River Basin Commission, Town of Albion, City of Kendallville, City of Ligonier, and Town of Rome City has prepared a Multi-Hazard Mitigation Plan (MHMP). This Plan assesses the risk and vulnerability of these communities for flooding, hailstorms, thunderstorms, hazardous materials incidents, severe winter storms including ice, tornadoes, windstorms, earthquakes, drought, extreme temperatures, and dam failure.

Noble County has had its share of natural disasters in the past. Flooding events have resulted in over \$5 million in property damages since 1993. Additionally, numerous tornado events have caused approximately \$52 million in property damages, 4 deaths, and over 100 injuries in Noble County since 1954. Furthermore, hailstorms, thunderstorms, and windstorms have resulted in approximately \$5 million in property damages. These are just some of the potential hazard threats to Noble County and the municipalities within the County.

The Noble County MHMP will be presented at a public meeting on **Tuesday, September 18<sup>th</sup> at 7:00 pm** in the **Cole meeting room in the Noble County Public Library, 813 East Main St** in **Albion**. Topics covered during this public presentation will include: an overview of the planning requirements; a summary of the risk assessment and vulnerability analysis; and proposed mitigation projects for prevention, property protection, natural resource protection, emergency services, structural control projects, and public information.

The Disaster Mitigation Act of 2000 (DMA 2000) requires communities to prepare a Multi-Hazard Mitigation Plan in order to be eligible for any future mitigation funding through the State and Federal Emergency Management Agencies. The intent of this planning process is to plan for a disaster before it occurs in order to reduce the physical, social and economical impact of that disaster.

**---END---**

PUBLIC REVIEW OF THE

# Noble County Multi-Hazard Mitigation Plan

Noble County Public Library

Cole Meeting Room

813 East Main Street  
Albion

Tuesday, September 18, 2007

7:00 pm



**For More Information:**

Rodney Renkenberger, Director  
Maumee River Basin  
Commission  
3864 New Vision Drive  
Fort Wayne, IN 46845  
Phone: 260-449-7226  
E-mail: [renken-mrbo@verizon.net](mailto:renken-mrbo@verizon.net)

The Noble County Multi-Hazard Mitigation Plan is a planning effort led by the Noble County Emergency Management Agency and the Maumee River Basin Commission. The development of this plan is the necessary first step of a multi-step process to implement programs, policies, and projects to mitigate the effect of hazards in Noble County, Town of Albion, City of Kendallville, City of Ligonier, and Town of Rome City. The intent of this effort is to identify the hazards and the extent that they affect these areas, and to formulate mitigation strategies that could be undertaken to mitigate these hazards. This public review is being held to provide the public with an opportunity to become informed of the planning process and the proposed mitigation projects developed by the local Planning Committee.

**NOBLE COUNTY MHMP**

Promulgation Authority

Noble County

Jack Herendeen, Commissioner

Mark Pankop, Commissioner

J. Hal Stump, Commissioner

Town of Albion

Mitch Fiandt, Council

Stan Stratere, Council

James Stull, Council

City of Kendallville

W. Suzanne Handshoe, Mayor

City of Ligonier

Gary Bishop, Sr., Mayor

Town of Rome City

David Abbott, Council

William Creigh, Council

John P. Schlegel, Council



**NOBLE COUNTY MHMP**

APPENDIX 6

Resolutions for Adoption

**NOBLE COUNTY MHMP**  
Resolutions for Adoption

### **AmeriCorps**

The AmeriCorps\*State works with Governor-appointed State Service Commissions to provide grants to non-government and government entities that sponsor service programs. These organizations use their grants to engage AmeriCorps members in service to help meet critical community needs in education, public safety, health, and the environment.

**Previous Activities Funded:** Assisting disaster victims, building homes, restoring parks and other community facilities while mobilizing community volunteers.

Ms. Paula Parker-Sawyers, Exec. Director  
Office of Faith-Based & Community Initiative  
302 W Washington St. Room E220  
Indianapolis IN 46204-4701  
317.233.4273 ~ Phone  
317.233.5660 ~ Fax

[www.state.in.us/iccsv](http://www.state.in.us/iccsv)

### **Assistance to Firefighters Grant**

The Assistance to Firefighters Grant (AFG) is a competitive grant opportunity for local fire departments and Emergency Medical Service (EMS) organizations that are not affiliated with a hospital.

**Previous Activities Funded:** The AFG funds activities such as purchasing firefighting equipment, personal protection equipment, training, firefighting vehicles, and firefighter/first responder safety projects.

<http://www.firegrantsupport.com/>

### **Challenge 21, Floodplain**

Challenge 21, the Army Corps' flood hazard mitigation and riverine ecosystem restoration initiative, will focus on more sustainable approaches. Through its focus on non-structural alternatives to flood protection, it will, where appropriate, move families and businesses out of harm's way and strive to return the floodplains of rivers and creeks to a condition where they can naturally moderate floods as well as provide other benefits to communities and the environment. Watershed by watershed, Challenge 21 builds on existing programs and initiates and expands partnerships with other Federal agencies and non-Federal national and local entities. Key Federal partners include the FEMA, the Department of Agriculture, the Department of Interior and the EPA.

**Previous Activities Funded:** A project might include the relocation of threatened homes or businesses, conservation or restoration of wetlands and natural floodwater storage areas and planning for responses and solutions to potential future floods

[http://www.americanrivers.org/site/PageServer?pagename=AMR\\_content\\_d156](http://www.americanrivers.org/site/PageServer?pagename=AMR_content_d156)

### **CHIEF Grants Service**

CHIEF Grants is a free service from CHIEF supply company. Dedicated to helping public safety professionals meet today's funding challenges, CHIEF Grants is a one-stop shop for open grants, grant writing tips, seminars, and grant news.

**Previous Activities Funded:** Various types of grants are highlighted with numerous activities funded. This a grant service, not an individual grant opportunity.

<http://www.chiefsupply.com/grants/>

### **Clean Water State Revolving Loan Fund**

Clean Water State Revolving Loan Fund (CWSRLF) programs operate much like environmental infrastructure banks that are capitalized with federal and state contributions. CWSRLF monies are loaned to communities and loan repayments are recycled back into the program to fund additional water quality protection projects. The revolving nature of these programs provides for an ongoing funding source that will last far into the future.

**Previous Activities Funded:** The CWSRF funds a broad range of projects—from wastewater systems and nonpoint source pollution control to estuary management and a range of projects focusing on water quality. Funding is typically directed to state-identified high priority projects based on several factors, including: public health protection; condition of impacted waters; and communities' regulatory compliance status.

<http://epa.gov/OW-OWM.html/cwfinance/cwsrf/basics.htm>

### **Community Development Block Grants**

Communities receiving Community Development Block Grants (CDBG) funds from the State may use the funds for many kinds of community development activities including, but not limited to property acquisition, public services, planning activities, and community development activities.

**Previous Activities Funded:** Funds have been used in Indiana for purposes such as Public facility improvements, flood and drainage facilities, Fire stations and equipment, and various community related activities and facilities.

<http://www.in.gov/ihfa/comdev/comp/manuals/im/im.htm>

Ms. Deanna Oware, Director  
State of Indiana  
Department of Commerce/Community Development  
One N. Capitol Ave.  
Suite 600  
Indianapolis, IN 46204-2027  
Phone: 317-232-8911  
Fax: 317-233-3597

### **Community Facilities Grants and Loans**

The Rural Housing Service (RHS) of the Department of Agriculture offers loans and grants to construct, enlarge, extend, or otherwise improve community facilities providing essential services to rural residents.

**Previous Activities Funded:** Priority for funding will be given to those projects that will enhance public safety such as fire, police, rescue, and ambulance services, and projects for health care facilities. The fire service can use the funding for fire stations, fire trucks and rescue vehicles.

[www.rurdev.usda.gov/rhs/ProgramBriefs/brief\\_cp\\_grant.htm](http://www.rurdev.usda.gov/rhs/ProgramBriefs/brief_cp_grant.htm)



### **Community Rating System**

The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

**Previous Activities Funded:** While the CRS does not provide direct funding, reductions in insurance premiums can be significant for participants.

<http://www.fema.gov/nfip/crs.shtm>

### **Conservation Reserve Program**

The Conservation Reserve Program (CRP) is a voluntary program for agricultural landowners. Through CRP, landowners can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland to reduce soil erosion, and potential flood loss and damage.

**Previous Activities Funded:** Filter Strip Establishment, Wetland Restoration, Riparian Buffer Establishment

<http://www.fsa.usda.gov/dafp/cepd/crp.htm>

### **The Cora Brown Fund**

To provide for disaster-related needs that have not been, or will not be met by government agencies or any other organizations which have programs to address such needs; however, the fund is not intended to replace or supersede these programs. The fund may not be used in a way that is inconsistent with other federally mandated disaster assistance or insurance programs. Money from the fund will not duplicate assistance for which a person is eligible from other sources.

**Previous Activities Funded:** Disaster related home repair and rebuilding, services which alleviate human suffering due to disasters and disaster related unmet needs.

[http://www.federalgrantswire.com/cora\\_brown\\_fund.html](http://www.federalgrantswire.com/cora_brown_fund.html)

### **Department of Interior Rural Fire Assistance Program**

The Department of Interior (DOI) Rural Fire Assistance Program is aimed at enhancing the fire protection capabilities of rural fire districts in the wildland urban interface. The rural fire department must serve a community with a population of 10,000 or less and must have a statewide agreement with the state forester who maintains cooperative agreements with the rural fire departments or volunteer fire departments or a cooperative fire agreement with an agency in the DOI.

**Previous Activities Funded:** The program assists with training, equipment purchase, and prevention activities, on a 90/10 cost-share basis.

<http://www.nifc.gov/rfa/steps.html>

### **Direct Housing: Natural Disaster**

Funds are only available to the extent that funds are not provided by the Federal Emergency Management Agency (FEMA). For the purpose of administering these funds, natural disaster will only include those areas identified by a Presidential declaration.

**Previous Activities Funded:** To assist qualified lower income rural families to meet emergency assistance needs resulting from natural disaster to buy, build, rehabilitate, or improve dwellings in rural areas.

[http://www.federalgrantswire.com/direct\\_housingnatural\\_disaster.html](http://www.federalgrantswire.com/direct_housingnatural_disaster.html)

### **Disaster Reserve Assistance**

To provide emergency assistance to eligible livestock owners, in a State, county, or area approved by the Secretary or designee, where because of disease, insect infestation, flood, drought, fire, hurricane, earthquake, hail storm, hot weather, cold weather, freeze, snow, ice, and winterkill, or other natural disaster, a livestock emergency has been determined to exist.

**Previous Activities Funded:** This assistance is in the form of a direct payment to affected eligible landowners and is administered through the Farm Service Agency.

[http://www.federalgrantswire.com/disaster\\_reserve\\_assistance.html](http://www.federalgrantswire.com/disaster_reserve_assistance.html)

### **Disposal of Federal Surplus Real Property for Parks, Recreation, and Historic Monuments**

Surplus real property may be conveyed for public park and recreation use at discounts up to 100 percent of fair market value and for historic purposes without monetary consideration. Property conveyed for park and recreation use or historic purposes must be used for these purposes in perpetuity or be reverted to Federal ownership.

**Previous Activities Funded:** Property, either real or land, varies with time with items available for public sale, lease or extended use in perpetuity.

[http://www.federalgrantswire.com/disposal\\_of\\_federal\\_surplus\\_real\\_property\\_for\\_parks\\_recreation\\_and\\_historic\\_monuments.html](http://www.federalgrantswire.com/disposal_of_federal_surplus_real_property_for_parks_recreation_and_historic_monuments.html)

### **Emergency Conservation Program**

The United States Department of Agriculture (USDA) Farm Service Agency's (FSA) Emergency Conservation Program (ECP) provides emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures in periods of severe drought.

**Previous Activities Funded:** This assistance is in the form of a direct payment to affected eligible landowners and is administered through the Farm Service Agency.

<http://disaster.fsa.usda.gov/ecp.htm>

### **Environmental Quality Incentive Program**

The Environmental Quality Incentive Program (EQIP) offers contracts with a minimum term that ends one year after the implementation of the last scheduled practices and a maximum term of ten years. These contracts provide incentive payments and cost-shares to implement conservation practices. Persons who are engaged in livestock or agricultural production on eligible land may participate in the EQIP program. EQIP activities are carried out according to an environmental quality incentives program plan of operations developed in conjunction with the producer that identifies the appropriate conservation practice or practices to address the resource concerns. The practices are subject to Natural Resources Conservation Service

(NRCS) technical standards adapted for local conditions. The local conservation district approves the plan.

**Previous Activities Funded:** Cost sharing may pay up to 75 percent of the costs of certain conservation practices, such as grassed waterways, filter strips, manure management facilities, capping abandoned wells, and other practices important to improving and maintaining the health of natural resources in the area.

<http://www.nrcs.usda.gov/programs/eqip/>

### **Emergency Rehabilitation of Flood Control Works**

Assistance does not extend to major improvements of flood control or federally authorized coastal protection structures, nor to reimbursement of individuals or communities for funds expended in repair or rehabilitation efforts.

**Previous Activities Funded:** Authorized assistance includes emergency repair or rehabilitation of flood control works damaged by flood, and restoration of federally authorized coastal protection structures damaged by extraordinary wind, wave, or water action.

[http://www.federalgrantswire.com/emergency\\_rehabilitation\\_of\\_flood\\_control\\_works\\_or\\_federally\\_authorized\\_coastal\\_protection\\_works.html](http://www.federalgrantswire.com/emergency_rehabilitation_of_flood_control_works_or_federally_authorized_coastal_protection_works.html)

### **Emergency Watershed Protection Program**

The Emergency Watershed Protection Program (EWPP) work is not limited to any one set of prescribed measures. A case by case investigation of the needed work is made by NRCS.

**Previous Activities Funded:** EWPP work can include: removing debris from stream channels, road culverts, and bridges; reshaping and protecting eroded banks; correcting damaged drainage facilities; repairing levees and structures; reseeding damaged areas; and purchasing floodplain easements.

<http://www.nrcs.usda.gov/programs/ewp/questions.html>

### **Farmland Protection Program**

The Farmland Protection Program provides funds to help purchase development rights to keep productive farmland in agricultural uses. To qualify, farmland must: be part of a pending offer from a State, tribe, or local farmland protection program; be privately owned; have a conservation plan; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and agricultural support services; and have surrounding parcels of land that can support long-term agricultural production. Depending on funding availability, proposals must be submitted by the government entities to the appropriate NRCS State Office during the application window.

**Previous Activities Funded:** Working through existing programs, USDA joins with State, tribal, or local governments to acquire conservation easements or other interests from landowners. USDA provides up to 50 percent of the fair market easement value.

<http://www.info.usda.gov/nrcs/fpcp/fpp.htm>

### **Fire Prevention & Safety Grant**

The purpose of these grants is to enhance the safety of the public and firefighters with respect to fire and fire-related hazards. The primary goal of the Assistance to Firefighters Grant (AFG) Program's Fire Prevention and Safety Grant (FP&S) is to reach high-risk target groups in order to mitigate the high incidences of death and injuries. Additionally for Fiscal Year (FY) 2005 Congress amended the authorization to include funding for Firefighter Safety Research and

Development. This guidance provides details for applying for either of these financial assistance instruments. There is no cost share requirement for the FY 2005 Fire Prevention and Safety grants.

**Previous Activities Funded:** Grants have been awarded to assist with the costs associated with training, equipment, vehicles for fire departments and firefighter safety research.

[http://www.firegrantsupport.com/fp\\_about.aspx](http://www.firegrantsupport.com/fp_about.aspx)

### **Flood Mitigation Assistance Program**

The Flood Mitigation Assistance (FMA) program provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). There are three types of grants available under FMA: Planning, Project, and Technical Assistance Grants. FMA Planning Grants are available to States and communities to prepare Flood Mitigation Plans. NFIP-participating communities with approved Flood Mitigation Plans can apply for FMA Project Grants. FMA Project Grants are available to States and NFIP participating communities to implement measures to reduce flood losses.

**Previous Activities Funded:** A few examples of eligible FMA projects include: the elevation, acquisition, and relocation of NFIP-insured structures.

<http://www.fema.gov/fima/mitgrant.shtm>

### **Hazards Mitigation Grant Program**

Authorized under Section 404 of the Stafford Act, the Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

**Previous Activities Funded:** Acquisition of hazard-prone property; stormwater management, elevation of flood-prone structures, and infrastructure protection measures are all considered eligible projects and have been funded in the past.

<http://www.fema.gov/fima/mitgrant.shtm>

### **Hazardous Materials Emergency Preparedness Grant**

The Hazardous Materials Emergency Preparedness (HMEP) grant program is intended to provide financial and technical assistance as well as national direction and guidance to enhance State, Territorial, Tribal, and local hazardous materials emergency planning and training. The HMEP Grant Program distributes fees collected from shippers and carriers of hazardous materials to emergency responders for hazmat training and to Local Emergency Planning Committees (LEPCs) for hazmat planning.

**Previous Activities Funded:** These grants have been used for developing, improving, and implementing emergency plans, and training public sector employees to respond safely and efficiently to accidents and incidents involving the transportation of hazardous materials.

<http://hazmat.dot.gov/training/state/hmep/hmep.htm>

### **Indiana Family and Social Services Administration**

The Family and Social Services Administration provides services to help keep children healthy and safe and help families to self-sufficient.

**Previous Activities Funded:** The agency may provide programs related to heating/cooling of residential buildings, temporary housing, and other important contacts in the event of an emergency or disaster.

<http://www.in.gov/fssa/families/>

### **Indiana Resource Conservation & Development Districts**

The purpose of the Resource Conservation and Development (RC&D) program is to accelerate the conservation, development and utilization of natural resources, improve the general level of economic activity, and to enhance the environment and standard of living in designated RC&D areas. It improves the capability of State, tribal and local units of government and local nonprofit organizations in rural areas to plan, develop and carry out programs for resource conservation and development. The program also establishes or improves coordination systems in rural areas.

**Previous Activities Funded:** Forestry projects, wetland development, Community training projects, and other projects related to community and natural resource enhancement and protection.

<http://www.in.nrcs.usda.gov/programs/RC&D/RC&Dhomepage.html>

### **Indiana Rural Development Council**

The Indiana Rural Development Council (IRDC) is a partnership of local, state, federal, profit and not-for-profit stakeholders that serve Indiana communities. The IRDC's purpose is to coordinate efforts of citizens and governments to meet the economic and social needs of rural Indiana.

**Previous Activities Funded:** These funds will be utilized to address a variety of rural issues in the areas of economic/community development, planning, leadership, infrastructure, health, telecommunication/education, workforce development, agriculture, and rural regional development initiatives.

<http://www.in.gov/irdc/index.html>

### **Indiana State Revolving Loan Fund**

The Indiana State Revolving Fund (SRF) Loan Program provides low-interest loans to Indiana communities for projects that improve wastewater and drinking water infrastructure. The Indiana Department of Environmental Management (IDEM) and the Indiana State Budget Agency work together to administer this program and to protect public health and the environment. Recently, SRF has implemented a program to fund nonpoint source projects, as well.

**Previous Activities Funded:** Activities include Treatment plant improvements and upgrades, Riparian Buffers and Conservation Easements, and Wetland protection and restoration measures.

<http://www.in.gov/idem/srf/factsht0704.doc>



### **Indiana Transportation Enhancements Program**

Transportation enhancements (TE) are transportation-related activities that are designed to strengthen the cultural, aesthetic, and environmental aspects of the Nation's inter-modal transportation system.

**Previous Activities Funded:** The transportation enhancements program provides for the implementation of a variety of non-traditional projects, with examples ranging from Acquisition of scenic easements, landscaping and scenic beautification, and to the mitigation of water pollution from highway runoff all of which could be utilized as measures to control or mitigate flood damage.

[http://www.enhancements.org/statecontacts\\_TE.asp](http://www.enhancements.org/statecontacts_TE.asp)

### **Land and Water Conservation Fund**

The Land and Water Conservation Fund (LWCF) program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States.

**Previous Activities Funded:** Funds have been widely utilized for land acquisition, open space/greenspace development, which can include wetland development, critical seeding areas and other projects that can reduce the impacts of flooding.

<http://www.nps.gov/lwcf/>

### **Low Interest Loan Incentives**

Loan amounts up to \$700,000 with interest rates of 2.5 percent to 3.0 percent are available to cities, towns and counties. The loan pays for the cost of remediation and/or demolition at identified brownfield sites.

**Previous Activities Funded:** Eligible activities include: soil and groundwater cleanup, demolition activities, asbestos/lead paint abatement, and additional investigations.

<http://www.idfabrownfields.com/assistance.aspx#LIL>

### **National Flood Insurance Program**

The National Flood Insurance Program (NFIP) is a Federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal Government that states if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas, the Federal Government will make flood insurance available within the community as a financial protection against flood losses.

**Previous Activities Funded:** Flood insurance is made available within the community as a financial protection against flood losses.

<http://www.fema.gov/nfip/intnfip.shtm>

### **Office for Domestic Preparedness Terrorism Formula Grants**

The Office for Domestic Preparedness (ODP) provides funding through the states awards to enhance the capacity of emergency responders to prevent, deter, or respond to terrorist incidents involving weapons of mass destruction. The funding is awarded to a point of contact in each state and then distributed within the state.

**Previous Activities Funded:** Activities have included training, technical assistance, equipment, planning and exercises related to domestic terrorism events.

<http://www.ojp.gov/state.htm>

### **Petroleum Remediation Grant Incentive**

Grant amounts up to \$250,000 per applicant and per funding round are available to cities, towns and counties. The grant pays for the cost of petroleum remediation at identified brownfield sites.

**Previous Activities Funded:** Eligible activities include: underground storage tank removal, Corrective Action Plan preparation, IDEM approved remediation and monitoring.

<http://www.idfabrownfields.com/assistance.aspx#PRGI>

### **Pre-Disaster Mitigation Program**

The Pre-Disaster Mitigation (PDM) program provides technical and financial assistance to States and local governments for cost-effective pre-disaster hazard mitigation activities that complement a comprehensive mitigation program, and reduce injuries, loss of life, and damage and destruction of property. FEMA provides grants to States and Federally recognized Indian tribal governments that, in turn, provide sub-grants to local governments (to include Indian Tribal governments) for mitigation activities such as planning and the implementation of projects identified through the evaluation of natural hazards.

**Previous Activities Funded:** Acquisition and/or relocation of flood-prone properties, Drainage/stormwater management projects, and hazard mitigation planning activities.

<http://www.fema.gov/fima/mitgrant.shtm>

### **Public Assistance Grant Program**

FEMA's Public Assistance (PA) Grant Program allows State and Local governments and Non-Profit Organizations to respond to disasters, to recover from their impact and to mitigate impact from future disasters. The PA Program provides the basis for consistent training and credentialing of staff who administer the program; more accessible and understandable guidance and policy for participating in the grant program; improved customer service through a more efficient grant delivery process, applicant-centered management, and better information exchange; and continuing performance evaluations and program improvements.

**Previous Activities Funded:** Debris removal from public roads and rights-of-way, Emergency protective measures including search and rescue, warning of hazards, and demolition of unsafe structures, Utility Distribution Systems, such as water treatment and delivery systems; and sewage collection and treatment facilities and public parks.

<http://www.fema.gov/rrr/pa/>

### **Purdue Cooperative Extension Service**

Purdue Cooperative Extension Service provides valuable educational materials and training programs to assist in the event of a disaster or emergency

#### **Steve Cain**

Disaster Communication Specialist  
615 W. State Street  
Purdue University  
West Lafayette, IN 47907  
765-494-8410

**Previous Activities Funded:** Activities are educational in nature and not generally monetary offerings.

<http://www.ces.purdue.edu/eden/index.html>

### **Staffing for Adequate Fire and Emergency Response Grants**

The purpose of the Staffing for Adequate Fire and Emergency Response (SAFER) grants is to award grants directly to volunteer, combination, and career fire departments to help the departments increase their cadre of firefighters. Ultimately, the goal is for SAFER grantees to enhance their ability to attain 24-hour staffing and thus assuring their communities have adequate protection from fire and fire-related hazards.

**Previous Activities Funded:** The SAFER grants have two activities that will help grantees attain this goal: 1) hiring of firefighters and 2) recruitment and retention of volunteer firefighters.

<http://www.firegrantsupport.com/safer/>

### **Volunteer Fire Assistance Program**

The purpose of the Volunteer Fire Assistance (VFA) Program, formerly known as the Rural Community Fire Protection (RCFP) Program, is to provide Federal financial, technical, and other assistance to State foresters to train, and equip fire departments in rural areas and rural communities to prevent and suppress fires. A rural community is defined as having 10,000 or less population. This 10,000-population limit for participation in the VFA Program facilitates distribution of available VFA funding to the most needy fire departments. The funding must be matched on a 50-50% basis by non-federal dollars or in-kind.

**Previous Activities Funded:** Purchase of Self Contained Breathing Apparatus, Protective clothing, installation of dry hydrants, and training for volunteer fire fighters.

[www.fs.fed.us/fire/planning/vfa](http://www.fs.fed.us/fire/planning/vfa)

### **Weatherization Assistance Program**

Indiana's Weatherization Assistance Program provides residential energy conservation services to the low income citizens of Indiana. Funding comes from federal sources and is allocated to Community Action Agencies (CAA) to provide services in each of Indiana's 92 counties. The CAAs use their own crews or private contractors to provide comprehensive energy conservation services.

**Previous Activities Funded:** A thorough evaluation of the structures, including the safe and efficient operation of the furnace and water heater, is included in the treatment of each home.

<http://www.in.gov/fssa/families/housing/wap.html>

### **Wetland Reserve Program**

The Wetlands Reserve Program (WRP) is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection.

**Previous Activities Funded:** The USDA Natural Resources Conservation Service (NRCS) provides technical and financial support to help landowners with their wetland restoration efforts.

<http://www.nrcs.usda.gov/programs/wrp/>

### **Wildlife Habitat Incentive Program**

The Wildlife Habitat Incentives Program (WHIP) is a voluntary program for people who want to develop and improve wildlife habitat primarily on private land. Through WHIP USDA's Natural Resources Conservation Service provides both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP agreements between NRCS and the participant generally last from 5 to 10 years from the date the agreement is signed.

**Previous Activities Funded:** Development of areas primarily targeted for wildlife habitat also serve as beneficial areas for flood mitigation activities such as wetland construction/restoration, native grass plantings, and filter area establishment.

<http://www.nrcs.usda.gov/programs/whip/>