



MULTI-HAZARD MITIGATION PLAN

Prepared for:

**DeKalb County, Indiana
City of Auburn, Indiana
City of Butler, Indiana
City of Garrett, Indiana
Town of St. Joe, Indiana
Town of Waterloo, Indiana
Maumee River Basin Commission**

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Prepared by:

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

CBBEL Project Number 04-639

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LOCAL PROJECT CONTACTS:

Roger Powers, Director
DeKalb County Department of Homeland Security
215 E 9th Street, Suite 101
Auburn, IN 46706
(260) 925-1392
rapowers@ci.auburn.in.us

Rodney Renkenberger, Executive Director
Maumee River Basin Commission
3864 New Vision Drive
Fort Wayne IN 46845
(260) 449-7226
rrenken-mrbc@verizon.net

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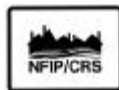
1.0**INTRODUCTION****1.1 PROJECT SCOPE AND PURPOSE**

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/Federal Emergency Management Agency (DHS/FEMA) Region V offices administer the MHMP program in Indiana. All future references in this plan to DHS/FEMA will be denoted as "FEMA".

The DeKalb County MHMP is a multi-jurisdictional planning effort led jointly by the Maumee River Basin Commission (MRBC) with the DeKalb County Commissioners. This Plan was prepared in partnership with DeKalb County, the Towns of St. Joe and Waterloo, and the Cities of Auburn, Butler, and Garrett. 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 DeKalb 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 DeKalb County. The intent of this planning effort was to identify the hazards and the extent that they affect DeKalb 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 may count toward CRS points are identified with the NFIP/CRS logo. The CRS is a voluntary incentive program that recognizes and encourages community floodplain activities that exceed the minimum NFIP requirements. As a result, flood insurance premiums are discounted to reflect the reduced flood risk resulting from community actions that meet the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote education and awareness of flood insurance. Savings in flood insurance premiums are proportional to the points assigned to various activities. A minimum of 500 points is necessary to enter the CRS program and receive a 5% flood insurance premium discount. This Plan could contribute as many as 294 points toward participation in the CRS. At this time, no communities in DeKalb County participate in the CRS.

Funding to prepare this MHMP was made available through a PDM grant awarded to the DeKalb County Commissioners by DHS/FEMA. The local match contribution was provided by the MRBC in the form of a grant awarded to the DeKalb County Commissioners. Christopher B. Burke Engineering, Ltd. (CBBEL) was hired to facilitate the planning process and prepare the DeKalb County MHMP under the leadership of a Certified Planner through the American Institute of Certified Planners (AICP).

1.2 PLANNING PROCESS

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

In August 2006, MRBC in partnership with Clinton Knauer, DeKalb County Plan Director, compiled a list of Planning Committee members that would meet in August, September, January, and February. From August through December 2006, CBBEL researched and compiled historic hazard data necessary to prepare the MHMP. In January 2007, a media release describing the development of the MHMP was distributed to local media outlets. In July 2007, CBBEL provided the draft DeKalb County MHMP to the Planning Committee for their review and comment. A public meeting was scheduled for September 11, 2007 to present the draft Plan to the public and other interested parties. Draft copies of the MHMP were provided to local libraries and public comments were accepted through the public meeting date. The plan was then forwarded to IDHS and DHS/FEMA for their review and comment. Comments from IDHS and DHS/FEMA were incorporated into the draft Plan and reviewed by the Planning Committee. Local adoption of the MHMP by the DeKalb County Commissioners was completed in [date].

1.3 PLANNING COMMITTEE

The DeKalb County MHMP Planning Committee was a new committee specifically formed to develop this Plan. Members included representatives from DeKalb County, City of Auburn, City of Butler, City of Garrett, Town of St. Joe, and Town of Waterloo. 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 several locations in Auburn; the Eckhart Public Library, DeKalb Memorial Hospital, and the DeKalb County Courthouse Annex. 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 of 2007 and assisted with adoption of the DeKalb County MHMP.

Table 1-1: MHMP Planning Committee

Name	Title	Representing
Steve Bingham	Planning Director	City of Garrett
Peter Cioni	City Planner	City of Butler
John Dennis	Sheriff	DeKalb County Sheriff's Department
Randy Fox	Director	DeKalb EMS
Mike Good	Deputy Fire Chief	City of Auburn Fire Department
Allen Haynes	Resource Coordinator	DeKalb County SWCD
Clinton Knauer	Zoning Administrator	DeKalb County Plan Commission
Vivian Likes	City Planner	City of Auburn
Katherine MacAulay	Executive Director	American Red Cross NE Indiana
Cathy Manuel	Env. Health Specialist	DeKalb County Health Department
DeWayne Nodine	Town Manager	Town of Waterloo
Jim Otis	GIS Analyst	DeKalb County GIS Department
Roger Powers	Director	DeKalb DHS
Rodney Renkenberger	Executive Director	Maumee River Basin Commission
Mary Simcox	Clerk Treasurer	Town of St. Joe
William Spohn	Administrator	City of Auburn Planning & Development
Brad Stump	GIS Coordinator	DeKalb County GIS Department
Bernie Sukala	Env. Health Specialist	DeKalb County Health Department
Mike VanZile	Fire Chief	City of Auburn Fire Department
Dale Wagner	Assistant Director	DeKalb County DHS
Bill Walters	Building Inspector	DeKalb County Building Department

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

Table 1-2: Additional Local Leaders

Name	Title	Representing
Justin Buck	Disaster Team Member	American Red Cross
Tonia Fortney		DeKalb County DHS
Jenni Franz	Project Specialist	NE Indiana Solid Waste Management

1.4 PUBLIC INVOLVEMENT IN THE PLANNING PROCESS

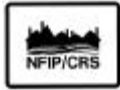
In January 2007, a media release was distributed to local media in DeKalb County and was titled, "How do tornados, floods, and severe winter storms affect you?" The article identified the communities participating in the MHMP effort, the requirements of DMA 2000, and 5 questions about hazard awareness to which interested residents could respond.

The questions regarding hazard awareness in DeKalb County were also distributed in the form of a survey and provided to local stakeholders through the Planning Committee. No surveys were completed and returned to the Planning Committee. However, Planning Committee members provided event specific information, which is included in the individual hazard sections. **Appendix 4** includes a copy of the media release as well as associated coverage, and the public survey.

A draft of the DeKalb County MHMP was placed in the Eckhart Public Library in Auburn Indiana. 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 11, 2007 were informed of the availability of the plan as well as being included in a press release provided to local media outlets. Informational flyers announcing the public meeting were provided to the Planning Committee members to post in and around their respective offices. Several members of the Planning Committee were present to describe details of the plan as well as to answer any questions presented by attendees. Attendance was moderate; however, the majority of those in attendance were interested citizens and representatives of the public.

1.5 INVOLVEMENT OF OTHER INTERESTED PARTIES

Neighboring EMA Directors in Allen, Lagrange, Noble, and Steuben Counties in Indiana, Defiance and Williams Counties in Ohio, and interested agencies, businesses, academia, and nonprofits were invited to review and comment on the draft DeKalb 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

DeKalb County is a highly agricultural county with approximately 88% of land involved in agriculture from open fields and pastures to farmsteads, and the remaining portion of the county considered to be urbanizing. DeKalb County ranks 68th of 92 counties in Indiana regarding size in terms of acreage. The City of Auburn is the county seat and the county’s largest urban center. Auburn is home of several historical museums including the Auburn Cord Duesenberg Museum, the World War II Victory Museum and the Kruse Automotive and Carriage Museum. The City of Auburn is situated in DeKalb County approximately 20 miles north of the City of Ft. Wayne, directly off Interstate 69.

2.1 NFIP PARTICIPATION

The City of Auburn, City of Butler, City of Garrett, Town of St. Joe, and Town of Waterloo, along with DeKalb County participate in the NFIP. At the time of preparing this MHMP, none of the NFIP communities in DeKalb County participates in the CRS program. **Table 2-1** lists the NFIP number and the date they joined the program for each community.

Table 2-1: NFIP Participating Communities

NFIP Communities	NFIP Number	Join Date
DeKalb County	180044	01/05/1989
City of Auburn	180045	07/18/1983
City of Butler	180047	08/19/1985
City of Garrett	180048	02/11/1976
Town of St. Joe	180049	01/03/1985
Town of Waterloo	180050	09/04/1985

(FEMA, 2006)

2.2 POPULATION & DEMOGRAPHICS

DeKalb County has an above average population growth for Indiana, and ranks 22nd among 92 counties with a growth rate of 14% between 1990 and 2000. The most recent census data for DeKalb County estimates that the 2005 population was 41,659. Of the 92 counties in Indiana, DeKalb County is the 68th largest in geographical size and 35th largest for population in Indiana. Approximately 30% of the population in DeKalb County lives in the City of Auburn.

In 2004, the median age of the population in DeKalb County was 35.5 years. 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 27.8%, 24.0%, and 20.3%, respectively. The ethnic majority in DeKalb County is white which comprises 88.7% of the county population followed by a growing black ethnicity. Similar to the rest of Indiana, 23.8% of the population in DeKalb County is married with children. The average household size is 2.63 persons. Homeownership is higher in DeKalb County than elsewhere in the state. Approximately 76% 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% of all land area in DeKalb County. Following agricultural production areas in geographic extent is deciduous forest, which covers approximately 8% of the County. Residential development, both low density and high density, covers approximately 1% of the total land use in the County and is

concentrated primarily near the City of Auburn and the smaller incorporated areas of the City of Butler, the City of Garrett, and the City of Waterloo. **Table 2-2** displays the distribution of land-use types within DeKalb County.

Table 2-2: Land Use in DeKalb County

Description	Acres	% of County
Row Crops	165,394.6	71.1
Pasture/Hay	36,436.3	15.7
Deciduous Forest	19,091.5	8.2
Wetlands	5,876.8	2.5
Low Density Residential	2,291.1	1.0
Commercial/Industrial/Transportation	1,254.1	0.5
Open Water	1,122.2	0.5
Urban/Recreational Grasses	585.3	0.3
High Density Residential	394.1	0.2
Evergreen Forest	154.6	0.1
Bare Rock/Sand/Clay	111.6	<0.1
Mixed Forest	28.5	<0.1
TOTAL	232,756.9	100.0

(USGS, 2004)

As found in the DeKalb County Comprehensive Plan, DeKalb County is facing rapid growth in the southern portion of the County as Allen County and the City of Fort Wayne continue to expand. With this growth comes the challenge to manage and focus the growth to the most desirable areas. It can be observed from the DeKalb County Future Land Use Map that residential growth will be focused along the southern and eastern portions of the City of Garrett, the City of Auburn and northerly to the Town of Waterloo. Throughout the County, measures are also anticipated through the use of agricultural zoning to guide the preservation of agricultural and rural residential land uses that are important to DeKalb County. Agricultural land uses are the primary planned land use outside of the planned growth areas of each municipality.

2.4 EMPLOYMENT

Census data from 2003 shows that, of the total labor force in DeKalb County, 89.7% 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 \$26,944 and the median household income in 2003 was \$45,700. The number of individuals commuting out of DeKalb County for work was lower (5,725) than those commuting into DeKalb County for work (7,121). In 2005, employment numbers indicated a residential labor force of over 22,000 individuals, of which approximately 20,600 were employed. In January of 2007, the unemployment rate for DeKalb County was 7.2% placing DeKalb County with the 15th highest unemployment rate in the State of Indiana. **Table 2-3** lists the major employers including large office buildings and industrial complexes with 250 or more occupants as found in the DeKalb County CEMP.

Table 2-3: List of Major Employers

Alcoa	Pullman Industries
Bohn Aluminum	Rieke
Cooper	Therma Tru
Dura Automotive	Steel Dynamics Incorporated
Eaton	Tower Automotive
Foamex	Tri Wall
Guardian Incorporated	Vulcraft
NuCor	Wal Mart Distribution Center

(DeKalb County CEMP, 2003)

Manufacturing facilities in DeKalb County employ 36.4% of the workforce, approximately 10,480 workers. Private facilities are the next largest employer with 15.5%; retail trade has approximately 9.1% of the county's workforce, with an additional 10% 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.

Critical Facilities can be considered within the following categories:

- **Governmental Facilities** – *10 facilities* – essential for the delivery of critical services and crisis management including data and communication centers and key government complexes.
- **Essential Facilities** – *22 schools, 4 emergency operations centers, 11 fire stations, 6 law enforcement facilities, 13 medical facilities* – 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** – *10 airports, 1 railroad* – necessary for transport of people and resources including airports, highways, railways, and waterways.
- **Lifeline Utility Systems** – *7 wastewater treatment plants, 5 potable water systems, 2 communications facilities, 1 power station, 14 electric substations, 1 oil refinery* – vital to public health and safety including potable water, wastewater, oil, natural gas, electric power, and communication systems.
- **High Potential Loss Facilities** – *7 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** – *78 hazardous materials 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 DeKalb County GIS department, and the Planning Committee was utilized to identify preliminary types and locations of critical facilities to be incorporated into the DeKalb County GIS

databases. 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 33,000 non-critical facilities were identified using the DeKalb County GIS databases. The development of this MHMP focused on critical facilities; thus, non-critical facilities are not individually mapped or listed.

2.6 MAJOR WATERWAYS AND WATERSHEDS

According to the Indiana Department of Environmental Management (IDEM), there are 66 waterways in DeKalb County. **Table 2-4** lists the waterways identified. The most prominent waterway in the County is Cedar Creek. Cedar Creek begins in DeKalb County northwest of the Town of Waterloo, flows in a southeasterly direction through the northern portion of the Town of Waterloo and travels back in a southwesterly direction bisecting the City of Auburn and continuing in a southern direction until exiting DeKalb County near CR 327, west of Interstate 69. The St. Joseph River is also present in DeKalb County from its entrance between CR 40 and CR 48, as it travels in a south-westerly direction approaching the southern boundaries of Town of St. Joe and ultimately entering Allen County southeast of State Road 1.

Table 2-4: List of Major Waterways

Ayford Ditch	Haverstock Ditch	Myers Ditch	Sycamore Creek
Bear Creek	Hilkey Ditch	Nancy Davis Ditch	Teutsch Ditch
Big Run	Hindman Ditch	North Branch Hursey Ditch	Turkey Creek
Black Creek	Hoffelder Ditch	Pechart Ditch	Tustison Creek
Buck Creek	Hoodelmier Ditch	Peckhart Ditch	Varner Ditch
Carper Ditch	Jackson No 2 Ditch	Peter Grube Ditch	W Smith Ditch
Cedar Creek	John Smith Ditch	Praul Ditch	Wade Ditch
Christoffel Ditch	King Ditch	Riggs Ditch	Walker Ditch
Davis Ditch	Leins Ditch	Schmadel Ditch	Walters Ditch
Dibbling Ditch	Little Cedar Creek	Sebert Ditch	Weicht Ditch
Diehl Ditch	Little Cedar Lake	Smith Ditch	Weldin Ditch
Silley Ditch	Mary Metcalf Ditch	Sol Shank Ditch	West Smith Ditch
Donnell Ditch	Mason Ditch	South Branch Hursey Ditch	Winegard Ditch
Dosch Ditch	Matson Ditch	St Joseph River	Yarde Ditch
Fish Creek	McCullough Ditch	Swander Ditch	
Garrett City Ditch	Melissa Ditch	Swartz Ditch	
Harwood Ditch	Metcalf Ditch	Swartz-Carnahan Ditch	

(IDEM, 2006)

According to the IDEM, there are 33 14-digit Hydrologic Unit Code (HUC) watersheds in DeKalb County. The largest watershed is the Bear Creek – Hursey Ditches Watershed (17,507 acres)

and the smallest is the St. Joseph River – Cedarville Reservoir (26 acres). **Table 2-5** lists the 14-digit HUC watersheds in DeKalb County. As found in the DeKalb County CEMP, there are 4 major lakes within DeKalb County: Cedar Lake, Indian Lake, Lintz Lake, and Story Lake.

Table 2-5: List of 14-Digit HUC Watersheds

14-Digit HUC #	14-Digit HUC NAME	Acres
04100003050030	Fish Creek – Alvarado	327.6
04050001110110	Little Turkey L-Big Long L/Lake of the Woods	753.7
04050001110050	Mud Lake – Johnson Ditch	1010.5
04100003030060	Bear Creek (St. Joseph River, OH)	109.2
04100003050050	Fish Creek – Myers Dt-Bull Lake/Baker Ditch	6954.7
04050001110090	Turkey Creek – Headwaters (Helmer)	5886.5
04100003050060	Fish Creek – Cornell Ditch	10617.9
04100003070020	Bear Creek – Hursey Ditches	17506.9
04100003060070	St. Joseph River – Sol Shank Ditch	16638.2
04100003090030	Cedar Creek – Dosch Ditch	15343.5
04100003070030	St. Joseph River – Walker/Metcalf Ditches	14474.0
04100003080010	Cedar Lake – Leins Ditch – McCullough Ditch	13816.2
04100003080050	Cedar Creek – Smith Ditch	12161.4
04100003090020	John Diehl Ditch – Peckhart Ditch – Ober Ditch	11959.7
04100003060060	Buck Creek – Mason/Metcalf Ditches	11632.9
04100003080020	Dibbling Ditch – Hoffeider Ditch	11184.7
04100003080040	Matson Ditch	11172.6
04100003060030	Big Run – Headwaters (DeKalb)	10718.1
04100003090010	John Diehl Ditch – Headwaters	9732.7
04100003080030	Cedar Creek – Dean Trib/Swartz Ditch	8969.1
04100003090050	Little Cedar Creek – King Lake	7078.5
04100003090040	Little Cedar Creek – Sycamore Creek	6939.4
04100003060040	Big Run – Outlet (DeKalb)	6668.5
04100003070010	St. Joseph River – Davis Ditch	6546.6
04100003070040	St. Joseph River – Swartz Carnahan Ditch	3841.7
04100003090060	Little Cedar Creek – Black Creek	2696.1
04100003060050	St. Joseph River – Peter Grube/Christoffel Dts	2610.6
04100005020040	Marie DeLarme Creek – Tustison Creek	2136.8
04100005010140	Ham Interceptor Ditch	973.1
04100005020050	Gordon Creek – South Fork Gordon Creek	824.7
04100003090080	Willow Creek – Willow Creek Ditch	773.3
04100003070050	St. Joseph River – Cedarville Reservoir	26.0
04100003090070	Willow Creek – Yant Ditch	17.8

(IDEM, 2006)

2.7 TOPOGRAPHY

DeKalb County lies within the Tipton Till Plain, as part of the Central Lowland Province. The DeKalb County landscape can be characterized as generally flat to rolling topography in the northwestern portion of the county, and more level in the southeastern and central portions. The difference in elevation for DeKalb County, according to the DeKalb County Soil Survey, is approximately 300 feet, with the highest elevation being 1,060 ft. approximately 2 miles west of Fairfield Center. The lowest elevation in the county is located in the southeastern corner near the Ohio – Indiana State Line at 764 ft in elevation.

2.8 CLIMATE

The Midwestern Regional Climate Center provided climate data that includes information retrieved from a weather station located in Auburn, identified as NCDC station 120334. The average annual mean temperature for DeKalb County is 50.3 °F. Mean precipitation is 35.47” a year, with the wettest month being June with 4.17” mean total, and the driest month is February, with 1.42” mean total. The highest 1-day maximum precipitation was 3.65” on October 31, 1898. Mean snowfall is 32.4” per year. The highest monthly amount of snowfall recorded at this station is 30.0” for January 1982. On average, there are 118.5 days of rain greater than or equal to 0.01”, 23.6 days of rain greater than or equal to 0.5”, and 6.5 days of rain greater than or equal to 1.0” of depth. There are approximately 164 days in the growing season for 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 impacts 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 FEMA Region V, identified those hazards that affected DeKalb 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 DeKalb 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, earthquake, flooding, hailstorms, thunderstorms and 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 list included landslides and wildfires, it was felt that these events had little local impact and were not studied as part of this planning effort.

Table 3-1: Hazards Identification

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

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, 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 NFIP community in DeKalb County, and then a weighted CPRI value was computed based on the population size of each community within DeKalb County. **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
DeKalb County (w/o other NFIP)	17,631	42.3%	0.4
City of Auburn	12,687	30.5%	0.3
City of Butler	2,714	6.5%	0.1
City of Garrett	5,760	13.8%	0.1
Town of St. Joe	474	1.1%	0.01
Town of Waterloo	2,198	5.3%	0.1
TOTAL	41,464	100.0%	1.0

Table 3-3 illustrates the combined CPRI values for DeKalb County and NFIP communities. According to the combined CPRI, hailstorm/thunderstorm/windstorm, at 3.0, was ranked as the number one hazard in DeKalb County followed by severe winter storm/ice (2.7), hazardous

materials incident (2.6), flooding (2.4), tornado (2.4), earthquake (1.7), and dam failure (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 DeKalb County. **Section 3.2** includes a profile of the individual hazards as well as a CPRI value for both DeKalb County as a whole, and the specific communities within the County.

Table 3-3: Combined CPRI for DeKalb County and NFIP Communities

	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 • < 6 hrs • < 1 day • < 1 wk • > 1 wk	Weighted Average CPRI
Hailstorm/ Thunderstorm/ Windstorm	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0
Severe Winter Storm (Ice)	Highly Likely	Negligible	12-24 hrs	< 1 wk	2.7
Hazardous Materials	Unlikely – Highly Likely	Negligible - Limited	< 6 hrs	< 1 day	2.6
Flooding	Unlikely - Highly Likely	Negligible - Critical	> 24 hrs – 6-12 hrs	< 6 hrs – > 1 wk	2.4
Tornado	Possible – Highly Likely	Negligible - Critical	< 6 hrs	< 6 hrs	2.4
Earthquake	Unlikely	Negligible - Limited	< 6 hrs	< 1 day	1.7
Dam Failure	Unlikely	Negligible	< 6 hrs - >24 hrs	< 6 hrs	1.2

Similar to the CPRI, the DeKalb County DHS, along with other response and support agencies within the County, developed a DeKalb County Comprehensive Hazard Analysis in 2003. Many of the representatives involved in developing the Comprehensive Hazard Analysis were also involved in developing the DeKalb County MHMP. Within this analysis, the committee completed a Hazard Identification Worksheet by which each hazard was assigned a score of 1-5 to establish an overall probability for each hazard. The scoring results for those hazards also studied in the MHMP are listed in **Table 3-4** and are compared with the CPRI values, historical losses and estimated damages for each hazard in **Table 3-5** at the end of this chapter.

Table 3-4: Comprehensive Hazard Analysis Scores

Hazard	Score
Dam Failure	<i>Not scored by Committee</i>
Earthquake	1 – Unlikely to occur
Flooding	3 – Hazard is possible in this area
Hail/Thunder/Windstorm	4 – Hazard occurred in the past, likely to recur
Hazardous Materials	5 – High impact and high probability event
Severe Winter Storm (Ice)	5 (4)
Tornado	4

(DeKalb County Comprehensive Hazard Analysis, 2003)

According to the 2003 Comprehensive Analysis scoring, hazardous materials incidents and snowstorms have a high probability that this type of event will occur within the County, as well as having a high impact to the area. Hailstorms, thunderstorms, windstorms, ice storms, and tornados were scored as a hazard that has occurred in the area and will likely occur again, while riverine flooding was considered a hazard that is possible in the area. The hazard having the lowest probability of affecting DeKalb County is an earthquake.

The hazards studied for this report are not equally threatening to all communities throughout DeKalb 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, Cedar Creek travels through a significant portion of the Town of Waterloo and further bisects the City of Auburn. The Town of St. Joe is also impacted by the floodplain of the St. Joseph River. Therefore, these communities would expect much greater damages from a flood event than would the City of Garrett with little to none of the incorporated areas in a floodplain. This is primarily due to the size of the community, the amount of development in close proximity to the rivers and streams, and the number of critical facilities located in the affected area. The same example can be used for a hazardous material incident. The Town of St. Joe is not shown to have any hazardous materials handlers. However, a railroad that may transport hazardous materials does pass through the area. A higher concentration of facilities that utilizes, produces, stores, and/or transports hazardous materials is located within the City of Auburn and the City of Butler. It would be expected that these areas would have a higher probability of realizing a hazardous materials incident. Detailed information regarding areas of concern will be provided within each hazard profile, along with the CPRI value for each of the NFIP communities.

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 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.

Hailstorm, Thunderstorm, & Windstorm: Historic Data

In DeKalb County, 39 hailstorms, 47 thunderstorms, and 24 windstorms have been recorded by the National Climatic Data Center (NCDC) since 1955. 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 DeKalb 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 3-5** provides detailed information recorded by the NCDC that have resulted in injuries, deaths, or property damages. The NCDC did not indicate any crop damages in DeKalb County because of a hailstorm, thunderstorm, or windstorm. Very few NCDC hailstorm reports included information specific to DeKalb 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 DeKalb County between 1984 and 2005 is \$1.0M along with 1 death and 3 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, and windstorms are specifically listed, they are included in the assessment of vulnerability and future risk to the communities.

Table 3-5: Historic Hailstorm, Thunderstorm, and Windstorm Events

Location	Date	Type	Mag.	Death/ Injury	Property Damage**
DeKalb County	09/04/1984	Thunder/Wind	0 mph	0/3	\$0
DeKalb County	03/27/1991	Thunder/Wind	0 mph	1/0	\$0
DeKalb County+ (88 Counties affected)	11/21/1994	High Wind	0 mph	0/0	\$50.0K
DeKalb County+ (88 Counties affected)	11/27/1994	High Wind	0 mph	0/0	\$120.0K
DeKalb County	07/15/1995	Thunder/Wind	NA	0/0	\$1.0K
Ashley	07/08/1997	Thunder/Wind/Hail	0 mph	0/0	\$1.0K
Near Waterloo	08/15/1997	Thunder/Wind/Hail	0 mph	0/0	\$1.0K
Auburn	04/10/1999	Thunder/Wind	0 mph	0/0	\$20.0K
Garrett	06/12/2001	Thunder/Wind	0 mph	0/0	\$5.0K
Butler	06/12/2001	Thunder/Wind	0 mph	0/0	\$1.0K
Auburn	08/22/2001	Thunder/Wind	0 mph	0/0	\$5.0K
Waterloo	10/24/2001	Thunder/Wind	0 mph	0/0	\$3.0K
DeKalb County+ (24 Counties affected)	11/12/2003	Thunder/Wind	64 mph	0/0	\$50.0K
Garrett	07/25/2005	Thunder/Wind	63 mph	0/0	\$2.0K
DeKalb County	11/06/2005	Thunder/Wind	75 mph	0/0	\$750.0K
TOTAL				1/3	\$1.0M

(NCDC, 2006)

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

There have been several key thunderstorms and windstorms that have occurred throughout DeKalb 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.

On November 6, 2005, several reports of storm related damages were recorded. For example, in the City of Auburn, 4 houses were severely damaged, numerous trees, power lines and poles were blown down, a truck was blown on it's side, and one local resident even reported that a 2x6 board was driven into the ground. Similarly, during the event that occurred on August 22, 2001, a mobile home was destroyed as it was blown onto it's side by high winds and large trees throughout the area were blown over taking power lines and poles with them as they fell. As indicated in the table above, damages from thunderstorms and windstorms have varied from \$1.0K to approximately \$750.0K and the majority of the events have not resulted in deaths or injuries.

The probability of a future hailstorm, thunderstorm, or windstorm occurring in DeKalb County is highly likely and will typically affect broad portions of the County at one time. As advancements in technologies such as weather radar 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 DeKalb County is less than

6 hours. **Table 3-6** provides the CPRI for hailstorms, thunderstorms, and windstorms and their effects on DeKalb County and the communities within.

Table 3-6: CPRI for Hailstorm, Thunderstorm, and Windstorm

	Probability <ul style="list-style-type: none"> • Unlikely • Possible • Likely • Highly Likely 	Magnitude/Severity <ul style="list-style-type: none"> • Negligible • Limited • Critical • Catastrophic 	Warning Time <ul style="list-style-type: none"> • >24 hrs • 12-24 hrs • 6-12 hrs • <6 hrs 	Duration Of Event <ul style="list-style-type: none"> • <6hrs • <1day • <1wk • >1wk 	CPRI
DeKalb County	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0
City of Auburn	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0
City of Butler	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0
City of Garrett	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0
Town of St. Joe	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0
Town of Waterloo	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.0

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 DeKalb County. As determined by the Planning Committee, the probability of a future hailstorm, thunderstorm, or windstorm occurring in DeKalb County is highly likely with approximately less than 6 hours of advanced warning time. An event of this nature is expected to last less than 6 hours in total length. The magnitude or severity of a hailstorm, thunderstorm, or windstorm in any area of DeKalb County is considered limited for all communities as many newer homes in the area are of better construction and should be able to withstand high winds. 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 251 critical and 33,000 non-critical facilities in DeKalb 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 \$50.0K - \$750.0K. 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 least amount of monetary damages to DeKalb County. With nearly the same considerations, hailstorms, thunderstorms, and windstorms were scored in the Comprehensive Hazard Analysis

as a hazard that has occurred in the past and is likely to occur again. In order to better assess community vulnerability, future property and crop damage 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.

To provide as much advance warning as possible to the residents of DeKalb County, the DeKalb 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. The National Oceanic and Atmospheric Administration (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 an effort to protect the public and minimize damages to public and private properties in DeKalb County.

One option to alert the residents of DeKalb 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 impending severe weather conditions, community updates, hazardous materials incidents, and other public safety information can be quickly and efficiently delivered via telephone.



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) can be an effective mitigation practice to reduce loss of life and property. The outdoor warning sirens are currently only activated for tornado watches and warnings and are not activated for hailstorms, thunderstorms, or windstorms.

Residents and businesses, especially critical facilities, not covered by outdoor warning sirens should stay abreast of current weather conditions with a 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 DeKalb County currently own and operate weather radios. However, to further reduce losses and protect citizens, they should be required in all critical facilities. This type of comprehensive measure could help to ensure that all residents and visitors of DeKalb County are fully aware of approaching and developing hailstorms, thunderstorms, and windstorms.

The DeKalb County GIS Department has a well-developed GIS inventory that is actively used to aid in land use planning and decision making efforts. Available GIS information includes the location of the critical facilities, transportation routes, parcel data, and other relevant information. These layers should be made available to DeKalb County communities to create a comprehensive database to be utilized to develop “what if” scenarios regarding individual municipalities and collectively throughout the County.

DeKalb County also participates in the Severe Weather Awareness Week created by the NWS. The Severe Weather Awareness Week 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 IDHS provide and distribute information to county 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 DeKalb 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.

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.

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 DeKalb 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 DeKalb 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 DeKalb County may have designated safe areas such as hallways or interior rooms for occupants to gather during a severe 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 DeKalb 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 damaging people, property, and utility lines during a thunderstorm or a windstorm. Electric providers in DeKalb County, including Auburn Electric and Garrett Electric, have developed an extensive tree maintenance program to maintain necessary clearance around both low voltage and high voltage 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.



Hailstorms, thunderstorms, and windstorms can have serious effects on above ground utilities such as electricity or communication lines. To prevent a disruption of service, back-up power is essential at critical facilities especially medical care, police, fire, and community shelter facilities. According to the DeKalb County DHS, many of the critical facilities in the county have permanent power back ups in their facilities, some facilities have two sources of back up power. For those critical facilities that do not have a permanent power back-up source, the DeKalb County DHS has several mobile generators that they can quickly mobilize to restore service.

To further reduce the potential of future power outages, utility lines in areas of new development should be buried. DeKalb County and the City of Auburn promote the burial of utility lines, while many areas of new development are doing so in conjunction with the installation of 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 does make sense for new development and reconstruction projects.

Social, physical, and economic losses from hailstorms, thunderstorms, and windstorms will most likely increase as more people choose to live, work and visit DeKalb County. Increases in damages, losses and injuries can be expected as the population and number of facilities continues to rise in DeKalb 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.

3.2.2 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 mph are expected for several hours. Severe winter storms are common during the winter months in DeKalb County. Such conditions can result in substantial personal and property damage, even death.

Severe Winter Storm: Historic Data

The NCDC has recorded 9 heavy snow, 5 winter storms, and 2 ice storm events in DeKalb County since February 1993. **Table 3-7** illustrates the historical severe winter storm data collected by NCDC, the best available source for historic severe winter weather for DeKalb County. 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 DeKalb 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.

A more recent severe winter storm event occurred in February of 1993 affecting 10 counties located in the far north central and far northeast Indiana. Approximately \$100.0K in damages is attributed to this event as numerous roads businesses, and schools were closed throughout the region and the state. In many places between 7 and 11 inches of snow were reported to have fallen at a rate of 1 to 2 inches per hour. Similarly, in late December 1998, approximately 12 to 16 inches of snow accumulated in DeKalb County along with sub-zero wind chill temperatures. Private contractors were hired to assist with snow removal, while grocers were concerned about

delivery trucks arriving in order to keep shelves full of food. Several businesses and schools in the County were closed due to impassable streets and drifting snow.

In the winter of 2002, an ice storm caused widespread power outages in DeKalb County. The power outages lasted 4 to 5 days for some areas. Shelters were opened for those without power for extended periods and outside help was requested to assist with the shelter operations.

On December 23, 2004, a winter storm struck the Auburn area with more than 6 inches of blowing snow beginning in the early morning hours. Monetary damages were not reported specifically for DeKalb County for this event but it was mentioned that state offices in more than 30 counties were ordered to be closed, potentially creating loss of revenue. It was estimated that this event resulted in three deaths and over \$3.0M in damage statewide.

The probability of a severe winter storm causing disruption to residents and businesses in DeKalb County is highly likely, and typically will affect the entire County, and possibly several surrounding counties, at one time. With advancements in weather forecasting, the warning time for severe temperatures or several inches of snow associated with severe winter storms is usually 6 to 12 hours with the duration of the event anticipated to last less than one week. **Table 3-8** identifies the CPRI for a severe winter storm for all NFIP communities in DeKalb County.

Table 3-7: Historic Severe Winter Storm / Ice Data

Location	Date	Type	Death/Injury	Property Damage**
Indiana	02/15/1993	Heavy Snow	0/0	\$50.0K
DeKalb County + (10 counties affected)	02/22/1993	Heavy Snow	0/0	\$100.0K
DeKalb County + (14 counties affected)	01/31/2002	Ice Storm	0/1	\$10.0K
TOTAL			0/1	\$160.0K

(NCDRC, 2006)
(**: K=1,000)

Table 3-8: CPRI for Severe Winter Storm / Ice

	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 • < 6 hrs • < 1 day • < 1 wk • > 1 wk	CPRI
DeKalb County	Highly Likely	Negligible	6-12 hrs	< 1wk	2.7
City of Auburn	Highly Likely	Negligible	6-12 hrs	< 1wk	2.7
City of Butler	Highly Likely	Negligible	6-12 hrs	< 1wk	2.7
City of Garrett	Highly Likely	Negligible	6-12 hrs	< 1wk	2.7
Town of St. Joe	Highly Likely	Negligible	6-12 hrs	< 1wk	2.7
Town of Waterloo	Highly Likely	Negligible	6-12 hrs	< 1wk	2.7

As shown in the table, the probability of a severe winter storm occurring in DeKalb County in the future is highly likely for all communities and unincorporated areas. The severity of such an event would cause negligible overall damages within all NFIP communities and unincorporated areas of DeKalb County. Further, the warning time and duration of the severe winter storm events are the same for all communities in DeKalb County due to the regional extent and diffuse severity of this hazard event.

Severe Winter Storm: 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. Few severe winter storms, as recorded by the NCDC for DeKalb County have losses, injuries, or deaths associated with them. Based on these events, DeKalb County communities should expect similar losses, and perhaps greater 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 to 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 above examples indicate 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 \$1.0B 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.

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 weather was scored in the DeKalb County Comprehensive Hazard Analysis as a hazard that has a high impact throughout the county, along with a high probability this type of event will occur in the area again. Damages reported to the NCDC were not specific to DeKalb

County, although approximately \$3.0M in damages was reported statewide, placing severe winter weather as the second most damaging hazard, historically.

Severe Winter Storm: 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 DeKalb County per year is highly likely. Fortunately, the warning time associated with severe winter storms is 6 to 12 hours, which should give residents, business owners, and visitors enough time to protect themselves and their property.



The DeKalb County Commissioners, with advice provided by the DeKalb DHS, have the ability to declare a snow emergency within the unincorporated areas of DeKalb County. Motorists are advised to proceed with caution when operating motorized vehicles on County Roads. Traffic violations may be issued for those attempting to operate a vehicle in such weather along snow emergency routes.

While no consistent levels of snow advisories or emergencies exist within DeKalb County or the municipalities, it may be beneficial to develop consistent and tiered levels of advisory throughout the IDHS District 3, which includes DeKalb County. A travel advisory, travel warning, and a snow emergency alert would restrict the amount and type of traffic throughout the County, 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.

When winter weather conditions become or are expected to become adverse, trucks equipped with snowplows will be routed to local fire stations. This is in effort to provide fire trucks or EMS vehicles with safe travel when responding to alarms or emergency calls. When needed, DeKalb County response officials have collaborated with local farmers, and business owners with such equipment to clear fallen and drifted snow.

As discussed previously, officials in DeKalb 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 the County actively participate in the annual Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for 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 the residents and visitors to DeKalb County.

The DeKalb County MHMP Planning Committee agreed that owners and operators of critical facilities need to be encouraged to acquire back up power generators and weather radios. Further, developers, municipal officials, and utility providers within these communities need to be encouraged to continue to adhere to the State of Indiana Building Codes, to continue to perform preventative tree maintenance, and to encourage the burial of 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 DeKalb 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.

3.2.3 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, storage, use, and disposal, accidental releases are bound to occur. These releases create a serious hazard for workers, neighbors, and emergency response personnel. Emergency response 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 DeKalb 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 DeKalb County that utilize or produce materials listed as hazardous by the US EPA. It is possible that other facilities in DeKalb 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, DeKalb County has experienced few moderately scaled hazardous materials releases from fixed locations or during transportation without injuries or loss of life. Likewise, even small-scale releases or events have not been the cause of serious injuries or death to those involved or responding to the incident. However, the potential for a serious event is still large enough to warrant plans and preparedness at the county level.

According to the DeKalb County Comprehensive Hazard Analysis, in DeKalb County there has not been a significantly large-scale hazardous material incident either at a fixed site or during transport that has resulted in multiple deaths or even serious injuries. However, there have been many minor releases that have activated local firefighters, response teams, emergency management, and local law enforcement to stabilize the area to prevent further harm or damages. It is estimated that there is at least one chemical or hazardous materials release at a fixed site within the County every year.

Approximately 5,000 gallons of diesel fuel was released because of a train wreck within the City of Butler. One death is attributed to this incident as two trains collided. A similar event occurred in 2001 when a chemical tanker spilled its contents following a derailment within the Town of Corunna.

According to 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 3-9**, identifies those hazardous materials incidents in the United States by mode of transportation for the year of 2004.

Table 3-9: 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
TOTAL	14,745	131	171

(OHMS, 2005)

Interstate 69 traverses DeKalb County in a north/south direction and creates the western border of the City of Auburn. US Highway 6 bisects DeKalb County as it travels west/east traveling through the Town of Corunna, Town of Waterloo, and City of Butler. The highly active N. S. Corp. (Norfolk Southern) rail line travels parallel with US Highway 6 through DeKalb County. A second line owned by N. S. Corp travels north/south near the western border of the Town of St. Joe and through the City of Butler. CSX also operates an active rail line traveling across the

southern portion of DeKalb County through the City of Garrett, City of Auburn, and Town of St. Joe.

According to the Planning Committee, the probability of a hazardous materials release or event is likely to occur within the unincorporated portions of DeKalb County, the City of Butler, and the City of Garrett. The City of Auburn received the highest probability ranking of highly likely and the remaining NFIP communities of Town of St. Joe, and Town of Waterloo were deemed unlikely to be the site for a hazardous materials incident. This is due primarily to the fact that the number of hazardous materials handlers are significantly less than other NFIP communities. If this type of event were to occur anywhere in the County, expected damages would be considered negligible to limited due to the sparsely populated unincorporated areas and the small portions of the NFIP communities anticipated to be affected. The warning time for a hazardous materials incident can be significantly less than 6 hours while the duration of the events may take up to one day. **Table 3-10** identifies the CPRI for a hazardous materials incident within DeKalb County and the other NFIP Communities.

Table 3-10: CPRI for Hazardous Materials Incidents

	Probability <ul style="list-style-type: none"> • Unlikely • Possible • Likely • Highly Likely 	Magnitude / Severity <ul style="list-style-type: none"> • Negligible • Limited • Critical • Catastrophic 	Warning Time <ul style="list-style-type: none"> • > 24 hrs • 12-24 hrs • 6-12 hrs • <6 hrs 	Duration of Event <ul style="list-style-type: none"> • <6hrs • <1day • <1wk • >1wk 	CPRI
DeKalb County	Likely	Negligible	< 6 hrs	< 1 day	2.4
City of Auburn	Highly Likely	Limited	< 6 hrs	< 1 day	3.1
City of Butler	Likely	Limited	< 6 hrs	< 1 day	2.7
City of Garrett	Likely	Limited	< 6 hrs	< 1 day	2.7
Town of St. Joe	Unlikely	Negligible	< 6 hrs	< 1 day	1.6
Town of Waterloo	Unlikely	Negligible	< 6 hrs	< 1 day	1.6

As shown by the CPRI, the probability severity, warning time, and duration for a Hazardous Materials incident vary only slightly throughout DeKalb County. The primary exception being the highly likely probability of an event occurring in the City of Auburn. 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, as Interstate 69 and numerous State Roads travel throughout all communities in DeKalb County.

Hazardous Materials: Vulnerability Assessment

According to IDEM’s Hazardous Waste Notifiers List and additional input from the Planning Committee, there are 67 hazardous waste handlers within DeKalb County. Twelve (12) of these hazardous waste handlers are considered to be Large Quantity Generators (LQGs). Twenty-five (25) of the 67 facilities are located in the unincorporated portions of the County. An additional 24 facilities are located in the City of Auburn, 7 facilities are within each of the cities of Butler and Garrett, and the remaining 4 facilities are located in the Town of Waterloo. These hazardous materials facilities, along with major transportation routes and rail lines are identified on **Exhibit 4**.

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 was imposed surrounding each facility.

The number of critical and non-critical facilities within each NFIP community was determined utilizing digital aerial photography and GIS data analysis. Replacement costs were derived by assuming that 25% of all critical and non-critical structures in the buffer areas would be completely damaged, 35% would be 50% damaged, and 40% would receive only 25% damage. **Table 3-11** below indicates the critical and non-critical facilities located within the buffer areas for each NFIP community and the graduated replacement costs.

Table 3-11: Hazardous Materials Handlers, Neighboring Facilities, and Replacement Costs

NFIP	Critical Facilities	Replacement Cost	Non-critical Facilities	Replacement Cost
DeKalb County	25	\$2.9 M	277	\$23.5 M
City of Auburn	24	\$2.8 M	687	\$54.9 M
City of Butler	7	\$0.8 M	193	\$15.2 M
City of Garrett	7	\$0.8 M	355	\$27.9 M
Town of St. Joe	0	0	0	0
Town of Waterloo	4	\$0.5 M	56	\$4.4 M
Total	67	\$7.8 M	1,571	\$125.9 M

(M=1,000,000)

While the possibility of an incident occurring may be likely, the vulnerability of DeKalb 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 hazardous materials 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 chemical 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 5 facilities in DeKalb 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 DeKalb County.

While no historical losses were provided, the estimated losses for a hazardous materials incident in DeKalb County range from \$4.0M to \$23.0M. Within the DeKalb County Comprehensive Hazard Analysis, hazardous materials incidents were determined to be a hazard with a high impact and a high probability that this type of hazard would occur in the area. While scored the highest in the Comprehensive Hazard Analysis, this type of event was scored second highest during the CPRI exercise completed by the Planning Committee.

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 DeKalb County LEPC is the local entity responsible for planning, training and implementing exercise activities within the county. Over 60 facilities in DeKalb 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 and local Fire 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. Exhibit 4 depicts the location of hazardous materials facilities in DeKalb County, the critical management zones surrounding these facilities and the major transportation routes in DeKalb County.

The DeKalb 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 DeKalb 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.

In recognition of the risks associated with hazardous materials, the DeKalb County Hazardous Materials Response Team (HMRT) was formed in 1989. According to the DeKalb County DHS, there are approximately 20 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.

The mission of the Response Team 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 DeKalb 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 an increase in the number of positions, an increase in realistic exercises, trainings, and equipment for response to incidents needs to continue and adequate equipment for response efforts and personnel needs to be obtained and maintained for optimum use.

As discussed previously, officials in DeKalb 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 of a voluntary program to immunize emergency responders, and to establish the ability to provide automated public alerts via telephone or electronic communications. The DeKalb County MHMP Planning Committee agreed that owners and operators of critical facilities need to be encouraged to acquire back up power generators and weather radios.

Social, physical, and economic losses from hazardous materials incidents will most likely increase as more people choose to live, work, and visit DeKalb 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, DeKalb 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.

3.2.4 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 DeKalb 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 DeKalb County. The NCDC has identified 5 significant floods in DeKalb County between April 1994 and July 2006. Estimated total property and crop loss figures reported for all flood events is approximately \$955.0K of property damage and \$75.0K of crop damage during the 12-year period. Of the total number of reported flood events, 3 were categorized as flash floods. Additionally, 2 deaths are attributed to these flooding events, 1 during the April 1994 event and a second death because of the May 1996 flash flood event. **Table 3-12** lists flood events listed by the NCDC for DeKalb County that have resulted in injuries, deaths, and/or property damages. Historical flood data as identified by the NCDC is the best available flooding data specific to DeKalb County and the NFIP communities.

The primary sources of flooding in DeKalb County are Cedar Creek, Little Cedar Creek, St. Joseph River, and various tributaries, as shown in **Exhibit 2**. In addition to these larger streams, many flat river bottom and prairie pothole areas also are prone to flooding. The flat agricultural areas and prairie pothole regions in the County may not drain very quickly and could contribute to flash flooding.

Table 3-12: Historic Flood Data

Location	Date	Type	Death/Injury	Property/Crop Damage**
DeKalb County + (31 counties affected)	04/12/1994	Flood	1/0	\$500.0K/0
Northern DeKalb County	05/17/1996	Flash Flood	1/0	\$30.0K/\$75.0K
DeKalb County	06/17/1996	Flash Flood	0/0	\$5.0K/0
De Kalb County	08/16/1997	Flash Flood	0/0	\$25.0K/0
De Kalb County + (3 counties affected)	09/11/2000	Flood	0/0	\$400.0K/0
TOTALS			2/0	\$955.0K/\$75.0K

(NCDL, 2006)

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

As indicated by Table 3-12, flooding occurs frequently in DeKalb County and the surrounding area and can lead to extensive damages to property. The most significant damages were a result of flooding that occurred on April 12, 1994. Approximately \$500.0K in property damages were reported, as 31 counties in Indiana were flooded. In addition, one life was also lost in Jackson County as a man and his vehicle were washed away by high, fast moving waters. In May of 1996, nearly 5 to 8 inches of precipitation rendered many roads impassable. A young woman lost her life while attempting to drive through high water near Fish Creek and several homes were damaged due to flooding in the area. During the September 2000 event, several homes and basements were damaged after over 4 inches of rain fell. Several rescues were performed as people were stranded in their vehicles by the high water.



The City of Auburn’s Flood Hazard Mitigation Plan produced by Bonar Group in 1998 details damages experienced from the March 1982 flooding event. The McIntosh Elementary School’s basement was inundated with nearly 3 feet of water, parking lots were completely under water and bridges were closed due to rising waters. Sewer backups throughout the City of Auburn exacerbated the flooding effects. Auburn Gear proactively created a dirt and sandbag berm, which prevented the building from receiving any damages. This event led to a disaster declaration for the City of

Auburn and although the precise figure for property damage is not known, it is thought to be significant. Following this event, a stream gage was placed in the area to alert the facility when flooding is expected.

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 DeKalb County, there are 2 properties designated as repetitive loss properties, both of which are located in the City of Auburn. 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 City of Auburn, there have been over 20 insurance claims for more than \$260.0K. In addition, there have been 10

claims throughout DeKalb County that have resulted in nearly \$20.0K in payments. **Table 3-13** below, identifies the number of claims per NFIP community as well as the payments made.

Table 3-13: Repetitive Loss Properties, Claims, and Payments

NFIP Community	# of Repetitive Loss	Claims since 1978	\$\$ Paid
DeKalb County	0	7	\$19,716
City of Auburn	2	21	\$267,240
City of Butler	0	0	\$0
City of Garrett	0	1	\$0
Town of St. Joe	0	0	\$0
Town of Waterloo	0	2	\$219
TOTAL	2	31	\$287,175

(IDNR, Division of Water, 2006)

Currently, the approximate flood insurance coverage required primarily for structures located in the A-zone is \$8.8M. The A-zone is the 100-year floodplain, or the area with a 1-percent annual chance of flooding. These areas are determined in the Flood Insurance Study (FIS) by approximate methods of analysis. Mandatory flood insurance purchase requirements apply to structures in this delineated area. Of that total, \$4.0M is flood insurance coverage for the City of Auburn. Total flood insurance premiums for DeKalb County and the NFIP communities is approximately \$44.0K. **Table 3-14** further indicates the premiums and coverage totals for individual NFIP Communities and the unincorporated areas of DeKalb County.

Table 3-14: Flood Insurance Premiums and Coverage

NFIP Community	Flood Insurance Premiums	Coverage
DeKalb County	\$15.3K	\$3.1M
City of Auburn	\$23.0K	\$4.0M
City of Butler	\$744	\$295.0K
City of Garrett	\$436	\$171.6K
Town of St. Joe	\$203	\$30.0K
Town of Waterloo	\$4.5K	\$1.1M

(IDNR, Division of Water, 2006)

The probability of a flood in DeKalb County is highly likely to unlikely. The magnitude or severity of flooding determines the extent to which there is substantial damage and/or disruption to homes, businesses, and transportation corridors. The magnitude or severity of a flood in DeKalb County as determined by the Planning Committee is critical 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. However, the volume of water is often greater than prevention measures can withstand resulting in only 6 to 12 hours of warning time.

In DeKalb County, a rain event or snowmelt that results in flooding and has the potential to disrupt normal activities and businesses in the County has a duration of more than one week at a time. **Table 3-15** identifies the CPRI for a flood in DeKalb County and other NFIP communities within the County.

Table 3-15: CPRI for Flooding

	Probability <ul style="list-style-type: none"> • Unlikely • Possible • Likely • Highly likely 	Magnitude/Severity <ul style="list-style-type: none"> • Negligible • Limited • Critical • Catastrophic 	Warning Time <ul style="list-style-type: none"> • > 24 hrs • 12-24 hrs • 6-12 hrs • < 6 hrs 	Duration of Event <ul style="list-style-type: none"> • < 6 hrs • < 1 day • < 1 wk • > 1 wk 	CPRI
DeKalb County	Likely	Negligible	6 - 12 hrs	>1 wk	2.4
City of Auburn	Likely	Limited	6-12 hrs	>1 wk	2.8
City of Butler	Likely	Limited	6-12 hrs	<1 wk	2.7
City of Garrett	Possible	Negligible	12-24 hrs	<1 day	1.7
Town of St. Joe	Highly Likely	Critical	6-12 hrs	>1 wk	3.5
Town of Waterloo	Likely	Limited	6-12 hrs	>1 wk	2.8

As shown in the table, index values differ by community. The Planning Committee assessed the communities separately to arrive at the calculated index values. The Town of St. Joe is expected to receive critical damages during a flooding event as the town is in close proximity to the St. Joseph River. Limited damages resulting from flood events are anticipated to be realized within the areas of the City of Auburn, City of Butler, and Town of Waterloo. When considering the City of Garrett and unincorporated areas of DeKalb County, the Planning Committee assessed the severity as negligible. Thus, these variations are reflected in the CPRI values for each community in DeKalb County resulting in the Town of St. Joe having the highest risk index and the Town of Waterloo and the City of Auburn having the lowest risk index.

Flooding: Vulnerability Assessment

Based on visual inspection and extensive data analysis provided by the DeKalb County GIS Department, there are 2 critical facilities located within the FEMA 100-year floodplain of DeKalb County. These include 1 wastewater treatment plant and 1 hazardous materials handler. Additionally, there are approximately 362 non-critical facilities that are identified as being within the 100-year FEMA floodplain. Approximately 272 of the 362 non-critical facilities (75%) are residential and of those, approximately 160 or 59% are located in the City of Auburn primarily along Cedar Creek. The unincorporated areas of DeKalb County have an approximate 100 (28%) residences within the 100-year floodplain, while the Town of St Joe has an estimated 7 homes within the 100-year floodplain and the remaining 5 residences are located in Town of Waterloo. This information is provided for reference in **Table 3-16**.

Table 3-16: Residential Structures within 100-year Floodplain

NFIP Community	Residences in 100-year Floodplain	Percentage of All Residences in 100-year Floodplain
City of Auburn	160	59%
Unincorporated DeKalb County	100	37%
City of Garrett	0	0%
City of Butler	0	0%
Town of St. Joe	7	3%
Town of Waterloo	5	2%
TOTAL	272	100%

Of all identified structures in the 100-year floodplain, it can be estimated 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 cost for critical facilities in the 100-year floodplain is estimated to be as much as \$230.0K. Damage estimates for non-critical facilities, such as residential, commercial, and other structures is \$26.5M. Social losses are difficult to quantify, though interrupted services associated with critical facilities may cause hardship for many residents.

Estimated damages of \$27.5M, provided by CBBEL, place flooding as the 2nd most potentially damaging hazard affecting DeKalb County. Based on damages reported to the NCDRC, flooding is the 3rd most damaging hazard and riverine flooding was scored in the Comprehensive Hazard Analysis as having a possibility of occurring within the area.

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 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. This language, when adopted, requires 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 also be equal to the volume of storage lost (or a replacement ratio of 1 to 1) due to the fill or structure. The City of Auburn, City of Butler, Town of St. Joe, and Town of Waterloo have adopted this additional language.

Currently, the DeKalb County Board of Commissioners and the City of Garrett are in the process of amending their zoning ordinances to include more restrictive language. 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. The ordinance would take measures to prevent increased damages by outlining that no developmental activities within the flood hazard area may increase the flood height or velocity.



Detailed flood studies, including hydrology and hydraulic modeling, have been completed by the MRBC for the majority of stream and river miles along Cedar Creek, the St. Joseph River, Little Cedar Creek, and the John Diehl/William Peckhart Drain. The same type of studies should be completed as new development is proposed within the unstudied stream portions of DeKalb 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.

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). Newly revised Digital FIRMs for DeKalb County became effective in September 2006.

The DeKalb County Comprehensive Plan is a powerful planning tool for flood mitigation as it defines how and where a community should plan for development. Further, the goals and objectives identified in the Plan become the foundation for all development ordinances within the communities involved. As DeKalb County continues to grow, the countywide Plan will help prevent flood losses by restricting development, especially of critical facilities, in flood hazard areas. 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.

As a designated Stormwater Phase II community, the City of Auburn 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 Auburn and DeKalb County.

Regulated drains and channels within DeKalb 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 DeKalb County.

In 2005, the Indiana Department of Natural Resources (IDNR), Division of Water reported \$44.3K in flood insurance premiums in DeKalb County (\$23.0K in the City of Auburn and \$15.3K in the unincorporated areas of DeKalb County). The total coverage for the county was estimated at \$8.8M. In order to reduce the premiums paid on flood insurance, the NFIP communities in DeKalb 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 DeKalb County participate in the CRS program.



There are several FEMA programs encouraging communities to identify and mitigate these repetitive loss properties. Two areas in DeKalb County have been prioritized for acquisition of properties that are subjected to increased potential for flood damages. These areas are along Cedar Creek within the City of Auburn and along Little Cedar Creek in the Holiday Lakes Subdivision south of the City of Garrett. These areas are further identified on **Exhibits 2a and 2b**. To date, five structures within the Auburn priority area have been purchased through FMA grant funding and funding provided by the MRBC.

Approximately \$675.0K has been spent to secure these properties adjacent to the DeKalb County Fairgrounds and will be developed into a park and outdoor amphitheatre. Three structures in the second priority area, the Holiday Lakes Subdivision, have been purchased with approximately \$226.0K funding again provided by the MRBC and FMA grants. This area is connected to an existing open space common area and trees have since been planted on the property.

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 DeKalb 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 3 real-time stream gages for DeKalb County. The locations of these gages are on Fish Creek near Artic, on Cedar Creek at 18th street in Auburn, and on the St. Joe River near Newville. As DeKalb 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 DeKalb 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 the County actively participate in the annual Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for the development of a voluntary program to immunize emergency responders, and to establish the ability to provide automated public alerts via telephone or electronic communications. The DeKalb County MHMP Planning Committee agreed that owners and operators of critical facilities 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 DeKalb County. The NCDRC data reports nearly \$1.1M in flood damage in DeKalb County, while the GIS analysis estimates a potential of nearly \$27.5M, 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.

3.2.5 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 DeKalb County, the predominant tornado path based on previous events is 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

DeKalb County has experienced 13 tornados since January 1950. The classification of tornados utilizes the Fujita Scale of tornado intensity, described in **Table 3-17**. 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 DeKalb County include 6 - F0, 3 - F1, 3 - F2, 0 - F3, and 0 - F4 tornados. One (1) additional event was not classified utilizing the Fujita Scale. **Table 3-18** 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 DeKalb County and the NFIP communities. **Exhibit 3** illustrates the historical tornado activity in DeKalb County and the existing sites for outdoor warning sirens.

Table 3-17: 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 3-18: Historic Tornado Data

Location	Date	Magnitude	Death/Injury	Property/Crop Damage **
DeKalb County	04/14/1968	Not Classified	0/0	\$3.0K/0
DeKalb County	04/21/1969	F0	0/0	\$25.0K/0
DeKalb County	06/03/1973	F1	0/1	\$25.0K/0
DeKalb County	06/04/1973	F0	0/0	\$3.0K/0
DeKalb County	07/14/1992	F2	0/0	\$25.0M/0
Butler Center	06/14/2000	F2	0/0	\$200.0K/0
Butler Center	06/14/2000	F1	0/0	\$300.0K/\$10.0K
Corunna	07/09/2000	F1	0/0	\$50.0K/0
Sedan	07/09/2000	F0	0/0	\$5.0K/0
Corunna	10/24/2001	F2	0/0	\$1.0M/0
Totals			0/1	\$26.61M/\$10.0K

(NCDC, 2006)

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

Table 3-18 above provides a comparative listing of the events affecting DeKalb County. From here, it can be observed that tornadoes appear to be widespread throughout the County and may cause significant amounts of destruction, injuries, and even deaths.

The most significant tornado in DeKalb County with reported damages, was an F2 event which occurred on October 24, 2001, and was responsible approximately \$1.0M in property damage. The tornado remained grounded for 7 miles with a width of 440 yards as it traveled from Corunna to Ashley and into Steuben County. According to the Herald Republican, northern DeKalb County was affected as trailers were flipped over, roofs were damaged, and several trees were snapped in half or otherwise damaged because of the tornado. Similar reports were found in the DeKalb County Comprehensive Hazard Analysis stating that the tornado affected homes and factories in Fairfield Township totaling \$1.0M and requiring two months for recovery.

On June 14, 2000, the area south of the City of Garrett was affected by two individual tornadoes. At approximately 6:00 pm, an F1 tornado touched down near County Road 64 west of Indian



Springs Campground. Several trees and power lines were downed and extensive roof damage occurred. An area barn was destroyed along with several outbuildings. According to reports, approximately 10 minutes later, a second tornado touched down near County Road 60, skipping along with three recorded groundings. According to the NCDC report, the tornado first touched down in a forested area, proceeded to a residential area and touched down a third time

less than a quarter of a mile away. Throughout this path, extensive damage was reported to residences as a satellite dish was twisted, windows were broken and downspouts were ripped off homes. Crop damage also occurred and in all, approximately \$510.0K in property and crop damages was recorded.

The probability of a tornado touching down in any of the NFIP communities is possible, while the Planning Committee anticipates that the probability of a tornado occurring in the unincorporated portions of DeKalb County is highly likely. The magnitude and severity of any event occurring in the Town of St. Joe is expected to receive critical damages. The remaining NFIP communities are anticipated to experience limited damages while the unincorporated areas were scored as negligible. 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 to seek proper shelter. In most cases, tornados are short-lived hazards and may progress to other locations relatively quickly. **Table 3-19** identifies the CPRI for a tornado for all NFIP communities in DeKalb County.

Table 3-19: CPRI for Tornado

	Probability <ul style="list-style-type: none"> • Unlikely • Possible • Likely • Highly likely 	Magnitude/Severity <ul style="list-style-type: none"> • Negligible • Limited • Critical • Catastrophic 	Warning Time <ul style="list-style-type: none"> • > 24 hrs • 12-24 hrs • 6-12 hrs • < 6 hrs 	Duration of Event <ul style="list-style-type: none"> • < 6 hrs • < 1 day • < 1 wk • > 1 wk 	CPRI
DeKalb County	Highly Likely	Negligible	< 6 hrs	< 6 hrs	2.7
City of Auburn	Possible	Limited	< 6 hrs	< 6 hrs	2.2
City of Butler	Possible	Limited	< 6 hrs	< 6 hrs	2.2
City of Garrett	Possible	Limited	< 6 hrs	< 6 hrs	2.2
Town of St. Joe	Possible	Critical	< 6 hrs	< 6 hrs	2.6
Town of Waterloo	Possible	Limited	< 6 hrs	< 6 hrs	2.2

Indicative of a regional hazard risk, the probability for a tornadic event occurring within DeKalb County is possible for all NFIP communities. The magnitude or severity of a tornado in any area of DeKalb County is anticipated to produce negligible to catastrophic damages due to the number of people, critical facilities, and other structures that could be affected within the individual municipalities. Tornados are unpredictable and could touch down in any area of the County. Thus, the CPRI values reflect the risk and associated priority for a tornado event.

Tornado: Vulnerability Assessment

Due to the unpredictability of this hazard, all 251 critical and 33,000 non-critical facilities in DeKalb 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 exercise. A hypothetical tornado scenario was selected because majorities of reported tornado events have been F2 tornados with impacted areas that have similar dimensions. This hypothetical tornado traveled through a portion of the City of Garrett, the City of Auburn, the City of Butler, and the neighboring portions of DeKalb County and is intended to present a “what if” scenario of a tornado event and associated damage.

The estimated physical and economic costs of the hypothetical F2 tornado that was 300 yards wide was 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 3-20** provides summary data for the hypothetical tornado.

Table 3-20: Summary Hypothetical Tornado Damages and Estimated Economic Costs

	Number of Structures Damaged	Estimated Damage Cost*
City of Auburn		
Critical Facilities	11	\$1.2M
Non-Critical Facilities	1046	\$78.0M
Subtotal	1057	\$79.2M
City of Butler		
Critical Facilities	6	\$0.7M
Non-Critical Facilities	384	\$29.5M
Subtotal	390	\$31.2M
City of Garrett		
Critical Facilities	4	\$0.4M
Non-Critical Facilities	992	\$72.2M
Subtotal	996	\$72.6M
DeKalb County		
Critical Facilities	1	\$0.1M
Non-Critical Facilities	174	\$10.3M
Subtotal	175	\$10.4M
Total	2618	\$193.4M

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

The City of Auburn’s estimated damage for 1,046 non-critical facilities, including approximately 932 residential, 65 commercial, and 49 industrial structures is \$78.0M. An additional \$1.2M in damages is estimated for 11 critical facilities affected by the tornado.

Damages for the City of Butler's 384 non-critical facilities, including 317 residential structures, are estimated at \$29.5M with 6 critical facilities anticipated to be damaged for an estimated \$0.7M. The estimation for the City of Garrett is \$72.2M for damages to 992 non-critical facilities, including 927 residential structures, with an additional \$0.4M in damages to 4 critical facilities. 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.

Estimated damages of \$10.0M to \$72.0M provided by CBBEL place tornado as the highest potentially damaging hazard affecting DeKalb County. Based on damages reported to the NCDC, tornado is again the highest most damaging hazard and was scored in the Comprehensive Hazard Analysis as a hazard that has occurred in the area in the past and is likely to occur again.

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. The City of Auburn and the City of Garrett (along with the 62 and 24 critical facilities respectively within the incorporated area) are completely covered by the current number of outdoor warning sirens. The City of Butler has less than 10 critical facilities that are outside of the coverage area. Within the City of Auburn, there are 11 such sirens, while the City of Butler has 1 siren, and the City of Garrett has 4 with additional coverage provided by the siren located in the Town of Altona. Within the Town of Corunna, the Town of St. Joe, and the Town of Waterloo, the approximate 20 critical and several thousand non-critical facilities within those communities are nearly completely covered by 10 outdoor warning sirens. Planning Committee discussed the possibility of developing an ordinance that would require developers to provide funding for installation and/or long-term maintenance of outdoor warning sirens. Currently, the 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.

As discussed previously, officials in DeKalb 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 the County actively participate in the annual Severe Weather Awareness Week providing relevant information to the communities. The MHMP Planning Committee has identified the local need for 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 the residents and visitors to DeKalb County.

The DeKalb County MHMP Planning Committee agreed that owners and operators of critical facilities need to be encouraged to acquire back up power generators and weather radios.

Further developers, municipal officials, and utility providers within these communities need to be encouraged to continue to adhere to the State of Indiana Building Codes, to continue to perform preventative tree maintenance, and to encourage the burial of utility lines in areas of new or re-development, and evaluate and install additional 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 DeKalb 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.

3.2.6 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 billion.

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 DeKalb County Comprehensive Hazard Analysis, DeKalb County along with Indiana and several other Midwestern states are located in the most seismically active region east of the Rocky Mountains. This region consists of two main areas, the New Madrid Seismic Zone and the Wabash Valley Seismic Zone. These zones include many geologic faults that are capable of producing earthquakes. DeKalb County is located in close proximity to many of these potentially unstable faults.

Although there has not been a previous occurrence of an earthquake epicenter recorded for DeKalb 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 DeKalb County. The magnitude and severity of the hazard is estimated to produce only negligible to limited damages due to the distance between DeKalb 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 day as well. **Table 3-21** identifies the CPRI for an earthquake event for all NFIP communities in DeKalb County.

Table 3-21: CPRI for Earthquake

	Probability <ul style="list-style-type: none"> • Unlikely • Possible • Likely • Highly likely 	Magnitude/Severity <ul style="list-style-type: none"> • Negligible • Limited • Critical • Catastrophic 	Warning Time <ul style="list-style-type: none"> • > 24 hrs • 12-24 hrs • 6-12 hrs • < 6 hrs 	Duration of Event <ul style="list-style-type: none"> • < 6 hrs • < 1 day • < 1 wk • > 1 wk 	CPRI
DeKalb County	Unlikely	Negligible	< 6 hrs	< 1 day	1.6
City of Auburn	Unlikely	Negligible	< 6 hrs	< 1 day	1.6
City of Butler	Unlikely	Limited	< 6 hrs	< 1 day	1.9
City of Garrett	Unlikely	Limited	< 6 hrs	< 1 day	1.9
Town of St. Joe	Unlikely	Limited	< 6 hrs	< 1 day	1.9
Town of Waterloo	Unlikely	Limited	< 6 hrs	< 1 day	1.9

As shown in the CPRI table, all communities share nearly the same value due to the large-scale regional impact of this hazard. With the complexity of this hazard, it is difficult to determine the probability and the magnitude and severity of the event. However, as DeKalb 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 DeKalb County would be far less than those communities located near to the epicenter or along the fault lines. Therefore,

damages and related injuries are not expected to be more than limited in nature for all communities in DeKalb County.

Earthquake: Vulnerability Assessment

All structures in DeKalb County, both critical and non-critical, are potentially vulnerable to an earthquake. There are 251 critical facilities and an estimated 33,000 non-critical facilities identified by the Planning Committee and the DeKalb 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 6 of 7 hazards affecting DeKalb County. Likewise, through the completion of the Comprehensive Hazard Analysis earthquakes were considered a hazard that is unlikely to occur in DeKalb 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.

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 DeKalb 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 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 the residents and visitors to DeKalb County.

The DeKalb County MHMP Planning Committee agreed that owners and operators of critical facilities need to be encouraged to acquire back up power generators. Further developers, municipal officials, and utility providers within these communities need to be encouraged to continue to adhere to the State of Indiana Building Codes, to continue to perform preventative tree maintenance, and to encourage the burial of utility lines in areas of new or re-development.

Social, physical, and economic losses from earthquake will most likely increase as more people choose to live, work, and visit DeKalb 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.

3.2.7 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, 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 National Inventory of Dams (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 are no recorded high hazard dams in DeKalb County. However, the Hamilton Lake Dam in Steuben County lies just north of the Steuben County/DeKalb County line. If the Hamilton Lake Dam were to fail or breach, the estimated inundation area would reach into a populated area of DeKalb County. The Hamilton Lake Dam is a high hazard earthen dam, 21 feet in elevation.

The probability of a dam failure on the Hamilton Lake dam is unlikely due to routine inspections, but remains possible. If a failure of a dam were to occur on the Hamilton Lake Dam, the magnitude within DeKalb County would be negligible. The remaining areas of DeKalb County

and other NFIP communities would not be affected by the dam failure. Warning times for dam failures are estimated to be less than 6 hours with the duration of the event lasting less than 6 hours in length. **Table 3-22** identifies the CPRI for dam failure for all NFIP communities in DeKalb County.

Table 3-22: CPRI for Dam Failure

	Probability <ul style="list-style-type: none"> • Unlikely • Possible • Likely • Highly likely 	Magnitude/Severity <ul style="list-style-type: none"> • Negligible • Limited • Critical • Catastrophic 	Warning Time <ul style="list-style-type: none"> • > 24 hrs • 12-24 hrs • 6-12 hrs • < 6 hrs 	Duration of Event <ul style="list-style-type: none"> • < 6 hrs • < 1 day • < 1 wk • > 1 wk 	CPRI
DeKalb County	Unlikely	Negligible	< 6 hrs	< 6 hrs	1.5
City of Auburn	Unlikely	Negligible	>24 hrs	< 6 hrs	1.0
City of Butler	Unlikely	Negligible	>24 hrs	< 6 hrs	1.0
City of Garrett	Unlikely	Negligible	>24 hrs	< 6 hrs	1.0
Town of St. Joe	Unlikely	Negligible	>24 hrs	< 6 hrs	1.0
Town of Waterloo	Unlikely	Negligible	>24 hrs	< 6 hrs	1.0

The CPRI index for DeKalb County is slightly increased, as the Hamilton Lake Dam is located upstream. The estimated inundation area if this dam were breached will encompass a portion of the County thus putting these areas at a greater risk of damage due to a dam failure.

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. Unfortunately, the Hamilton Lake Dam does not have an Emergency Action Plan (EAP) with a detailed dam failure inundation area identified. Therefore, for the purpose of this planning effort, very rough dam failure inundation zone was delineated for the high hazard dam. The zone 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 approximate dam failure inundation zone, no critical facilities would be affected by a dam failure. 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 dam breach event. There are an estimated 44 non-critical facilities located in the inundation area.

Assumptions were made that 25% of all non-critical structures in the inundation zone would be destroyed, 35% would be 50% damaged, and 40% would have only 25% damage. The damage to the structure, content, and land value of the 44 non-critical facilities protected by the Hamilton Lake Dam is estimated to be \$3.1M. With this information, dam failure is the fourth most potentially damaging hazard within DeKalb County. No historic losses have been reported and dam failure was scored within the DeKalb County Comprehensive Hazard Analysis as a having a slight chance that an incident such as this will occur in the future.

Social losses are difficult to quantify, though interrupted services associated with critical facilities would cause hardship for many residents. It is difficult to accurately estimate the potential social

cost of a dam break or a levee failure due to the complexity of the hazard. It is probable, though, that a dam break or failure would occur during extreme rainfall or a flood event and would likely cause damages including structure loss, infrastructure loss, disruption to community function, and possibly injury and death.

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 Hamilton Lake Dam, it has been classified as Conditionally Poor indicating a potential safety deficiency is recognized or that uncertainties exist necessitating further investigations and studies.



The IDNR does not however require EAPs for high or significant hazard dams. An EAP is a very good planning tool to understand the impact that a dam failure could have people and property downstream. These Plans include details about the volume and velocity of the water as well as accurately delineating the dam failure inundation zone. A good mitigation practice would be to encourage an EAP be developed for the Hamilton Lake Dam and any future high hazard dams constructed within DeKalb County. Access to these dams needs to be limited to avoid disruptions to the integrity of the structure. The dam inundation zone delineated as part of the EAP could be used in conjunction with the Comprehensive Land Use Plan to prohibit future critical facilities downstream from a high or significant hazard dam. Further, the dam owner should develop and exercise an Emergency Response Plan (ERP) indicating the specific roles and responsibilities of local agencies during an impending or realized dam failure.

As discussed previously, officials in DeKalb 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 of a voluntary program to immunize emergency responders, and to establish the ability to provide automated public alerts via telephone or electronic communications. The DeKalb County MHMP Planning Committee agreed that owners and operators of critical facilities 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 DeKalb 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.

3.3 HAZARD SUMMARY

For the development of the MHMP, the Planning Committee utilized the CPRI method to prioritize the hazards that they felt affected DeKalb 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 3-23** indicates the results of the CPRI values for each hazard affecting DeKalb County.

Prior to developing the MHMP, the DeKalb County DHS completed a similar process as part of the CEMP to provide an overall ranking 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. These results are also found in Table 3-23.

Furthermore, rankings based on historic losses as reported to the NCDC, as well as ranking according to the CBBEL estimated damages for each of the hazards, are provided within the table for comparative purposes.

Table 3-23: Comparative Hazard Rankings, DeKalb County

Hazard	MHMP		CEMP	NCDC Historic Losses*
	CPRI	Estimated Damages*		
Dam Failure	6	\$3.1M	NA	NA
Earthquake	5	\$0	4	NA
Flooding	4	\$27.0M	3	\$1.1 M
Hail/Thunder/Windstorm	1	\$750.0K	2	\$1.0 M
Hazardous Materials	3	\$4.0M-\$23.0M	1	NA
Severe Winter Storm	2	NA	1	\$3.0M
Tornado	4	\$10.0M-\$72.0 M	2	\$26.6 M

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

Although different indices were utilized in the CPRI completed for the MHMP, and the CEMP completed for the DeKalb County Comprehensive Hazard Analysis, the results are significantly similar. For example according to the CPRI and the CEMP, hail/thunder/windstorm, hazardous materials, and severe winter storm are all within the top three hazards affecting DeKalb County. Further, tornados have historically produced the most damages to property and crops within DeKalb County; while flooding is the second most historically damaging. Estimated damages for tornados tops the hazards affecting the County; while flooding has the potential to produce the next largest amount of damages in DeKalb County.

The total number of housing units in 2000 according to US Census data was reported at 16,144 and the 2006 estimates show an increase to 17,277. As DeKalb 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 MHMP.

4.1 MITIGATION GOAL

The overall goal throughout the development of the DeKalb County MHMP has been to protect the citizens, visitors, and properties within DeKalb 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 damages from earthquake, wind, and flood. It found that mitigation efforts were cost-effective at reducing future losses; resulted in significant benefits to society; and represented significant potential savings to the federal treasury in terms of reduced hazard-related expenditures. This study found that every \$1 spent on mitigation efforts resulted in an average of \$4 savings for the community. The study also found that FEMA mitigation grants are cost-effective since they often lead to additional non-federally funded mitigation activities, and have the greatest benefits in communities that have institutionalized hazard mitigation programs. 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.

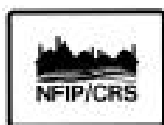
The DeKalb County Planning Committee reviewed the list of mitigation ideas from FEMA for each of the hazards studied as part of this planning effort and identified which of these they felt best met their needs as a community according to selected social, technical, administrative, political, and legal 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 DeKalb County 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 DeKalb County communities. The intent of this planning effort was to identify the hazards and the extent to which they affect DeKalb 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 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>Land Use Planning & Zoning</p> <ul style="list-style-type: none"> ▪ Incorporate hazard information into the Comprehensive Land Use Plan and Development Review to better guide future growth and development ▪ Increase community adoption of MRBC (or more restrictive) Floodplain Ordinance. 	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Property Protection <input checked="" type="checkbox"/> Nat. Res. Protection <input type="checkbox"/> Emergency Services <input type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input type="checkbox"/> Hail/Thunder/Wind <input checked="" type="checkbox"/> HazMat Incident <input type="checkbox"/> Severe Winter Storm <input checked="" type="checkbox"/> Tornado	<p>Ongoing - Information regarding floodplains is included in Comp Plan</p> <p>Proposed Enhancement – Include information regarding dam inundation, hazmat facilities, etc. Adopt MRBC or more stringent ordinances.</p>	High	Medium	<p>Add hazard specific language and known zones to DeKalb County Comprehensive Plan</p> <p>Establish land use planning and zoning in other NFIP communities</p>	<p>Planning <i>DeKalb County</i> Auburn Butler Garrett</p>	Existing budget
<p>Public Education & Outreach</p> <ul style="list-style-type: none"> ▪ Become certified as an NWS StormReady Community ▪ Maintain hazard preparedness literature at public facilities ▪ Participate in Severe Weather Awareness Week and Flood Safety Awareness Week ▪ Distribute hazard preparedness literature at community events ▪ Implement education BMP in the SWQMP ▪ Prepare and distribute information on “Ready-Go Kits” for home and businesses to ensure preparedness in a hazardous event. 	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Property Protection <input type="checkbox"/> Nat. Res. Protection <input 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"/> Earthquake <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>Ongoing – literature, school and community programs, newspapers, etc.</p> <p>Proposed Enhancement – StormReady Communities</p>	High	High	<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>Rule 13 requires the City of Auburn to prepare and implement a SWQMP</p> <p>Post outdoor warning siren signs in public places</p>	<p>DHS</p> <p>Red Cross</p> <p>Floodplain Administrators <i>DeKalb County</i> Auburn Butler Garrett St Joe Waterloo</p> <p>Local Media</p> <p>MRBC</p>	<p>Existing budget</p> <p>FEMA</p> <p>IDEM</p> <p>IDNR</p> <p>MRBC</p>
<p>Power Back-Up Generators</p> <ul style="list-style-type: none"> ▪ Encourage power back-up generators in all critical facilities 	<input checked="" type="checkbox"/> Prevention <input checked="" type="checkbox"/> Property Protection <input type="checkbox"/> Nat. Res. Protection <input checked="" type="checkbox"/> Emergency Services <input checked="" type="checkbox"/> Structural Control <input type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input checked="" type="checkbox"/> Earthquake <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>Ongoing –many facilities with back up power source</p> <p>Proposed Enhancement – all critical facilities</p>	High	Medium	<p>Back up generators in all critical facilities especially medical care, police, fire, and community shelters</p>	<p>Building owner <i>(private & public)</i></p> <p>DHS</p>	<p>Operational cost</p> <p>FEMA</p>

MITIGATION PRACTICE	MITIGATION STRATEGY	HAZARD ADDRESSED	STATUS	PRIORITY	BENEFIT - COST RATIO	PROJECT LOCATION	RESPONSIBLE ENTITY	FUNDING SOURCE
Floodplain Management ▪ Conduct detailed studies of unnumbered Zone A streams as development is proposed with potential for floodplain encroachment.	<input checked="" type="checkbox"/> Prevention <input checked="" type="checkbox"/> Property Protection <input checked="" type="checkbox"/> Nat. Res. Protection <input type="checkbox"/> Emergency Services <input type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information	<input type="checkbox"/> Dam Failure <input type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input type="checkbox"/> Hail/Thunder/Wind <input type="checkbox"/> HazMat Incident <input type="checkbox"/> Severe Winter Storm <input type="checkbox"/> Tornado	Ongoing – developments are currently asked to provide existing information Proposed Enhancement – developments would be asked to complete studies in unknown areas	High	High	Throughout DeKalb County as developments are proposed near unnumbered streams	Surveyor MRBC Engineering <i>DeKalb County</i> <i>Auburn</i> <i>Butler</i> <i>Garrett</i>	Existing budget IDNR FEMA MRBC
Safe Rooms & Community Shelters ▪ Require safe rooms mobile home parks ▪ Continue to develop long and short term agreements for shelters with potential for tiered levels, domestic animals, etc	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Property Protection <input type="checkbox"/> Nat. Res. Protection <input 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"/> Earthquake <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	Ongoing – Red Cross has agreement with local schools and other community facilities capable of sheltering numerous people Proposed Enhancement – add safe rooms and/or shelters to mobile home parks	High	Low	Establish community shelters in vulnerable areas. Once shelters established in all NFIP communities, establish safe rooms and/or shelters in mobile home parks	DHS Red Cross Indiana State Department of Health	Operational cost FEMA
Immunization ▪ Develop and implement a voluntary immunization program for all emergency responders, inspection staff, and families	<input 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 type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input checked="" type="checkbox"/> Earthquake <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	Ongoing – none Proposed Enhancement – immunize all emergency responders and inspection staff	High	High	All emergency response and inspection staff countywide	DHS DeKalb Health Department Planning Fire Police <i>Auburn</i> <i>Butler</i> <i>Garrett</i> <i>St Joe</i> <i>Waterloo</i>	Existing budget FEMA
Response Training ▪ Utilize realistic training and exercises that simulate response conditions and scenarios	<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 checked="" type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input checked="" type="checkbox"/> Earthquake <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	Ongoing – HazMat Response Team routinely trained Proposed Enhancement – Provide SARA Title III facility personnel realistic trainings within their facilities and involve appropriate local government response personnel	High	High	Countywide	DHS	Existing budget FEMA

MITIGATION PRACTICE	MITIGATION STRATEGY	HAZARD ADDRESSED	STATUS	PRIORITY	BENEFIT - COST RATIO	PROJECT LOCATION	RESPONSIBLE ENTITY	FUNDING SOURCE
<p>Emergency Warning Systems</p> <ul style="list-style-type: none"> ▪ Develop consistent snow emergencies to reduce amount of vehicle traffic as severity of weather increases ▪ Encourage weather radios in all critical facilities and encourage use by residents and businesses ▪ Designate snow routes with no street parking ▪ Increase flood forecasting capabilities (gaging stations, flood alerts) in DeKalb County ▪ Install additional outdoor warning sirens as needed. ▪ Adopt ordinance to require developers to install warning sirens if necessary 	<ul style="list-style-type: none"> <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 type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Dam Failure <input type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input checked="" type="checkbox"/> Hail/Thunder/Wind <input type="checkbox"/> HazMat Incident <input checked="" type="checkbox"/> Severe Winter Storm <input checked="" type="checkbox"/> Tornado 	<p>Ongoing – test and maintain outdoor warning sirens ; NWS storm warnings; weather radios</p> <p>Proposed Enhancement – Require radios in critical facilities, Develop County wide snow advisory levels, designate snow routes</p>	<p>High <i>(consistent levels, radios)</i></p> <p>Moderate <i>(Snow routes)</i></p> <p>Low <i>(forecasting, warning sirens)</i></p>	<p>High</p>	<p>Throughout DeKalb County, snow advisory levels should be consistent to avoid confusion</p> <p>NOAA weather radios in all critical facilities</p> <p>Designate snow routes within Auburn, Butler, and Garret and prioritize areas to be cleared first</p>	<p>DHS</p> <p>Surveyor</p> <p>Highway/Street <i>DeKalb County</i></p> <p><i>Auburn</i></p> <p><i>Butler</i></p> <p><i>Garrett</i></p> <p>DeKalb Central Communications Technical Committee</p>	<p>Existing budget</p> <p>FEMA</p> <p>USGS</p>
<p>Building Protection</p> <ul style="list-style-type: none"> ▪ Prohibit construction of critical facilities in known hazard areas ▪ Enforce requirements of International Building Code to ensure buildings are structurally sound to withstand hazards ▪ Develop reciprocal agreements for structural inspections following hazardous events ▪ Protect structures from known hazard areas through acquisition, relocation, elevation, or flood proofing (non-residential) ▪ Certify that manufactured homes meet manufacturer’s minimum installation standards 	<ul style="list-style-type: none"> <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 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Dam Failure <input checked="" type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input checked="" type="checkbox"/> Hail/Thunder/Wind <input type="checkbox"/> HazMat Incident <input type="checkbox"/> Severe Winter Storm <input checked="" type="checkbox"/> Tornado 	<p>Ongoing – City of Auburn and Holiday Lakes subdivision have been prioritized</p> <p>Proposed Enhancement – prohibit construction of future critical facilities and protect existing structures in known hazards areas</p>	<p>High <i>(critical facilities, IBC enforcement, reciprocal agreements)</i></p> <p>Moderate <i>(protection of structures)</i></p> <p>Low <i>(manufact. homes)</i></p>	<p>Medium</p>	<p>Target repetitive loss properties and areas prone to flooding for acquisition, relocation, elevation, or flood proofing (non-residential)</p>	<p>Floodplain Administrators <i>DeKalb County</i></p> <p><i>Auburn</i></p> <p><i>Butler</i></p> <p><i>Garrett</i></p> <p><i>St Joe</i></p> <p><i>Waterloo</i></p> <p>MRBC</p> <p>Planning <i>DeKalb County</i></p> <p><i>Auburn</i></p> <p><i>Butler</i></p> <p><i>Garrett</i></p>	<p>Owner</p> <p>FEMA</p>
<p>Stormwater Management</p> <ul style="list-style-type: none"> ▪ Maintain channels and regulated drains to prevent localized flooding ▪ Minimize impacts of flooding by diverting or retaining stormwater ▪ Implement erosion and sediment control Best Management Practices (BMP) identified in the Storm Water Quality Management Plan (SWQMP) 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Prevention <input checked="" type="checkbox"/> Property Protection <input checked="" type="checkbox"/> Nat. Res. Protection <input type="checkbox"/> Emergency Services <input checked="" type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information 	<ul style="list-style-type: none"> <input type="checkbox"/> Dam Failure <input type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input type="checkbox"/> Hail/Thunder/Wind <input type="checkbox"/> HazMat Incident <input type="checkbox"/> Severe Winter Storm <input type="checkbox"/> Tornado 	<p>Ongoing – Channel maintenance</p> <p>Proposed Enhancement – continued regulated drain improvements, Implement BMPs identified in the SWQMP</p>	<p>High <i>(maintain channels)</i></p> <p>Moderate <i>(diversion, SWQMP)</i></p>	<p>High</p>	<p>Rule 13 requires Phase II communities (City of Auburn) to prepare and implement a SWQMP.</p> <p>Address flooding in low lying and urban areas due to poor drainage</p>	<p>Surveyor</p> <p>Engineering <i>DeKalb County</i></p> <p><i>Auburn</i></p> <p><i>Butler</i></p> <p><i>Garrett</i></p> <p>MRBC</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
Hazardous Materials Response Teams <ul style="list-style-type: none"> Ensure that current facility maps and response plans are on file for SARA Title III facilities Maintain number of personnel certified to OSHA III Technician level responding to HazMat incidents 	<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"/> Earthquake <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	Ongoing – Research funding opportunities to increase number of paid, full-time responders; Many facilities have facility maps and response plans on file Proposed Enhancement – Add responders; Ensure that all SARA Title III facilities have current response plans and facility maps on file with local EMAs and Fire Departments	High <i>(maps and response plans)</i> Moderate <i>(maintain staff)</i>	High	Countywide Depending on the volume of traffic, intersection warnings may include crossing guards, pavement interruptions or markings, clearing trees, and/or lights	Fire <i>DeKalb County</i> <i>Auburn</i> <i>Butler</i> <i>Garrett</i> EMS DHS Facility Owner	Existing budget Operational cost
Communication <ul style="list-style-type: none"> Determine adequate location for GIS enabled public alert systems or County communications facility Install Dynamic Message Boards on I-69 to alert motorists 	<input 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"/> Earthquake <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	Ongoing – Discussions for Communications facility Proposed Enhancement –	High <i>(communications facility)</i> Low <i>(dynamic boards)</i>	High	Countywide	DHS INDOT	Existing budget INDOT
Tree Maintenance <ul style="list-style-type: none"> Maintain trees on public property and right-of-ways (ROW) to reduce risk of downed utility lines and falling limbs 	<input checked="" type="checkbox"/> Prevention <input checked="" type="checkbox"/> Property Protection <input checked="" type="checkbox"/> Nat. Res. Protection <input type="checkbox"/> Emergency Services <input type="checkbox"/> Structural Control <input type="checkbox"/> Public Information	<input type="checkbox"/> Dam Failure <input type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input checked="" type="checkbox"/> Hail/Thunder/Wind <input type="checkbox"/> HazMat Incident <input checked="" type="checkbox"/> Severe Winter Storm <input checked="" type="checkbox"/> Tornado	Ongoing – utilities and road departments with near continuous activity, require maintenance on private property in ROW Proposed Enhancement – none	High <i>(Cities of Butler, Auburn, Garrett)</i> Low <i>(unincorporated areas of DeKalb County)</i>	Medium	All ROWs and public property countywide especially in areas with above ground utility lines	Utility Provider Street Highway <i>DeKalb County</i> <i>Auburn</i> <i>Butler</i> <i>Garrett</i>	Existing budget Utility rate
Community Ratings System <ul style="list-style-type: none"> Reduce flood insurance premiums through participation in Community Ratings System (CRS) program 	<input checked="" type="checkbox"/> Prevention <input type="checkbox"/> Property Protection <input type="checkbox"/> Nat. Res. Protection <input type="checkbox"/> Emergency Services <input type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input type="checkbox"/> Hail/Thunder/Wind <input type="checkbox"/> HazMat Incident <input type="checkbox"/> Severe Winter Storm <input type="checkbox"/> Tornado	Ongoing –development of MHMP will acquire points for all participating communities Proposed Enhancement – all NFIP communities should join CRS	Moderate	Moderate	All NFIP communities in DeKalb County	Floodplain Administrators <i>DeKalb County</i> <i>Auburn</i> <i>Butler</i> <i>Garrett</i> <i>St Joe</i> <i>Waterloo</i>	Existing budget FEMA

MITIGATION PRACTICE	MITIGATION STRATEGY	HAZARD ADDRESSED	STATUS	PRIORITY	BENEFIT - COST RATIO	PROJECT LOCATION	RESPONSIBLE ENTITY	FUNDING SOURCE
Geographic Information Systems ▪ Use HAZUS-MH Flood and Earthquake to model “what if” scenarios	<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 type="checkbox"/> Structural Control <input checked="" type="checkbox"/> Public Information	<input checked="" type="checkbox"/> Dam Failure <input checked="" type="checkbox"/> Earthquake <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	Ongoing – DeKalb County GIS maintains layers used for planning efforts Proposed Enhancement – Layers made accessible to NFIP communities. Update with new information as it is obtained or developed	Low	Low	Countywide	Planning GIS <i>DeKalb County</i>	Existing budget FEMA
Utility Use & Location ▪ Where feasible, locate utility lines outside of known hazard areas ▪ Bury new and retrofitted utilities to reduce exposure to hazards	<input checked="" type="checkbox"/> Prevention <input checked="" 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 type="checkbox"/> Dam Failure <input type="checkbox"/> Earthquake <input checked="" type="checkbox"/> Flooding <input checked="" type="checkbox"/> Hail/Thunder/Wind <input type="checkbox"/> HazMat Incident <input checked="" type="checkbox"/> Severe Winter Storm <input checked="" type="checkbox"/> Tornado	Ongoing – new and retrofitted utility lines buried, Proposed Enhancement –	Low (buried lines)	Low	All above ground utility lines should be buried Countywide, where feasible	Utility Provider Planning <i>Auburn Butler Garrett</i>	Utility Rate Existing budget

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.

Stormwater Management

In order to allow for optimum conveyance of unpolluted stormwater in DeKalb County, all channels and regulated drains need to be regularly maintained.

- A. Allocate available resources such as funding and staff to complete high priority actions.
- B. As resources are available, institute a program to review and maintain non-regulated drains.
- C. Develop protocol for responding to complaints or investigations.
- D. Prioritize channels requiring maintenance.
- E. Prepare and complete bidding/sub-contractual process.

Emergency Warning Systems

Develop and implement coordinated snow emergencies to alert motorists as severity of weather increases.

- A. Develop protocols regarding specific situations in which snow emergencies are to be declared and distributed 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 information that is more detailed.

Encourage weather alert radios in all Critical Facilities

- A. Provide outreach and education regarding the importance of weather alert radios in Critical Facilities.
- B. Provide training similar to the fire extinguisher training for proper use of weather alert radios.

Determine adequate location for a GIS enabled public alerting system and/or a County Communications Facility.

- A. Investigate and review potential locations capable of operating the alert system.
- B. Review potential funding mechanisms for installation and operation of alert system or Communications facility.
- C. Prioritize options for locations, upgrades needed to become capable, and funding options.

Public Education & Outreach

It is important to provide the residents and visitors of DeKalb County with up-to-date information on the potential hazards and how the area has prepared to prevent and respond to those hazards.

- A. Develop, maintain, and distribute hazard preparedness literature for all public facilities and community events.
- B. Implement education component of the SWQMP.
- C. Provide a multi-media outreach campaign for the potentials hazards in De Kalb County and the proper response actions for residents and visitors if a hazard were to occur.

Become certified as a StormReady Community

- A. Review requirements to become certified.
- B. Complete application process.
- C. Once certified, prepare education and outreach efforts to make the communities aware.

Continue to develop temporary and/or long-term shelter agreements within the County. There is a potential for tiered levels of shelters, domestic animal shelters, etc.

- A. Review existing shelter agreements every two years or as needed.
- B. Determine areas within DeKalb County that are not adequately served.
- C. Develop agreements with facilities of various capacities and services.
- D. Provide information and signage to facilities and inform public of shelter locations.

Floodplain Management

Conduct detailed studies of unnumbered Zone A streams as development is proposed with the potential for floodplain encroachment.

- A. Prioritize unstudied streams in DeKalb County and establish a timeline to complete detailed analysis.
- B. Dedicate annual funding to complete floodplain studies according to FEMA guidelines.
- C. Establish a template for these studies and distribute to developers to ensure a consistency from reach to reach.

Increase community adoption of MRBC Floodplain Ordinance language or a more restrictive standard.

- A. Review existing Floodplain Ordinance language annually.
- B. Review area County's and Municipality's Floodplain Ordinance language.
- C. Adopt MRBC or more restrictive Floodplain Ordinance.

Building Protection

Prohibit construction of new critical facilities in known hazard areas and protect existing structures in known hazard areas, especially in floodways through acquisition, relocation, elevation and flood proofing.

- A. Adopt new, or amend existing ordinances to prohibit construction of new critical facilities in known hazard areas.
- B. Initiate research on potential funding sources that would provide financial assistance with acquisition, relocation, elevation, and flood proofing of structures in known hazard areas, and secure appropriate funding.
- C. Identify and prioritize a list of structures for acquisition, relocation, elevation, and flood proofing with focus on structures within floodways.

Encourage power back up generators in all Critical Facilities

- A. Provide education and outreach regarding the importance of power back up generators in critical facilities.
- B. Provide training similar to the fire extinguisher training for proper use of power back up generators.

Continue to perform tree maintenance to reduce risk of downed utility lines and falling limbs.

- A. Prioritize areas for annual tree maintenance.
- B. Complete or subcontract maintenance within prioritized areas.
- C. Provide informational materials to homeowners highlighting the importance of proper planting and tree maintenance for utility and structural protection.

Encourage safe rooms in new Critical Facilities, mobile home parks, and public buildings.

- A. Provide assistance and/or incentive to existing facilities without safe rooms.
- B. Provide informational materials to facilities regarding the importance of safe rooms.

Develop reciprocal agreements between neighboring counties for structural inspections following hazard events.

- A. Develop and establish mutual aid agreements between 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.

Hazardous Materials Response Team

If this type of event were to occur anywhere in the County, it would be considered critical due to the unpredictable factors of location, substance involved, time of day and weather conditions.

- A. Ensure that current facility maps and response plans are on file and facility personnel are adequately trained for all SARA III facilities.
- B. Provide training opportunities to specific personnel to respond to various level so of incidents.
- C. Provide exercises and training opportunities to multi-facility, multi agency personnel.

Secure grant funds or provide local funding for addition response equipment and maintenance.

- A. Determine locations or departments where additional equipment is needed.
- B. Investigate opportunities for grant funding to purchase additional equipment
- C. Provide on-site training to personnel regarding operation and maintenance of equipment.
- D. Develop inspection and certification requirements for equipment maintenance.

Immunization

It is important to have current immunizations for all response and inspection personnel.

- A. Develop and implement a voluntary immunization program for all emergency responders, inspection staff, and families.
- B. Require proof of immunization (Tetanus, Hepatitis, etc.) for all first responders, building inspectors, etc. similar to Health Departments and hospital staff.
- C. Provide immunizations for families of emergency, response, and inspection staff.

6.0 PLAN MAINTENANCE PROCEDURES

6.1 MAINTENANCE PROCESS

Throughout the 5-year planning cycle, the DeKalb County DHS 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 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 NFIP communities or through local partnerships.

This is the first MHMP that DeKalb County and NFIP communities have prepared. The data used to prepare the DeKalb 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 more accurate 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 DeKalb County MHMP. Comments from the public on the MHMP will be received by the DHS Director and forwarded onto 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 DeKalb County DHS Office and various libraries throughout DeKalb County.

Updates or modifications to the DeKalb 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.

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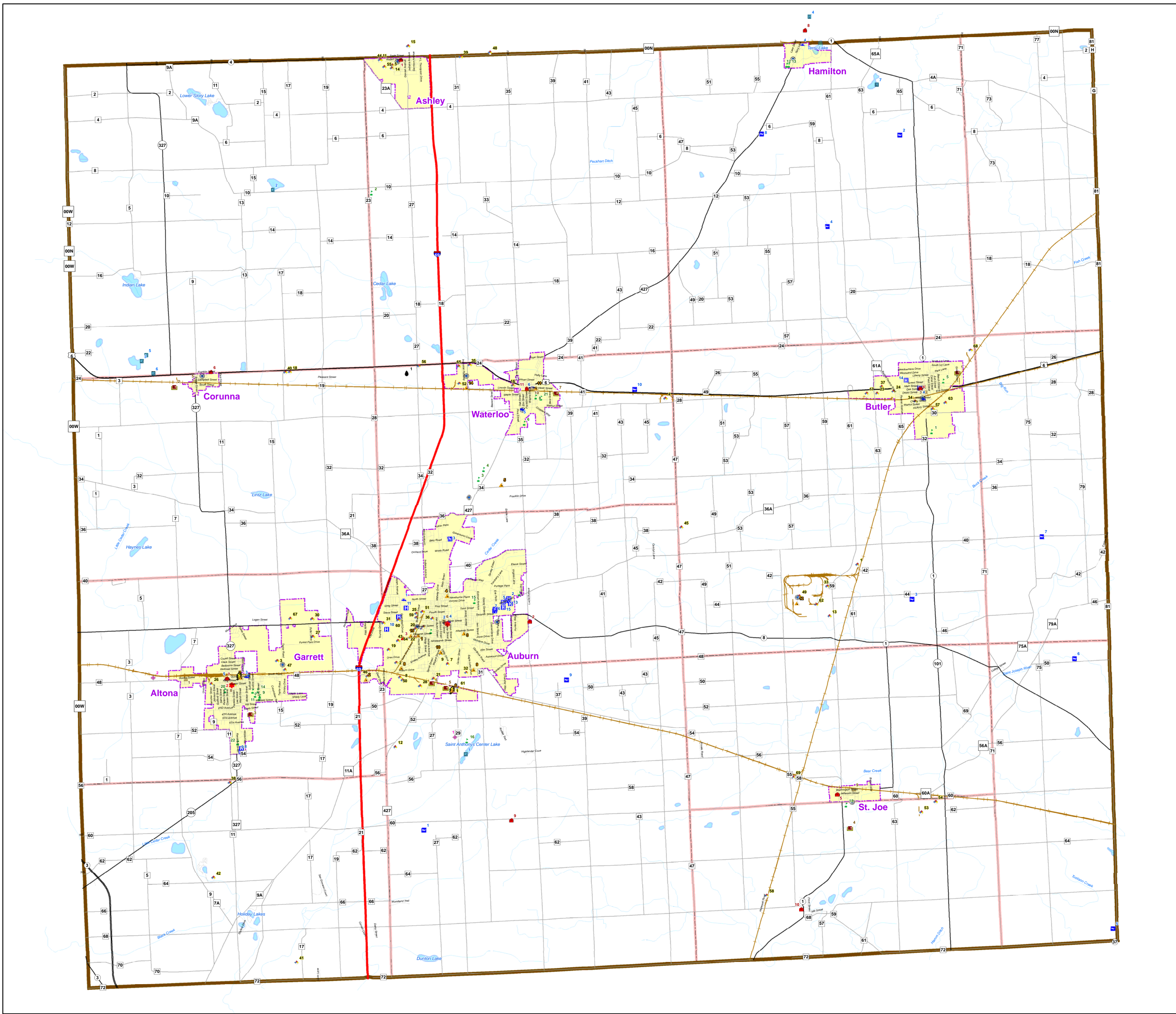
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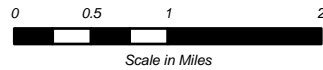
Critical Facilities

DeKalb County, Indiana



- | | |
|--|---|
| Airports <ul style="list-style-type: none"> 1 De Kalb County 2 Flying Crown 3 Auburn Outpatient Services 4 Harrods 5 Hook Field 6 Keener Field 7 Kline Field 8 Lautzenhiser Airport 9 Mooney Field 10 Walker/Rowe Waterloo | Medical Care <ul style="list-style-type: none"> 1 Auburn NE Center, Samara Hospital 2 Auburn Outpatient Services 3 Betz Nursing Home 4 De Kalb County WIC Program 5 De Kalb EMS 6 De Kalb Memorial Hospital 7 Miller's Merry Manor 8 Northeast Indiana Kidney Center 9 Quad-Corities Dialysis Center 10 RedMed 11 Smith Farms Manor Retirement 12 The Laurels Of De Kalb 13 Wesley Healthcare |
| Communication/Broadcast <ul style="list-style-type: none"> 1 WGLL 1570 2 WXTW CH 272 | Oil Refineries <ul style="list-style-type: none"> 1 Marathon Oil |
| Dams <ul style="list-style-type: none"> 1 Family Life Center Lake Dam 2 Floyd Troyer Lake 3 Grey Stone Pond Dam 4 Hamilton Lake Dam 5 Joe Stanczyk Lake Dam (North) 6 Joe Stanczyk Lake Dam (South) 7 McNamara Corporation Lake | Police Stations <ul style="list-style-type: none"> 1 Ashley Police Dept 2 Auburn Police Dept 3 Butler Police Dept 4 De Kalb County Sheriff 5 Garrett City Police Dept 6 Waterloo Police Dept |
| Electric Substations <ul style="list-style-type: none"> 1 Auburn Foundry Plant 1 Substation 2 Auburn Foundry Plant 2 Substation 3 Center ST Substation 4 Clinton ST Substation 5 CR 34 Substation 6 Electric Dept Master Station 7 Garrett Substation 8 Grandstaff DR Substation 9 Guardian Switching Station 10 Jackson ST Substation 11 NIPSCO 12 Steel Dynamics 13 West Fillersworth ST Substation 14 No Name Given | Potable Water Plant <ul style="list-style-type: none"> 1 Auburn Water Treatment Plant 2 Butler City Water Treatment Plant 3 Garrett Water Treatment Plant 4 Hamilton Water Treatment Plant 5 Waterloo Water Treatment Plant |
| Emergency Operations Centers <ul style="list-style-type: none"> 1 Butler EMS 2 De Kalb County DHS 3 Garrett City Emergency Mgmt 4 Garrett City Emergency Mgmt | Power Plants <ul style="list-style-type: none"> 1 Auburn Electric |
| Fire Stations <ul style="list-style-type: none"> 1 Ashley Fire Dept 2 Auburn Fire Dept 3 Auburn Fire Dept 4 Butler City Fire Dept 5 Concor Top Fire Dept 6 Corunna Fire Dept 7 Garrett City Fire Dept 8 Hamilton Fire Dept 9 Jackson Township Fire Dept 10 Spencerville Fire Station 11 Waterloo Fire Dept | Railway Facilities <ul style="list-style-type: none"> 1 Waterloo |
| Government Facilities <ul style="list-style-type: none"> 1 Altona Town Offices 2 Auburn City Offices 3 Butler City Court 4 Butler City Offices 5 Corunna Clerks Office 6 De Kalb County Courthouse 7 De Kalb County Office Building 8 Garrett City Offices 9 Saint Joe Town Offices 10 Waterloo Town Offices | Schools <ul style="list-style-type: none"> 1 Butler Elementary School 2 County Meadow Elem School 3 DeKalb High School 4 DeKalb Middle School 5 Eastside Junior-Senior High School 6 First Beginnings Day Care 7 Four County Area Voc Coop 8 Garrett Head Start 9 Garrett Head Start 10 Garrett High School 11 Garrett Middle School 12 Hamilton Community Elem School 13 Hamilton Community High School 14 J E Oler Elementary School 15 James R Watson Elem School 16 Lakewood Park Christian School 17 Mckenney/Harrison Elem School 18 Rivendale Elementary School 19 Sharon Turner Bacon Academy 20 St Joseph School 21 Waterloo Elementary School 22 Zion Lutheran Preschool |
| Hazardous Material Handlers <ul style="list-style-type: none"> 1 Allied Metals Co. 2 Alcoa Advanced Transportation System 3 American Silicones, Inc. 4 Andersons Waterloo Ag Center 5 Ashley Industrial Molding 6 Auburn Foundry, Inc. 7 Auburn Gear 8 Auburn PD Range Facility 9 Auburn Water Department, South Plant 10 Ball Brass & Aluminum Foundry 11 Biobab, Inc. 12 Brooks Construction Company, Plant 7 13 Butler Mill Service Co. 14 Cambridge Inds, Inc. 15 Casper Farm Supply 16 Charleston Metal Products 17 Citation - Bohn Aluminum Corp. 18 CMP West 19 Contech Div. - Spix Corp. 20 Cooper Tire & Rubber Co. Engineered Prod 21 Custom Coating, Inc. 22 DeKalb Metal Finishing 23 DeKalb Molded Plastics 24 Dura Automotive Systems 25 Eaton Clutch Division 26 Electric Motors & Specials 27 Fleetwood Homes Of Indiana Inc 55 28 Foamex, LP 29 Foley Pattern Company 30 Garrett Products, Inc. 31 Gasamerca #54 32 Guardian Industries 33 Heidman Steel Products 34 Hendrickson Trus Suspension Sys. - Plant 2 35 Hooper Propane | Wastewater Treatment Plants <ul style="list-style-type: none"> 1 Butler Municipal WWTP 2 Corunna Municipal WWTP 3 Garrett WWTP 4 St. Joe - Spencerville RSD 5 Wastewater Treatment Plant 6 Water Pollution Control Plant Auburn 7 Waterloo Municipal WWTP |

- Airports
- Broadcast Facility
- Dam
- Electric Substation
- Emergency Operations Center
- Fire Station
- Government Facility
- Hazardous Material Handler
- Medical Care Facility
- Oil Refinery
- Police Station
- Potable Water Facility
- Power Plant
- Railway Station
- Wastewater Treatment Plant
- Water Tower
- Corporate Limits
- Township Boundary



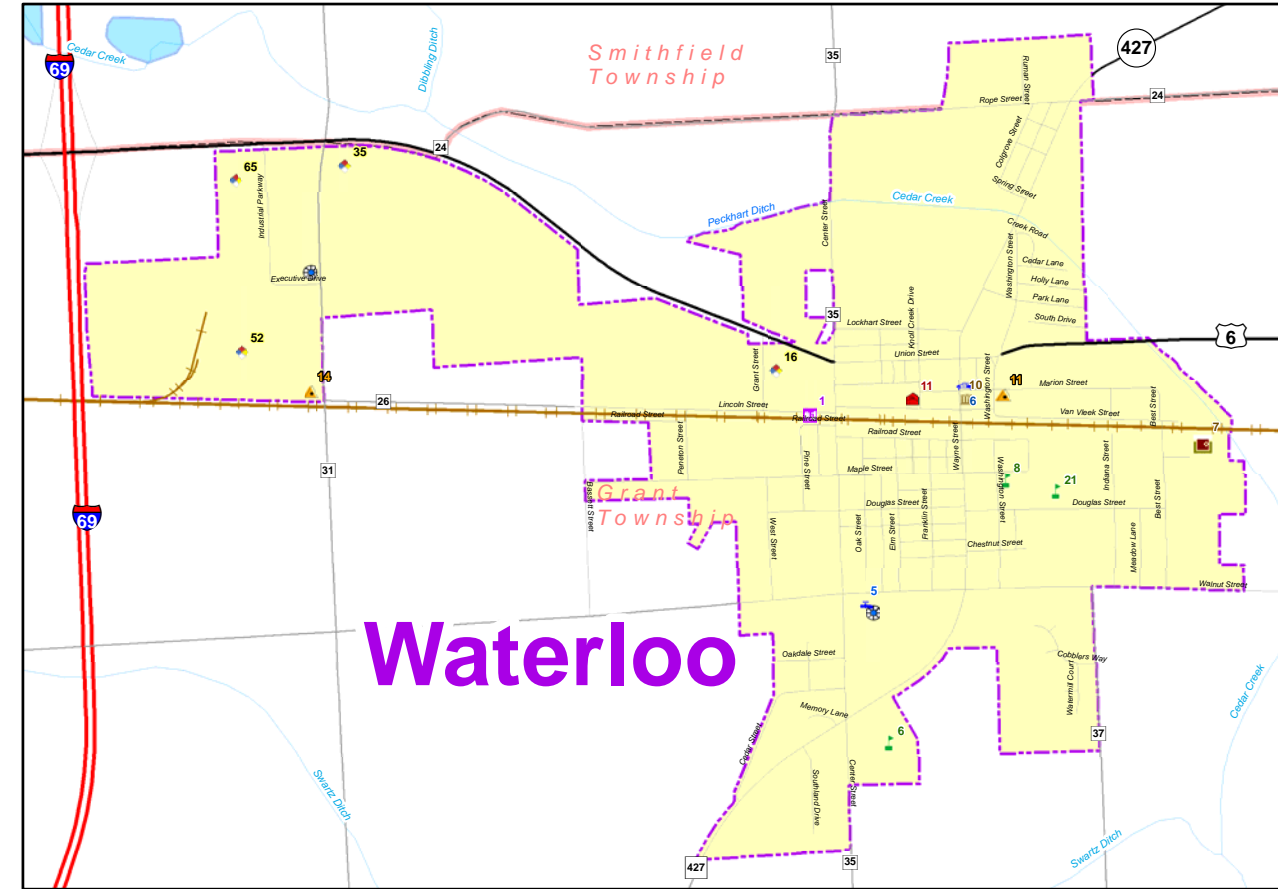
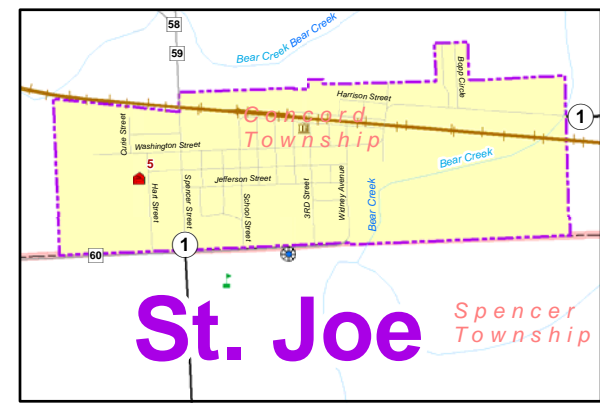
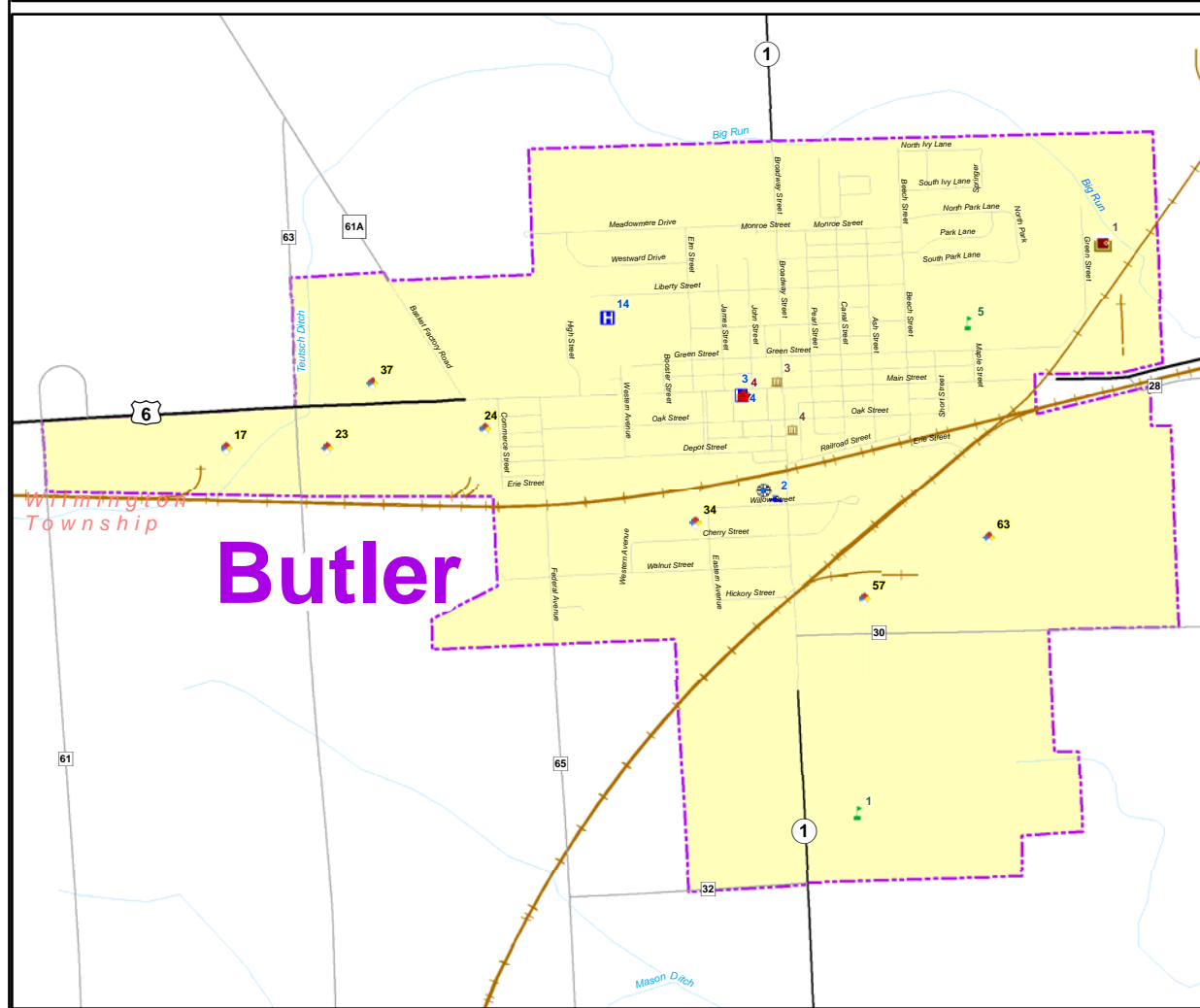
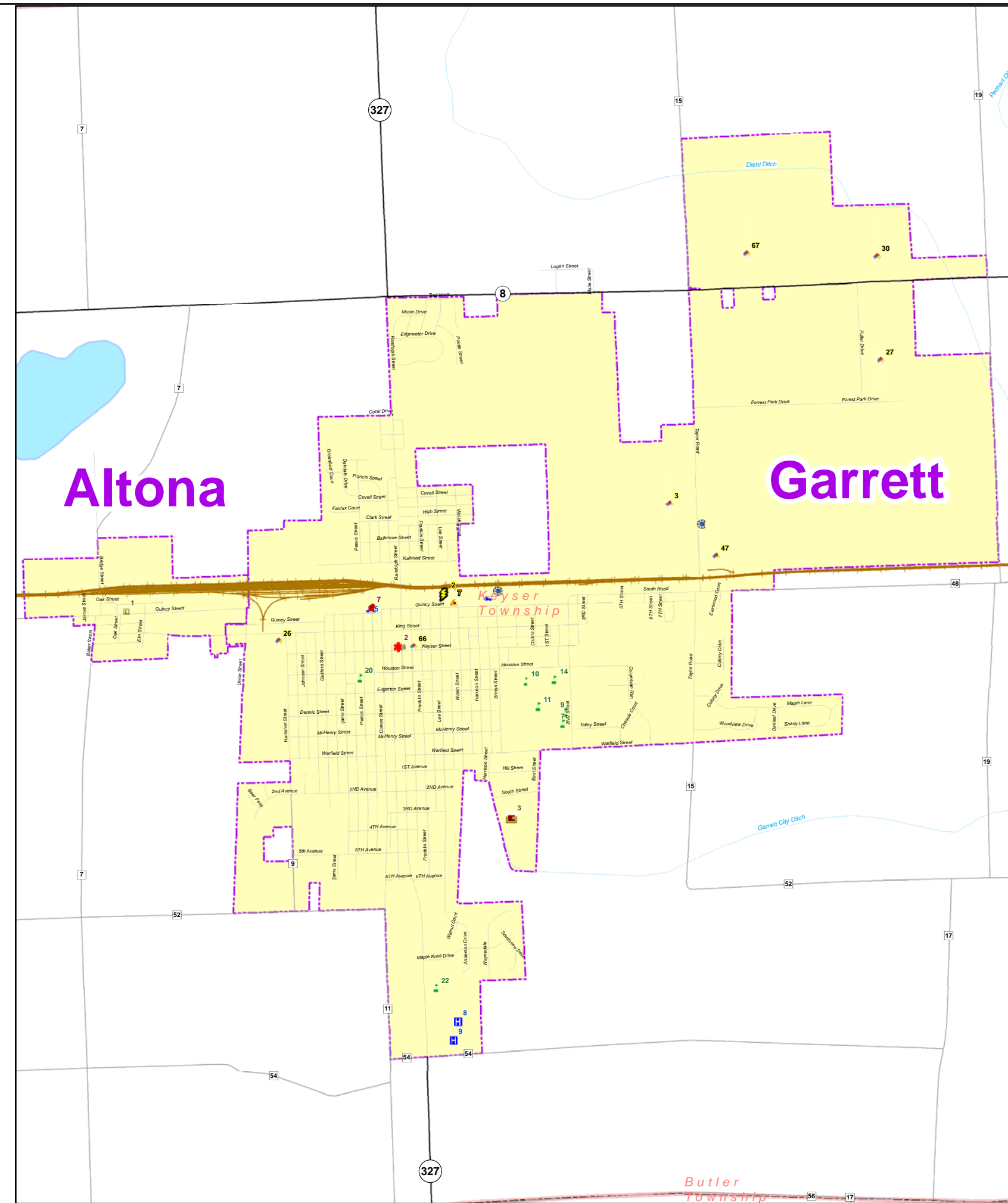
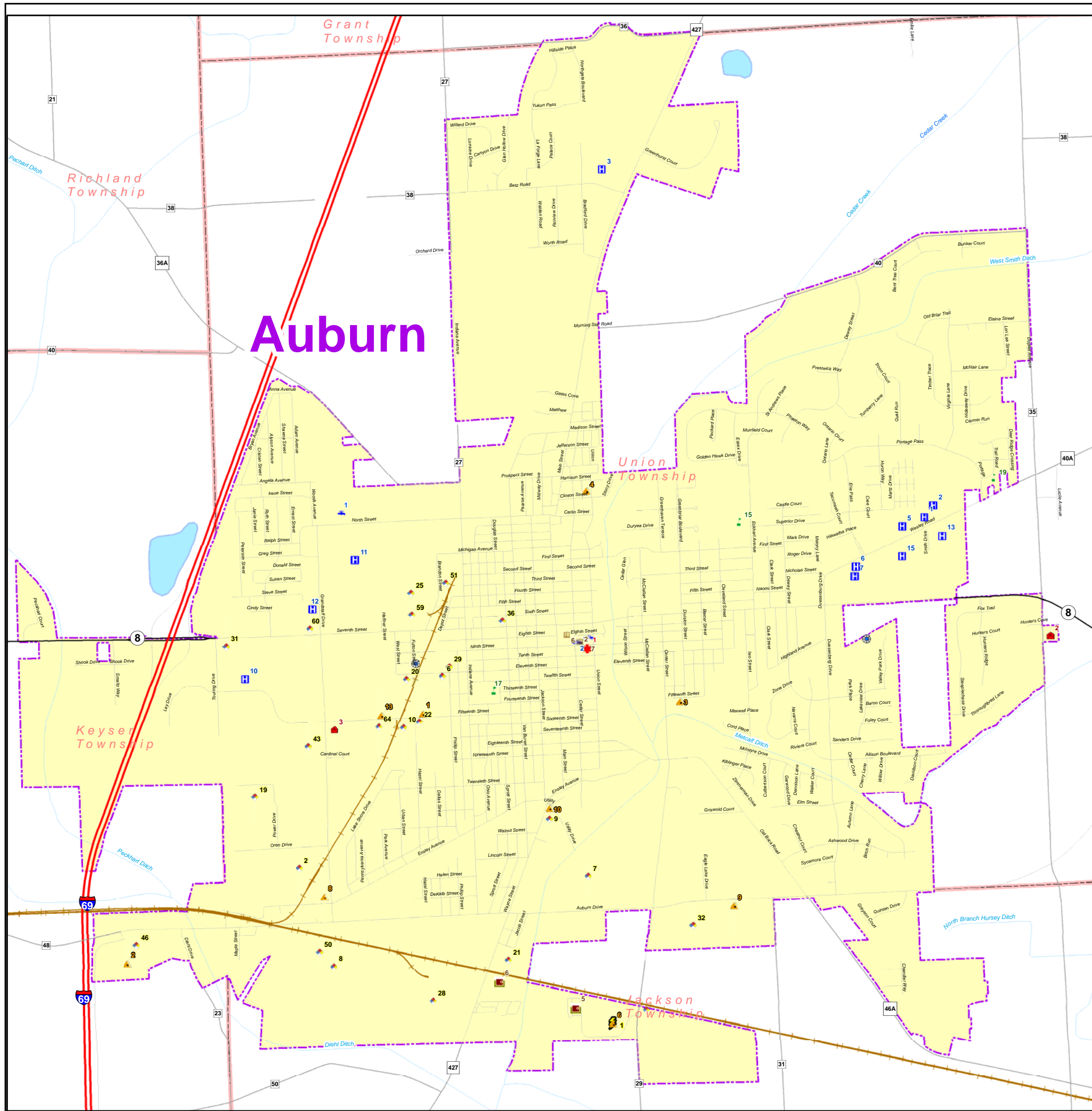
Sources of Data:
 1. Facility Data adapted from HAZUS (FEMA, 2002), with input from Steering Committee
 2. Roads, Railroads, Townships, Streams from CoGIS, 2006

CHRISTOPHER B. BURKE ENGINEERING, LTD.
 National City Center, Suite 1368 South
 115 West Washington Street
 Indianapolis, Indiana 46204
 (tel) 317.266.8000 (fax) 317.632.3306

PROJECT NO.: DeKalb County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.: 04-639	APPROX. SCALE: 1" = 1.25 mi
TITLE: Critical Facilities	DATE: 03/08	EXHIBIT: 1

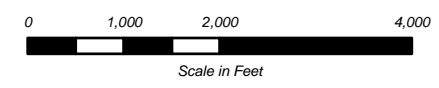
Critical Facilities

DeKalb County, Indiana



Airports		Medical Care	
1 DeKalb County	1 Auburn NE Center, Samara Hospital	10 RedMed	11 Smith Farms Manor Retirement
2 Flying Crown	2 Auburn Outpatient Services	12 The Laurels Of De Kalb	13 Wesley Healthcare
3 Greater Field	3 Batz Nursing Home		
4 Harrold	4 DeKalb County WIC Program		
5 Hook Field	5 DeKalb EMS		
6 Keener Field	6 DeKalb Memorial Hospital		
7 Kline Field	7 Miller's Merry Manor		
8 Luuzenisher Airpark	8 Northeast Indiana Kidney Center		
9 Mosey Field	9 Quack-Courtesy Dialysis Center		
10 Walker/Rowe Waterfloo	10		
Communication/Broadcast		Oil Refineries	
1 WGLL 1570	1 Marathon Oil		
2 WXTW CH 272			
Dams		Police Stations	
1 Family Life Center Lake Dam	1 Ashby Police Dept		
2 Floyd Troyer Lake	2 Auburn Police Dept		
3 Grey Stone Pond Dam	3 Butler Police Dept		
4 Hamilton Lake Dam	4 DeKalb County Sheriff		
5 Joe Stanczyk Lake Dam (North)	5 Garrett City Police Dept		
6 Joe Stanczyk Lake Dam (South)	6 Waterloo Police Dept		
7 McKenna Corporation Lake			
Electric Substations		Potable Water Plant	
1 Auburn Foundry Plant 1 Substation	1 Auburn Water Treatment Plant		
2 Auburn Foundry Plant 2 Substation	2 Butler City Water Treatment Plant		
3 Center ST Substation	3 Garret Water Treatment Plant		
4 Clinton ST Substation	4 Hamilton Water Treatment Plant		
5 CR 34 Substation	5 Waterloo Water Treatment Plant		
6 Electric Dept Master Station			
7 Garret Substation			
8 Grandstaff DR Substation			
9 Guardian Switching Station			
10 Jackson ST Substation			
11 NIPSCO			
12 Steel Dynamics			
13 West Fifteenth ST Substation			
14 No Name Given			
Emergency Operations Centers		Power Plants	
1 Butler EMS	1 Auburn Electric		
2 DeKalb County DHS			
3 Garret City Emergency Mgmt			
4 Garret City Emergency Mgmt			
Fire Stations		Railway Facilities	
1 Ashley Fire Dept	1 Waterloo		
2 Auburn Fire Dept			
3 Auburn Fire Dept			
4 Butler City Fire Dept			
5 Concord Two Fire Dept			
6 Corunna Fire Dept			
7 Garret City Fire Dept			
8 Hamilton Fire Dept			
9 Jackson Township Fire Dept			
10 Spencerville Fire Station			
11 Waterloo Fire Dept			
Government Facilities		Schools	
1 Altona Town Offices	1 Butler Elementary School		
2 Auburn City Offices	2 Country Meadow Elem School		
3 Butler City Court	3 DeKalb High School		
4 Butler City Offices	4 DeKalb Middle School		
5 Corunna Clerks Office	5 Eastside Junior-Senior High School		
6 DeKalb County Courthouse	6 First Beginnings Day Care		
7 DeKalb County Office Building	7 Four County Area Vsc Coop		
8 Garret City Offices	8 Garret Head Start		
9 Saint Joe Town Offices	9 Garret Head Start		
10 Waterloo Town Offices	10 Garret High School		
	11 Garret Middle School		
	12 Hamilton Community Elem School		
	13 Hamilton Community High School		
	14 J E Ober Elementary School		
	15 James R Watson Elem School		
	16 Lakewood Park Christian School		
	17 McKenney-Harrison Elem School		
	18 Riverside Elementary School		
	19 Sharon Turner Bacon Academy		
	20 St. Joseph School		
	21 Waterloo Elementary School		
	22 Zion Lutheran Preschool		
Wastewater Treatment Plants			
1 Butler Municipal WWTP			
2 Corunna Municipal WWTP			
3 Garret WWTP			
4 St. Joe - Spencerville RSD			
5 Wastewater Treatment Plant			
6 Water Pollution Control Plant Auburn			
7 Waterloo Municipal WWTP			
Hazardous Material Handlers			
1 Affiliated Metals Co.	36 Indiana Bell Telephone Company DBA SBC		
2 Alcoa Advanced Transportation System	37 Inergy Propane		
3 American Silicones, Inc.	38 Inergy Propane		
4 Andersons Waterloo Ag Center	39 Inergy Propane DBA Hoosier Propane		
5 Ashley Industrial Molding	40 International Wire - Corunna		
6 Auburn Foundry, Inc.	41 Irving Gravel Company - Auburn		
7 Auburn Gear	42 Irving Gravel Company - Garret		
8 Auburn PD Range Facility	43 Kimball Electronics		
9 Auburn Water Department, South Plant	44 Lime-O-Sol Co.		
10 Ball Brass & Aluminum Foundry	45 Merritt Processing Facility		
11 Biobab, Inc.	46 Metal Technologies Auburn, LLC		
12 Brooks Construction Company, Plant 7	47 Ming Inc. Composites (DMA)		
13 Butler Mill Service Co.	48 NE Indiana Solid Waste Management		
14 Cambridge Inds. Inc.	49 New Millennium BS/Steel Dynamics		
15 Carper Farm Supply	50 Hill-Farm Operations		
16 Charleston Metal Products	51 North Central Co-Op - Auburn Bulk Plant		
17 Citation - Bob'n Aluminum Corp.	52 Nucor Building Sys.		
18 CMP West	53 Nucor Corp., Vulcraft Division		
19 Corneach Div. - Spx Corp.	54 Nucor Fastener		
20 Cooper Tire & Rubber Corp., Engineered Prod	55 Parker Hannifin Corp., Cylinder Division		
21 Custom Coating, Inc	56 Propane People		
22 DeKalb Metal Finishing	57 Pullman Industries, Inc.		
23 DeKalb Molded Plastics	58 Rhonaham Franchising, LLC		
24 Dura Automotive Systems	59 Rieke Corp.		
25 Eaton Clutch Division	60 Speedway/Sm #7112		
26 Electric Motors & Specials	61 Sprint Auburn Pop		
27 Fleetwood Homes Of Indiana Inc. 55	62 Steel Dynamics Inc.		
28 Foamex, LP	63 Thermo Tfu Corp. Indiana Ops.		
29 Foley Pattern Company	64 Tower Automotive		
30 Garrett Products, Inc	65 United Parcel Service		
31 Gasamatica #54	66 Verizon		
32 Guardian Industries	67 Wal-Mart Distribution Center #6074		
33 Heidman Steel Products	68 Weyerhaeuser Corp. Tri-Wal Division		
34 Henderson Tru Suspension Sys. - Plant 2	69 Watercom Sijin		
35 Hoosier Propane			

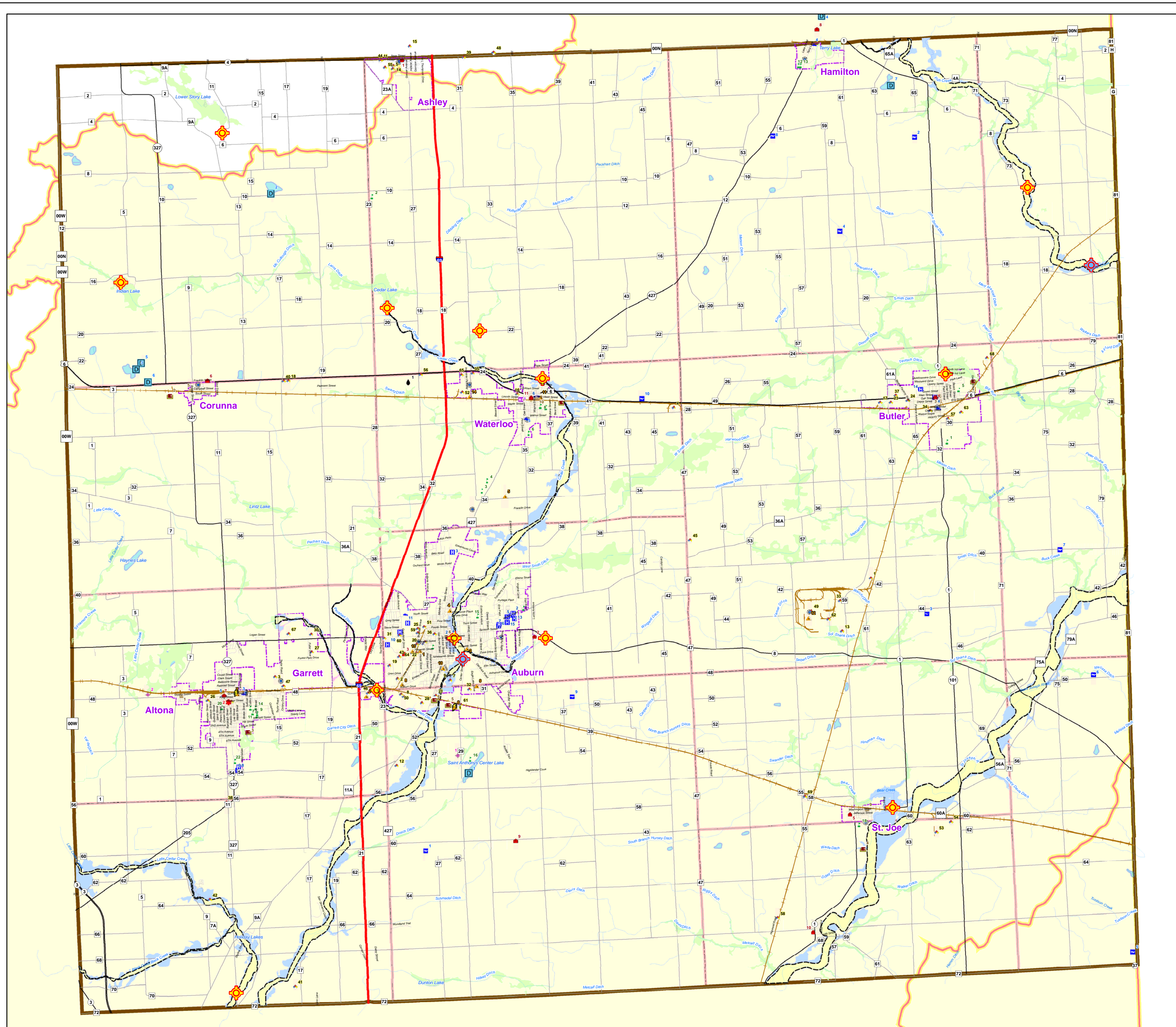
	Airports
	Broadcast Facility
	Dam
	Electric Substation
	Emergency Operations Center
	Fire Station
	Government Facility
	Hazardous Material Handler
	Medical Care Facility
	Oil Refinery
	Police Station
	Potable Water Facility
	Power Plant
	Railway Station
	School
	Wastewater Treatment Plant
	Water Tower
	Corporate Limits
	Township Boundary



Sources of Data:
 1. Facility Data adapted from HAZLUS (FEMA, 2002), with input from Steering Committee
 2. Roads, Railroads, Townships, Streams from CoCAGIS, 2006

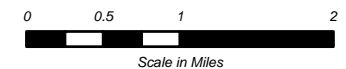
CHRISTOPHER B. BURKE ENGINEERING, LTD. National City Center, Suite 1368 South 115 West Washington Street Indianapolis, Indiana 46204 (tel) 317.266.8000 (fax) 317.632.3306	PROJECT: DeKalb County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.: 04-639	APPROX. SCALE: 1" = 2000 ft
	TITLE: Critical Facilities Located in NFIP Communities	DATE: 03/08	EXHIBIT: 1a

Flood Zones, USGS Stream Gages and Dams DeKalb County, Indiana



- | | |
|---|--|
| <p>Airports</p> <ol style="list-style-type: none"> De Kalb County Flying Crown Grader Field Harold Hook Field Keener Field Kline Field Lauzereiser Airport Mooney Field Walker/Rowe Waterloo | <p>Medical Care</p> <ol style="list-style-type: none"> Auburn NE Center, Samara Hospital Auburn Outpatient Services Beck Nursing Home De Kalb County WIC Program De Kalb EMS De Kalb Memorial Hospital Miller's Merry Manor Northwest Indiana Kidney Center Quad-Courtesy Dialysis Center RadMed Spaul Farms Manor Retirement The Laurels Of De Kalb Wesley Healthcare |
| <p>Communication/Broadcast</p> <ol style="list-style-type: none"> WGLL 1570 WXTW CH 272 | <p>Oil Refineries</p> <ol style="list-style-type: none"> Marathon Oil |
| <p>Dams</p> <ol style="list-style-type: none"> Family Life Center Lake Dam Floyd Troyer Lake Grey Stone Pond Dam Hamilton Lake Dam Joe Stanczyk Lake Dam (North) Joe Stanczyk Lake Dam (South) McNamara Corporation Lake | <p>Police Stations</p> <ol style="list-style-type: none"> Ashley Police Dept Auburn Police Dept Butler Police Dept De Kalb County Sheriff Garrett City Police Dept Waterloo Police Dept |
| <p>Electric Substations</p> <ol style="list-style-type: none"> Auburn Foundry Plant 1 Substation Auburn Foundry Plant 2 Substation Center ST Substation Clinton ST Substation CR 34 Substation Electric Dept Master Station Garrett Substation Grandstaff DR Substation Guardian Switching Station Jackson ST Substation NFPSCO Steel Dynamics West Fifteenth ST Substation No Name Given | <p>Potable Water Plant</p> <ol style="list-style-type: none"> Auburn Water Treatment Plant Clinton City Water Treatment Plant Garrett Water Treatment Plant Hamilton Water Treatment Plant Waterloo Water Treatment Plant |
| <p>Emergency Operations Centers</p> <ol style="list-style-type: none"> Butler EMS De Kalb County DHS Country City Emergency Mgmt Garrett City Emergency Mgmt | <p>Power Plants</p> <ol style="list-style-type: none"> Auburn Electric |
| <p>Fire Stations</p> <ol style="list-style-type: none"> Ashley Fire Dept Auburn Fire Dept Butler Fire Dept Butler City Fire Dept Concord Two Fire Dept Corunna Fire Dept Garrett City Fire Dept Hamilton Fire Dept Jackson Township Fire Dept Spencerwood Fire Station Waterloo Fire Dept | <p>Railway Facilities</p> <ol style="list-style-type: none"> Waterloo |
| <p>Government Facilities</p> <ol style="list-style-type: none"> Altona Town Offices Auburn City Offices Butler City Court Butler City Offices Corunna Clerks Office De Kalb County Courthouse De Kalb County Office Building Garrett City Offices St. Joe Town Offices Waterloo Town Offices | <p>Schools</p> <ol style="list-style-type: none"> Butler Elementary School Country Meadow Elem School DeKalb High School DeKalb Middle School Eastside Junior-Senior High School First Beginnings Day Care Four County Area Voc Coop Garrett Head Start Garrett High School Garrett Middle School Hamilton Community Elem School Hamilton Community High School J E Ober Elementary School James R Watson Elem School Lakeview Park Christian School Mckarney-Harrison Elem School Rivendale Elementary School Sharon Turner Bacon Academy St Joseph School Waterloo Elementary School Zion Lutheran Preschool |
| <p>Hazardous Material Handlers</p> <ol style="list-style-type: none"> Affiliated Metals Co. Alcoa Advanced Transportation System American Silicones, Inc. Andersons Waterloo Ag Center Ashley Industrial Molding Auburn Foundry, Inc. Auburn Gear Auburn PD Range Facility Auburn Water Department, South Plant Ball Brass & Aluminum Foundry Biobak, Inc. Brooks Construction Company, Plant 7 Butler Mill Service Co Cambridge Inds. Inc. Carpenter Farm Supply Chatterton Metal Products Citation - Bohm Aluminum Corp. CMP West Conitech Div. - Spv Corp. Cooper Tire & Rubber Co. Engineered Prod Custom Coating, Inc. DeKalb Metal Finishing DeKalb Molded Plastics Dura Automotive Systems Easton Clutch Division Electric Motors & Specials Fleetwood Homes Of Indiana Inc. 55 Foamex, LP Foley Pattern Company Garrett Products, Inc. Gasmanica #54 Guardian Industries Hedman Steel Products Hendrickson Truck Suspension Sys. - Plant 2 Hoosier Propane Indiana Bell Telephone Company DBA SBC Inergy Propane Inergy Propane Inergy Propane Dba Hoosier Propane International Wire - Corunna Irving Gravel Company - Auburn Irving Gravel Company - Garrett Kinball Electronics Line-O-Sol Co. Merritt Processing Facility Metal Technologies Auburn, Inc Mfg Inc. Composites (DBA) NE Indiana Solid Waste Management New Millenium BS/Steel Dynamics NIS Plant Operations North Central Co-Op - Auburn Bulk Plant Nucor Building Sys. Nucor Corp. - Valerati Division Nucor Fastener Parker Hannifin Corp. Cylinder Division Propane People Pulman Industries, Inc. Riveland Finishing, LLC Risks Corp. SpeedwaySm #7112 Spree Auburn Pro Steel Dynamics Inc. Therma-Tri Corp. Indiana Ops. Tower Automotive United Parcel Service Vestron Wal-Mart Distribution Center #6074 Weyerhaeuser Corp. Tri-Wall Division Woodborn Signs | <p>Wastewater Treatment Plants</p> <ol style="list-style-type: none"> Butler Municipal WWTP Corunna Municipal WWTP Garrett WWTP St. Joe - Spencerville RSD Waterloo Treatment Plant Water Pollution Control Plant Auburn Waterloo Municipal WWTP |



Sources of Data:
 1. Facility Data adapted from HAZUS (FEMA, 2002), with input from Steering Committee
 2. Roads, Railroads, Townships, Streams from CoCIGIS, 2006
 3. Stream Gages from USGS, 2006
 4. Flood Zones provided by CoCIGIS, 2006



CBEB CHRISTOPHER B. BURKE ENGINEERING, LTD.
 National City Center, Suite 1368 South
 115 West Washington Street
 Indianapolis, Indiana 46204
 (tel) 317.266.8000 (fax) 317.632.3306

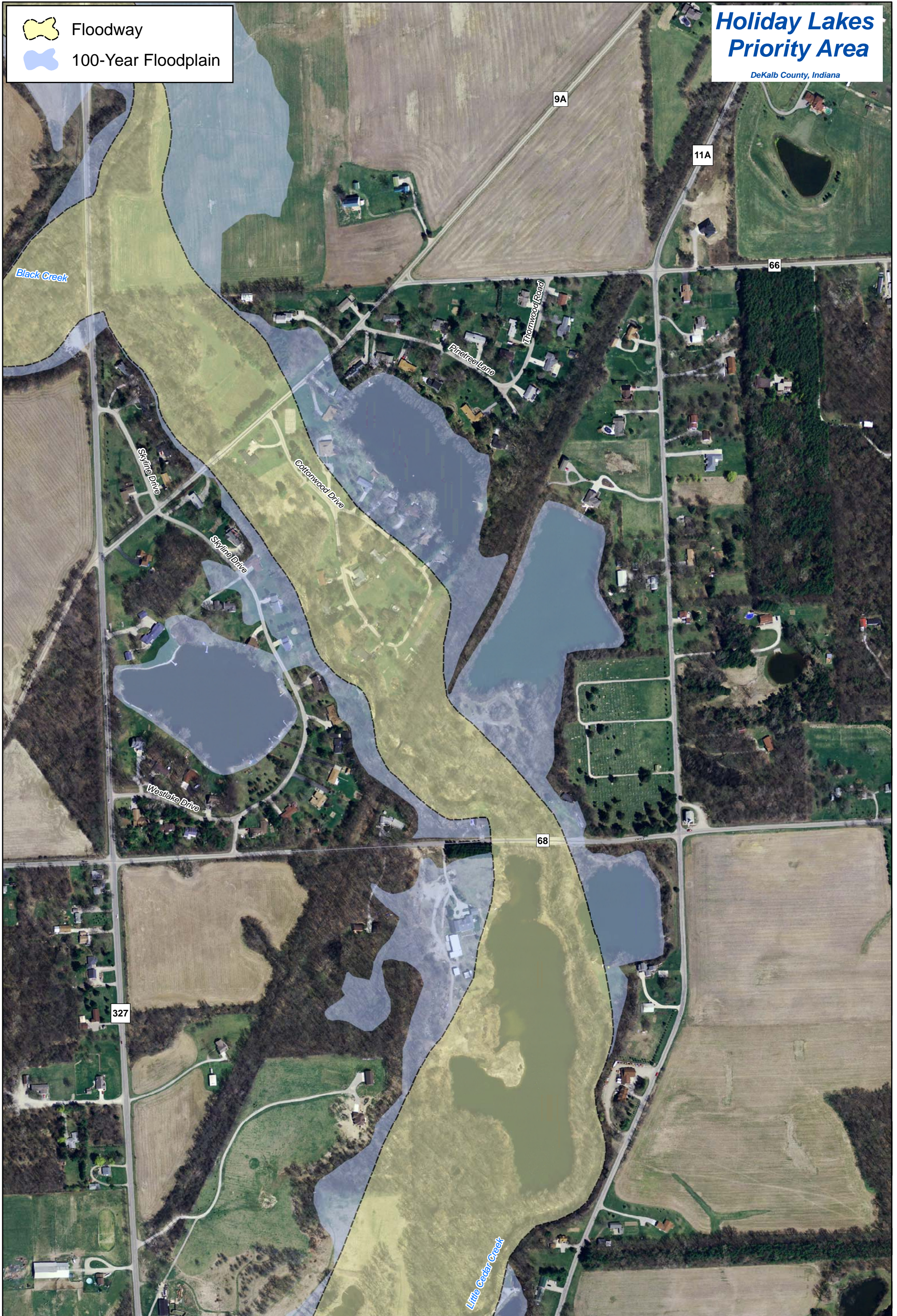
PROJECT:	DeKalb County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.:	04-639	APPROX. SCALE:	1" = 1.25 mi
TITLE:	Flood Zones, USGS Stream Gages and Dams	DATE:	03/08	EXHIBIT:	2



 Floodway
 100-Year Floodplain

Holiday Lakes Priority Area

DeKalb County, Indiana



Sources of Data:

1. Flood Zones provided by CoCIGIS, 2006
2. Aerial Photography: 2005 Indiana Orthophotography, IndianaMap Framework Data (www.indianamap.org)

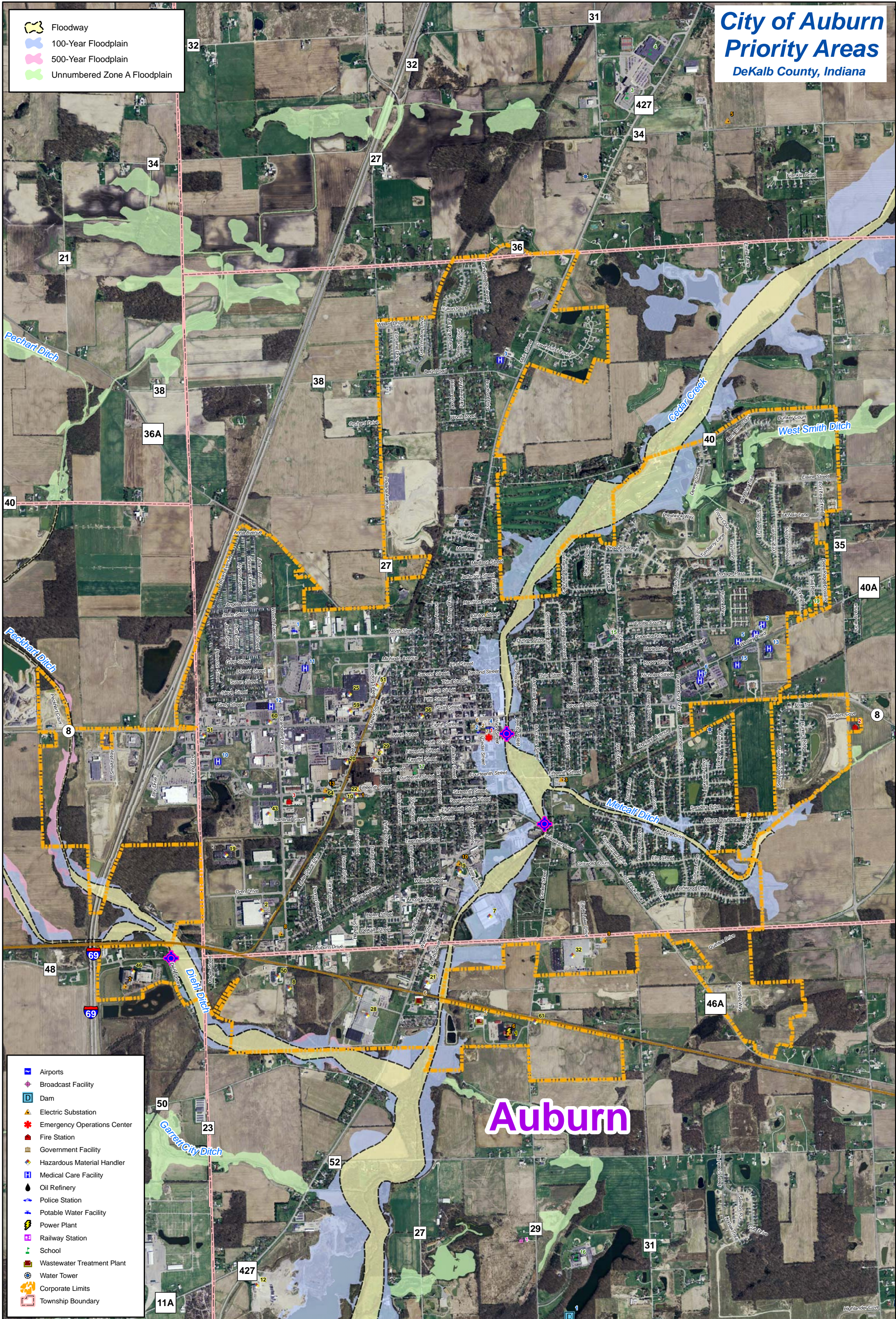


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 National City Center, Suite 1368 South
 115 West Washington Street
 Indianapolis, Indiana 46204
 (tel) 317.266.8000 (fax) 317.632.3306

PROJECT:	DeKalb County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.:	04-639	APPROX. SCALE:	1" = 400'
TITLE:	Holiday Lakes Priority Area	DATE:	03/08	EXHIBIT:	2a

**City of Auburn
Priority Areas**
DeKalb County, Indiana

- Floodway
- 100-Year Floodplain
- 500-Year Floodplain
- Unnumbered Zone A Floodplain



- Airports
- Broadcast Facility
- Dam
- Electric Substation
- Emergency Operations Center
- Fire Station
- Government Facility
- Hazardous Material Handler
- Medical Care Facility
- Oil Refinery
- Police Station
- Potable Water Facility
- Power Plant
- Railway Station
- School
- Wastewater Treatment Plant
- Water Tower
- Corporate Limits
- Township Boundary

Sources of Data:
 1. Flood Zones provided by CoCIGIS, 2006
 2. Aerial Photography: 2005 Indiana Orthophotography, IndianaMap Framework Data (www.indianamap.org)



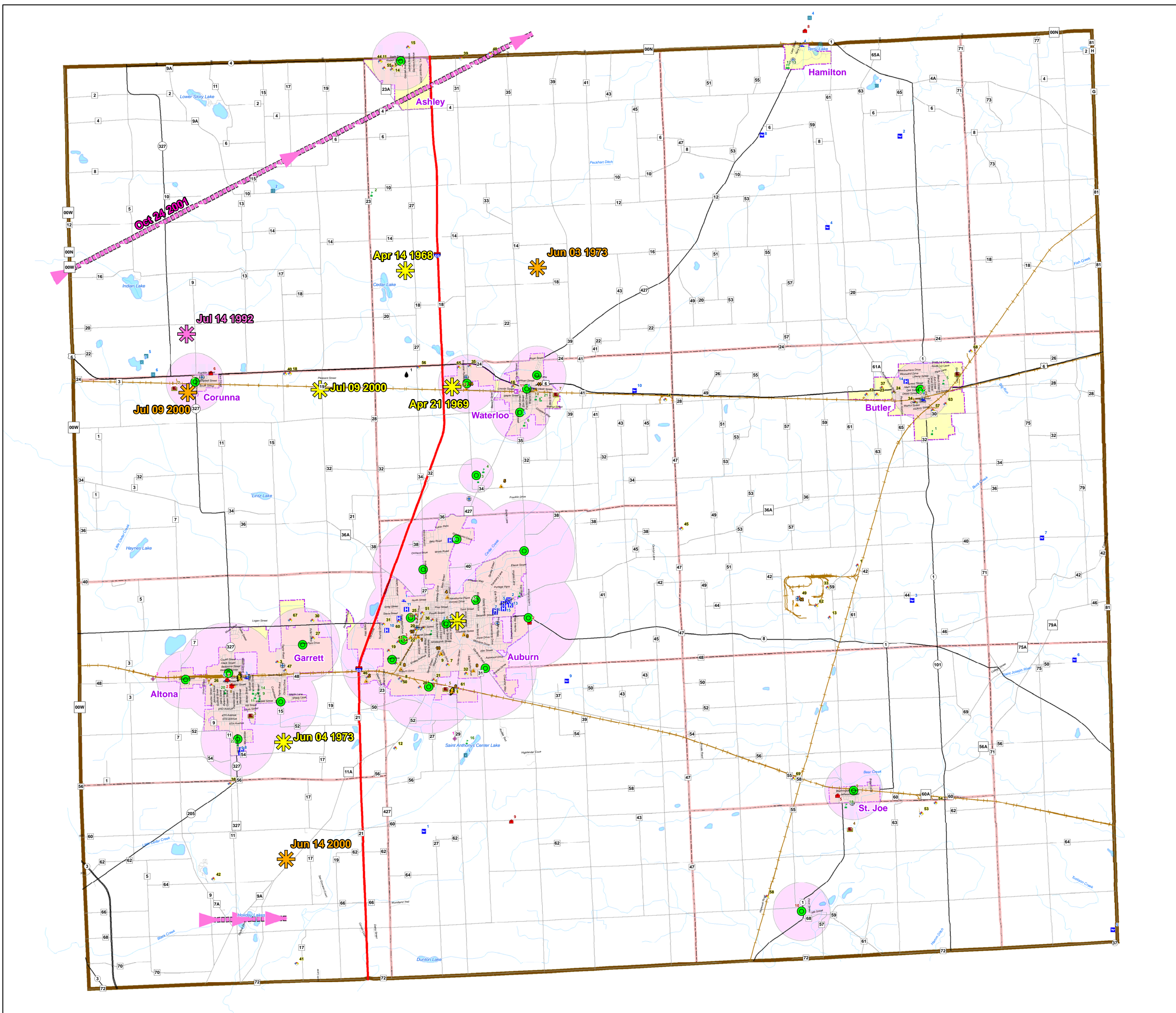
CHRISTOPHER B. BURKE ENGINEERING, LTD.
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 115 West Washington Street
 Indianapolis, Indiana 46204
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PROJECT:	DeKalb County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.:	04-639	APPROX. SCALE:	1" = 2000'
TITLE:	City of Auburn Priority Areas	DATE:	03/08	EXHIBIT:	2b

Historical Tornado Events

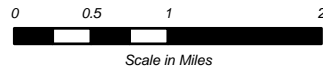
DeKalb County, Indiana

- Airports**
 - 1 De Kalb County
 - 2 Flying Crow
 - 3 Greiner Field
 - 4 Harrod
 - 5 Hook Field
 - 6 Koenig Field
 - 7 Kline Field
 - 8 Lautzenhiser Airport
 - 9 Mooney Field
 - 10 Walker/Rowe Waterloo
- Medical Care**
 - 1 Auburn NE Center, Samara Hospital
 - 2 Auburn Outpatient Services
 - 3 Belle Nursing Home
 - 4 De Kalb County WIC Program
 - 5 De Kalb EMS
 - 6 De Kalb Memorial Hospital
 - 7 Miller's Merry Manor
 - 8 Northeast Indiana Kidney Center
 - 9 Quad-Century Dialysis Center
 - 10 RedMed
 - 11 Smith Farms Manor Retirement
 - 12 The Laurels Of De Kalb
 - 13 Wesley Healthcare
- Communication/Broadcast**
 - 1 WGIL 1570
 - 2 WXTV CH 27.2
- Dams**
 - 1 Family Life Center Lake Dam
 - 2 Floyd Troyer Lake
 - 3 Grey Stone Pond Dam
 - 4 Hamilton Lake Dam
 - 5 Joe Stanczyk Lake Dam (North)
 - 6 Joe Stanczyk Lake Dam (South)
 - 7 McNamee Corporation Lake
- Oil Refineries**
 - 1 Marathon Oil
- Police Stations**
 - 1 Ashley Police Dept
 - 2 Auburn Police Dept
 - 3 Butler Police Dept
 - 4 De Kalb County Sheriff
 - 5 Garrett City Police Dept
 - 6 Waterloo Police Dept
- Electric Substations**
 - 1 Auburn Foundry Plant 1 Substation
 - 2 Auburn Foundry Plant 2 Substation
 - 3 Conner ST Substation
 - 4 Clinton ST Substation
 - 5 CR 34 Substation
 - 6 Electric Dept Master Station
 - 7 Garrett Substation
 - 8 Grandstaff DK Substation
 - 9 Guardian Switching Station
 - 10 Jackson ST Substation
 - 11 NIPSCO
 - 12 Steel Dynamics
 - 13 West Fifteenth ST Substation
 - 14 No Name Given
- Potable Water Plant**
 - 1 Auburn Water Treatment Plant
 - 2 Butler City Water Treatment Plant
 - 3 Garrett Water Treatment Plant
 - 4 Hamilton Water Treatment Plant
 - 5 Waterloo Water Treatment Plant
- Power Plants**
 - 1 Auburn Electric
- Railway Facilities**
 - 1 Waterloo
- Schools**
 - 1 Butler Elementary School
 - 2 Country Meadow Elem School
 - 3 DeKalb High School
 - 4 DeKalb Middle School
 - 5 Eastside Junior-Senior High School
 - 6 First Beginnings Day Care
 - 7 Four County Area Voc Coop
 - 8 Garrett Head Start
 - 9 Garrett Head Start
 - 10 Garrett High School
 - 11 Garrett Middle School
 - 12 Hamilton Community Elem School
 - 13 Hamilton Community High School
 - 14 J E Ober Elementary School
 - 15 James R Watson Elem School
 - 16 Lakewood Park Christian School
 - 17 Makenway-Harrison Elem School
 - 18 Riverside Elementary School
 - 19 Sharon Turner Bacon Academy
 - 20 St Joseph School
 - 21 Waterloo Elementary School
 - 22 Zion Lutheran Preschool
- Fire Stations**
 - 1 Ashley Fire Dept
 - 2 Auburn Fire Dept
 - 3 Auburn Fire Dept
 - 4 Butler City Fire Dept
 - 5 Concord Twp Fire Dept
 - 6 Coruna Fire Dept
 - 7 Garrett City Fire Dept
 - 8 Hamilton Fire Dept
 - 9 Jackson Township Fire Dept
 - 10 Spencerville Fire Station
 - 11 Waterloo Fire Dept
- Government Facilities**
 - 1 Altona Town Offices
 - 2 Auburn City Offices
 - 3 Butler City Court
 - 4 Butler City Offices
 - 5 Coruna Clerk's Office
 - 6 De Kalb County Courthouse
 - 7 De Kalb County Office Building
 - 8 Garrett City Offices
 - 9 St. Joe - Spencerville RSD
 - 10 Waterloo Town Offices
- Wastewater Treatment Plants**
 - 1 Butler Municipal WWTP
 - 2 Coruna Municipal WWTP
 - 3 Garrett WWTP
 - 4 St. Joe - Spencerville RSD
 - 5 Wastewater Treatment Plant
 - 6 Water Pollution Control Plant Auburn
 - 7 Waterloo Municipal WWTP
- Hazardous Material Handlers**
 - 1 Affiliated Metals Co.
 - 2 Alcoa Advanced Transportation System
 - 3 American Silicones, Inc.
 - 4 Anderson's Waterloo Ag Center
 - 5 Ashley Industrial Molding
 - 6 Auburn Foundry, Inc.
 - 7 Auburn Gear
 - 8 Auburn PD Range Facility
 - 9 Auburn Water Department, South Plant
 - 10 Ball Brass & Aluminum Foundry
 - 11 Bloab, Inc.
 - 12 Brooks Construction Company, Plant 7
 - 13 Butler Mill Service Co.
 - 14 Cambridge Inds. Inc.
 - 15 Carper Farm Supply
 - 16 Charleston Metal Products
 - 17 Claxton - Bohn Aluminum Corp.
 - 18 CMP West
 - 19 Cortech Div. - Spx Corp.
 - 20 Cooper Tire & Rubber Co., Engineered Prod
 - 21 Custom Coating, Inc.
 - 22 DeKalb Metal Finishing
 - 23 DeKalb Model Plastics
 - 24 Dura Automotive Systems
 - 25 Eaton Clutch Division
 - 26 Electric Motors & Specials
 - 27 Fleetwood Homes Of Indiana Inc. 55
 - 28 Foamex, LP
 - 29 Foley Pattern Company
 - 30 Garrett Products, Inc.
 - 31 Gasamerica #54
 - 32 Guardian Industries
 - 33 Hedman Steel Products
 - 34 Hendrickson Truss Suspension Sys. - Plant 2
 - 35 Hoosier Propane
 - 36 Indiana Bell Telephone Company DBA SBC
 - 37 Inergy Propane
 - 38 Inergy Propane, Inc.
 - 39 Inergy Propane Dba Hoosier Propane
 - 40 International Wire - Coruna
 - 41 Irving Gravel Company - Auburn
 - 42 Irving Gravel Company - Garrett
 - 43 Kimball Electronics
 - 44 Lime-O-Sol Co.
 - 45 Merritt Processing Facility
 - 46 Metal Technologies Auburn, Llc
 - 47 Mfg. Inc. Composites (DBA)
 - 48 NE Indiana Solid Waste Management
 - 49 New Millennium SS/Steel Dynamics
 - 50 N8-Plant Operations
 - 51 North Central Co-Op - Auburn Bulk Plant
 - 52 Nucor Building Sys.
 - 53 Nucor Corp., Vulcraft Division
 - 54 Nucor Fastener
 - 55 Parker Hannifin Corp., Cylinder Division
 - 56 Propane People
 - 57 Pullman Industries, Inc.
 - 58 Rheinstatt Finishing, LLC
 - 59 Risko Corp.
 - 60 Speedway/Sim #7112
 - 61 Spencerville Auburn Pkg
 - 62 Steel Dynamics Inc.
 - 63 Thermo Tru Corp., Indiana Ops.
 - 64 Tower Automotive
 - 65 United Parcel Service
 - 66 Vanzco
 - 67 Wal-Mart Distribution Center #6074
 - 68 Weyerhaeuser Corp., Tri-Wall Division
 - 69 Woodcom Sign



- Tornado Paths**
 - F2 Magnitude
- Tornado Touchdowns**
 - ★ F0 Magnitude
 - ★ F1 Magnitude
 - ★ F2 Magnitude
- Warning Siren Location
- Warning Siren Coverage Area
- Airports
- ◆ Broadcast Facility
- ▣ Dam
- ▲ Electric Substation
- ★ Emergency Operations Center
- Fire Station
- Government Facility
- ◆ Hazardous Material Handler
- ◆ Medical Care Facility
- ◆ Oil Refinery
- Police Station
- ◆ Potable Water Facility
- ◆ Power Plant
- Railway Station
- School
- Wastewater Treatment Plant
- Water Tower
- Corporate Limits
- Township Boundary

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 1. Facility Data adapted from HAZUS (FEMA, 2002), with input from Steering Committee
 2. Roads, Railroads, Townships, Streams from CoGIS, 2006
 3. Tornado Data from National Climatic Data Center, 2006

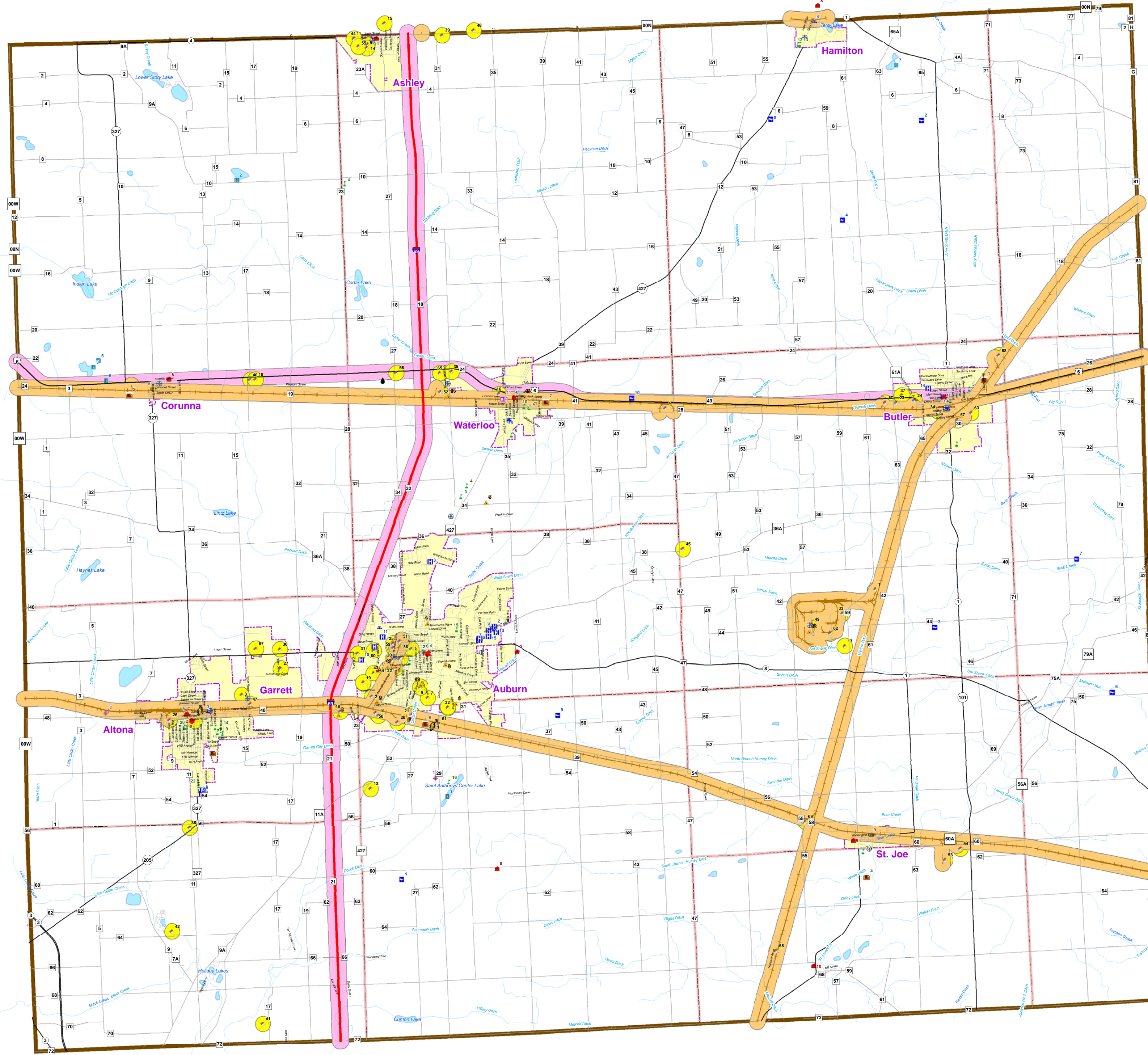


CB CHRISTOPHER B. BURKE ENGINEERING, LTD.
 National City Center, Suite 1368 South
 115 West Washington Street
 Indianapolis, Indiana 46204
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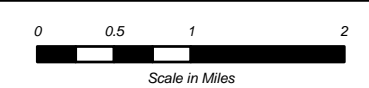
PROJECT:	DeKalb County, Indiana Multi-Hazard Mitigation Plan	PROJECT NO.:	04-639	APPROX. SCALE:	1" = 1.25 mi
TITLE:	Historical Tornado Events	DATE:	03/08	EXHIBIT:	3



Major Transportation Routes/ Hazardous Material Handlers with Potential Areas of Impact DeKalb County, Indiana



- | | | | |
|-------------------------|---------------------------------|---------------------|--------------------------------|
| Airports | | Medical Care | |
| 1 DeKalb County | 11 Smith Farms Manor Retirement | 11 Name | 11 Oil Refineries |
| 2 Flying Crow | 12 The Laurels Of DeKalb | 12 Name | 12 Police Stations |
| 3 Greater Field | 13 Wesley Healthcare | 13 Name | 13 Potable Water Plant |
| 4 Bess Nursing Home | | 14 Name | 14 Power Plants |
| 5 Hook Field | | 15 Name | 15 Railway Facilities |
| 6 DeKalb EMS | | 16 Name | 16 Schools |
| 7 Kline Field | | 17 Name | 17 Wastewater Treatment Plants |
| 8 Laubenthal Airport | | 18 Name | |
| 9 Mooney Field | | 19 Name | |
| 10 Walker/Rowe Waterloo | | 20 Name | |
| | | 21 Name | |
| | | 22 Name | |
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| | | 25 Name | |
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Sources of Data:
 1. Facility Data adapted from HAZUS (FEMA, 2002), with input from Steering Committee
 2. Roads, Railroads, Townships, Streams from CoGIS, 2006

CHRISTOPHER B. BURKE ENGINEERING, LTD.
 National City Center, Suite 1368 South
 115 West Washington Street
 Indianapolis, Indiana 46204
 (tel) 317.266.8000 (fax) 317.632.3306

PROJECT: DeKalb County, Indiana
 Multi-Hazard Mitigation Plan
 PROJECT NO.: 04-639
 APPROX. SCALE: 1" = 1.25 mi
 DATE: 03/08
 TITLE: Major Transportation Routes/Hazardous Material
 Handlers with Potential Areas of Impact
 EXHIBIT: 4

DEKALB COUNTY MHMP
LIST OF ACRONYMS

AICP	American Institute of Certified Planners
BFE	Base Flood Elevation
BMP	Best Management Practices
CAA	Clean Air Act
CBBEL	Christopher B. Burke Engineering, Ltd.
CEMP	Comprehensive Emergency Management Plan
CPRI	Calculated Priority Risk Index
CRS	Community Rating System
CTP	Cooperative Technical Partner
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 Assistance
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
SWQMP	Storm Water Quality Management Plan
USGS	United States Geological Service
WCT	Wind Chill Temperature

DeKalb County Multi-Hazard Mitigation Plan
Planning Committee Meeting

3:00 pm Wednesday, August 16, 2006
Eckhart Public Library
603 South Jackson Street, Auburn

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

DeKalb County Multi-Hazard Mitigation Plan
Planning Committee Meeting

3:00 pm Wednesday, August 16, 2006

Eckhart Public Library
603 South Jackson Street, Auburn

MEETING SUMMARY

Planning Committee Members Present:

Peter Cioni, City of Butler
Randy Fox, DeKalb County EMS
Allen Haynes, DeKalb County SWCD
Clinton Knauer, DeKalb County Plan Commission
Rodney Renkenberger, Maumee River Basin Commission
William Spohn, City of Auburn Planning & Development
Mark Strong, DeKalb County Surveyor's Office
Brad Stump, DeKalb County GIS Department
Bill Walters, DeKalb County Building Department

Others Present:

Siavash Beik, Christopher B. Burke Engineering, Ltd. (CBBEL)
Heather Buck, Christopher Burke Engineering, Ltd. (CBBEL)
Tonia Fortney, DeKalb County DHS
Jenni Franz, NE IN Solid Waste Management District
Mike Good, City of Auburn Fire Department
Sheila McKinley, Christopher Burke Engineering, Ltd. (CBBEL)
Dale Wagner, DeKalb County DHS

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 DeKalb 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 DeKalb 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:
 - DeKalb County
 - Town of Altona
 - City of Auburn
 - City of Butler
 - City of Garrett
 - Town of St. Joe
 - Town of Waterloo

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 August 2006 through February 2007.

As indicated in the projected timeline, the Planning Committee members will meet in August, September, November, and January. From August through December 2006, CBBEL will research and compile historic hazard data necessary to prepare the MHMP. In December 2006, a media release describing the development of the MHMP will be distributed to local media outlets. In March 2007, CBBEL will provide the draft DeKalb County MHMP to the Planning Committee for their review and comment. A public meeting will be scheduled in May 2007 to present the draft Plan to the public and other interested parties. Public comments will be accepted through the end of May 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 DeKalb County Commissioners is slated for in October 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 DeKalb 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, Earthquake, Flooding, Ice Storm, Severe Winter Storm, Thunderstorm, Tornado, Windstorm, Hailstorm, Hazardous Materials (storage and transport), and Pipeline Utility Failure in detail as part of this planning effort.

List of Hazards	Hazards with Local Impact	Hazards for Detailed Study
Dam Failure	Yes	Yes
Earthquake	Yes	Yes
Flooding	Yes	Yes
Ice Storm	Yes	Yes
Landslide	No	No
Sever Winter Storm	Yes	Yes
Thunderstorm	Yes	Yes
Tornado	Yes	Yes
Wildfire	No	No
Windstorm	Yes	Yes
Hailstorm	Yes	Yes
<i>Hazardous Materials (storage & transport)</i>	Yes	Yes
<i>Pipeline Utility Failure</i>	Yes	Yes

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 **251** critical facilities within DeKalb County, further described in the Critical Facilities attachment. FEMA defines critical facilities as:

- Government Facilities – essential services, data & communication, key government complexes
- Essential Facilities – hospitals and other medical facilities, police and fire, emergency operations centers, evacuation shelters, and schools.
- Transportation Systems – airports, highways, railways, and waterways.
- Lifeline Utility Systems – potable water, wastewater, oil, natural gas, electric power, and communication systems.
- High Potential Loss Facilities – nuclear power plants, dams, and military installations.
- Hazardous Material Facilities – 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 DeKalb 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. Brad Stump, DeKalb County GIS Department has agreed to make the correction suggested by the Planning Committee.

5. Schedule Next Meeting

The next Planning Committee meeting will be held from 3:00 – 4:30 pm on Wednesday, September 27, 2006 at the DeKalb Memorial Hospital.

DeKalb County Multi-Hazard Mitigation Plan
Planning Committee Meeting

3:00 pm Wednesday, September 27, 2006
DeKalb Memorial Hospital
Room 303C

AGENDA

6. Review Updated Critical Facilities list and maps
7. Review historic hazard data, assets, and estimated potential losses
8. Rank hazards based on Probability, Magnitude, Warning Time, and Duration of Event
9. Discuss Community Capability Assessment
10. Schedule Next Planning Committee Meeting

DeKalb County Multi-Hazard Mitigation Plan
Planning Committee Meeting
3:00 pm Wednesday, September 27, 2006
DeKalb Memorial Hospital
Room 303C

MEETING SUMMARY

Planning Committee Members Present:

Peter Cioni, City of Butler Planning
John Dennis, DeKalb County Sheriff's Department
Randy Fox, DeKalb County EMS
Allen Haynes, DeKalb County SWCS
Clinton Knauer, DeKalb County Plan Commission
Vivian Likes, City of Auburn Planning
DeWayne Nodine, Town of Waterloo
Rodney Renkenberger, MRBC
Brad Stump, DeKalb County GIS
Bernie Sukala, DeKalb County Health Department
Mike VanZile, City of Auburn Fire Department
Bill Walters, DeKalb County Building Department

Others Present:

Heather Buck, Christopher Burke Engineering, Ltd. (CBBEL)
Tonia Fortney, DeKalb County DHS
Cathy Manuel, DeKalb County Health Department
Sheila McKinley, Christopher B. Burke Engineering, Ltd. (CBBEL)
Dale Wagner, DeKalb County DHS

1. Review of Critical Facilities (updated list and map)

An updated critical facilities map and list were reviewed by the Planning Committee. Changes to the critical facility list from the first committee meeting included the addition of several facilities as well as critical facility re-locations.

2. Review Hazards and Highlights from Research

The Planning Committee reviewed the list of hazards to study in detail as part of this planning process. These include: dam failure, earthquake, flooding, hailstorm/thunderstorm/windstorm, hazardous materials storage/transport, severe winter storm, and tornado. The Planning Committee discussed terrorism and pandemic flu hazards and agreed these types of hazards are more appropriately addressed through other planning efforts and non-public documents.

CBBEL staff presented hazard research on each of the hazards studied in detail as part of this planning effort. The following summarizes this discussion.

Dam Failure

There have been no reports of a dam failure in DeKalb County however failure or misoperation of a dam can pose a threat to structures immediately downstream. The Joe Stanczyk Lake Dam (South) is the only Significant hazard dam in DeKalb County, while 9 others are classified as low hazard. The Hamilton Lake Dam's (located in



Steuben County) inundation zone would enter DeKalb County. In an effort to determine potential losses downstream of the Hamilton Lake Dam, CBBEL roughly delineated the dam inundation area using a very quick and simplified methodology. This delineation illustrates that there are approximately **44** non-critical facilities located within the DeKalb County portion of the dam inundation zone. The estimated replacement costs for these facilities are **\$3.1 million**.

Earthquakes

No earthquake information specific to DeKalb County has been identified, although the possibility exists due to relative proximity to New Madrid Faults and the Fort Wayne Rift Zone. Studies indicate that “there is a 9-in-10 chance of a magnitude 6-7 event occurring in the New Madrid Seismic Zone within the next 50 years”. All of the **250** critical facilities and **33,000** non-critical facilities are at risk of earthquake related damages. CBBEL used the GIS-based HAZUS-MH Earthquake Model to estimate losses from a 5.0 earthquake near DeKalb County. HAZUS-MH concluded that 0 buildings will sustain moderate damages, no critical facilities would lose functionality and few non-life threatening injuries would be realized.

Flooding

The National Data Climatic Center (NCDC) lists 5 flood events in DeKalb County since April of 1994. The primary sources of flooding are Cedar Creek, Little Cedar Creek, the St. Joe River, and various tributaries. The total combined damage estimates associated with these flood events resulted in **\$955,000** in property damage and **\$125,000** in crop damage. In order to determine potential losses, CBBEL used a visual identification method from GIS, aerial photography and the most recently drafted digital flood insurance rate maps. Using this method, it has been estimated that **3** critical facilities and **900** non-critical facilities. An additional 58 critical structures are located in the 500-year floodplain. Within DeKalb County, there are 2 repetitive loss properties, both in the City of Auburn.

Hailstorm/Thunderstorm/Windstorm

Since 1980, the NCDC has reported 69 thunderstorms/high wind events and 21 of those windstorms had wind speeds in excess of 50 mph. Since 1975, there have been 36 hailstorms, with the largest recorded diameter of 2.75”. These storms have resulted in as much as **\$750,000** in total damages countywide. All **250** critical and **33,000** non-critical facilities are vulnerable to damages associated with hail/thunder/windstorms.

Hazardous Materials Transport & Storage

A hazardous materials event is most likely to occur where the material is stored or where it may be transported. Thus, major transportation routes are at a higher risk than secondary roads in Hancock County. All infrastructure and facilities nearby to storage and transportation routes are at risk. Interstate 69 travels through DeKalb County as does US 6. A 500-yd corridor was utilized to estimate structures at risk and estimated damages in the event of a spill. **1** critical facility and **475** non-critical facilities are located within the I-69 corridor. Along US 6, **30** critical facilities and **1,500** non-critical facilities were located within the buffered areas. Rail routes were also overlaid with the 500-yd corridor and a total of **86** critical facilities and **3,200** non-critical facilities were within the corridor.

All fixed sites who store, utilize in production, or transport hazardous materials or hazardous wastes are at risk for a spill or release of such materials or wastes. All fixed site locations were given a 500 yard diameter buffer and in total there were **100** critical facilities and **1,600** non-critical facilities.

Severe Winter Storms

Winter storms are typically regional in nature and their impacts are rarely limited to a single county. The NCDC has documented 9 heavy snow storms, 3 ice storms, and 5 winter storms since February 1993 that have affected DeKalb County. A severe winter storm could put all **250** critical facilities and **33,000** non-critical facilities at risk for related damages, close major transportation corridors, and cause residents, employees, and visitors to DeKalb County to become stranded. The December 2004 snow storm caused three deaths and approximately \$3 million in damages statewide. Previous winter storms have shut down all economic activity in large regions for as long as 7-13 days.

Tornado

The NCDC has documented 13 tornadoes in DeKalb County since April 1968. Of these tornadoes, 7 are classified as F0 (weak with light damage), 3 as F1 (weak with moderate damage), 3 as F2 (strong with considerable damage), 0 as F3 (strong with severe damage), and 0 as F4 (violent with devastating damage). To estimate potential losses, CBBEL overlaid a hypothetical tornado (F2, 600 yds wide and nearly 7.5 miles in length) path through the City of Auburn, the City of Butler, and the City of Garrett, and neighboring portions of DeKalb County. It was estimated that damages to **21** critical facilities and **2,600** non-critical facilities could be realized.

3. Calculated Priority Risk Index

The Planning Committee prioritized these hazards in terms of importance and potential for disruption to the community using the Calculated Priority Risk Index (CPRI). 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. The following is how the index values are weighted and the CPRI value is calculated: $CPRI = Probability \times 0.45 + Magnitude/Severity \times 0.30 + Warning Time \times 0.15 + Duration of Event \times 0.10$

The following table illustrates the combined ranking for the aforementioned hazards in DeKalb County and NFIP communities.

	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 < 6 hrs < 1 day < 1 wk > 1 wk	Combined CPRI
Hail/Thunder/ Windstorm	Highly Likely	Limited	< 6 hrs	< 6 hrs	3.00
Severe Winter Storm	Highly Likely	Negligible	6-12 hrs	< 1 wk	2.70
Hazardous Materials	Unlikely – Highly Likely	Negligible - Limited	< 6 hrs	< <1 day	2.59
Flooding	Unlikely – Highly Likely	Negligible – Critical	>24 hrs – 6-12 hrs	< 6 hrs - > 1 wk	2.44

Tornado	Possible – Highly Likely	Negligible - Catastrophic	<6hrs	< 6hrs	2.40
Earthquake	Unlikely	Negligible – Limited	< 6 hrs	< 1 day	1.65
Dam Failure	Unlikely	Negligible	> 24 hrs	<6 hrs	1.19

According to the CPRI exercise, the Planning Committee ranked hailstorm/thunderstorm/windstorm as the hazard that poses the greatest threat to DeKalb County followed by severe winter storm and hazardous materials incidents. Regarding dam failure, the Hamilton Lake dam is located outside of DeKalb County, although the inundation area extends into the County. Flooding has frequently occurred within DeKalb County thus, the Planning Committee anticipated that the Town of St. Joe would have the highest probability of a flooding event occurring in the future. Likewise, nearly all other NFIP communities are likely to receive damages associated with flooding.

Much discussion occurred following the CPRI exercise regarding the final result of the rankings. Many of the Planning Committee members felt that the order of the hazards was not indicative of the reality within DeKalb County. The rankings were adjusted slightly after a computational error was recognized. To further document hazard ranking perceptions within DeKalb County, the MHMP Planning Committee results were compared to the Comprehensive Emergency Management Plan results of a similar exercise. These comparisons are found below.

HAZARD	CPRI (1 to 4)	CEMP (1 to 5)	HISTORIC LOSS	ESTIMATED DAMAGES
Dam Failure	1.2	1	NA	\$3.1 M
Earthquake	1.7	1	NA	\$0
Flooding	2.4		\$1.1 M	\$14.6 M
River		3		
Flash		1		
Urban		1		
Hail/Thunder/Wind	3.0	4	\$750K	\$1.0 M
Hazardous Matls	2.6	5	NA	\$50.0 M
Severe Winter Storm	2.7	5	\$3.0 M*	NA
Tornado	2.4	4	\$26.6 M	\$76.8 M

K = 1,000

M = 1,000,000

* More than DeKalb County listed by NCDC

4. Discuss the Community Capability Assessment

CBBEL explained that the Community Capability Assessment (CCA) is a review of existing programs, policies, and projects in each of the NFIP communities in DeKalb County. Several Planning Committee members met prior to the scheduled meeting to discuss the CCA as it relates to their community or area of expertise. Additional Committee members will be contacted prior to the next Planning Committee meeting to discuss the measures taken by their representative offices and/or individual communities to reduce the risk associated with the studied hazards. The Community Capability

Assessment is the foundation for the mitigation practices proposed as part of this planning effort.

5. Schedule Next Planning Committee Meeting

The next Planning Committee meeting will be held on Tuesday, November 14, 2006, at the Eckhart Public Library to begin at 2 pm.

**This meeting was postponed and rescheduled for Tuesday, January 9, 2007 at the Eckhart Public Library to begin at 1:30 pm.*

DeKalb County Multi-Hazard Mitigation Plan
Planning Committee Meeting

1:30 pm Tuesday, January 9, 2007
Eckhart Public Library
603 South Jackson Street, Auburn

AGENDA

11. Updates & Overview since last meeting
12. Discuss completed sections of DRAFT MHMP
13. Review Media Release and Distribution of Hazard Survey
14. Identify and Prioritize Proposed Mitigation Practices
15. Schedule Next Planning Committee Meeting

DeKalb County Multi-Hazard Mitigation Plan
PLANNING COMMITTEE MEETING

1:30 pm Tuesday, January 9, 2007
Eckhart Public Library
603 South Jackson Street, Auburn

MEETING SUMMARY

Planning Committee Members Present:

Steve Bingham, City of Garrett Planning Director
Peter Cioni, City of Butler Planner
Randy Fox, DeKalb EMS Director
Clinton Knauer, DeKalb County Zoning Administrator
Roger Powers, DeKalb County DHS Director
Rodney Renkenberger, MRBC Executive Director
Brad Stump, DeKalb County GIS Coordinator
Bernie Sukala, DeKalb County Health Department
Bill Walters, DeKalb County Building Inspector

Others Present:

Heather Buck, Christopher Burke Engineering, Ltd. (CBBEL)
Justin Buck, American Red Cross Disaster Team Member
Michael Good, Auburn Fire Department Deputy Chief
Cathy Manuel, DeKalb County Health Department
Sheila McKinley, Christopher B. Burke Engineering, Ltd. (CBBEL)
Jim Otis, DeKalb County GIS Analyst

16. Discuss Completed Sections of DRAFT MHMP

Two completed sections of the DRAFT MHMP (Section 1: Introduction and Section 2: Community Information) will be posted on CBBEL's ftp site following incorporation of comments from Rodney Renkenberger (MRBC Director). Instructions for accessing the documents were provided to those in attendance.

17. Review Media Release and Distribution of Hazard Survey

The Planning Committee reviewed a media release intended for numerous outlets in DeKalb County to be released immediately. Representatives from each NFIP community volunteered to provide the media release to their community's media as well as relevant websites. The hazard survey was included in the release and discussion was held regarding other potential outlets for the survey. Completed surveys are to be sent to Rodney Renkenberger and provided to CBBEL to be compiled and included in the MHMP.

18. Identify and Prioritize Proposed Mitigation Practices

The Planning Committee participated in an extensive exercise to identify mitigation practices suitable for flooding, dam failure, hailstorm/thunderstorm/windstorm/tornado,



severe winter storm/ice, hazardous materials, and earthquakes. 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 may be implemented within 3-4 years from final Plan adoption. Projects identified to be of “medium” local priority may be implemented within 5 years from final Plan adoption, and projects identified by the Planning Committee to be of “low” local priority may be implemented within 5+ 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 in more detail at the next Planning Committee meeting. The following is a summary of mitigation practices discussed.

FLOODING

Priority	Proposed Mitigation Practice
High	<p>Conduct detailed studies of unnumbered Zone A streams as development is proposed with potential for floodplain encroachment.</p> <ul style="list-style-type: none"> • <i>Currently asking for existing FP information</i> • <i>Federal regulations exist that require studies if 5 or more acres are within the FP</i>
Moderate	<p>Participate in the Community Ratings System (CRS) program.</p> <ul style="list-style-type: none"> • <i>For DeKalb County</i> • <i>Planning Committee mentioned that in order to achieve a CRS level lower than 7, new building codes would need to be adopted at the State level.</i>
Low	<p>Use HAZUS-MH Flood Model to include local structure values, soils data, etc. to better predict losses and “what if” scenarios in smaller watersheds.</p>
Low	<p>Protect existing Critical Facilities in floodplains (3 CFs in flood hazard area)</p> <ul style="list-style-type: none"> • <i>Irving Gravel is vacant</i> • <i>Some facilities need to be within the floodplain</i>
High	<p>Prohibit development of new Critical Facilities in 100 & 500-year floodplains</p> <ul style="list-style-type: none"> • <i>Other than those that need to be located in the floodplain</i>
Low	<p>Increase flood forecasting capabilities (gaging stations, flood alerts) in DeKalb County</p> <ul style="list-style-type: none"> • <i>Stations are adequate; most area in DeKalb County is headwaters for major waterways draining out of County.</i>
Moderate	<p>Minimize impacts of flooding by diverting or retaining stormwater through regional detention.</p>

High	Continue to maintain channels and regulated drains to prevent localized flooding.
Moderate	Continue to acquire existing properties that are subject to repetitive flooding. <ul style="list-style-type: none"> • <i>Holiday Lakes – 12 properties</i> • <i>City of Auburn – 5-7 properties</i>
Moderate	Continue to implement the Storm Water Quality Management Plan <ul style="list-style-type: none"> • <i>Committee suggested contacting City of Auburn: David Lochner assessed this priority at moderate</i>
High	Increase community adoption of MRBC Floodplain Ordinance language or more restrictive language <ul style="list-style-type: none"> • <i>DeKalb County and the City of Garrett are currently in the process of amending ordinances to adopt more restrictive language.</i>

DAM FAILURE

Priority	Proposed Mitigation Practice
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High	Prohibit development of Critical Facilities in dam break inundation areas.
Moderate	Provide information related to dam failure to property owners within the Hamilton Lake Dam inundation area.

HAILSTORM/THUNDERSTORM/WINDSTORM/TORNADO

Priority	Proposed Mitigation Practice
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Low	Install additional outdoor warning sirens as needed <ul style="list-style-type: none"> • <i>Extensive coverage of populated areas; should focus on other methods of warning.</i>
Low	Develop, propose, and adopt an ordinance to require developers to install warning sirens if deemed necessary.
High	Require safe rooms in mobile home parks, public parks, and developments without basements
High	Encourage safe rooms in Critical Facilities and public buildings
Low	Certify that manufactured homes meet manufacturer's minimum installation standards.

SEVERE WINTER STORM/ICE

Priority	Proposed Mitigation Practice
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Moderate	Designate snow routes with no street parking to allow for snow removal activities. <ul style="list-style-type: none"> <i>If weather is severe enough, snow plows are stationed at Fire departments to provide clear travel in case of fire or ambulance run</i>
High	Develop consistent tiered level of snow emergencies to reduce amount of vehicle traffic as severity of weather increases.

HAZARDOUS MATERIAL

Priority Proposed Mitigation Practice

Moderate	Maintain adequate number of personnel certified to OSHA III Technician level <ul style="list-style-type: none"> <i>Ongoing: Currently 19 Technicians with City of Auburn, some industries have their own as well</i>
High	Continued training and realistic exercises for emergency personnel
High	Continue to ensure that facility personnel are properly trained to respond to an incident and that current facility maps and response plans are on file at local fire departments. <ul style="list-style-type: none"> <i>Ongoing: Tier II, LEPC function</i>
High	Secure grant funds or provide local funding for additional response equipment and maintenance.

EARTHQUAKE

Priority Proposed Mitigation Practice

Low	Update HAZUS – MH Earthquake model to include local soils data, structure values, etc to accurately predict damages and losses to DeKalb County. <ul style="list-style-type: none"> <i>Very extensive updating required for little overall benefit to the area</i>
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EXTREME TEMPERATURES

Priority Proposed Mitigation Practice

Low	Establish and advertise public heating/cooling centers. <ul style="list-style-type: none"> <i>May consider adding language to current Red Cross shelter agreements.</i>
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ALL HAZARDS

Priority Proposed Mitigation Practice

High	Immunize all first responders and inspection staff, including families.
High	Require federal signal weather alert radios in all critical facilities
Low	Add/require power back-up generators to all existing critical facilities
Medium	Continue to organize a Community Emergency Response Team (CERT) <ul style="list-style-type: none"> • <i>Ongoing: Initial inquiries have been made to begin process</i>
Low lines.	Encourage areas of new development or re-development to bury utility lines.
Low	Install Dynamic Message board on I-69 near Auburn to provide current hazard information. <ul style="list-style-type: none"> • <i>The State has portable message boards that may be borrowed if needed.</i>
High	Determine adequate location for GIS enabled public alert warning system (reverse 911).
High	Continue to develop temporary and/or long term shelter agreements within the County. Potential for tiered levels of shelters, domestic animal shelters, etc.
Moderate	Increase participation in community events, outreach opportunities.
High lines and	Continue to perform tree maintenance to reduce risk of downed utility falling limbs. <ul style="list-style-type: none"> • <i>High for Butler, Auburn, Garrett, etc.</i> • <i>Low for DeKalb County</i>
High	Become certified as a Storm Ready Community/County <ul style="list-style-type: none"> • <i>Includes requirements for education/awareness of hazards, warning systems, procedures, etc.</i>
High	Develop reciprocal agreements between neighboring counties for structural inspections following hazardous events.

19. Schedule Next Planning Committee Meeting

The next DeKalb County MHMP Planning Committee meeting is to be held on Thursday, February 22, 2007 at 1:30 pm in the DeKalb County Courthouse Annex, 215 East 9th Street, Auburn.

DeKalb County Multi-Hazard Mitigation Plan
PLANNING COMMITTEE MEETING

1:30 pm Thursday, February 22, 2007
DeKalb County Courthouse Annex
215 East 9th Street, Auburn

AGENDA

20. Discuss Completed Sections of DRAFT MHMP
21. Discuss Implementation of High Priority Mitigation Projects
22. Discuss Long-term Maintenance and Evaluation of Plan
23. Discuss Next Steps in Planning Process

DeKalb County Multi-Hazard Mitigation Plan
Planning Committee Meeting
1:30 pm Thursday, February 22, 2007
DeKalb County Courthouse Annex
215 East 9th Street, Auburn

MEETING SUMMARY

Planning Committee Members Present:

Steve Bingham, City of Garrett Planning Director
Peter Cioni, City of Butler Planner
John Dennis, DeKalb County Sheriff
Randy Fox, DeKalb EMS Director
Clinton Knauer, DeKalb County Zoning Administrator
Katherine MacAulay, American Red Cross
Roger Powers, DeKalb County DHS Director
Rodney Renkenberger, MRBC Executive Director
William Spohn, City of Auburn Planning Director
Brad Stump, DeKalb County GIS Coordinator
Bernie Sukala, DeKalb County Health Department
Mike VanZile, City of Auburn Fire Chief
Bill Walters, DeKalb County Building Inspector

Others Present:

Heather Buck, Christopher Burke Engineering, Ltd. (CBBEL)
Cathy Manuel, DeKalb County Health Department
Sheila McKinley, Christopher B. Burke Engineering, Ltd. (CBBEL)
Jim Otis, DeKalb County GIS Analyst

24. Discuss Completed Sections of DRAFT MHMP

Two completed sections of the DRAFT MHMP (Section 1: Introduction and Section 2: Community Information) will be posted on CBBEL's ftp site for the Planning Committee to review. CBBEL staff anticipates having a full DRAFT MHMP available to the Planning Committee mid- April.

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, mitigation measures previously prioritized as high were re-evaluated thus moving them into the moderate or low priority sections.

3. Discuss Long Term Maintenance and Evaluation of the MHMP

The Planning Committee discussed which entity would be responsible for the regular update and maintenance of the MHMP and the DeKalb County DHS agreed to that undertaking. Throughout the 5-year planning cycle, the DeKalb County DHS 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 early April with comments accepted until late April. The public meeting is anticipated to be held in mid-May where comments will be accepted through the end of May allowing for timely incorporation and submission of the MHMP to FEMA.

DeKalb COUNTY MHMP

Critical Facilities & NFIP Community

Government Facilities	
Altona Town Offices	Altona
Auburn City Offices	Auburn
Butler City Court	Butler
Butler City Offices	Butler
Corunna Clerks Office	Corunna
DeKalb County Courthouse	Auburn
DeKalb County Office Building	Auburn
Garrett City Offices	Garrett
St. Joe Town Offices	St. Joe
Waterloo Town Offices	Waterloo

Essential Facilities	
SCHOOLS	
Butler Elementary School	Butler
Country Meadow Elementary School	DeKalb County
DeKalb High School	DeKalb County
DeKalb Middle School	DeKalb County
Eastside Junior-Senior High School	Butler
First Beginnings Day Care	Waterloo
Four County Area Vocational School	Garrett
Garrett Head Start	Waterloo
Garrett Head Start	Garrett
Garrett High School	Garrett
Garrett Middle School	Garrett
Hamilton Community Elementary School	Hamilton
Hamilton Community High School	Hamilton
JE Ober Elementary School	Garrett
James R Watson Elementary School	Auburn
Lakewood Park Christian School	DeKalb County
McKenney-Harrison Elementary School	Auburn
Riverdale Elementary School	DeKalb County
Sharon Turner Bacon Academy	Auburn
St. Joseph School	Garrett
Waterloo Elementary School	Waterloo
Zion Lutheran Pre-School	Garrett
EOC	
Butler EMS	Butler
DeKalb County DHS	Auburn
Garrett City Emergency Management	Garrett
Garrett EMS	Garrett
FIRE STATIONS	
Ashley Fire Department	Ashley

Auburn Fire Department (2)	Auburn
Butler City Fire Department	Butler
Concord Township Fire Department	St. Joe
Corunna Fire Department	DeKalb County
Garrett City Fire Department	Garrett
Hamilton Fire Department	DeKalb County
Jackson Township Fire Department	DeKalb County
Spencerville Fire Station	DeKalb County
Waterloo Fire Department	Waterloo
LAW ENFORCEMENT	
Ashley Police Department	Ashley
Auburn Police Department	Auburn
Butler Police Department	Butler
DeKalb County Sheriff Department	Auburn
Garrett City Police Department	Garrett
Waterloo Police Department	Waterloo
Medical Care	
Auburn NE Center, Samara Hospital	Auburn
Auburn Outpatient Services	Auburn
Betz Nursing Home	Auburn
DeKalb County WIC Program	Auburn
DeKalb County EMS	Auburn
DeKalb Memorial Hospital	Auburn
Miller's Merry Manor	Garrett
Northeast Indiana Kidney Center	Auburn
Quad-Counties Dialysis Center	Auburn
Redi-Med	Auburn
Smith Farms Manor Retirement	Auburn
The Laurels of DeKalb	Butler
Wesley Healthcare	Auburn

Transportation System Facilities	
AIRPORTS	
DeKalb County	DeKalb County
Flying Crown	DeKalb County
Greuter Field	DeKalb County
Harrold	DeKalb County
Hock Field	DeKalb County
Keener Field	DeKalb County
Line Field	DeKalb County
Lautzenhiser Airpark	DeKalb County
Mooney Field	DeKalb County
Walker/Rowe Waterloo	DeKalb County
RAILWAY	
Waterloo	Waterloo

Lifetime Utility System Facilities	
WASTEWATER TREATMENT PLANTS	
Butler Municipal WWTP	Butler
Corunna Municipal WWTP	DeKalb County
Garrett WWTP	Garret
St. Joe-Spencerville RSD	DeKalb County
Wastewater Treatment Plant	Auburn
Water Pollution Control Plant Auburn	Auburn
Waterloo Municipal WWTP	Waterloo
POTABLE WATER	
Auburn Water Treatment Plant	Auburn
Butler City Water Treatment Plant	Butler
Garrett Water Treatment Plant	Garrett
Hamilton Water Treatment Plant	Hamilton
Waterloo Water Treatment Plant	Waterloo
COMMUNICATIONS/BROADCAST	
WGLL 1570	DeKalb County
WXTW Ch 272	DeKalb County
POWER STATIONS	
Auburn Electric	Auburn
ELECTRIC SUBSTATIONS	
Auburn Foundry Plant #1 Substation	Auburn
Auburn Foundry Plant #2 Substation	Auburn
Center St.	Auburn
Clinton St	Auburn
CR 34	DeKalb County
Electric Department Master	Auburn
Garrett	Garrett
Grandstaff Dr	Auburn
Guardian Switching	Auburn
Jackson St	Auburn
NIPSCO	Waterloo
Steel Dynamics	Noble County
West Fifteenth St	Auburn
No Name Given	DeKalb County
OIL REFINERY	
Marathon Oil	DeKalb County

High Potential Loss Facilities	
DAMS	
Family Life Center Lake	DeKalb County
Floyd Troyer Lake	DeKalb County
Grey Stone Pond	DeKalb County
Hamilton Lake	DeKalb County

Joe Stanczyk Lake Dam (North)	DeKalb County
Joe Stanczyk Lake Dam (South)	DeKalb County
McNamara Corporation Lake	DeKalb County

Hazardous Materials Facilities	
HAZARDOUS MATERIAL HANDLERS	
Affiliated Metals Co	DeKalb County
Alcoa Advanced Transportation System	Auburn
American Silicones	Garrett
Anderson's Waterll Ag Center	DeKalb County
Ashley Industrial Modling	Ashley
Auburn Foundry	Auburn
Auburn Gear	Auburn
Auburn PD Range	Auburn
Auburn Water Department, South	Auburn
Ball Crass & Aluminum Foundry	Auburn
BioLab	Ashley
Brooks Construction Company Plant 7	DeKalb County
Butler Mill Service	DeKalb County
Cambridge Industrial	Ashley
Carper Farm Supply	DeKalb County
Charleston Metal Products	Waterloo
Citation Bohn Aluminum	Butler
CMP West	DeKalb County
Contech Div – SPX Corp	Auburn
Cooper Tire & Rubber	Auburn
Custom Coating	Auburn
DeKalb Metal Finishing	Auburn
DeKalb Molded Plastics	Butler
Dura Automotive	Butler
Eaton Clutch Division	Auburn
Electric Motors & Specials	Garrett
Fleetwood Homes of Indiana	Garrett
Foamex	Auburn
Foley Pattern Company	Auburn
Garrett Products	Garrett
GasAmerica	Auburn
Guardian Industries	Auburn
Heidtman Steel Products	DeKalb County
Hendrickson Trus Suspension	Butler
Hoosier Propane	Waterloo
Indiana Bell	Auburn
Inergy Propane	Butler
Inergy Propane	DeKalb County
Inergy Propane	DeKalb County
International Wire	DeKalb County

Irving Gravel Auburn	DeKalb County
Irving Gravel Garrett	DeKalb County
Kimball Electronics	Auburn
Lime-O-Sol	Ashley
Merritt Processing Facility	DeKalb County
Metal Technologies	Auburn
Mhg. Inc	Garrett
NE Indiana Solid Waste Management	DeKalb County
New Millenium BS/Steel	DeKalb County
Nifl-Plant	Auburn
North Central Co-op	Auburn
Nucor Building Systems	Waterloo
Nucor Corp Vulcraft	DeKalb County
Nucor Fasteners	DeKalb County
Parker Hannifin Corp	Ashley
Propane People	DeKalb County
Pullman Industries	Butler
Rhinehart Finishing	DeKalb County
Rieke Corp	Auburn
Speedway	Auburn
Sprint Auburn	Auburn
Steel Dynamics	DeKalb County
Therma Tru	Butler
Tower Automotives	Auburn
United Parcel Service	Waterloo
Verizon	Garrett
Wal-Mart Distribution	Garrett
Weyerhaeuser Corp	DeKalb County
Worldcom	DeKalb 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?

Auburn, IN (April 12, 2007) – DeKalb County, in cooperation with the City of Auburn, City of Butler, City of Garrett, Town of St. Joe, and the Town of Waterloo, 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 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.

DeKalb County has had its share of natural disasters in the past. Flooding events have resulted in nearly \$1 million in property damages since 1994. Additionally, numerous tornado events have caused approximately \$27 million in property damages in DeKalb County since 1968. These are just some of the potential hazard threats to DeKalb County.

The Multi-Hazard Mitigation Planning Committee would like your input regarding natural hazards in DeKalb 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 Rodney Renkenberger, Maumee River Basin Commission Executive Director, 3864 New Vision Drive, Fort Wayne IN, 46845 or by email at renken-mrbc@verizon.net

1. While in DeKalb County, have you ever experienced a hailstorm, thunderstorm, windstorm, severe winter storm, flooding, tornado, hazardous materials incident, earthquake 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 DeKalb County in the near future.
4. Please feel free to include any further comments you have regarding local hazards in DeKalb 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 late 2007 to present the draft-version of the DeKalb 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.

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How is DeKalb County affected by hazards?

DeKalb County, in cooperation with the City of Auburn, the City of Butler, the City of Garrett, the Town of St. Joe, and the Town of Waterloo, 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.

DeKalb 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 DeKalb County.

1. While in DeKalb County, have you ever experienced a dam failure, earthquake, flood, severe winter storm, tornado, thunderstorm/windstorm/hailstorm, or a hazardous material spill? Please identify all that apply and feel free to provide additional information such as dates and locations.
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 DeKalb County in the near future.
4. Please feel free to include any further comments you have regarding local hazards in DeKalb 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 shelters, etc) in the event of a local hazard such as a severe winter storm, tornado, or flood? How so?

Please return completed surveys by February 9, 2007



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

Auburn, IN (August 28, 2007) – DeKalb County in cooperation with the Maumee River Basin Commission, City of Auburn, City of Butler, City of Garrett, Town of St. Joe, and the Town of Waterloo has prepared a Multi-Hazard Mitigation Plan (MHMP). The MHMP assesses the risk and vulnerability of these communities for flooding, hailstorms, thunderstorms, hazardous materials incidents, severe winter storms including ice, tornadoes, windstorms, earthquakes, and dam failure.

DeKalb County has had its share of natural disasters in the past. Flooding events have resulted in over \$1 million in property damages since 1994. Additionally, numerous tornado events have caused approximately \$27 million in property damages in DeKalb County since 1968. Furthermore, hailstorms, thunderstorms, and windstorms have resulted in over \$1 million in property damages, 1 death, and 3 reported injuries. These are just some of the potential hazard threats to DeKalb County.

The DeKalb County MHMP will be presented at a public meeting on **Tuesday, September 11th at 7:00 pm** in the **large meeting room in the DeKalb County Courthouse Annex, 215 East 9th St** in **Auburn**. 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---





DEKALB COUNTY MHMP

Promulgation Authority

DeKalb County

Don Kaufman, Commissioner

Connie Miles, Commissioner

William Ort, Commissioner

City of Auburn

Norman Yoder, Mayor

City of Butler

Floyd C. Coburn, Mayor

City of Garrett

David Wiant, Mayor

Town of St. Joe

David Burns, Council

Town of Waterloo

Keith Moughler, Council

DeWayne Nodine, Town Manager



DEKALB 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

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

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

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

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

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

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

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

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

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>

Hazard 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>

Increased Cost of Compliance Grant

ICC coverage provides for the payment of a claim to help cover the cost of mitigation activities that will reduce the risk of future damage to a building from flooding.

Previous Activities Funded:

When a building covered by a Standard Flood Insurance Policy suffers a flood loss and is declared to be substantially or repetitively damaged, ICC will help pay up to \$30,000 to bring the building into compliance with State or community floodplain management laws or ordinances. Usually this means elevating or relocating the building so that it is above the Base Flood Elevation (BFE). Non-residential structures may also be floodproofed. ICC coverage applies only to buildings, and covers only the cost of the compliance measures undertaken.

http://www.fema.gov/txt/rebuild/increased_cost_of_compliance_fact_sheet.txt

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

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#LILI>

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>

Small Business Administration Loan

The U.S. Small Business Administration (SBA) can make federally subsidized loans to repair or replace homes, personal property or businesses that sustained damages not covered by insurance.

Previous Activities Funded:

The Small Business Administration can provide three types of disaster loans to qualified homeowners and businesses: home disaster loans to homeowners and renters to repair or replace disaster-related damages to home or personal property, business physical disaster loans to business owners to repair or replace disaster-damaged property, including inventory, and supplies; and economic injury disaster loans, which provide capital to small businesses and to small agricultural cooperatives to assist them through the disaster recovery period.

http://www.fema.gov/assistance/process/sba_assistance.shtm

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

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/>

