

NATURAL HAZARDS MITIGATION PLAN: 2014-2018



WALWORTH COUNTY, WISCONSIN

Draft 4 for FEMA Tentative Approval

County Adoption: _____, 2014

FORWARD

The *Walworth County Natural Hazard Mitigation Plan: 2014-2018* consists of six chapters and a map series. The first chapter provides an overview of the project. The second chapter presents background information about Walworth County including its setting, demographic and economic characteristics, climate, natural resources, land use, and development trends. Chapter 3 presents background information related to special needs populations and groups in the county. Chapter 4 contains a complete inventory of critical facilities in the county. Natural hazards are reviewed in chapter 5 along with estimated losses to buildings, infrastructure, and critical facilities. In chapter 6, goals, objectives, and policies are identified that will help to craft appropriate solutions to the identified problems. A range of activities are also presented to help foster hazard mitigation efforts. Various funding sources are reviewed with an eye towards identifying options for funding identified projects. Most of the maps in the plan are included in the final section of the plan.

Walworth County adopted a multi-jurisdictional plan in 2009, which was initially approved by the Federal Emergency Management Agency (FEMA) on July 9, 2009. This plan is the first five-year update of that initial plan. As part of the five-year update begun in 2013, this plan was substantially updated and revised to meet new state and federal guidelines. The plan as revised was approved by FEMA on _____, 2014.

This version is intended to guide mitigation planning efforts in Walworth County during the five-year period from 2014 through 2018.

ACKNOWLEDGEMENTS

Sheriff David Graves

David A. Bretl, County Administrator

County Board Supervisors by District

- | | |
|---------------------|-----------------------|
| 1. Rick Stacey | 7. David A. Weber |
| 2. Joseph Schaefer | 8. Daniel G. Kilkenny |
| 3. Tim Brellenthin | 9. Richard Brandl |
| 4. Paul Yvarra | 10. Kenneth H. Monroe |
| 5. Charlene Staples | 11. Nancy Russell |
| 6. Kathy Ingersoll | |

Executive Committee

- | | |
|----------------------------------|-----------------|
| ◆ David A. Weber, Chair | ◆ Nancy Russell |
| ◆ Daniel G. Kilkenny, Vice Chair | ◆ Vacant |
| ◆ Richard Brandl | |

2009 – Working Group

- ◆ Michael Carder; Walworth County Public Health
- ◆ Michael Ciardo; City of Whitewater, Emergency Management Coordinator
- ◆ Michael Cotter; Walworth County Corporation Counsel, Deputy Corporation Counsel
- ◆ William Holder; Town of Bloomfield, Supervisor
- ◆ Rusty Kapela; National Weather Service Forecast Office, Milwaukee/Sullivan, Meteorologist
- ◆ Mark Mullikin; Walworth County Public Works Department, Public Works Superintendent
- ◆ Wayne Redenius; Town of Richmond, Chair
- ◆ Chris F. Severt; Village of Walworth, Emergency Services Director
- ◆ Lieutenant Kevin Williams; Walworth County Sheriff's Department, Emergency Management Director
- ◆ Allen Zimmerman; Walworth County Sheriff's Department, Retired (LEPC)

2013 – Working Group

- ◆ Joseph Balog, Police Chief; Village of Genoa City
 - ◆ Richard Brandl, Town Chairman; Town of Sharon
 - ◆ James Bushey, Sgt. Linn Police; Town of Linn
 - ◆ Michael Ciardo, EM Coordinator, retired; City of Whitewater
 - ◆ Daniel Cooper, Town Chairman; Town of La Fayette
 - ◆ Lieutenant John R. Ennis; Walworth County Sheriff's Department, Emergency Management Director
 - ◆ David Fladten, EMT Coordinator; Village of Fontana
 - ◆ Kelly Hayden, Village Administrator; Village of Fontana
 - ◆ John Kendall, Town Chairman; Town of Troy
 - ◆ John Peters, Deputy Director EM; City of Lake Geneva
 - ◆ Chris F. Severt, Police Chief; Village of Walworth
-

- ◆ Bill Shimmer, Highway Supervisor, retired; Town of Darien
- ◆ Jeff Stein, Fire Chief; Village of Mukwonago
- ◆ Tom Sullivan, Supervisor; Town of Bloomfield
- ◆ Donald Teubel, Town of East Troy
- ◆ Randy Timms, President; Village of East Troy

Project Supervision

Lieutenant Kevin Williams, former Emergency Management Director, served as project supervisor for Walworth County for the initial plan adopted in 2009.

Lieutenant John R. Ennis, Emergency Management Director, served as project supervisor for the five-year update.

Funding

Partial funding for the preparation of the initial plan (2009-2013) and the plan update (2014-2018) was provided by Wisconsin Emergency Management through a grant from the federal Pre-Disaster Mitigation Program.

Consultant

- ◆ Civi Tek Consulting prepared the initial plan and the five-year update under the supervision of Tim Schwecke, AICP.
- ◆ Greg Rybarczyk with GeoEco Design prepared the maps.

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INTRODUCTION

1. CHAPTER OVERVIEW

This chapter introduces the need for this plan by making the case that natural disasters have historically caused substantial damage to people and property in Walworth County and that while it is not possible to prevent natural disasters from occurring, it is possible to better position a community to mitigate the effects of natural disasters. The purpose and scope of this plan are described so that it is clear what this document is intended to do and how it relates to other previous planning efforts and ongoing emergency management activities. The ways in which the general public and local units of government were involved in the preparation, review, and adoption of this plan are documented. A procedure for keeping this document current is described. In the final section, those governmental units adopting this plan are listed.

2. PURPOSE

It's fair to say that most people do not think about natural disasters until they are personally affected in some way. When a significant event does strike, the general public most often looks to government at all levels and non-governmental organizations, like the American Red Cross, for assistance. Likewise, local units of government look to state agencies and the federal government for financial help and assistance. Depending on the scale of the natural disaster, assistance can be short-term or on-going over an extended period of time.

Throughout the United States, government response and associated costs have grown significantly. At the federal level, the average annual loss from natural disasters was \$3.3 billion between 1989 and 1993. Between 1994 and 1998, that figure rose to \$13 billion.

In an effort to curb rising costs, the federal government adopted the Disaster Mitigation Act of 2000 (DMA 2000). It amended the Robert T. Stafford Disaster Relief and Emergency Act, which is the primary law at the federal level dealing with disaster planning, mitigation, response, and recovery.

DMA 2000 reinforced the importance of hazard mitigation planning to proactively devised strategies intended to avoid and reduce the negative effects of natural disasters. If a community wants to apply for grant funding from the Pre-Disaster Mitigation (PDM) Program or the Hazard Mitigation Grant Program (HMGP), it must have an approved hazard mitigation plan. If a disaster strikes a community that does not have an approved plan, it can only receive funding through HMGP if it agrees to prepare a plan within one year.

Walworth County and participating municipalities have prepared this plan to meet this new requirement, and in so doing, help its citizens mitigate the effects of natural disasters.

3. SCOPE

The scope of this plan is limited to natural hazards that pose a threat to people and property in Walworth County. It does not address threats of terrorism or man-made hazards, such as HAZMAT incidents.



Chapter Contents

1. Chapter Overview
2. Purpose
3. Scope
4. Contents
5. Relationship of Mitigation Planning to Other Emergency Management Activities
6. Relationship to Other Plans
7. Plan Preparation, Review, and Adoption
8. Plan Maintenance and Amendment
9. Incorporating this Plan into other Planning Efforts
10. Governmental Units Adopting this Plan

4. CONTENTS

This plan includes a number of elements. The first section provides an overview of the project. The second reviews the background information about the county including its setting, demographic and economic characteristics, climate, natural resources, architectural and historic resources, land use, and development trends. In the third section, the plan addresses special needs populations and groups. The fourth details the critical facilities while the fifth outlines natural hazards. In the sixth chapter the recommended mitigation strategy for the County and its individual jurisdictions is presented. A series of maps is included in the last chapter.

5. RELATIONSHIP OF MITIGATION PLANNING TO OTHER EMERGENCY MANAGEMENT ACTIVITIES

Mitigation planning is one prong of a multi-faceted approach to emergency management (Exhibit 1-1). Each of these are briefly described to help provide context for this plan.

MITIGATION

Mitigation is any activity that is proactively done to reduce a community's vulnerability of damage from future disasters. Mitigation is the focus of this plan.

PREPAREDNESS

Emergency preparedness focuses exclusively on creating effective strategies and procedures to respond to an emergency. It includes creating the institutional framework for response and protocol for decision making, conducting training of emergency response personnel, ensuring equipment is available and operational, and developing and maintaining an appropriate communications network.

Walworth County has a well-established and tested emergency operations plan. It identifies a decision making structure and areas of responsibility depending on the nature of the emergency.

RESPONSE

Response includes any action taken immediately before, during, and after an event to save lives and minimize property damage.

RECOVERY

Although the extent and type of recovery efforts will vary with the nature and extent of the event, they focus on restoring support services and infrastructure and helping those affected to regain a sense of normalcy.

It is important to recognize that each of these areas focuses on different aspects of emergency management, but that the effectiveness of each depends on an integrated systems approach.

Key Terms in This Chapter

Disaster Mitigation Act of 2000 (DMA 2000) – A

federal law (P.L. 106-390) amending the Robert T. Stafford Disaster Relief and Emergency Act. The act authorizes the president to establish (1) a program of technical and financial assistance to the states and local governments to assist in the implementation of pre-disaster hazard mitigation measures; (2) the National Predisaster Mitigation Fund; and (3) an interagency task force. It requires state, local, or tribal governments to develop predisaster hazard mitigation plans as a precondition of receiving certain federal funds and controls and streamlines the cost of disaster assistance.

Federal Emergency Management Agency (FEMA)

– A federal agency created in 1979 with a mission to reduce loss of life and property and protect our nation's critical infrastructure from all types of hazards through a comprehensive, risk-based emergency management program of mitigation, preparedness, response, and recovery. In March 2003, it was placed under the Department of Homeland Security.

Hazard mitigation plan – A plan prepared at the

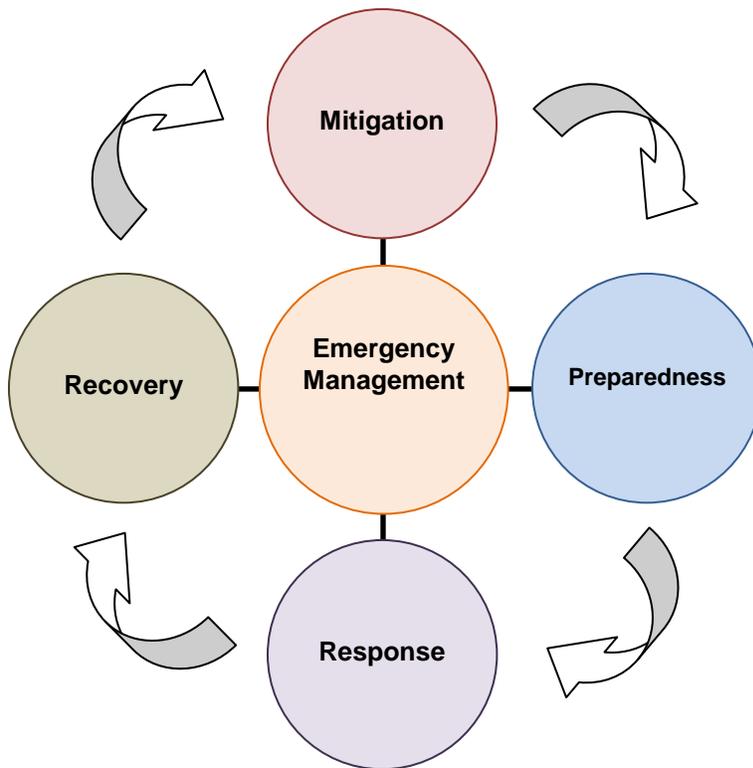
state or local level that systematically evaluates policies, actions, and tools, and sets goals for implementation over the long term that will result in a reduction in risk and minimize future losses in a community.

Hazard Mitigation Grant Program (HMGP) – A

federal program administered by the Federal Emergency Management Agency intended to prevent future losses of lives and property due to disasters; to implement state or local hazard mitigation plans; to enable mitigation measures to be implemented during immediate recovery from a disaster; and to provide funding for previously identified mitigation measures to benefit the disaster area. It was authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Wisconsin Emergency Management (WEM) – A

state agency that specializes in hazard mitigation, warning and communications, emergency police services, disaster response and recovery, hazardous materials & EPCRA, radiological emergency preparedness, and exercise and training.

Exhibit 1-1. Emergency Management**6. RELATIONSHIP TO OTHER PLANS**

The following plans, studies, and reports were reviewed in preparing this plan:

- ◆ **A Land Use Plan for Walworth County, Wisconsin: 2020**
(Southeastern Wisconsin Regional Planning Commission - Report Number 252) This plan updates and extends ten years into the future the previously adopted year 2010 County plan. It is intended to serve as a guide to land development and open space preservation, including farmland preservation, within the county. The plan is intended to be used by county and town officials as a guide in future decision-making regarding land use matters in the county. The plan should, for example, be referred to as a matter of course in deliberations on proposed zoning changes and proposed land divisions. While the plan is primarily intended to serve as a guide in public decision-making on land use matters, the plan should also serve to increase the general awareness and understanding of county and town land use objectives by landowners, developers, and other private interests.
- ◆ **Smart Growth Comprehensive Plans** Walworth County is working with 13 towns to adopt a multi-jurisdictional comprehensive plan consistent with state requirements. At a minimum, a comprehensive plan needs to address the following nine elements:
 - ◆ Issues and opportunities
 - ◆ Housing

- ◆ Transportation
- ◆ Utilities and Community Facilities
- ◆ Agriculture, Natural and Cultural Resources
- ◆ Economic Development
- ◆ Intergovernmental Cooperation
- ◆ Land Use
- ◆ Plan Implementation

The data collection phase has been completed, which included a countywide public opinion sample survey on a broad range of planning issues. It is anticipated that the plan will be adopted by spring 2009.

Those communities that do not have an adopted comprehensive plan meeting state requirements on January 1, 2010 will automatically lose the ability to enforce their floodplain regulations, zoning regulations, and other regulations governing land use within its jurisdiction. From the standpoint of hazard mitigation management, it is crucial that the county and other jurisdictions adopt a smart growth plan.

In addition to a countywide plan, a number of municipalities have adopted or will adopt comprehensive plans by January 1, 2010.

- ◆ **Walworth County Hazards Analysis** This document identifies those hazards that have or could occur in the county. It also describes each hazard, its frequency of occurrence, and actions being taken to mitigate the hazard. It was last updated September 2009.
- ◆ **Walworth County Hazardous Materials Response Plan** Walworth County has a hazardous materials response plan which identifies the policies and procedures for responding to hazardous materials incidents/accidents. It was adopted in compliance with the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and state law codified in Section 166.20, Wis. Stats. It was last updated September 2011.
- ◆ **Walworth County Emergency Operations Plan** The Walworth County Office of Emergency Management maintains an emergency operations plan that identifies the procedures for responding to emergency events in the county. It was last updated March 2013.
- ◆ **Walworth County Land and Water Resources Management Plan** This plan is intended to help the Walworth County Land Conservation Committee and county staff define and chart actions and activities that can be cooperatively undertaken by agencies, organizations, and residents to protect the county's land and water resources. The plan serves to target staff and financial resources on those land and water management issues county residents are most concerned about. It was last amended on February 10, 2004.
- ◆ **State Hazard Mitigation Plan** This plan was prepared by Wisconsin Emergency Management (WEM) and complies with the requirements of the Disaster Mitigation Act of 2000 at the state level.
- ◆ **Emergency Action Plan (EAP) Lake Beulah Dam** This document describes the dam hazard area for Lake Beulah Dam, identifies those responsible for dam operation and implementation of the EAP; describes the events of conditions that indicate an emergency, defines the levels of

emergency, and describes how EAP participants and the public should be notified in the event of an emergency.

When any of these local plans are updated in the future, they should incorporate provisions, as may be appropriate, that support this plan.

7. PLAN PREPARATION, REVIEW, AND ADOPTION

2009 PLAN

On December 11, 2007, the Walworth County Board adopted a public participation plan that describes the ways in which the public and local units of government would be involved in the preparation, review, and approval of the plan. A copy of the public participation plan is included as Appendix A. Key elements include: a project website, publication of all meetings, submittal of press releases, and public presentations throughout the county.

An ad hoc working group was established and given the responsibility of developing the first draft of the plan (Exhibit 1-2). It consisted of ten members, including local representatives and staff from various county departments. Their names are listed on the acknowledgements page at the front of the plan. The first meeting was held on August 14, 2008. In all, the working group met three times to work on the plan.

Exhibit 1-2. Summary of Drafts of 2009 Plan

1.0 Working Group Draft	The Working Group reviewed this draft.
2.0 WEM Review Draft	Draft prepared for an initial review by staff with Wisconsin Emergency Management (WEM)
3.0 Local Review Draft	This draft incorporated WEM's suggestions and was submitted to each of the local jurisdictions, adjoining counties, the Southeastern Wisconsin Regional Planning Commission, and the local chapter of the American Red Cross for review and comment.
4.0 Adoption Draft	This final draft incorporated the comments received from the local jurisdictions and others.

Local jurisdictions were involved in a number of ways and were kept abreast of the plan's progress. Initially, letters were sent to each of the towns, cities, and villages inviting them to designate an individual who would serve as a point of contact and a liaison between the jurisdiction and the county. All of the participating jurisdictions appointed a point of contact. The local contact was given a listing of critical facilities in his/her jurisdiction for review and comment. Revisions were made in the next draft of the plan based on these comments.

The second draft of the plan was submitted to Wisconsin Emergency Management for initial review and comment. In a correspondence dated January 22, 2009, WEM staff offered several suggestions. These changes were made and a third draft was prepared for local review.

A copy of the draft plan was sent to the Southeastern Wisconsin Regional Planning Commission (SEWRPC), the American Red Cross, and each of the adjoining counties for review and comment. A copy of the letter is included in Appendix A. No comments were received from these entities.

Copies of the executive summary of the plan were sent to the towns in the county and a copy of the third draft of plan was sent to the cities and villages along with copies of the executive summary. At this point, three public presentations were held for local officials and the public throughout the county at the following places:

- ◆ February 19, 2009 Walworth County Health & Human Services Auditorium; Elkhorn
- ◆ February 23, 2009 Lake Geneva City Hall; Lake Geneva
- ◆ February 26, 2009 LaGrange Town Hall; Whitewater

In addition to town representatives, at least one representative from the following jurisdictions attended one of these meetings:

- ◆ City of Elkhorn
- ◆ City of Lake Geneva
- ◆ City of Whitewater
- ◆ Village of Walworth

During the week of March 1, 2009, the consultant called the following cities and villages that did not have a local official at one of the meetings to determine if they had any comments regarding the draft plan:

- ◆ City of Burlington
- ◆ City of Delavan
- ◆ Village of Darien
- ◆ Village of East Troy
- ◆ Village of Fontana-on-Geneva Lake
- ◆ Village of Mukwonago
- ◆ Village of Sharon

Comments that were received at the meetings and in the telephone calls were incorporated into the next draft. On March 16, 2009, the Walworth County Executive Committee, a committee of the County Board, reviewed the draft plan and recommended the draft plan to the full County Board.

On April 21, 2009, the County Board conducted a public hearing. No member of the public spoke in favor of or opposition to the proposed plan. This plan was approved by unanimous vote. A copy of the adoption resolution is included in Appendix B. A number of cities and villages also adopted this plan by resolution; these are also included in Appendix B.

Wisconsin Emergency Management and the Federal Emergency Management Agency certified that this plan meets federal requirements (Appendix C).

2013 5-YEAR PLAN UPDATE

The Walworth County Emergency Management office applied for and received a grant to prepare a five-year update to the plan. The county contracted with Civi Tek Consulting for this project.

The Walworth County Board of Supervisors adopted a public participation plan on December 11, 2012, that describes the ways in which the public and local units of government would be involved in the preparation, review, and approval of the plan update. A copy of the public participation plan is included in Appendix A. Key elements include: a project website, establishment of a steering committee, publication of all meetings, submittal of press releases, and numerous opportunities for submitting written comments and suggestions.

No comments were received from residents, property owners, or other interested parties during the process.

Municipalities in the county were involved in a number of ways and were kept abreast of the plan's progress. Initially, letters were sent to each municipality inviting them to approve a memorandum of understanding (MOU) and to designate an individual who would serve as a point of contact and a liaison. A sample of the MOU and of the appointment form is included in Appendix A. All of the municipalities approved the MOU. The local point of contact was given a listing of critical facilities in his/her jurisdiction for review and comment (Appendix A). Corrections were made to the list of critical facilities based on the input received.

A steering committee was established and given the responsibility of reviewing the draft of the plan update. Members are listed in the acknowledgements to this plan. The committee met on September 24, 2013 to review the proposed changes to the plan. The meeting was publicly noticed and the agenda from the meeting and a listing of those in attendance is included in Appendix A. Members of the public in attendance were given an opportunity to provide input (see agenda).

After the steering committee finished its work, another draft (2.0) was prepared, which was sent to Wisconsin Emergency Management (WEM) for tentative review. A third draft of the plan was prepared to address WEM's initial comments.

Table 1-1. Summary of Village and City Involvement

Municipality	Description
City of Burlington	The City is primarily located in Racine County and participated in that county's hazard mitigation planning process.
City of Delavan	Appointed a point of contact for the project; returned review acknowledgement form and requested revisions (which were made)
City of Elkhorn	Appointed a point of contact for the project; city representative on steering committee; returned review acknowledgement form, no revisions requested
City of Lake Geneva	Appointed a point of contact for the project; city representative on steering committee; provided information relating to critical facilities; returned review acknowledgement form and requested revisions (which were made)
City of Whitewater	Appointed a point of contact for the project; city representative on steering committee; provided information relating to critical facilities; returned review acknowledgement form, no revisions required
Village of Bloomfield	Appointed a point of contact for the project; returned review acknowledgement form, no revisions requested
Village of Darien	Appointed a point of contact for the project; returned review acknowledgement form, no revisions requested
Village of East Troy	Appointed a point of contact for the project; provided information relating to critical facilities; returned review acknowledgement form and requested revisions (which were made)
Village of Fontana-on-Geneva Lake	Appointed a point of contact for the project; provided information relating to critical facilities; returned review acknowledgement form, no revisions required
Village of Genoa City	Appointed a point of contact for the project; returned review acknowledgement form and requested revisions (which were made)
Village of Mukwonago	The Village is primarily located in Waukesha County and participated in that county's hazard mitigation planning process.
Village of Sharon	Appointed a point of contact for the project; provided information relating to critical facilities; returned review acknowledgement form and requested revisions (which were made)
Village of Walworth	Appointed a point of contact for the project; village representative on steering committee; provided information relating to critical facilities; returned review acknowledgement form and requested revisions (which were made)
Village of Williams Bay	Appointed a point of contact for the project; provided information relating to critical facilities; returned review acknowledgement form, no revisions requested

A copy of this draft was then sent to each of the cities and villages in the county, the Emergency Management Directors of the adjoining counties, the local chapter of the American Red Cross, and the Southeastern Wisconsin Regional Planning Commission for review and comment.

A copy was sent to the Michael P. Cotter, Director, Walworth County Land Use and Resource Management Department, for review and comment.

An executive summary was sent to each of the towns for review and comment. A copy of these cover letters are included in Appendix A. All of the municipalities responded (Table 1-1). Revisions as requested were incorporated into the plan document.

A fourth draft of the plan was prepared based on the local government input that was received. It was then sent to the Federal Emergency Management Agency for preliminary approval. A letter dated _____, 2014, indicated such approval. The Law Enforcement/Emergency Management Committee of the County Board reviewed this draft on June 28, 2013, and recommended the draft plan to the full County Board for its review and action.

On _____, 2014 the County Board of Supervisors adopted this plan. A copy of the agenda is included in Appendix A. The county adoption resolution and those of the cities and villages is included in Appendix B.

In a letter dated _____, 2014, Wisconsin Emergency Management and the Federal Emergency Management Agency certified that this plan update meets federal requirements (Appendix C).

Every effort has been made to use the best available data for the update. Data from the 2010 census of population and housing was used to update the demographic information contained in this plan.

Table 1-2 summarizes the changes made to each section of the plan as part of the 2013 update.

Table 1-2. Summary of Changes Made in the 2013 Plan Update

Plan Section	Summary of Changes
Chapter 1	This chapter was reviewed and updated as needed. Specifically, a narrative describing the process used in developing the update was included. The procedure for plan maintenance was reviewed and updated. A section titled "Incorporating this Plan into Other Planning Efforts" was added.
Chapter 2	This chapter was updated using data the best available data.
Chapter 3	This chapter was updated including data from the 2010 Census of population and housing.
Chapter 4	This chapter was updated.
Chapter 5	Natural hazard profiles, occurrences, and probabilities were reviewed and updated as necessary. In addition, the risk assessments were updated.
Chapter 6	This chapter was updated. The steering committee focused in on the goals, objectives, policies, and activities. Revisions were made and new ones were added.
Map Series	All of the maps were updated.
Appendix A	Public participation documentation for the 2013-2017 plan is included.
Appendix B	Resolutions adopting the 2013-2017 plan update are included.
Appendix C	Certification letters from WEM and FEMA for the 2013-2017 plan are included.
Appendix D	This appendix was updated to list all of the municipalities adopting the plan.
Appendix E	The listing represents an up-to-date inventory of critical facilities in the county sorted by type of facility.
Appendix F	The listing represents an up-to-date inventory of critical facilities in the county sorted by jurisdiction.
Appendix G	The history of storm events was updated using data provided by the National Weather Service.
Appendix H	No change
Appendix I	No change

8. PLAN MAINTENANCE AND AMENDMENT

DMA 2000 requires that an adopted plan be reviewed and updated at least once every five years. However, to ensure that the plan remains a viable planning tool, it should be reviewed each year and following a natural disaster. The Federal Emergency Management Agency and Wisconsin Emergency Management will be notified of amendments to this plan.

ANNUAL REVIEW

Each November, the Emergency Management Director should review and monitor this plan and suggest amendments to the Executive Committee. As part of this review, the Emergency Management Director should contact each of the participating jurisdictions to give them the opportunity to suggest changes. During this annual review, most of the focus should be on Chapter 6, which lists the goals, objectives, policies, and activities.

To determine whether amendments are needed, the following considerations should be reviewed:

- ◆ Review of general development trends
- ◆ Review of hazard risk
- ◆ Review of hazard mitigation goals and objectives
- ◆ Review of completed mitigation activities and their effectiveness
- ◆ Review of recommended strategies
- ◆ Review of available resources for future projects
- ◆ Public input
- ◆ Input from WEM and FEMA

FOLLOWING A NATURAL DISASTER

In addition, to a yearly review cycle, this plan should be updated following a significant natural disaster. Ideally, the update would be completed within six months of the event.

The public will be formally notified of meetings scheduled for the purpose of plan review. Other mechanisms that will be used to maintain public involvement include making available a copy of the plan at local public libraries, issuance of periodic press releases to the media describing the status of plan implementation, and the use of the county's website as a medium to keep residents informed of the plan's status and implementation activities.

HISTORY OF ADOPTION AND AMENDMENT

A history of adoption and amendment is included as Appendix D. It lists when this plan was first adopted and the various amendments which have taken place since then.

9. INCORPORATING THIS PLAN INTO OTHER PLANNING EFFORTS

The state-mandated comprehensive plan and floodplain regulations will be the primary means of reducing the effects of hazards on people and property in Walworth County. Mitigation strategies can be incorporated into these plans when they are updated. Each jurisdiction should incorporate goals, objectives, and policies into their comprehensive plans that are consistent with this plan. The Walworth County Emergency Management Director should send a letter to the Plan Commission of each city and village in 2013 encouraging them to cross reference their plan revisions with this plan. Likewise, amendments to this plan

Without periodic review and assessment, this plan has the potential to lose its relevance as conditions change, specific projects are implemented, and new priorities emerge.

should be made consistent with comprehensive plans so long as such action would reduce the impact of hazards on people and property.

In addition to long-range planning, this plan will also be utilized when reviewing land development projects. It will be useful to consult this plan to determine where hazards are located, primarily 100-year floodplains. The plan will also be consulted as necessary when capital improvement plans are being prepared. Again, the intent of these cross-cutting planning efforts is to reduce the effects of hazards on people and property.

To underscore the importance of incorporating this plan into other planning efforts, Walworth County Emergency Management sent a letter to the County Planning Director encouraging the use of this plan (Appendix A).

10. GOVERNMENTAL UNITS ADOPTING THIS PLAN

In addition to Walworth County, a number of cities and villages in the county have also adopted this plan. Resolutions of those jurisdictions adopting this plan are included in Appendix B.

Those jurisdictions that have not adopted this plan, can adopt this plan, provided they involve the public in the adoption process.

PLANNING AREA PROFILE

1. CHAPTER OVERVIEW

This chapter is intended to give an overview of Walworth County to help describe the setting and provide the general context for mitigation planning. Some of the information in this chapter was derived from *SEWRPC (Southeastern Wisconsin Regional Planning Commission) Community Assistance Planning Report No. 288*.

2. REGIONAL CONTEXT

Walworth County is located in southeastern Wisconsin and borders the northern Illinois metropolitan region to its south and the Milwaukee metropolitan region to its east. Walworth County borders Jefferson, Kenosha, Racine, and Waukesha counties in Wisconsin and Boone and McHenry counties in Illinois (Exhibit 2-1).



Exhibit 2-1. General Location



Chapter Contents

1.	Chapter Overview
2.	Regional Context
3.	Units of Government
4.	Population
5.	Housing
6.	Transportation
7.	Land Use
8.	Climate
9.	Physiographic Features
10.	Topography
11.	Surface Water
12.	Groundwater

3. UNITS OF GOVERNMENT

Civil divisions consist of 16 towns, 9 villages, and 5 cities (Table 2-1). The city of Burlington is located in Walworth and Racine counties and the city of Whitewater is located in Walworth and Jefferson counties. The village of Genoa City is located in Walworth and Kenosha counties and the village of Mukwonago is in Walworth and Waukesha counties. A portion of the Town of Bloomfield incorporated in 2011 and is now the Village of Bloomfield. The city of Elkhorn is the county seat.

Table 2-1. Civil Divisions; Walworth County: 2013

Towns	Cities	Villages
Bloomfield	Burlington [1]	Bloomfield [2]
Darien	Delavan	Darien
Delavan	Elkhorn	East Troy
East Troy	Lake Geneva	Fontana-on-Geneva Lake
Geneva	Whitewater [1]	Genoa City [1]
La Grange		Mukwonago [1]
Lafayette		Sharon
Linn		Walworth
Lyons		Williams Bay
Richmond		
Sharon		
Spring Prairie		
Sugar Creek		
Troy		
Walworth		
Whitewater		

Notes: 1. Municipality located in Walworth County and another county
2. The village was incorporated on December 20, 2011

4. POPULATION

In 2000, the resident population in the county was 92,013 and ten years later it had grown to 102,228, representing an 11 percent increase (Table 2-2). The city of Whitewater is the most populous municipality in the county, accounting for about 10 percent of the countywide population. In 2010, almost half of the population lived in the towns and the other half lived in the county's cities and villages.

Table 2-2. Population; Walworth County and Civil Divisions: 1990, 2000, and 2010

	1990 Count	2000 Count	2010 Count	Percent Change 2000-2010
Town				
Bloomfield	3,723	5,537	6,278	13.38
Darien	1,490	1,747	1,693	-3.09
Delavan	4,195	4,559	5,285	15.92
East Troy	3,687	3,830	4,021	4.99
Geneva	3,472	4,099	4,993	21.81
Lafayette	1,276	2,251	1,979	-12.08
La Grange	1,643	2,444	2,454	0.41
Linn	2,062	2,194	2,383	8.61
Lyons	2,579	3,440	3,698	7.50
Richmond	1,405	1,835	1,884	2.67
Sharon	1,016	912	907	-0.55
Spring Prairie	1,753	2,089	2,181	4.40
Sugar Creek	2,661	3,331	3,943	18.37
Troy	2,051	2,328	2,353	1.07
Walworth	1,341	1,676	1,702	1.55
Whitewater	1,378	1,399	1,471	5.15
Subtotal	35,731	43,671	47,225	8.14
Village				
Bloomfield	[2]	[2]	[2]	NA
Darien	1,158	1,572	1,580	0.51
East Troy	2,664	3,564	4,236	18.86
Fontana-on-Geneva Lake	1,635	1,754	1,672	-4.68
Genoa City [1]	1,277	1,949	3,036	55.77
Mukwonago [1]	0	0	101	NA
Sharon	1,250	1,549	1,605	3.62
Walworth	1,614	2,304	2,816	22.22
Williams Bay	2,108	2,415	2,564	6.17
Subtotal	11,706	15,107	17,610	16.57
City				
Burlington [1]	0	0	0	NA
Delavan	6,073	7,956	8,463	6.37
Elkhorn	5,337	7,305	10,084	38.04
Lake Geneva	5,979	7,148	7,651	7.04
Whitewater [1]	10,170	10,826	11,150	2.99
Subtotal	27,559	33,235	37,348	12.38
Walworth County	75,000	92,013	102,228	11.10

Source: US Census Bureau (Summary File 1) and Wisconsin Department of Administration, Demographic Service Center

Notes: 1. Municipality located in Walworth County and another county. Data is for Walworth County only.
2. The village was incorporated on December 20, 2011

5. HOUSING

In 2010, there were 51,531 housing units in the county (Table 2-3). The average household size was 2.5.

Table 2-3. Housing Characteristics: 2010

	Average Household Size	Housing Units	Seasonal Housing Units
Town			
Bloomfield	2.7	2747	247
Darien	2.6	664	4
Delavan	2.4	3838	1473
East Troy	2.6	1914	317
Geneva	2.4	3458	1170
Lafayette	2.7	790	19
La Grange	2.5	1763	700
Linn	2.4	2157	1075
Lyons	2.6	1533	45
Richmond	2.5	1016	216
Sharon	2.6	364	6
Spring Prairie	2.7	856	28
Sugar Creek	2.7	1650	129
Troy	2.6	1010	71
Walworth	2.6	734	49
Whitewater	2.5	902	297
Subtotal	NA	25,396	5,846
Village			
Bloomfield	[2]	[2]	[2]
Darien	2.9	611	6
East Troy	2.4	1866	10
Fontana-on-Geneva Lake	2.3	2308	1538
Genoa City [1]	2.8	1176	28
Mukwonago [1]	3.1	33	0
Sharon	2.7	714	5
Walworth	2.6	1172	12
Williams Bay	2.4	1985	831
Subtotal	NA	9,865	2,430
City			
Burlington [1]	0	0	0
Delavan	2.6	3500	33
Elkhorn	2.5	4043	17
Lake Geneva	2.3	4225	575
Whitewater [1]	2.2	4502	11
Subtotal	NA	16,270	636
Walworth County	-	51,531	8,912

Source: US Census Bureau (Summary File 1) and Wisconsin Department of Administration, Demographic Service Center

Notes: 1. Municipality located in Walworth County and another county. Data is for Walworth County only.
2. The village was incorporated on December 20, 2011

6. TRANSPORTATION

SURFACE TRANSPORTATION

Map 1 shows the location of roadways and railroads in the county. In 2005, there were about 1,518 miles of public streets and highways (Table 2-4). Nearly three-fourths of the roads were classified as a local road. Interstate 43 traverses northeast to southwest between Milwaukee and Beloit. Interchanges are located in the village of Mukwonago and the cities of Elkhorn and Delavan.

The other key regional highways include US 12, STH 11, STH 20, STH 50, STH 67, STH 89, and STH 120. Each of these highways connects one or more of the incorporated municipalities in Walworth County to the Interstate highway system and provides access to nearby metropolitan areas.

AIR TRANSPORTATION

In 2008, there were five public-use airports in the county. Three of these – Grand Geneva, Lake Lawn, and Big Foot Airfield – were privately owned. East Troy Municipal Airport and Burlington Municipal Airport are publicly owned and are part of the Wisconsin Airport System. Both of these airports are classified as a general utility airport¹. For the purposes of this plan, airports that are not part of the Wisconsin Airport System are not considered critical infrastructure. The majority of the land area associated with the Burlington Municipal Airport is located in Racine County; only a portion of the northwest-southeast runway is in Walworth County.

In addition to these public-use airports, there are a number of private-use airport which are not open to the general public. Commercial passenger service is available at Dane County Regional Airport in Madison, General Mitchell International Airport in the Milwaukee metropolitan area, O'Hare International Airport and Midway International Airport in the Chicago metropolitan area, and Rockford International Airport in Rockford, Illinois.

RAIL TRANSPORTATION

In 2013 the following railroad lines operated within Walworth County (Map 1):

- ◆ Wisconsin & Southern Railroad Company with routes in the Whitewater area, in the south-central and southwesterly portion of the county; and a route running southwesterly from Elkhorn.
- ◆ Union Pacific Railroad with a route in the southwestern corner of the county.
- ◆ Canadian National Railway with a route in the northeastern area of the county.
- ◆ East Troy Electric Railroad Museum with a seasonal trolley service route between the villages of East Troy and Mukwonago.

**Table 2-4. Roadway by Type:
Walworth County; 2005**

Roadway Type	Miles	Percent
		of Total
Interstate Highway	31.0	2
State Highway	193	13
County Highway	200	13
Local Roads	1,094	72
Total	1,518	100

Source: Southeastern Wisconsin Regional Planning Commission

¹ A general utility airport is intended to serve virtually all small general aviation single and twin-engine aircraft, both piston and turboprop, with a maximum takeoff weight of 12,500 pounds or less.

7. LAND USE²

Based on a land use inventory conducted in 2000 by the Southeastern Wisconsin Regional Planning Commission, urban land uses – consisting of residential; commercial; industrial; recreational; governmental and institutional; and transportation, communication, and utilities; and unused urban land – covered 46,600 acres, or about 13 percent of the total area of the county (Table 2-5). Residential land uses accounted for nearly half of this urban development.

Rural and other nonurban land uses in Walworth County accounted for 87 percent of the total area of the county. Agriculture was the single largest land use, comprising nearly two-thirds of the land base in the county.

The amount of nonurban lands decreased by about 19,000 acres between 1963 and 2000 as cities and villages have grown, and more importantly, as rural lands were converted to residential uses. This trend is likely to continue resulting in lower urban densities and a loss of farmland.

8. CLIMATE³

Walworth County lies in the mid-continental zone, which is characterized by long and relatively cold and snowy winters, and warm summers, with periods of hot and humid conditions. Air temperatures are subject to extreme seasonal variations. July is the warmest month and January is the coldest. Snow cover is most likely during December, January, and February. Streams and lakes begin to freeze over in late November, and ice breakup usually occurs in late March or early April.

Rainfall intensity, duration, and frequency are major factors that affect the peak rate of runoff and flooding. The most intense type of storm is that which occurs within a 24-hour duration, with the most intense rainfall occurring during a six-hour period near the middle of the event. The size of a storm is often described by the length of time over which precipitation occurs, the total amount of precipitation occurring, and how often this same storm occurs. The amount of rainfall that can be expected to occur in Walworth County in a 24-hour period for selected frequencies is shown in Table 2-6.

The mean annual precipitation for Walworth County is approximately 36 inches. The majority of precipitation falls in the form of rain during the growing season, between May and September. Approximately 50 rainfall events occur per year⁴. Runoff can be high during rainfall events in March and April, when the ground is still frozen, the soil moisture is high, and little infiltration occurs. The average annual snowfall and sleet is 47.1 inches. Assuming that 12 inches of measured snow and sleet are equivalent to one inch of water, the average annual snowfall is equivalent to 3.9 inches of water or about 11 percent of the average annual precipitation. Temperature and precipitation data from an observation station in Lake Geneva are presented in Table 2-7.

Table 2-5. Existing Land Use; Walworth County: 2000

Land Use	Acres	Percent of Total
Agricultural	237,671	64.4
Extractive and Landfill	1,499	0.4
Transportation	15,206	4.1
Residential	20,259	5.5
Recreational	4,307	1.2
Government & Institutional	1,734	0.5
Natural Lands	72,614	19.7
Industrial	1,420	0.4
Commercial	1,248	0.3
Other	12,993	3.5
Total	368,951	100

Source: Southeastern Wisconsin Regional Planning Commission

Table 2-6. Rainfall Intensity, Duration and Frequency; Walworth County

Recurrence Interval	Rainfall in a 24-hour Period (Inches)
2 Year	2.8
5 Year	3.5
10 Year	4.1
25 Year	4.6
50 Year	5.2
100 Year	5.8

Source: Southeastern Wisconsin Regional Planning Commission

² Source: SEWRPC Community Assistance Planning Report No. 288. Southeastern Wisconsin Regional Planning Commission

³ Source: SEWRPC Community Assistance Planning Report No. 288. Southeastern Wisconsin Regional Planning Commission

⁴ A rainfall event is defined as a distinct period when precipitation is equal to or greater than 0.1 inch.

Table 2-7. Temperature and Precipitation; Lake Geneva: 1945-1988

Month	Monthly Mean Temperature [1]	Average Total Precipitation (Inches)	Average Snow and Sleet (Inches)
January	19.8	1.89	12.6
February	23.8	1.39	7.9
March	33.5	2.67	9.6
April	46.5	3.83	2.0
May	57.9	3.35	0.1
June	68.3	4.16	0.0
July	73.0	4.26	0.0
August	71.6	3.81	0.0
September	83.8	3.42	0.0
October	52.8	2.56	0.1
November	38.2	2.40	3.6
December	25.4	2.40	11.2

Source: Wisconsin Statistical Reporting Service, National Climate Data Center and National Oceanic and Atmospheric Administration, National Weather Service, Sullivan

Notes: 1. The monthly mean temperature is the mean of the average daily maximum temperature and the average daily minimum temperature for each month.

9. PHYSIOGRAPHIC FEATURES⁵

The four major stages of glaciation that occurred in the region have laid the foundation for the physiology, topography, and soils of Walworth County. The last and most influential stage of glaciation was the Wisconsin stage, which is said to have ended in the state about 11,000 years ago. The Kettle Moraine is oriented in a northeast-southwest direction across Washington, Waukesha, and Walworth counties. The Kettle Moraine is a prominent feature in the towns of Whitewater and LaGrange in northwestern Walworth County and is a complex landform of hummocky sand and gravel including kames, kettles, and eskers. The remainder of Walworth County is covered by a variety of glacial landforms and features.

10. TOPOGRAPHY⁶

The surface of the county is a gently undulating plain with broad valley bottoms and gently sloping hills. Broad marshes along the streams are a characteristic feature. The lowest land in the western part of the county at Whitewater is about 829 feet, and along Turtle Creek at Fairchild about 880 feet, while the lowest land in the eastern part, along the White River near Burlington, is about 760 feet above sea level. The highest uplands reach an altitude of a little over 1,000 feet, with a much larger proportion of the land of the western part reaching close to this altitude than of the eastern part. The maximum range in altitude between the highest hills and the adjacent valleys is less than 200 feet.

⁵ Source: *SEWRPC Community Assistance Planning Report No. 288*. Southeastern Wisconsin Regional Planning Commission

⁶ Source: *Flood Insurance Study, Walworth County and Incorporated Areas* (FIS No. 55127CV000A). Federal Emergency Management Agency

11. SURFACE WATER⁷

Surface waters of Walworth County flow to the Mississippi River through two major drainage basins, the Fox (Illinois) River and the Rock River. The principal drainage system of eastern Walworth County consists of three watersheds all contributing to the Fox (Illinois) River. The streams representing the three watersheds are: Mukwonago River, Honey and Sugar creeks, and White River and Nippersink Creek. The principal drainage system of western Walworth County consists of four watersheds tributary to the Rock River. The streams representing the four watersheds include Turtle Creek, Piskasaw Creek, Whitewater Creek, and Scuppernong Creek.

Walworth County has 36 named lakes covering 13,353 acres (Table 2-8). Lake Geneva is the largest lake in the county, with a surface area of 5,104 acres. The majority of lakes are 200 acres or smaller. There are 29 named streams within nine watersheds (Table 2-9). In addition, there are a number of small unnamed streams.

Table 2-8. Named Lakes; Walworth County

Lake	Acres
Army Lake	76
Beulah Lake	712
Booth Lake	108
Cedar Grove Millpond	12
Como Lake	1,058
Comus Lake	117
Cravath Lake	65
Delavan Lake	2,072
Geneva Lake	5,104
Green Lake [1]	292
Hilburn Pond	17
Honey Lake	42
Ivanhoe Lake	41
LaGrange Lake	55
Lauderdale Lakes	809
Loaiane Lake	133
Lower Whitewater Lake	137
Lulu Lake	95
Lyons Millpond	12
Middle Lake [1]	256
Mill Lake	261
Mud Lake	23
North Lake	191
Number (10) Lake	34
Pell Lake	107
Peters Lake	60
Pickerel Lake	27
Pleasant Lake	137
Potters Lake	151
Silver Lake	86
Swift Lake	17
Tombeau Lake	32
Trapp Lake	115
Turtle Lake	140
Wandawega Lake	119
Whitewater Lake	640
Total	13,353

Source: Southeastern Wisconsin Regional Planning Commission

Notes:

1. Part of Lauderdale Lake

Table 2-9. Streams; Walworth County

Stream Names	Surface Area (acres)	Drainage Area (Square miles)	Length (miles)	Width (feet)
Baker Creek	1.9	8	1.8-9	9
Bloomfield Creek	2.5	4	3.5	6
Bluff Creek	2.4	7	2.0	10
Como Creek	6.4	9	3.8	14 Ditch
Darine Creek	7.7	18	5.3	12
Honey Creek	54.7	92	18.5	24
Horton Creek	6.3	12	4.7	11 Ditch
Indian Run Creek	1.8	4	2.5	6
Jackson Creek	5.0	6	2.3	18
Ladd Creek	10.8	17	7.4	12
Lightbody Creek	0.2	2	0.6	2
Mukwonago River	2.5	9	1.5	14
Nippersink Creek	14.5	45	5.2	12
Nippersink, N.E. Branch	7.3	27	4.7	14
Nippersink, W. Branch	8.8	16	7.4	9
Ore Creek	5.2	17	3.6	12
Ore Creek, 1 st Branch	2.5	3	2.7	7.5
Ore Creek, 2 nd Branch	1.2	5	2.8	3.5
Piskasaw Creek	4.0	10	2.2	15 Ditch
Spring Brook	5.1	5	3.5	12
Spring Creek	3.4	7	3.5	8
Spring Valley Creek	5.8	14	6.0	8
Steel Brook	0.7	5	2.0	3
Sugar Creek	42.5	70	19.5	18
Turtle Branch	15.8	35	6.5	20 Ditch
Turtle Creek	70.9	90	13.0	45
White River	66.2	298	12.3	45

continued

⁷ Source: SEWRPC Community Assistance Planning Report No. 288. Southeastern Wisconsin Regional Planning Commission

Table 2-9. Streams; Walworth County (continued)

Stream Names	Surface Area (Acres)	Drainage Area (sq. mi.)	Length (miles)	Width (ft)
Whitewater Creek	13.0	81	4.3	25
Williams Bay Creek	0.7	1	1.1	5 Ditch
Named Rivers and Streams	369.8	-	154.2	-
Unnamed Streams	10.6	-	11.2	-
Total	380.4	-	165.4	-

Source: Southeastern Wisconsin Regional Planning Commission

12. GROUNDWATER⁸

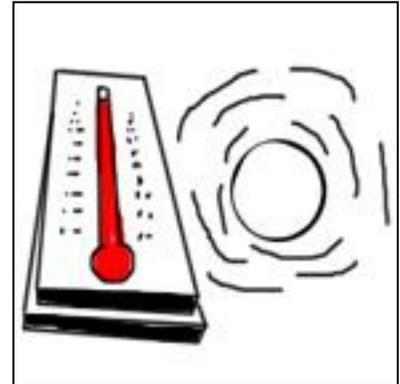
Groundwater is the main source of industrial water and drinking water for Walworth County residents. There are three principal aquifers in the county: the shallow sand-gravel deposits in the glacial drift aquifer; the shallow dolomite strata aquifer in the underlying bedrock; and the deep sandstone, dolomite and shale aquifer. Most of the private drinking water wells are less than 200 feet deep and tap into the sand-gravel aquifer.

Groundwater also sustains the water levels of lakes and provides base flow to streams in the county. Like surface water, groundwater is susceptible to depletion and deterioration. The deep sandstone aquifer has experienced excessive draw downs, primarily as a result of pumping in metropolitan Milwaukee and northeastern Illinois.

The shallow sand-gravel and dolomitic aquifer is recharged locally by the infiltration and percolation of precipitation and surface water runoff. The shallow aquifer is more susceptible to pollution from waste water and runoff pollution. The deeper sandstone aquifer is recharged by the vertical movement of rainwater through glacial deposits located in the western-half of Walworth and Waukesha counties, along a narrow zone oriented in a north-south direction. This recharge area supplies drinking water to Walworth County communities and many communities outside of the county served by deep public wells.

⁸ Source: *SEWRPC Community Assistance Planning Report No. 288*. Southeastern Wisconsin Regional Planning Commission

SPECIAL NEEDS POPULATIONS AND GROUPS



1. CHAPTER OVERVIEW

During a natural disaster the potential exists for certain populations and groups of people to be disproportionately affected when compared to the general population. This section looks at those groups including the elderly, people with disabilities, homeless individuals, populations with language barriers, and people in mobile home parks, campgrounds, and group quarters. Strategies and actions are included in Chapter 5 in order to address the particular needs of these groups.

2. ELDERLY

As a group, the elderly are especially vulnerable to natural hazards. This is especially true when an elderly person lives by him or herself or with an elderly spouse and do not have family or friends to help them prepare for natural hazards or react to and recover from an event.

The aging of the population is occurring throughout the nation and is also evident in Walworth County. As seen in Table 3-1, the number of people in Walworth County between the age of 5 to 19 decreased between 2000 and 2010, while the number of people 45 and older increased, especially in the 55 to 64 age group, with an increase from 8.6 percent of the total to 12.4 percent. As the population continues to get proportionately older, it will become increasingly important to address the needs of the elderly with respect to natural hazards planning.

Chapter Contents

1. Chapter Overview
2. Elderly
3. People with Disabilities
4. Homeless Individuals
5. Populations with Language Barriers
6. People Living in Manufactured and Mobile Homes
7. People in Campgrounds
8. Residents in Group Quarters

3. PEOPLE WITH DISABILITIES

Like the elderly, people with disabilities have increased exposure to some types of natural hazards. As shown in Table 3-2, the likelihood that an individual has a disability increases with age. About 12 percent of county residents between 18 to 64 years had a disability, while more than 35 percent that were 65 years and older had a disability.

Table 3-1. Age of Population; Walworth County: 2000 and 2010

Age Group	Percent of Total		Percent Change 2000-10
	2000	2010	
Under 5 years	5.9	6.1	3.4
5 to 9	6.7	6.6	-1.5
10 to 14	7.3	6.6	-9.6
15 to 19	8.7	7.4	-14.9
20 to 24	9.3	8.5	-8.6
25 to 34	11.9	11.2	-5.9
35 to 44	15.6	12.4	-20.5
45 to 54	13.1	15.2	16
55 to 64	8.6	12.4	44.2
65 to 74	6.4	7.2	12.5
75 to 84	4.4	4.3	-2.3
85 and older	1.8	2.0	11.1

Source: 2000 Census of Population and Housing, US Census Bureau
2010 Census of Population and Housing, US Census Bureau

4. HOMELESS INDIVIDUALS

Homeless individuals are disproportionately affected by many types of natural disasters. Excessive heat and cold are especially hard on the elderly homeless. Seven churches in the county host a homeless shelter on a rotating basis (Table 3-3). It is open daily from 7:00 p.m. to 8:00 a.m.

Table 3-3. Homeless Shelters: 2013

Location Name	Address	Jurisdiction
Chapel on the Hill	N2440 Ara Glen Drive	City of Lake Geneva
Christ Episcopal Church	503 E Walworth Avenue	City of Delavan
Creek Road Community Church	W7778 Creek Road	City of Delavan
Delavan United Methodist Church	213 S 2nd Street	City of Delavan
First Baptist Church	212 S Main Street	City of Delavan
St. Benedict's Church	137 Dewey Avenue	City of Fontana-on-Geneva Lake
St. John Lutheran Church	104 S Broad Street	City of Elkhorn

Source: Walworth County Emergency Management

5. POPULATIONS WITH LANGUAGE BARRIERS

Most people in Walworth County are able to communicate effectively in English. However, a small group of residents, most likely recent immigrants, have not learned to speak English or have not become proficient. Recognizing this fact is important in devising strategies to help residents prepare themselves for an impending disaster and recover from the aftermath of the event.

It is estimated that 3.2 percent of residents in Wisconsin in 2010 were not able to communicate “very well” in English (Table 3-4). The villages of Darien and Walworth and the City of Lake Geneva exceeded this statewide rate by more than three times, 10.2 percent, 16.8 percent, and 11.6 percent respectively.

Although the number of residents who do not speak proficient English is comparatively small, it is anticipated that the number will continue to rise barring a significant shift in public policy in immigration.

Table 3-4. People with Language Barriers: 2010

Jurisdiction	Percent of Population
Bloomfield, village [2]	NA
Burlington, city [1]	0
Darien, village	10.2
Delavan, city	9.0
East Troy, village	0.8
Elkhorn, city	3.1
Fontana-on-Geneva Lake, village	3.9
Genoa City, village [1]	0.6
Lake Geneva, city	11.6
Mukwonago, village [1]	0
Sharon, village	4.7
Walworth, village	16.8
Whitewater, city [1]	3.3
Williams Bay, city	0.8
Wisconsin	3.2

Source: 2010 Census of Population and Housing, US Census Bureau

Notes:
 1. Municipality located in Walworth County and another county; data is for that area within Walworth County
 2. The Village incorporated on December 20, 2011

Table 3-2. Noninstitutionalized People with Disabilities; Walworth County: 2011

Under 5	Percent of Population
With any difficulty [1]	0
With hearing difficulty	0
With vision difficulty	0
5 to 17 years	
With any difficulty [1]	6.8
With hearing difficulty	0.6
With vision difficulty	2.0
With cognitive difficulty	4.2
With ambulatory difficulty	0.1
With self-care difficulty	0.3
18 to 64 years	
With any difficulty [1]	8.6
With hearing difficulty	1.5
With vision difficulty	1.1
With cognitive difficulty	4.0
With ambulatory difficulty	4.5
With self-care difficulty	1.6
65 years and over	
With any difficulty [1]	35.3
With hearing difficulty	14.8
With vision difficulty	6.8
With cognitive difficulty	5.7
With ambulatory difficulty	18.7
With self-care difficulty	7.0

Source: 2011 American Community Survey, US Census Bureau

Notes:
 1. Values may not add up to “total” due to rounding

6. PEOPLE LIVING IN MANUFACTURED AND MOBILE HOMES

Manufactured housing and mobile homes are especially susceptible to damage from wind and other storms. As a result, people living in this type of housing are more vulnerable to injury and death when compared to those living in dwellings built with conventional framed construction.

In 2013, there were 12 mobile home parks in Walworth County (Table 3-5). Eight were located in a town; three in a city, and two in a village. None of the mobile parks have a storm shelter where people could go during wind-related storm events.

Table 3-5. Mobile Home Parks: 2013

Name	Jurisdiction	Address	Number of Sites
Brooks Timber Court	Lake Geneva, City	515 S Wells Street	71
Coachman's Terrace Manufactured Home Community	Geneva, Town	W3540 State Road 50	60
Country Estates	Lyons, Town	Hospital Road	-
Land O' Lakes Mobile Home Court	Elkhorn, City	473 E Geneva Street	96
Ludwell Estates	Delavan, Town	5614 STH 11	65
Pioneer Estates – Delavan	Darien, Town	W7955 Creek Road	167
Pioneer Estates – Lake Geneva	Bloomfield, Town	N2020 CTH H	-
Sharon Estates	Sharon, Village	Park Road	34
Skyview Terrace	East Troy, Village	2742 E Main Street	109
Snug Harbor Manufactured Home Community	Richmond, Town	W7772 Wisconsin Parkway	36
Troy Terrace Mobile Home Park	Troy, Town	N9685 Nature Road	68
Unnamed park	Lyons, Town	Motor Drive off of STH 36	-

Source: Various sources

7. PEOPLE IN CAMPGROUNDS

People staying in campgrounds are even more vulnerable to wind storm events than those living in mobile home and manufactured homes. Although many campers stay in hard-sided campers or RVs, some stay in soft-sided tents. During a wind storm or tornado, they have little protection from wind-borne debris and falling branches and trees.

In 2013, there were 16 campgrounds in Walworth County (Table 3-6). With the exception of four campgrounds, they were all privately operated. Many of the privately-operated campgrounds were run by a Girl Scout association or similar nonprofit organization. In addition to the campgrounds listed, there were a number of other camps that provide indoor sleeping in rustic cabins. Because they provide indoor sleeping accommodations, they are not considered a critical facility.

Willow Run RV Condo Association



Table 3-6. Campgrounds: 2013

Name	Jurisdiction	Address
Alice Chester Center	Troy, Town	N8651 Town Line Road
Bigfoot Beach State Park (Wis DNR)	Lake Geneva, City	1550 S Lake Shore Drive
Camp Charles Allis	East Troy, Town	W2035 Beulah Heights Road
Camp Edwards YMCA	East Troy, Town	N8901 Army Lake Road
Camp Joy	Whitewater, Town	W7725 Kettle Moraine Drive
Conference Point Camp	Williams Bay, Village	300 Conference Point Road
Hickory Woods Group Camp	Whitewater, Town	Hi-Lo Road
Holiday Home Camp	Williams Bay, Village	Holiday Avenue
McIntyres Resort	Richmond, Town	N6471 Milwaukee Road
Norman B. Barr Camp	Williams Bay, Village	483 Outing Street
Scenic Ridge Campground	Richmond, Town	W7991 R&W Townline Road
Snug Harbor Inn Campground on Turtle Lake	Richmond, Town	W7785 Wisconsin Parkway
Timber Lee Christian Center	Troy, Town	N8705 Scout Road
Whitewater Lakes-East (Wis DNR)	Whitewater, Town	N8096 Hi-Lo Road
Whitewater Lakes-West (Wis DNR)	Whitewater, Town	N8095 Hi-Lo Road
Willow Run RV Condo Association	Sugar Creek, Town	W4945 County Road ES

Source: Various sources including field verification

8. RESIDENTS IN GROUP QUARTERS

While the majority of people in Walworth County live in a single-family dwelling or a multifamily building, more than five percent of the residents live in what are referred to as group quarters. If residents live in a controlled environment (e.g., correctional institutions, nursing homes) the group quarters are referred to as institutional, and those living in a group setting are referred to as non-institutional (e.g., college dormitories).

In 2010, there were a total of 2,696 residents living in group quarters (Table 3-7). Nearly two-thirds of those lived in college dormitories at UW-Whitewater. Nursing homes and community living arrangements accounted for the next two largest housing types.

The Wisconsin School for the Deaf (WSD) is a residential school for deaf and hard of hearing students from throughout Wisconsin. WSD operates under the direction of the Wisconsin Department of Public Instruction and provides educational services for deaf and hard of hearing students ages 3 to 21. WSD has an average annual enrollment of 130 students in grades pre-K through 12th. It is located at 309 W. Walworth Avenue in the city of Delavan. It operates residential halls for its student enrollment.

Table 3-7. Group Quarters Population: 2010

	Institutional	Non-Institutional	Total
Town			
Bloomfield	0	19	19
Darien	0	71	71
Delavan	8	10	10
East Troy	0	14	14
Geneva	0	19	19
Lafayette	0	0	0
La Grange	0	10	10
Linn	0	3	3
Lyons	0	0	0
Richmond	0	5	5
Sharon	0	0	0
Spring Prairie	0	0	0
Sugar Creek	0	17	17
Troy	0	3	3
Walworth	0	0	0
Whitewater	7	4	11
Village			
Bloomfield [2]	0	0	0
Darien	0	0	0
East Troy	45	0	45
Fontana-on-Geneva Lake	0	0	0
Genoa City [1]	0	22	22
Mukwonago [1]	0	0	0
Sharon	0	0	0
Walworth	53	6	59
City			
Burlington [1]	0	0	0
Delavan	56	28	84
Elkhorn	452	7	459
Lake Geneva	56	27	83
Whitewater [1]	92	1,608	1,700
Williams Bay	59	3	62
Walworth County	828	1,876	2,696

Source: 2010 US Census (Summary File 1)

Notes: 1. Municipality located in Walworth County and another county
2. The village incorporated on December 20, 2011.

CRITICAL FACILITIES

1. CHAPTER OVERVIEW

This chapter focuses on those critical facilities in Walworth County that need to be evaluated in terms of natural hazards mitigation planning. For the purpose of this plan, critical facilities are categorized into the following classification scheme:

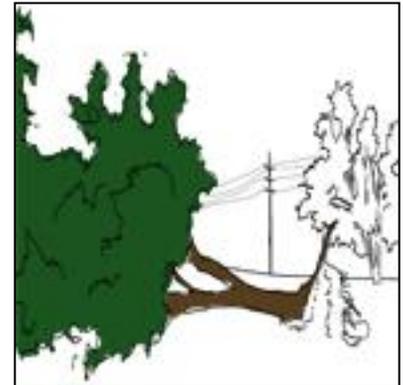
- ◆ Type I A facility that provides a public service, which if damaged would significantly impair a local governmental response
- ◆ Type II A facility that provides a public service, but which if damaged would not significantly impair a local governmental response
- ◆ Type III A facility that can cause greater damage to the surrounding area if damaged by a natural hazard
- ◆ Type IV A facility that primarily housing special populations such as the infirm, children, elderly, or people with development disabilities

In all, there were 670 critical facilities in the county (Table 4-1). There were 228 Type I facilities, 186 Type II, 49 Type III, and 216 Type IV facilities. Appendix E lists all of the critical facilities sorted by type and Appendix F provides a list sorted by jurisdiction.

As part of this project, the consultant created a Microsoft Access™ database to manage basic information for critical facilities identified in this plan. Each facility is assigned to one or more parcels using the county PIN number to facilitate use in the county's geographic information system. Most of the facilities also have a digital picture. Because the crude oil pipeline and the natural gas pipeline cross multiple jurisdictions, they were not included in the database.

2. BRIDGES

The road network in the county consists of local, county, state, and federal roads. There are 93 locations where a federal, state, or county roadway crosses a waterbody such as a river, stream, or lake. These range in size from a single culvert to a multi-span bridge. These locations have been identified because flooding may overtop the roadway or backup floodwaters. The locations are shown on Map 4. Bridges that cross another roadway or railroad tracks were not considered a critical facility from the perspective of natural hazards.



Chapter Contents

1. Chapter Overview
2. Bridges
3. Dams
4. Public-Use Airports
5. Communication Towers
6. Telephone Facilities
7. Electric Facilities
8. Natural Gas Facilities
9. Petroleum Pipeline Facilities
10. Public Water Facilities
11. Wastewater Facilities
12. Fire and Police Services
13. National Guard Facilities
14. Government Facilities
15. Schools
16. Special Care Facilities-Residential
17. Special Care Facilities-Nonresidential
18. Health Care Facilities
19. Vulnerable Housing
20. American Red Cross Shelters

In 2013, there were 679 critical facilities in Walworth County.

Table 4-1. Critical Facilities by Type: 2013

Facility Type	Type I	Type II	Type III	Type IV
Infrastructure				
Bridge	-	93	-	-
Dam (large & small)	-	-	42	-
Communication Tower	-	63	-	-
Electric Facility – Power Plant	-	-	-	-
Electric Facility – Substation	19	-	-	-
Natural Gas Facility	-	-	5	-
Natural Gas Pipeline	-	-	1	-
Petroleum Pipeline	-	-	1	-
Public-Use Airport	-	2	-	-
Telephone Facility	9	-	-	-
Utility Offices/Yard	6	-	-	-
Water Facility [1]	57	-	-	-
Wastewater Facility	10	-	-	-
Government Facility				
Community Center	-	-	-	-
Library	-	11	-	-
Municipal Garage	29	-	-	-
Municipal Office and Other	41	-	-	-
Post Office	-	15	-	-
Senior Center	-	1	-	-
Recreation	-	1	-	-
Health Care Facility				
Health Care Clinic	13	-	-	-
Hospital	2	-	-	-
Public Safety Facility				
EMS Facility	3	-	-	-
Fire Station	20	-	-	-
National Guard Facility	2	-	-	-
Police Station	17	-	-	-
School				
K-12	-	-	-	57
Post-Secondary	-	-	-	4
Special Care Facility - Residential				
Adult Family Home	-	-	-	31
Community Based Residential Facility	-	-	-	38
Nursing Home	-	-	-	8
Residential Care Apartment Complex	-	-	-	7
Special Care Facility - Nonresidential				
Adult Day Care	-	-	-	3
Group Day Care	-	-	-	40
Vulnerable Housing				
Mobile Home Park	-	-	-	12
Campground	-	-	-	16
Total	228	186	49	216

Notes: 1. Types of facilities included in this category include wells, towers, and treatment plants.

Key Terms in This Chapter

Adult day care – A place where adults receive care for less than 24 hours.

Adult family home (AFH) – A place where three or four adults who are not related to the operator reside and receive care, treatment, or services that are above the level of room and board and that may include up to seven hours per week of nursing care per resident.

Community based residential facility (CBRF) – A place where five or more adults reside who are not related to the operator, who do not require care above intermediate level nursing care, and who receive care, treatment, or services that are above the level of room and board, but includes no more than three hours of nursing care per week per resident.

Group day care – A place where a person for less than 24 hours a day provides care and supervision for 9 or more children who are not related to the provider.

Nursing home – A place where unrelated individuals live, who because of their mental or physical condition, are given 24-hour personal care and nursing care, but who do not require hospitalization.

Large dam – A dam that either (1) has a structural height of over 6 feet and impounds 50 acre-feet or more, or (2) has a height of 25 feet or more and impounds more than 15 acre-feet.

Power plant – A facility containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

Public-use airport – An airport open for public use without prior permission, and without restrictions within the physical capacities of available facilities. A public-use airport may or may not be publicly owned.

Residential care apartment complex (RCAC) – A multi-family building where five or more adults reside in independent dwelling units and also receive not more than 28 hours per week of supportive services, personal assistance, and nursing assistance.

Small dam – A dam not classified as a large dam.

Substation – An auxiliary power station where electrical current is converted, as from DC to AC, or where voltage is stepped up or down.

3. DAMS

According to the community inventory there are 42 dams in the county. Honey Creek had the highest number of dams followed by Whitewater Creek (Table 4-2). Map 4 shows the location of dams (large and small) within the county.

For the purposes of this plan, dams are classified as a Type III critical facility in that a dam failure would cause additional impacts primarily to downstream properties.

4. PUBLIC-USE AIRPORTS

There were two public-use airports in the county (Map 5). East Troy Municipal airport is located on the city's east side and a small portion of Burlington Municipal airport runway extends in the county. Both are classified as a general utility airport.¹ In addition to these public-use airports there were a number of private-use airports located throughout the county.

5. COMMUNICATION TOWERS

Map 6 shows the location of 63 communication towers located in the county.

6. TELEPHONE FACILITIES

Nine telephone facilities were maintained by telephone service providers (Map 6). They were located in the cities of Delevan and Lake Geneva, the towns of Sugar Creek and Richmond, as well as the villages of Darien, East Troy, Sharon, and Williams Bay.

7. ELECTRIC FACILITIES

There were no electric power plants in the county. One is located in the city of Whitewater, in Jefferson County. Nineteen substations were located throughout the county, primarily in or near urban areas (Map 7).

8. NATURAL GAS FACILITIES

Guardian Pipeline operates a high-pressure natural gas pipeline in the eastern part of the county (Map 7). There were a number of above-ground facilities associated with the pipeline. Because of concerns about security, the exact location of the pipeline is not precisely mapped in this plan.

9. PETROLEUM PIPELINE FACILITIES

Enbridge Energy operates a pipeline for transporting petroleum crude oil through the county. It extends from the city of Whitewater to the southeast (Map 7). It carries oil from Superior to Chicago where it is processed. Gate valves were located along the pipeline in number of locations. Because of concerns about security, the exact location of the pipeline is not mapped in this plan.

Table 4-2. Regulated Dams by Waterbody: 2012

Waterbody	Number
Como Creek	2
Honey Creek	5
Nippersink, East Branch Creek	2
Nippersink, West Branch Creek	1
Sugar Creek	1
Turtle Creek	2
Whitewater Creek	3
White River	1
Other	25
Total	42

¹ General utility airports serve virtually all small general aviation single and twin-engine aircraft, both piston and turboprop, with a maximum takeoff weight of 12,500 pounds or less. These aircraft generally have approach speeds below 121 knots and wingspans of less than 79 feet. Typically, these aircraft are used for business and charter flying and for personal reasons. In Wisconsin, airports in this category normally have a primary runway length of 3,900 to 4,800 feet.

10. PUBLIC WATER FACILITIES

Public water facilities inventoried for this plan include water wells, towers, reservoirs, and treatment plants. A total of 57 facilities were identified and are shown on Map 8.

11. WASTEWATER FACILITIES

There were 10 wastewater treatment plants in Walworth County, and they were located in each of the urban areas and in the more developed areas of the towns of Darien, Lyons, and Sharon (Map 8).

12. FIRE AND POLICE FACILITIES

Within Walworth County, there were 17 police stations and 20 fire stations (Map 9). Generally, EMS services were housed with a fire station or police station. In three instances though, EMS services were housed in a stand-alone building.

13. NATIONAL GUARD FACILITIES

There were two National Guard facilities. One is in the city of Elkhorn and the other is in the city of Whitewater (Map 9).

14. GOVERNMENT FACILITIES

Government facilities included in the inventory of critical facilities include a wide array of facilities including community centers, public libraries, municipal garages, municipal offices, post offices, and senior centers. Map 10 shows the location of the 98 government facilities.

Water tower in the City of Lake Geneva



Electric substation in the City of Elkhorn



Table 4-3. Government Facilities: 2013

	Community Center	Public Library	Municipal Garage	Municipal Office and Other	Post Office	Senior Center	Other
Town							
Bloomfield	0	0	0	0	1	0	0
Darien	0	0	1	1	0	0	0
Delavan	0	0	1	2	0	0	0
East Troy	0	0	1	1	0	0	0
Geneva	0	0	2	2	0	0	0
Lafayette	0	0	1	1	0	0	0
La Grange	0	0	1	1	0	0	0
Linn	0	0	1	1	1	0	0
Lyons	0	0	1	1	2	0	0
Richmond	0	0	1	1	0	0	0
Sharon	0	0	1	1	0	0	0
Spring Prairie	0	0	1	1	0	0	0
Sugar Creek	0	0	1	1	0	0	0
Troy	0	0	1	1	0	0	0
Walworth	0	0	1	1	0	0	0
Whitewater	0	0	1	1	0	0	0
Village							
Bloomfield [2]	0	0	0	1	1	0	0
Darien	0	1	1	1	1	1	0
East Troy	0	1	2	1	1	0	0
Fontana-on-Geneva Lake	0	1	1	1	1	0	0
Genoa City [1]	0	1	1	1	1	0	0
Mukwonago [1]	0	0	0	0	0	0	0
Sharon	0	1	1	1	1	0	0
Walworth	0	1	1	1	1	0	0
Williams Bay [2]	0	1	1	2	1	0	0
City							
Burlington [1]	0	0	0	0	0	0	0
Delavan	0	1	2	1	1	0	1
Elkhorn	0	1	1	8	1	0	0
Lake Geneva	0	1	1	2	1	0	0
Whitewater [1]	0	1	1	4	1	0	0
Walworth County	0	11	28	41	14	1	1

Notes: 1. Municipality located in Walworth County and another county
2. The village was incorporated on August 19, 2011.

15. SCHOOLS

Within Walworth County, there were 57 schools serving kindergarten through high school and 4 post-secondary schools. Both Gateway Technical College and Upper Iowa University were located in the city of Elkhorn. The University of Wisconsin-Whitewater is located in the city of Whitewater, while George Williams College of Aurora University is located in the village of Williams Bay (Map 11).

Tibbets Elementary School in the Town of Sugar Creek



16. SPECIAL CARE FACILITIES - RESIDENTIAL

Special care facilities include various types of housing arrangements where residents receive care or supervision from trained personnel. Special care facilities include nursing homes, residential care apartment complexes (RCACs), community based residential facilities (CBRFs), and adult family homes (AFHs) (Map 12). There were 8 nursing homes in the county, 7 RCACs, 38 CBRFs, and 31 AFHs (Table 4-4).

In a RCAC, people live in independent dwelling units complete with a kitchen, a bathroom, and sleeping and living areas. The management team provides supportive services such as general housekeeping and transportation to access community services and recreational activities. Personal services are also provided and may include help with daily activities such as dressing, eating, bathing, and grooming. Finally nursing services are available to help with health monitoring, medication administration, and medication management. There are 7 RCACs in Walworth County. There was one in each of the cities of Delavan, Elkhorn, and Lake Geneva, one located in the town of Walworth, and one in each of the villages of East Troy, Walworth, and Williams Bay.

Fairhaven Retirement Community and Hearthstone Memory Care in the City of Whitewater



CBRFs and AFHs are similar in terms of the level of care provided. One significant difference between them is the number of residents served in the facility. An AFH can serve up to four adults. A CBRF serves five or more adults.

17. SPECIAL CARE FACILITIES – NONRESIDENTIAL

Nonresidential special care facilities include group day care centers and adult day care centers (Map 13). Group day care centers provide child care for nine or more children. Adult day care centers provide care to older adults who may live at home but need care during the day because the spouse or other primary care giver is not able to provide care.

There were 40 group day care centers located throughout the county primarily in more urban areas (Table 4-4). There are 3 adult day care centers in the county.

Table 4-4. Special Care Facilities: 2013

	Residential		Community		Group Day Care	Adult Day Care
	Nursing Home	Care	Based	Adult		
		Apartment Complex (RCAC)	Residential Facility (CBRF)	Family Home (AFH)		
Town						
Bloomfield	0	0	2	1	2	0
Darien	0	0	0	0	0	0
Delavan	0	0	3	2	0	0
East Troy	0	0	0	0	1	0
Geneva	0	0	6	1	3	0
Lafayette	0	0	0	1	0	0
La Grange	0	0	3	3	0	0
Linn	0	0	0	1	0	0
Lyons	0	0	1	1	0	0
Richmond	0	0	1	1	0	0
Sharon	0	0	0	0	0	0
Spring Prairie	0	0	0	0	0	0
Sugar Creek	0	0	1	0	1	0
Troy	0	0	0	1	0	0
Walworth	0	1	1	0	0	0
Whitewater	0	0	2	2	2	0
Village						
Bloomfield [2]	0		0	0	1	0
Darien	0	0	1	1	0	0
East Troy	1	1	0	0	4	0
Fontana-on-Geneva Lake	0	0	0	0	0	0
Genoa City [1]	0	0	2	1	1	0
Mukwonago [1]	0	0	0	0	0	0
Sharon	0	0	0	1	1	0
Walworth	1	1	1	1	2	0
Williams Bay	1	1	0	0	1	0
City						
Burlington [1]	0	0	0	0	0	0
Delavan	1	1	3	2	6	0
Elkhorn	2	1	3	3	5	2
Lake Geneva	1	1	3	1	4	0
Whitewater [1]	1	0	5	7	6	1
Walworth County	8	7	38	31	40	3

Source: Wisconsin Department of Health and Family Services

Notes: 1. Municipality located in Walworth County and another county
2. The village was incorporated on August 19, 2011.

18. HEALTH CARE FACILITIES

For the purpose of this plan, health care facilities are divided into two types: hospitals and health care centers. Health care centers provide sub-acute medical and include ambulatory surgery centers, and health care clinics are medical offices for a number of practitioners.

There were two hospitals in the county. Aurora Lakeland Medical Center is a full-service hospital serving the region with inpatient and outpatient care, ranging from diagnostics to the most advanced medicine. Mercy Walworth Hospital and Medical Center is a six-bed facility. Prior to becoming certified as a hospital in 2006, it was known as Mercy Walworth Medical Center.

There were 13 health care clinics located throughout the county. Aurora Health Care, which operates Aurora Lakeland Medical Center, operates health care clinics in the cities of Delavan, Elkhorn, and Lake Geneva and in the villages of East Troy and Walworth. Map 14 shows the location of health care facilities along with the service areas for the three emergency medical service (EMS) providers serving Walworth County.

Aurora Lakeland Medical Center in the City of Elkhorn



19. VULNERABLE HOUSING

Vulnerable housing, including campgrounds and mobile home parks, is described in Chapter 3.

20. AMERICAN RED CROSS SHELTERS

American Red Cross in Southeastern Wisconsin (49110) serves Walworth County along with Dodge, Kenosha, Milwaukee, Ozaukee, Racine, Washington, and Waukesha counties in southern Wisconsin and Price and Taylor counties in northern Wisconsin. Table 4-5 lists designated shelters available during an emergency; many of these are also classified as critical facilities.

Table 4-5. American Red Cross Shelters: 2013

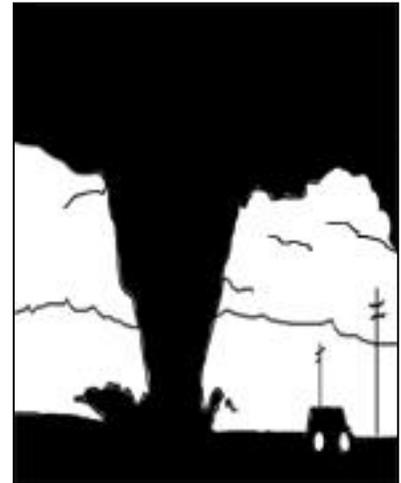
Facility Name	Address	Jurisdiction	Sleeping Capacity	Meal	Meal	Back-up Generator
				Preparation Capacity	Serving Capacity	
First Congregational United Church of Christ	715 Wisconsin St	City of Lake Geneva	0	0	250	No
Badger High School	220 South St	City of Lake Geneva	520	0	700	Yes
Big Foot High School	401 Devils Ln	Village of Walworth	156	216	216	Yes
Calvary Community Church	Hwy 50 and Harris Rd	Village of Williams Bay	0	0	0	No
Community Church of Fontana	275 Kinzie St	Village of Fontana-on-Geneva	0	0	250	No
Delavan United Methodist Church	213 South 2 nd St	City of Delavan	37	150	150	No
East Troy Bible Church	2660 North Street	Village of East Troy	112	0	0	No
Elkhorn Area High School	482 E Geneva St	City of Elkhorn	0	450	450	Yes
First Congregational Church of East Troy	2931 Union St	Village of East Troy	0	0	0	No
First English Lutheran Church	401 W Main St	City of Whitewater	52	120	120	No
First Evangelical Lutheran Church	415 Devendorf St	City of Elkhorn	22	50	100	No
First United Methodist Church	111 N Broad St	City of Elkhorn	0	110	110	No
Fontana Elementary School	450 S Main St	Village of Fontana-on-Geneva	0	120	100	No
Grace Evangelical Free Church	215 South Main St	Village of Walworth	0	175	175	No
Lyons Center School	1622 Mill Street	Town of Lyons	0	0	320	No
St. Benedict Catholic Church	137 Dewey Ave	Village of Fontana-on-Geneva	0	0	0	No
St. Patrick Parish School	534 Sunset Dr	City of Elkhorn	108	130	200	No
St. Patrick's Parish	1235 W Main St	City of Whitewater	0	200	0	No
St. Paul's Evangelical Lutheran Church	2665 North St	Village of East Troy	0	0	300	No
Tibbets Elementary School	N7850 USH 12	Town of Sugar Creek	0	0	200	No
Whitewater Assembly of God	1540 W Walworth Ave	City of Whitewater	24	0	0	No
Whitewater Middle School	401 S Elizabeth Ave	City of Whitewater	0	0	0	Yes
Williams Bay School	139 Congress St	Village of Williams Bay	0	200	120	No
Williams Bay United Church of Christ	46 Stam St	Village of Williams Bay	0	0	0	No

Source: American Red Cross

NATURAL HAZARDS ASSESSMENT

1. CHAPTER OVERVIEW

This chapter evaluates the natural hazards that have or could occur in the county. Initially, 14 hazards were identified. Because earthquakes and landslides pose such a low risk, they were dropped from future consideration. The remaining 12 hazards are described in detail. After describing the nature of the hazard, the frequency of occurrence is documented along with its effect on critical facilities, various population groups, and economic sectors. Estimates of economic loss are included for each of the natural hazards.



2. HAZARD IDENTIFICATION

As part of an initial screening process, the working group used the methodology developed by Wisconsin Emergency Management¹ to evaluate natural hazards in Walworth County to determine which warrant the most attention. For each hazard, the members used a group consensus process to assign a numeric value to the 10 factors listed in Table 5-1.

Table 5-1. Natural Hazard Assessment Criteria

Factor	Description
Historical Hazard Frequency	Frequency of past occurrences
Anticipated Hazard Probability	Probability of the hazard occurring again
Historical Health and Public Safety	Degree of past hazard events causing injuries, sickness, and/or deaths
Residential Damage	Degree of past hazard events causing damages to homes
Business Damage	Degree of past hazard events causing damages to businesses
Public Costs	Amount of local, state, and federal funds expended on past hazard recovery activities
Magnitude of Population at Risk	Amount of the area's population still vulnerable to injury, sickness, and/or death
Magnitude of Homes at Risk	Amount of homes still vulnerable to damage
Magnitude of Businesses at Risk	Amount of businesses still vulnerable to damage or interruption of business trade
Magnitude of Public Infrastructure at Risk	Amount of infrastructure that is susceptible to damages

Source: *Resource Guide to All Hazards Mitigation Planning In Wisconsin*, 2003. Wisconsin Emergency Management

Table 5-2 shows the results of that exercise. The three highest ranked natural hazards are winter storms, stormwater flooding, and thunderstorms. Given the distance to a known fault line, earthquakes were judged to be of little concern. In addition, given the topography and soils in the county, land failures, including subsidence and mass movement, were judged to be of little concern. Both of these were removed from further consideration in this plan.

The nature of the identified hazards are quite different (Table 5-3). Some of the hazards are characteristically localized occurrences, while others could potentially cover all of Walworth County and the surrounding region. Further,

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1.	Chapter Overview
2.	Hazard Identification
3.	History of Weather-Related Events
4.	Presidential Declarations
5.	Dam Failure
6.	Flooding
7.	Ice Shoves
8.	Dense Fog
9.	Tornadoes
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13.	Extreme Heat
14.	Extreme Cold
15.	Drought
16.	Wildland Fire
17.	Summary of Risk by Jurisdiction
18.	Summary of Damage Estimates

¹ *Resource Guide to All Hazards Mitigation Planning In Wisconsin*, 2003. Wisconsin Emergency Management

Table 5-2. Comparative Analysis of Natural Hazards; Walworth County: 2013

Natural Hazard	1	2	3	4	5	6	7	8	9	10	11
	Historical	Anticipated	Historical				Magnitude	Magnitude	Magnitude	Magnitude	
	Hazard	Hazard	Health and	Residential	Business	Public	Of	Of	Of	Of Public	
	Frequency	Probability	Public Safety	Damage	Damage	Costs	Population At Risk	Homes At Risk	Businesses At Risk	Infrastructure At Risk	RATING
	(1,2,3)	(1,2,3)	(1,2,3)	(1,2,3)	(1,2,3)	(1,2,3)	(1,2,3)	(1,2,3)	(1,2,3)	(1,2,3)	Total
Storms – snow **	3	3	2	2	2	3	3	2	2	3	25
Flooding – stormwater	3	3	2	2	2	3	2	2	2	3	24
Storms - thunderstorm	3	3	2	2	2	3	2	2	2	3	24
Storms – hail **	3	3	1	2	2	3	2	2	2	2	22
Tornado	3	3	2	2	2	3	1	1	1	2	20
Dense fog	3	3	2	1	1	1	1	1	1	1	15
Extreme temperature **	2	2	1	1	1	1	1	1	2	2	14
Drought	1	1	1	1	2	1	1	1	2	1	12
Flooding – floodplain	1	1	1	1	1	1	1	1	1	1	10
Ice shoves	1	1	1	1	1	1	1	1	1	1	10
Dam failure	1	1	1	1	1	1	1	1	1	1	10
Wildland fire	1	1	1	1	1	1	1	1	1	1	10

Notes: This matrix is based on a qualitative assessment and is intended to identify those hazards posing the greatest concern.

A low, medium, or high numerical rating of 1, 2, or 3, respectively, is assigned to each criterion and then the ratings for each hazard are totaled.

** The ratings for these hazards are based on occurrences in the region.

- Column 1 refers to the frequency of past occurrences.
- Column 2 refers to the probability of the hazard occurring again.
- Column 3 refers to the degree of past hazard events causing injuries, sickness, and/or deaths.
- Column 4 refers to the degree of past hazard events causing damages to homes.
- Column 5 refers to the degree of past hazard events causing damages to businesses.
- Column 6 refers to the amount of local, state, and federal funds expended on past hazard recovery activities.
- Column 7 refers to the amount of the area's population still vulnerable to injury, sickness, and/or death.
- Column 8 refers to the amount of homes still vulnerable to damage.
- Column 9 refers to the amount of businesses still vulnerable to damage or interruption of business trade.
- Column 10 refers to the amount of infrastructure that is susceptible to damages.
- Column 11 is the raw score for the hazard.

some hazards occur with little advance warning and others, such as riverine flooding, can be forecasted with some degree of accuracy several days in advance of the actual event.

In an effort to keep residents and local officials informed about potential events, the National Weather Service (NWS) issues, outlooks, watches, and warnings for most weather events. NWS mentions the possibility of a hazard in daily message entitled “Hazardous Weather Outlook” (HWO) that is disseminated to the media, posted on its web site, broadcast on NOAA Weather Radio All Hazards, and made available on various computer circuits. An outlook covers possible events seven days out. Confidence factor is about 30 percent for issuance. A message entitled “watch” for most weather hazards is generally issued hours to a couple days in advance of a possible event. Confidence factor is about 60 percent for issuance. It is disseminated to the media, posted on the NWS web site, is broadcast on NOAA Weather Radio All Hazards, and is made available on various computer circuits. A “warning” message for most weather hazards has a confidence factor of 80 to 100 percent. It is disseminated to the media, posted on the NWS web site, broadcast on NOAA Weather Radio All Hazards, and made available on various computer circuits. Table 5-3 also lists the recurrence interval for the various natural hazards. Some hazards have the potential to occur often, while others occur rather infrequently.

Table 5-3. Nature of Natural Hazards; Walworth County

Natural Hazard	Extent	Amount of Advance Notification			Recurrence
		Outlook	Watch	Warning	Interval (Years)
Dam Failure	Along affected stream corridor	None to weeks	None to weeks	None to 30 to 90 minutes	N/A [1]
Flooding – Riverine	Along affected stream corridor	Several days	Hours to 1 day	30 to 90 minutes	100 [2]
Flooding – Stormwater	Poorly drained areas	Several days	Hours	10 to 90 minutes	100 [2]
Ice Shove	Large lakes, such as Lake Geneva	Several days	Hours	10 to 90 minutes	5
Dense Fog	Small pockets in low-lying areas to countywide	Several days	-	30 minutes to hours	1
Tornado	Generally a linear path up to several miles long	Several days	Hours	5 to 60 minutes	2.7
Hail Storm	1 square mile and larger	Several days	Hours	5 to 60 minutes	1
Thunderstorm Winds	10 square miles and larger	Several days	Hours	5 to 60 minutes	1
High Winds (Non-thunderstorm)	10 square miles and larger	Several days	12 to 48 hours	30 minutes to 24 hours	1
Snow Storm	Countywide	Several days	12 to 48 hours	1 to 40 hours	1
Extreme Heat	Countywide	Several days	12 to 48 hours	1 to 24 hours	2
Extreme Cold	Countywide	Several days	12 to 48 hours	1 to 24 hours	1
Drought - short-lived	Countywide	Several months	-	-	10
Drought - long-lived	Countywide	Year	-	-	75
Wildland Fire - 25 acres or more	25 to 160 acres	None to hours	Hours	Hours	100
Wildland Fire - less than 25 acres	Less than 25 acres	None to hours	Hours	Hours	10

Notes: 1. It is not possible to define a recurrence interval for this type of hazard
2. Based on a 100-year flood

Table 5-4 lists each of the hazards and identifies whether they will have an impact on the critical facilities identified in this plan, noncritical buildings and structures, special populations, the general population, and broadly defined economic sectors.

Table 5-4. General Effects of Natural Hazards on Facilities, Population Groups, and Economic Sectors; Walworth County: 2013

Critical Facility	Dam Failure	Flooding - Riverine	Flooding - Stormwater	Ice Shoves	Dense Fog	Tornado	Hail Storms	Thunderstorm	Snow Storms	Extreme Temperature	Drought	Wildland Fire
Infrastructure	Bridge	D	D	-	-	-	-	-	-	-	-	-
	Dam	D	D	-	-	-	-	-	-	-	-	-
	Communication Tower	-	-	-	-	D	-	-	-	-	-	-
	Electric Facility – Power Plant	-	-	-	-	D	-	-	-	-	-	-
	Electric Facility – Substation	-	-	-	-	D	-	-	-	-	-	-
	Natural Gas Facility	-	-	-	-	D	-	-	-	-	-	-
	Petroleum Pipeline	-	-	-	-	-	-	-	-	-	-	-
	Public-Use Airport	-	-	-	-	D	D	I	I	D	-	-
	Telephone Facility	-	-	-	-	-	D	-	-	-	-	-
	Utility Offices/Yard	-	-	-	-	-	D	-	-	-	-	-
	Water Facility [1]	-	-	-	-	-	D	-	-	-	I	-
	Wastewater Facility	-	-	-	-	-	D	-	-	-	-	-
Government Facility	Community Center	-	-	-	-	D	D	-	-	-	-	-
	Library	-	-	-	-	D	D	-	-	-	-	-
	Municipal Garage	-	-	-	-	D	D	-	-	-	-	-
	Municipal Office and Other	-	-	-	-	D	D	-	-	-	-	-
	Post Office	-	-	-	-	D	D	-	-	-	-	-
	Senior Center	-	-	-	-	D	D	-	-	-	-	-
Health Care Facility	Health Care Clinic	-	-	-	-	D	D	-	-	-	-	-
	Hospital	-	-	-	-	D	D	-	-	-	-	-
Public Safety Facility	EMS Facility	-	-	-	-	D	D	-	-	-	-	-
	Fire Station	-	-	-	-	D	D	-	-	-	-	-
	National Guard Facility	-	-	-	-	D	D	-	-	-	-	-
	Police Station	-	-	-	-	D	D	-	-	-	-	-
School	K-12	-	-	-	-	D	D	-	-	-	-	-
	Secondary	-	-	-	-	D	D	-	-	-	-	-
Special Care Facility - Residential	Adult Family Home	-	-	-	-	D	D	-	-	-	-	-
	Community Based Residential Facility	-	-	-	-	D	D	-	-	-	-	-
	Nursing Home	-	-	-	-	D	D	-	-	-	-	-
	Residential Care Apartment Complex	-	-	-	-	D	D	-	-	-	-	-
Special Care Facility - Nonresidential	Adult Day Care	-	-	-	-	D	D	-	-	-	-	-
	Group Day Care	-	-	-	-	D	D	-	-	-	-	-
Vulnerable Housing	Mobile Home Park	-	-	-	-	D	D	-	-	-	-	-
	Campground	-	-	-	-	D	D	-	-	-	-	-
Population Groups												
General Public	-	-	-	-	-	I	-	-	-	I	I	-
Elderly and People with Disabilities	-	-	-	-	-	-	-	-	-	D	-	-
Homeless	-	-	-	-	-	-	-	D	D	D	-	-
Economic Sector												
Agriculture	-	D	D	-	-	-	D	I	-	I	D	-
Commercial	-	-	-	-	-	-	-	-	-	-	I	-
Industrial	-	-	-	-	-	-	-	-	-	-	-	-
Transportation	-	-	-	I	-	-	-	-	-	-	-	-

Notes: 1. Types of facilities included in this category include wells, towers, and treatment plants

Key: "-" No or minimal effect; "I" – Indirect Effect; "D" – Direct Effect

3. HISTORY OF WEATHER-RELATED EVENTS

Table 5-5 presents a summary of documented weather-related events that have affected Walworth County since 1950 (See Appendix G for a list of all events). Strong winds associated with a thunderstorm occur with the highest frequency—on average almost 3.5 half times a year. Occurring just over once per year, hail is the second most common weather-related event. Flooding, lightning, severe winter weather, and tornadoes have about the same low recurrence interval.

Out of all of the weather-related events, extreme cold is the only event resulting in a direct fatality. Wind events caused 22 injuries. Lightning caused 17 injuries. Although tornadoes can cause dramatic localized damage, only three injuries over the 62-year period in Walworth County have been reported.

Flooding over the years has caused by far the most damage to property and crops (\$38.2 million). At \$8.4 million, wind events caused the second highest amount of economic impact. Tornadoes caused \$5.8 million in damage. The damage caused by all of the remaining weather events, totaled \$5.0 million.

Table 5-5. Summary of Weather-Related Events; Walworth County: 1950 through October 2012

Type of Event	Number Of Events	Direct Deaths	Direct Injuries	Property Damage	Crop Damage
Drought	14	0	0	0	\$4,500,000
Heat	34	0	0	0	0
Extreme Cold	20	2	0	\$22,000	0
Flood	22	0	4	\$4,631,000	\$33,550,000
Dense Fog	67	0	0	0	0
Funnel Cloud	8	0	0	0	0
Hail	70	0	0	0	\$2,000
Heavy Rain	4	0	0	\$4,000	0
Lightning	23	0	17	\$487,000	0
Tornado	25	0	3	\$5,733,000	\$70,000
Winds, High	8	0	1	\$668,000	0
Winds, Strong	34	0	0	\$824,000	0
Winds, Thunderstorm	264	0	21	\$6,759,000	\$110,000
Winter Storms	104	0	5	\$21,000	0
Total	697	2	51	\$19,149,000	\$38,232,000

Source: National Climatic Data Center database accessed on November 9, 2012
<http://www.ncdc.noaa.gov/stormevents/>

See Appendix G for a complete listing of weather events during the reporting period

4. PRESIDENTIAL DECLARATIONS

Since 1965, there have been 33 major disaster declarations issued for Wisconsin, 7 emergency declarations, and no fire management assistance declarations. Walworth County has been included in three disaster declarations and three emergency declarations (Table 5-6).

Major Disaster Declaration A major disaster declaration was issued for Walworth County in 2000, 2004, and 2008 (Table 5-6). Both individual assistance and public assistance grants were made to help local communities respond to severe storms and flooding.

Emergency Declaration In 2005, an emergency declaration was issued for all 72 counties in the state as part of the nationwide response to Hurricane Katrina. In 2001, Walworth County was one of 21 counties covered by an emergency declaration for a severe winter storm. In 2008, there was an emergency declaration issued for 11 counties in the state for the snow and blowing snow.

Fire Management Assistance Declaration No fire management assistance declarations have been issued for Walworth County (and it is unlikely that one would be issued given the nature of that category of declaration).

Table 5-6. Presidential Disaster Declarations, Walworth County: 1965 – 2013

Major Disaster	Year	Description	Number of Counties By Type of Assistance	
			Public	Individual
FEMA-1768-DR	2008	Severe storms, tornadoes, flooding	28	29
FEMA-1526-DR	2004	Severe storms, icing, wind, flooding	17	27
FEMA-1332-DR	2000	Severe storms, tornadoes, flooding	24	15
Emergency				
FEMA-3285-EM	2008	Snow	11	0
FEMA-3249-EM	2005	Hurricane Katrina evacuation	72	0
FEMA-3153-EM	2001	Severe Winter Storm	21	0
Fire Management Assistance				
None	-	-	-	-

Source: Federal Emergency Management Agency (<http://www.fema.gov/news/disasters.fema> accessed November 9, 2012) and Wisconsin Emergency Management

Denied Applications for Presidential Disaster Declaration On one occasion, the county's application for a presidential disaster declaration was denied (Table 5-7).

Table 5-7. Denied Applications for Presidential Disaster Declarations, Walworth County: 1990 – 2013

Year	Number of	
	Counties Included	Description
1996	14	Flooding, severe storms

Source: Wisconsin Emergency Management

5. DAM FAILURE

PROFILE

A dam failure involves the uncontrolled release of impounded water when the structure fails. A dam can fail because of excessive rainfall or melting snow, poor construction or maintenance, flood damage, earthquake activity, weakening caused by burrowing animals, vegetation, surface erosion, vandalism, or a combination of factors. When a dam does fail, the impounded water flows unimpeded and, depending on what development is located downstream, can potentially cause significant property damage and loss of life.

HISTORY OF PAST OCCURRENCES

According to the Wisconsin Department of Natural Resources, there are about 3,700 dams in the state. Between 1990 and 1995, 75 dam failures were documented, many of which resulting from the flooding that occurred statewide in 1993. There are no documented dam failures in Walworth County.

VULNERABILITY ASSESSMENT

According to the Department of Natural Resources, there were 50 known dams in the county. Over the years, nine of the dams were removed or fell into disrepair and do not currently impound water (Table 5-8). Of the existing dams that remain intact today, 18 are classified as large and 23 are small.

Table 5-8. Abandoned Dams: 2012

ID	Official Name	Jurisdiction
-	Vienna Dam	Spring Prairie, Town
-	Vaughn's Dam	Spring Prairie, Town
-	Lyons Dam	Lyons, Town
-	Spring Valley Dam	Lyons, Town
-	Genoa Dam	Genoa City
-	Haskins Dam	Lake Geneva
-	Fontana Dam	Fontana-on-Geneva Lake
-	Tildens Dam	Delavan, City
1190	Delevan #2 -Grist Mill	Delavan, City

Source: Wisconsin Department of Natural Resources

A failure of a small dam would likely not cause damage. Given the amount of water impounded behind a large dam, dam failure is a concern in varying degrees. Dams are also classified based on the threat to downstream property if a dam failed as specified in Section 333.06, Wis. Admin. Code. A dam rated as a high hazard indicates that a failure would most probably result in the loss of life. A significant hazard indicates that a dam failure could result in appreciable property damage. A low hazard rating is assigned to dams where a dam failure would result in only minimal property damage and where loss of life is unlikely. Of the 18 existing large dams, 3 are classified as significant and 3 as high (Table 5-8). The remaining dams are either unclassified or classified as low.

Section NR 333.07(3), Wisconsin Administrative Code, mandates that owners of a large dam or a dam that poses a threat to life or property must prepare an emergency action plan (EAP). An EAP is a document that identifies potential emergency conditions at a dam and procedures to be followed to eliminate the loss of life and minimize downstream property damage. When drafting an EAP,

the dam operator must consult with the local units of government that lie downstream of the dam as well as the county emergency management department.

Walworth County adopted an EAP for the Lake Beulah dam in 2008. The plan indicates that there are residences immediately downstream of the dam and that they would be inundated should the dam fail. No critical facilities, such as hospitals, rescue and relief facilities, water supply facilities, hazardous waste facilities, or bridges are located in the hazard area. If the dam were to fail, County Highway J would be closed.

According to the DNR inventory, an EAP has not been prepared for 13 of the 18 existing large dams (Table 5-9).

Based on historical data and the lack of multiple large, high-risk dams in the county, it is unlikely that a catastrophic dam failure, resulting in the loss of life and property, will occur in Walworth County in the future.

Table 5-9. Active Large Dams: 2012

ID	Official Name	Jurisdiction	Ownership	Stream Name	Date of Last Inspection	Hazard Rating Code [1]	Status of Emergency Action Plan
84	Lake Geneva	Geneva, town	Private	White River	8/21/2007	Low	2011
212	Lauderdale Lakes	La Grange, town	Private	Hone Creek	7/25/2008	Significant	Not done
213	Old Paper Mill	Whitewater, city	City	Whitewater Creek	3/17/2003	High	Not done
214	Old Paper Mill	Whitewater, city	City	Whitewater Creek	1/15/2008	High	Not done
321	Delavan	Delavan, city	City	Turtle Creek	1/28/2005	Low	Not done
322	Whitewater Lake	Whitewater, town	County	Whitewater Creek	1/14/2008	Low	Not done
323	Honey Lake	Spring Prairie, town	Private	Sugar Creek	10/12/2007	Low	2012
451	Grethe	Bloomfield, town	Private	Bloomfield Creek	6/26/2000	Low	Not done
699	Lake Beulah	East Troy, town	Joint [2]	Lake Beulah outlet	11/12/2007	High	May 2008
701	Pabst	Troy, town	Private	Baker Creek	8/21/2007	Low	Not done
702	Borg	Delavan, town	Town	Turtle Creek	8/21/2007	Low	2004
768	Val Sauer	Bloomfield, town	Private	Spring Valley Creek	4/1/1997	Low	Not done
856	Rice Lake	Whitewater, town	DNR	Whitewater Creek	1/14/2008	High	Not done
986	Kettle Moraine Estates Corp.	Troy, town	Private	Lulu Lake	4/1/1997	Low	Not done
997	Droster, Elmer	Lafayette, town	Private	Trib. Sugar Creek	7/20/2008	Low	2006
1234	Turtle Valley Central Phase	Richmond, town	DNR	Sugar Creek	2/16/2005	Low	Not done
1236	Turtle Valley Phase III	Sugar Creek, town	DNR	Unnamed	2/16/2005	Low	Not done
12450	Morrissey	Darien, town	Private	Turtle Creek	7/19/2008	Low	Not done

Source: Wisconsin Department of Natural Resources, data accessed September 2008

Key: 1. High - loss of life likely should dam fail; Significant - significant property damage is likely; Low - neither loss of life or property will occur
2. Joint ownership involving Walworth County, lake district, and private individuals

Effects on Facilities – As previously mentioned, there are no critical facilities downstream of the Beulah Lake dam that would be affected if the dam were to fail. In terms of the other dams, much of the released waters resulting from a failure would be contained within the 100-year floodplain below the dam failure. Except for wastewater facilities, there are no critical facilities in the 100-year floodplain.

Effects on Population Groups – A dam failure would not disproportionately affect the elderly, people with disabilities, or the homeless.

Effects on Economic Sectors – Although a dam failure could damage individual structures, it likely would not affect the overall economy of the area or any particular economic sector.

Effects on New Development – Communities have the opportunity through the land division process to ensure that new development does not occur within defined dam inundation areas.

6. FLOODING

PROFILE

Riverine flooding occurs when a stream, lake, or other body of water overflows its banks onto normally dry land. Stormwater flooding occurs when stormwater pools in normally dry depressions in the land. Flooding can develop slowly over a period of days, but can also occur within a few hours in some watersheds with narrow stream channels.

HISTORY OF PAST OCCURRENCES

Documentation of historic flooding is available from the following sources:

- ◆ presidential disaster declarations
- ◆ records from the Federal Flood Insurance Program
- ◆ anecdotal information

Presidential Disaster Declarations – Since 1965, there have been six presidential declarations in Walworth County; three of these were flood related (Table 5-6). Presidential disaster declarations were issued in 2000, 2004, and 2008.

Historical National Flood Insurance Program Claims In 1968, Congress adopted the National Flood Insurance Act, which among other things created the National Flood Insurance Program (NFIP). This program allows property owners to purchase flood insurance if their community participates in the program. In fact, certain homeowners must purchase flood insurance when their property is located in the regulatory floodplain and their mortgage is meets certain criteria. Property owners in the Village of Genoa City and Village of Williams Bay are not eligible to purchase flood insurance even if they want to do so, because the municipality has chosen to not participate in NFIP.

Table 5-10 summarizes the number and type of claims made by jurisdiction from January 1, 1978 through December 31, 2013. On a countywide basis, payments to policyholders totaled \$43,511.752 during this period.

Repetitive Loss Properties A property for which two or more National Flood Insurance Program losses of at least \$1,000 each have been paid within any 10-year rolling period since 1978 is referred to as a repetitive loss property. According to the National Flood Insurance Program, there were two repetitive loss properties in the county during 2013, both of which were single-family residences.

Major Floods All streams and waterbodies may experience flooding at any time during the year. However, flooding is most common in early spring when the ground is frozen or saturated with water and rains and/or spring melt exceeds the capacity of the ground surface to absorb the additional water.

Within the county, the majority of the flooding occurs during the spring on Honey Creek, Sugar Creek, Turtle Creek, and White River. The watersheds of the other streams are comparatively small and flooding is characteristically minor. When floods do occur, they are generally during the warmer months of the year.

Table 5-10. National Flood Insurance Program Claims by Jurisdiction: 1978 through December 2013

Jurisdiction	Total Losses [3]	Closed Losses [4]	Open Losses [5]	Unpaid Losses [6]	Total Payments [7]
Village	-	-	-	-	-
Bloomfield [2]					
Darien	-	-	-	-	-
East Troy	-	-	-	-	-
Fontana-on-Geneva Lake	-	-	-	-	-
Genoa City [1]	-	-	-	-	-
Mukwonago [1]	-	-	-	-	-
Sharon	-	-	-	-	-
Walworth	-	-	-	-	-
Williams Bay	-	-	-	-	-
City					
Burlington [1]	8	3	0	5	\$4,962.52
Delavan	1	0	0	1	\$0
Elkhorn	-	-	-	-	-
Lake Geneva	3	0	0	3	\$0
Whitewater [1]	-	-	-	-	-
Walworth County, Unincorporated	14	8	0	6	\$43,511.75

Source: National Flood Insurance Program, Federal Emergency Management Agency (<http://bsa.nfipstat.com/reports/1040.htm#55> site access on February 2, 2014)

Notes: 1. Municipality located in Walworth County and another county
 2. The Village incorporated on December 20, 2011
 3. All losses submitted regardless of status
 4. Losses that have been paid
 5. Losses that have not been paid in full
 6. Losses that have been closed without payment
 7. Total amount paid on losses

There are six historical gaging stations within the county: White River (#05-5453), a tributary of the White River (#05-5452), Sugar Creek (#05-5451), North Branch Nippersink Creek (#05-5481.5), and two on Whitewater Creek (#05-4265 and #05-4270). The drainage areas of the latter five are quite small and therefore flooding conditions at the gages would not have to be indicative of general flooding conditions within the county. The White River gage is located near the city of Burlington and was in operated from 1959 to 1983. Major floods were recorded in 1960, 1966, 1967, and 1969. The expected frequency for each of these floods was set at approximately once every 10 years.

Within the City of Delavan the majority of major floods on Turtle Creek and Swan Creek have occurred in the early spring and are usually the result of spring rains and/or snowmelt. A damaging flood occurred in the city of Delavan

Without appropriate mitigation measures, the damage caused by a 100-year flood would dramatically exceed the damage caused by past floods.

in 1973. At that time, heavy rainfalls and a debris-restricted control structure caused local flooding. Although no discharge measurements are available for this flood event, it has an estimated recurrence interval of approximately 65 years. No other flooding information was available for the city.

The majority of major floods on Honey Creek within the village of East Troy have occurred in the early spring and is usually the result of spring rains and/or snowmelt. Floods in the Honey Creek basin are characterized by high peak flows, with relatively small volumes. The majority of major floods in the city of Lake Geneva have occurred on the White River in the early spring. Historic lake elevations have been recorded since 1894 for Lake Geneva; high water elevations occurred in 1908 (865.1 feet) and in 1938 (864.9 feet). These elevations indicate floods with approximate recurrence intervals of 90 and 50 years respectively.

The majority of major floods on Whitewater Creek and Spring Brook in the city of Whitewater have occurred in the early spring and are usually the result of spring rains and/or snowmelt. Floods in the Whitewater Basin are characterized by high peak flows, with relatively small volumes. Obstructions to flood flow from natural and manmade features impede the natural flow of water and in some cases causes a backwater effect. Natural obstructions include trees and other vegetation growing along stream banks and floodway areas. Manmade obstructions include numerous dams and bridges.

Stormwater Flooding Although flooding from streams and rivers can be quite dramatic, flooding from ponding stormwater can also be significant. In 2008, flooding resulting from spring rainfall occurred in the village of Walworth in Oak Knolls subdivision. In this case, flooding was localized around the development's stormwater detention basin as stormwater entered the detention pond but was not able to leave as designed. Local officials are working with an engineering firm and others to develop a range of solutions to correct the situation. As of this date, a preferred alternative has not been selected.

Road Closures Due to Flooding – 2007 and 2008 Periodically, flood water encroaches on major roads and in some cases requires transportation officials to close them to vehicular traffic. In August of 2007, STH 11 between Delavan and STH 14/89 was closed for approximately five days. In 2008, the county highway department around the 5th of June closed CTH ES from STH 12 and 67 (Abell's Corners) to CTH D due to water over the road just east of Cobb Road. CTH ES was closed for approximately 24 hours. That portion of STH 11 that was closed in 2007 was again closed in 2008 for approximately 36 hours. The highway department signed for "high water" and slowed traffic at CTH F and STH 11 for 4 days. Townline Road, near Booth Lake, was closed for numerous days in 2008.

VULNERABILITY ASSESSMENT – 2008

Effects on Facilities – The consultant team identified 345 buildings within the 100-year floodplain in 2008 (Table 5-11). Of all of the municipalities in the county, the towns of Bloomfield and Lyons had the highest number of buildings in the 100-year floodplain. The towns of Richmond and Walworth and the villages of Sharon and Walworth do not have any buildings within the 100-year floodplain. In addition, those portions of the village of Mukwonago and the city of Burlington within Walworth County do not have any buildings within the 100-year floodplain. In terms of damage from a 100-year flood, the town of Darien is expected to experience the most, followed by town of Delavan. With the

A countywide 100-year flood could potentially cause more than \$21 million in damage to buildings.

exception of wastewater treatment facilities and bridges, there are no critical facilities in the 100-year floodplain.

Table 5-11. Buildings in 100-Year Floodplain and Estimated Damage: 2008

Jurisdiction	Number of Buildings by Percent Damaged			Total Buildings	Market Value of Structures	100-Year Flood Damage
	<10%	10-20%	>20%			
Town						
Bloomfield	0	56	7	63	7,924,900	1,541,975
Darien	0	7	1	8	27,377,300	7,236,311
Delavan	0	37	16	53	10,174,900	2,285,360
East Troy	0	4	2	6	1,097,500	233,723
Geneva	0	18	0	18	3,890,600	716,660
Lafayette	0	10	0	10	5,994,000	1,181,265
La Grange	0	35	7	42	10,126,600	2,058,278
Linn	0	5	2	7	8,246,700	2,303,990
Lyons	0	50	13	63	6,488,200	1,615,059
Richmond	0	0	0	0	0	0
Sharon	0	5	0	5	631,300	116,225
Spring Prairie	0	8	0	8	811,800	148,630
Sugar Creek	0	4	1	5	613,400	116,538
Troy	0	2	0	2	265,900	53,150
Walworth	0	0	0	0	0	0
Whitewater	0	1	0	1	258,600	41,280
Village						
Darien	0	2	0	2	132,000	26,400
Bloomfield	[3]	[3]	[3]	[3]	[3]	[3]
East Troy	0	4	0	4	558,100	96,505
Fontana-on-Geneva Lake	0	13	1	14	2,764,900	551,855
Genoa City [1]	-	-	-	-	-	-
Mukwonago [1,2]	0	0	0	0	0	0
Sharon [2]	0	0	0	0	0	0
Walworth [2]	0	0	0	0	0	0
Williams Bay	-	-	-	-	-	-
City						
Burlington [1,2]	0	0	0	0	0	0
Delavan	0	1	1	2	261,100	42,661
Elkhorn	0	1	0	1	163,600	24,540
Lake Geneva	0	6	1	7	4,229,400	847,516
Whitewater [1]	0	24	0	24	2,511,800	445,485
Walworth County	0	32	2	34	\$7,165,900	\$21,683,406

Source: Civi Tek Consulting and Planning and Design Institute (PDI)

Notes: 1. Municipality located in Walworth County and another county; data just for Walworth County
2. Municipality does not contain any special flood hazard areas
3. The village incorporated on December 20, 2011, after this analysis was conducted

Effects on Population Groups – There are no population groups that are especially vulnerable to flooding except to the extent older homes, which were built prior to floodplain regulations, are occupied by lower income residents.

Effects on Economic Sectors – While flooding can impact a number of economic sectors, the agricultural sector is the most vulnerable. Aside from damaging farm buildings, flooding can destroy crops and reduce crop yields for surviving crops. In addition, harvesting crops on wet soils causes soil compaction that reduces crop yields in subsequent years. Heavy rains, which are often associated with flooding, cause a considerable amount of soil erosion on unprotected soils.

Damages sustained by businesses in the county are primarily a direct reflection of the agricultural production losses. The effects of the agricultural base extend throughout the county. Farming supports a variety of farm- (e.g., implement dealers, feed stores, granaries) and non-farm related (e.g., grocery stores, hardware stores) businesses.

Other Effects – During periods of flooding, no-wake boating restrictions are imposed which limit recreational uses, but are needed to protect shorelines from erosion. Also, as previously mentioned, road closures do occur and in some cases cause a significant impediment to the flow of traffic within and through the county.

Effects on New Development – All new development in Walworth County, except in the villages of Genoa City and Williams Bay, is subject to local floodplain regulations. Therefore, all new development in the regulated floodplain will meet or exceed adopted development standards, which are designed to afford a reasonable level of protection from flood waters. In addition, communities have the opportunity through the subdivision review process to ensure that new projects are not susceptible to flooding that may result from the ponding of storm water.

ESTIMATED DAMAGE

Using the methodology described in Appendix H, it is estimated that if 100-year flood levels occurred countywide during the same time period, flood damage to buildings could potentially exceed \$21.6 million. It should be noted however, that flood magnitudes are generally not uniform across different watersheds and that it would be a rare occurrence for all water bodies in the county to experience a 100-year flood from the same event.

VULNERABILITY ASSESSMENT – 2007

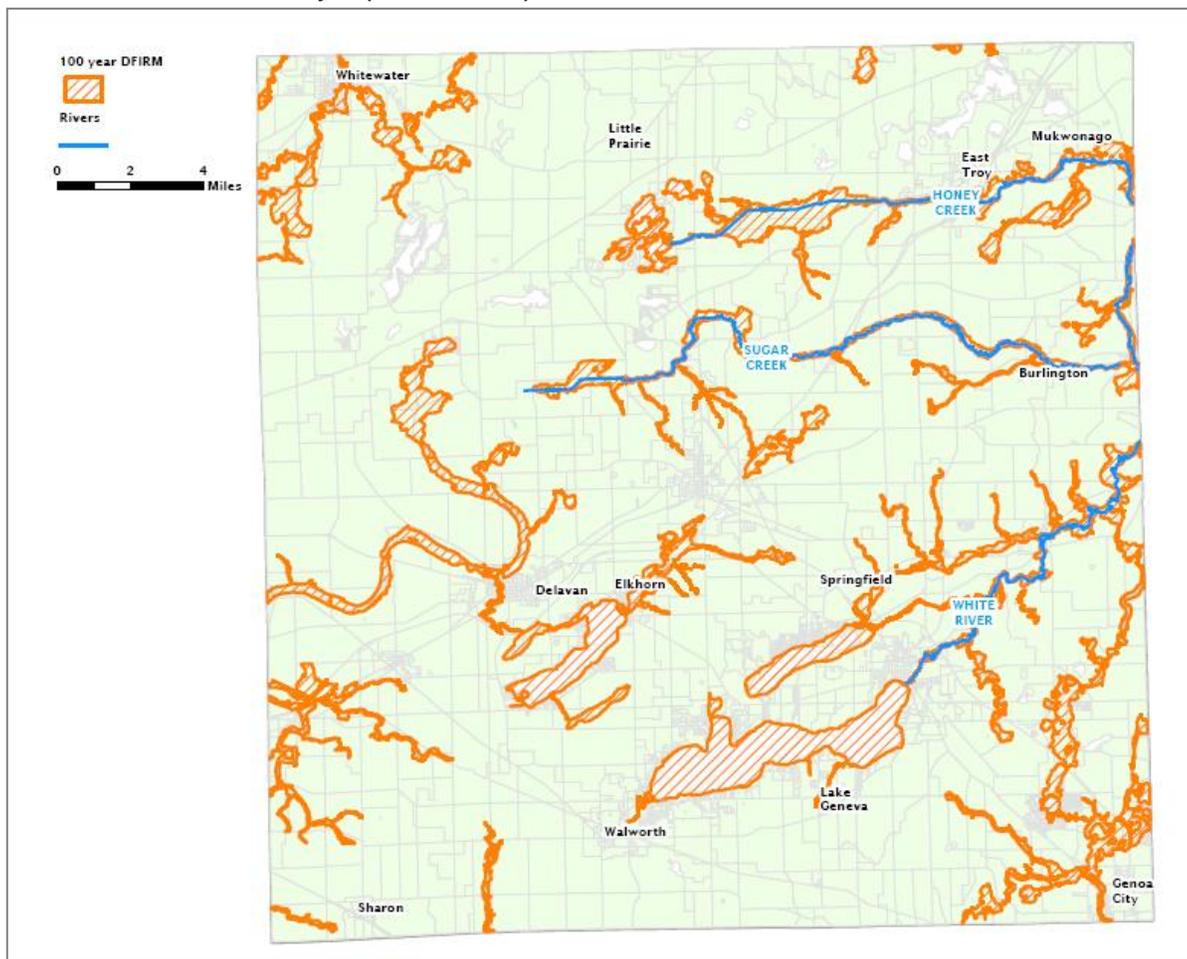
Flood analysis for Walworth County was performed using HAZUS-MH MR3 released in July 2007. The bundled aggregated general building stock was updated to Dun & Bradstreet 2006. Building valuations were updated to R.S. Means 2006. Building counts based on census housing unit counts are available for RES1 (single-family dwellings) and RES2 (manufactured housing) instead of calculated building counts.

The site specific inventory (specifically schools, hospitals, emergency operation centers, fire stations and police stations) was updated using the best available statewide information.

HAZUS-MH was used to generate the flood depth grid for a 100-year return period calculated by clipping the USGS 30m DEM to the DFIRM boundary. Exhibit 5-1 depicts the flood boundary from the HAZUS-MH analysis.

The majority of damages due to flooding occur along the White River, Honey Creek, and Sugar Creek.

Exhibit 5-1. HAZUS-MH Analysis (100-Year Flood): 2007



Aggregate Loss Analysis – HAZUS-MH was used to estimate the damages for a 100-year flood event in Walworth County. An estimated 285 buildings will be damaged totaling \$120 million in building losses and \$232 million in total economic losses. The total estimated number of damaged buildings, total building losses, and estimated total economic losses are shown in Table 5-12.

HAZUS-MH estimates 59 census blocks with losses exceeding \$1 million. The distribution of losses is shown in Exhibit 5-2.

HAZUS-MH aggregate loss analysis is evenly distributed across a census block. Census blocks of concern should be reviewed in more detail to determine the actual percentage of facilities that fall within the flood hazard areas. The aggregate losses reported in this study may be overstated.

Table 5-12. Economic Loss for a 100-Year Flood: 2007

General Occupancy	Estimated Total Buildings	Total Damaged Buildings	Total Building Exposure X 1000	Total Economic Loss X 1000	Total Building Loss X 1000
Agricultural	1	0	\$65,060	\$4,213	\$1,439
Commercial	248	0	\$1,174,043	\$43,263	\$13,965
Education	2	0	\$143,928	\$1,351	\$533
Government	6	0	\$53,757	\$1,447	\$371
Industrial	83	0	\$650,589	\$37,424	\$10,270
Religious/Non-Profit	14	0	\$122,661	\$4,069	\$1,282
Residential	35,387	285	\$7,094,257	\$140,750	\$92,150
Total	35,741	285	\$9,304,295	\$232,517	\$120,010

The reported building counts should be interpreted as degrees of loss rather than as exact numbers of buildings exposed to flooding. These numbers were derived from aggregate building inventories which are assumed to be dispersed evenly across census blocks. HAZUS-MH requires that a predetermined amount of square footage of a typical building sustain damage in order to produce a damaged building count. If only a minimal amount of damage to buildings is predicted, it is possible to see zero damaged building counts while also seeing economic losses.

Exhibit 5-2. Economic Loss for a 100-Year Flood by Census District: 2007

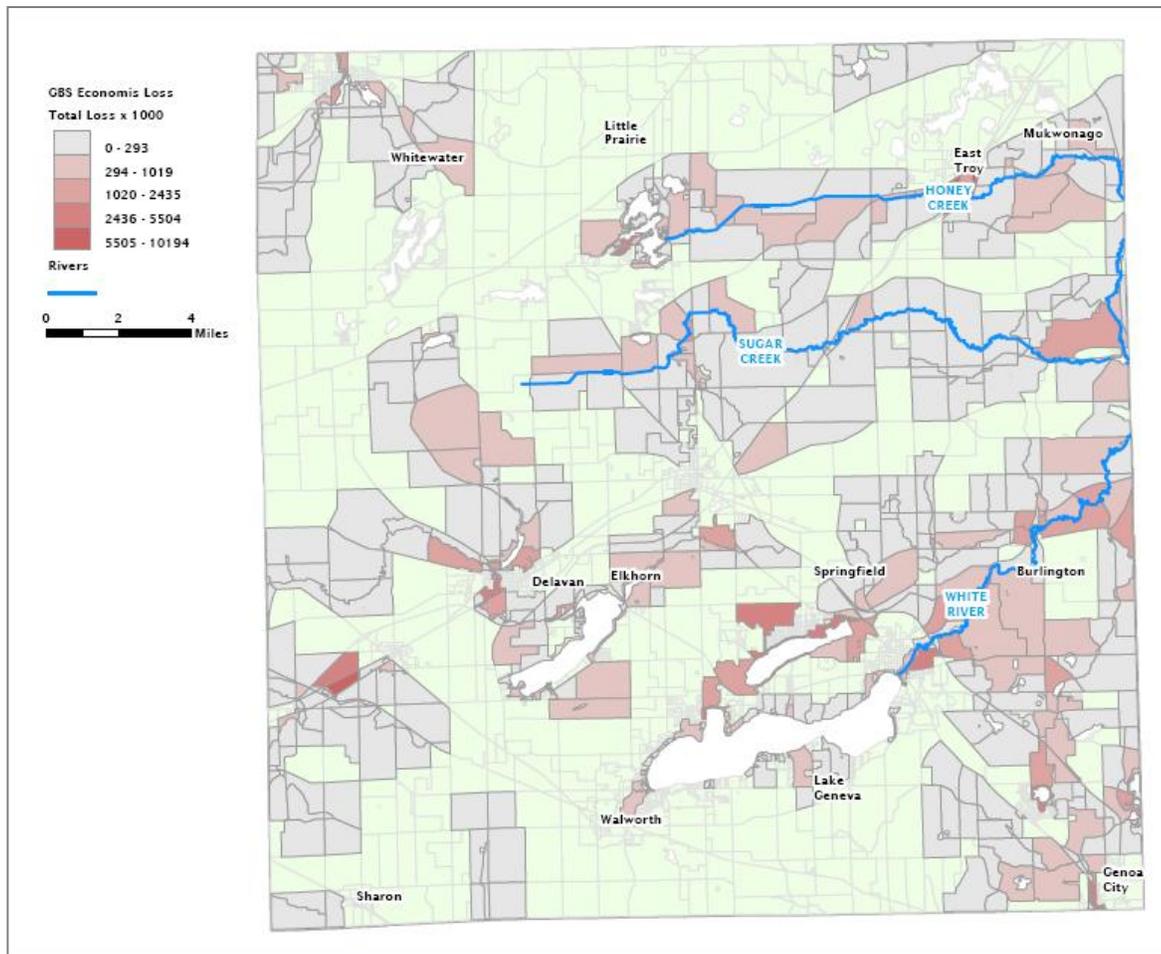


Exhibit 5-3 shows census blocks overlaid with the flood boundary and orthophoto of East Troy. Census Block 551270001006021 has an estimated building loss of \$3.4 million with a combined replacement cost of \$10 million. However, the orthophoto shows that the majority of the buildings in this census block lie outside of the floodplain boundary.

Exhibit 5-3. Flood Damage Exposure in East Troy: 2007

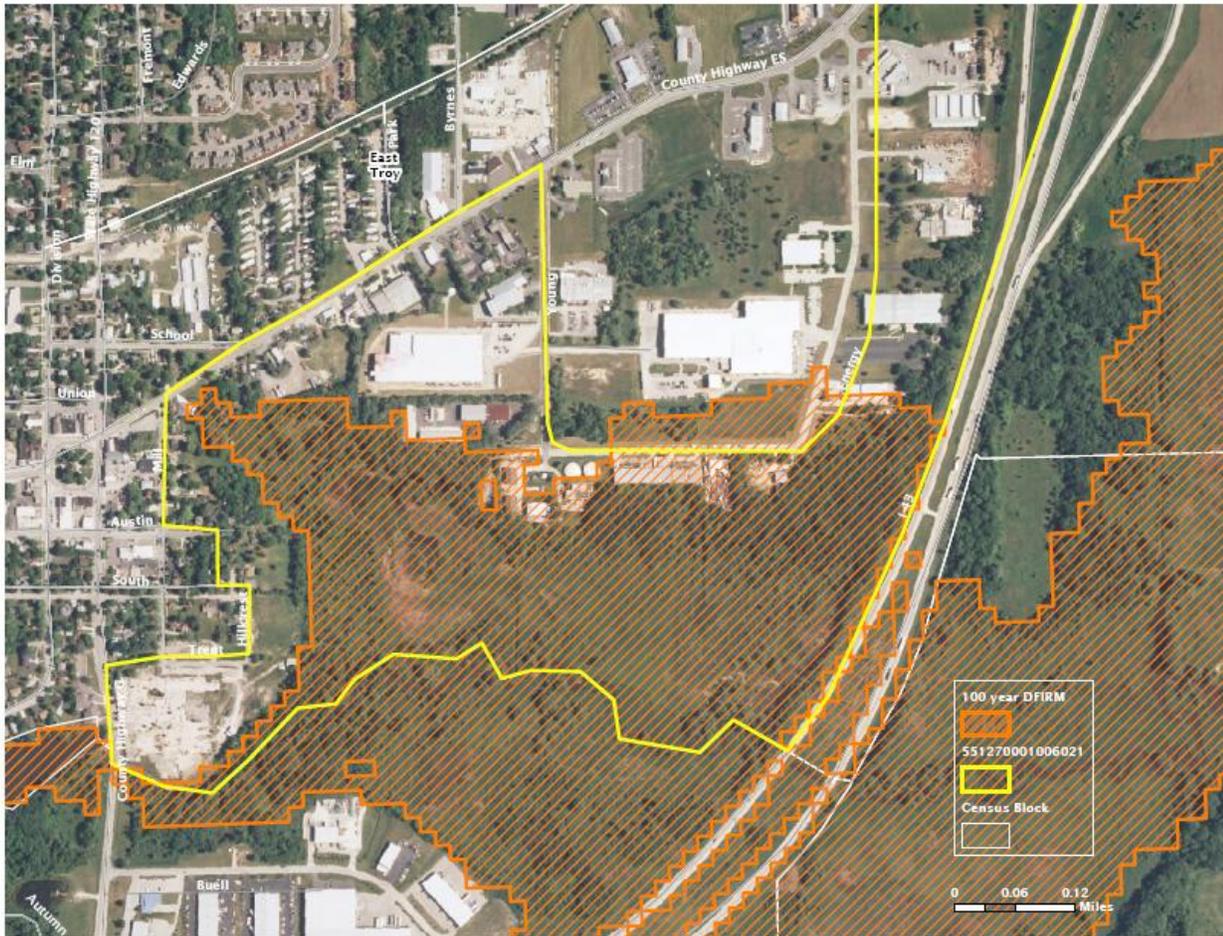
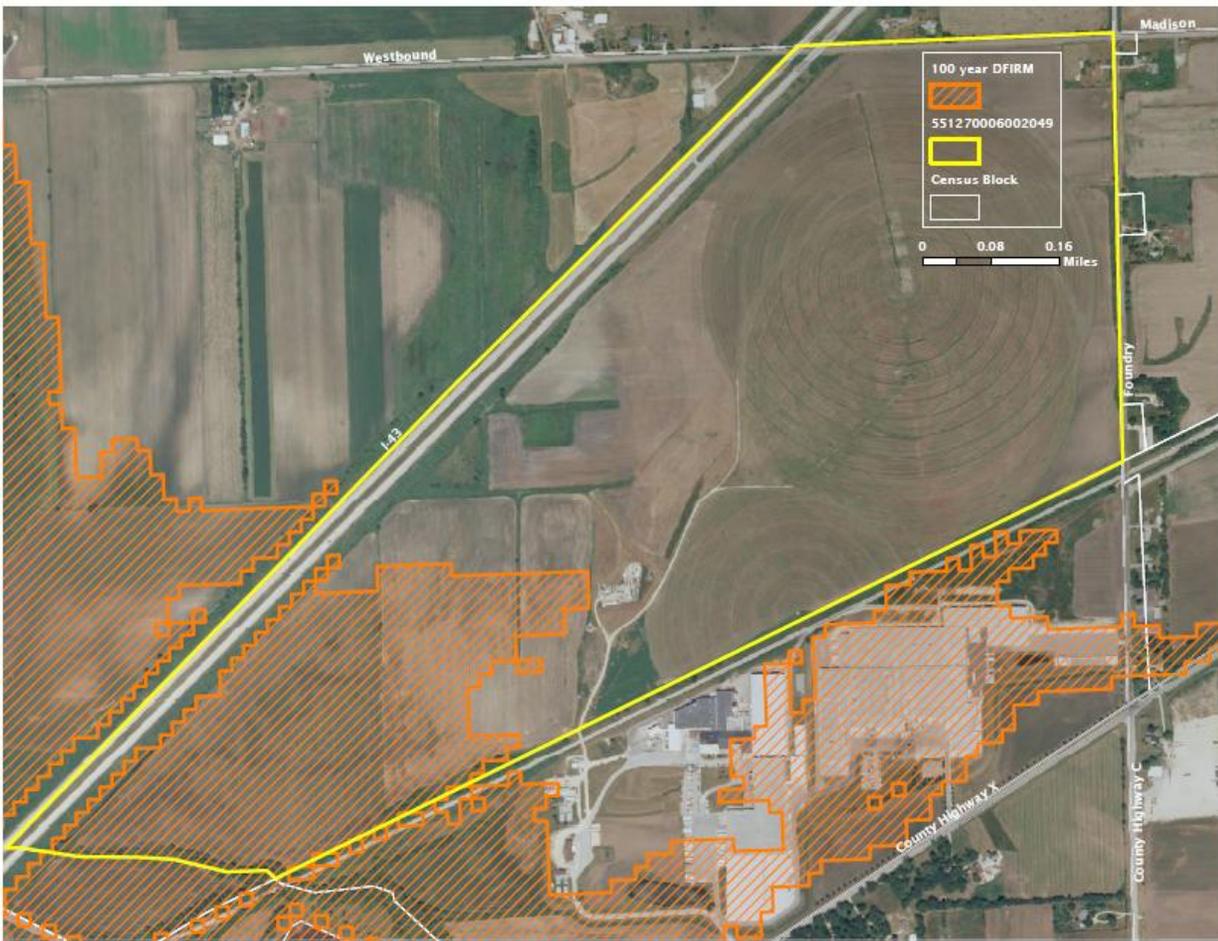


Exhibit 5-4 shows census blocks overlaid with the flood boundary and orthophoto of Darien. Census Block 551270006002049 has an estimated building loss of \$1 million with a combined replacement cost of \$6 million. HAZUS-MH estimates that one building is located in this census block. However, the orthophoto shows that the building is not within the floodplain boundary.

Exhibit 5-4. Flood Damage Exposure in Darien: 2007



Essential Facility Loss Analysis – An essential facility would encounter many of the same impacts as any other building within the flood boundary. These impacts include: structural failure, extensive water damage to the facility, and loss of facility functionality (i.e. a damaged police station will no longer be able to serve the community).

The HAZUS-MH analysis identified that no essential facilities are subject to flooding. A list of the essential facilities in the county is included in Table 5-13.

Table 5-13. Essential Facility Loss for a 100-Year Flood: 2007

Class	Building Count	At Least Moderate Damage	At Least Substantial Damage	Loss of Use
Care Facilities	10	0	0	0
Fire Stations	0	0	0	0
Police Stations	17	0	0	0
Schools	25	0	0	0
Emergency Operation Center	58	0	0	0
Total	110	0	0	0

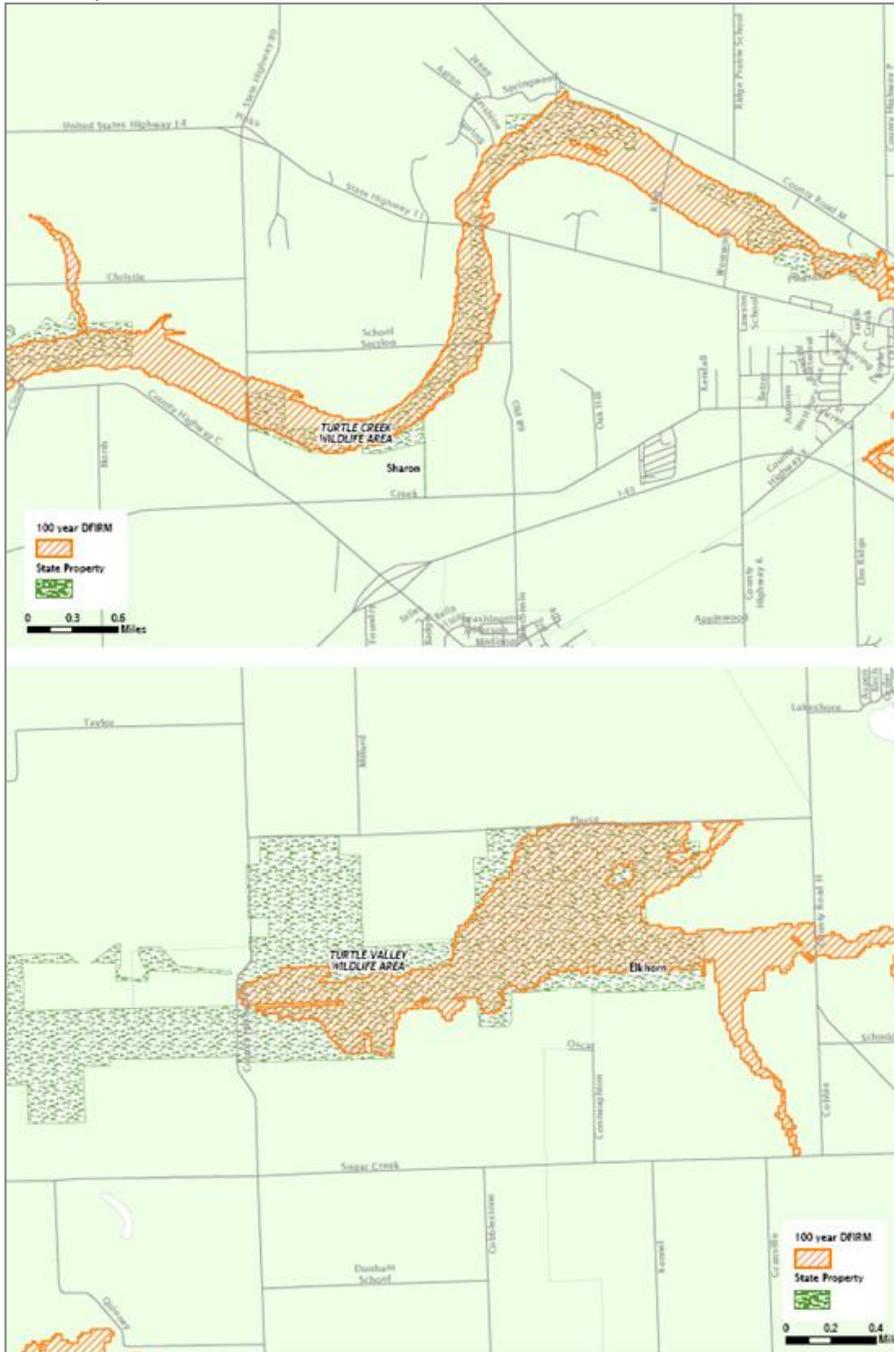
Shelter Requirement Analysis - HAZUS-MH estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. HAZUS-MH also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 942 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these 1,053 people (out of a total population of 93,759) will seek temporary shelter in public shelters.

State Property Loss Analysis - The flood boundaries were overlaid with the State of Wisconsin property boundaries as provided by the Department of Natural Resources. Table 5-14 provides a list of state properties impacted by the flood boundary. Exhibit 5-5 shows two examples of the inundated areas.

Table 5-14. State Property Flood Inundation: 2007

State Property	Percent Inundated	Acres
Scattered Wildlife	6%	623
Turtle Creek Wildlife Area	56%	583
Turtle Valley Wildlife Area	30%	576
Extensive Wildlife Habitat	2%	250
Stream Bank Protection Fee Program	4%	227
Kettle Moraine State Forest-Southern Unit	1%	209
Statewide Habitat Areas	3%	205
Honey Creek Wildlife Area	11%	146
Lulu Lake Natural Area	8%	129
Ice Age Trail	1%	74
White River State Trail	8%	13
Rem-Delavan Lake	87%	9
Big Foot Beach State Park	1%	1

Exhibit 5-5. Select State of Wisconsin Properties Boundary with 100-Year Flood Boundary: 2007



7. ICE SHOVES

PROFILE

An ice shove, also referred to as an ice flow, is a large accumulation of broken ice blocks and sheets which have been piled up by the wind along the shoreline of a lake. Ice shoves are characteristically found on large lakes in the spring during and immediately after ice breakup. The size of the ice shove is related to

the amount of ice on the lake when breakup occurs and the strength and duration of the winds at breakup.

HISTORY OF PAST OCCURRENCES

While not common, ice shoves have occurred on Geneva Lake, which is the largest lake in the county. The only other lakes in the county which are large enough to experience ice shoves are Delavan Lake and Como Lake. Given the lack of significant damage from ice shoves, there is no written documentation regarding when they have occurred in the past or the amount of actual damage.

VULNERABILITY ASSESSMENT

When ice shoves do form, they rarely cause measurable damage given the size of the county's largest lakes. Although ice shoves occur on a fairly frequent basis, most do not cause damage to man-made structures such as buildings, piers, boat landings, and roads. On a few occasions though, ice shoves have become rather large and damaged man-made structures. Damage estimates are not available for ice shoves.

Effects on Facilities – Ice shoves most directly affect buildings and structures near the lakeshore. Ice may pile on top of a road if not removed as it moves on shore.

Effects on Population Groups – Ice shoves do not negatively affect any population group in particular.

Effects on Economic Sectors – Ice shoves do not negatively affect any economic sector in particular.

Effects on New Development – Current land use regulations help to keep new principal buildings a safe distance away from lake shorelines. Some water related accessory structures, such as boat houses, can however be built next to the shore and would be susceptible to ice shoves.

ESTIMATED DAMAGE

It is estimated that an ice shove event would cause damage to structures in the range of \$500 to \$5,000. This estimate assumes damage to 10 lakeside structures such as boathouses, piers, and other similar structures.

8. DENSE FOG

PROFILE

Dense fog is a visible concentration of small water droplets suspended in the air at the earth's surface that obscures visibility to less than one-quarter mile. It forms when air temperature falls to its dew point, which is the temperature at which air is holding as much moisture as it can. When air reaches its dew point, it condenses into very small water droplets.

HISTORY OF PAST OCCURRENCES

Dense fog can form throughout the year, but is most common from September through April. As listed in Appendix G, there have been 67 reported occurrences of dense fog in Walworth County since 1950.

VULNERABILITY ASSESSMENT

Effects on Facilities – Dense fog does not damage or impair the operation of facilities.

Effects on Population Groups – Dense fog does not negatively affect any population group.

Effects on Economic Sectors – Dense fog impairs visibility and can hamper ground and air transportation. When visibility is decreased, the potential for motor vehicle crashes increase as does the possibility of an airplane accident on landing or take off.

Effects on New Development – Dense fog does not affect buildings, whether current or future.

ESTIMATED DAMAGE

Based on historical data, dense fog events do not cause or result in property damage.

9. TORNADO

PROFILE

A tornado is a violently rotating column of air extending from the ground to the base of a convective cloud. The tornado may or may not have a visible condensation funnel (commonly referred to as a "funnel cloud"), which may or may not extend from the cloud base all the way to the ground. In the absence of a visible condensation funnel, a severe weather spotter can determine they are looking at a tornado if they observe cloud-base rotation superimposed over rotating dirt and debris at ground level. Wind speeds in a tornado typically range from 80 mph to 150 mph, but on occasions reach speeds in excess of 200 mph. There have been documented tornado winds exceeding 300 mph outside of Wisconsin. The majority of damage resulting from a tornado occurs within one-eighth mile of the tornado's path, which characteristically does not exceed 16 miles. In fact, the average path length of tornadoes in Wisconsin for the period of 1950-2005 was 9.8 miles with a duration of about 5.5 minutes. Tornadoes with track lengths greater than 150 miles have been reported in Wisconsin, although they are quite rare.

Tornadoes are visible because low atmospheric pressure in the vortex leads to cooling of the air by expansion with condensation and formation of water droplets. They are also visible as a result of the airborne debris and dust associated with the vortex. The destructive power of the tornado lies primarily in its high horizontal winds, a built-in upward-lifting force, and airborne debris impacting structures (collectively resulting in about 95 percent of the damage). To a much lesser degree, air pressure differences associated with a tornado result in additional damage. Years ago, it was assumed that air pressure differences accounted for a large portion of the damage, however, it is now realized that most buildings have enough air leakage or infiltration so that most of the air pressure differences between the inside and outside of a structure are minimized as the tornado approaches. Since tornadoes are usually associated with organized storm systems that consist of several thunderstorm cells of varying intensity, large hail, torrential rain, and intense lightning usually accompany the storm that spins up a tornado.

Although a tornado can form at any time during the year, the peak tornado season is May through July. They can also occur at any time of the day. The peak hour for tornado initiation is between 6 and 7 p.m. and the peak hours of occurrence are between 3:00 and 9 p.m.

Prior to 2007, the Fujita Tornado Scale was used to estimate the wind speed of a tornado based on damage to structures (Table 5-15). Though the Fujita Scale has 13 ratings (F0-F12), tornadoes never exceed an F5 (261 to 318 MPH). Beginning in 2007, tornadoes are rated using the Enhanced Fujita Tornado Scale, which is essentially the same as the former scale except for the wind speed (Table 5-16).

Table 5-15. Fujita Tornado Scale

Fujita		
Rating	Wind Speed	Characteristic Damage
F0	40 to 72 mph	Some damage to chimneys, TV antennas, roof shingles, trees, and windows
F1	73 to 112 mph	Automobiles overturned, carports destroyed, and trees uprooted
F2	113 to 157 mph	Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned
F3	158 to 207 mph	Exterior walls and roofs blown off homes; metal buildings collapsed or are severely damaged; forests and farmland flattened
F4	208 to 260 mph	Few walls, if any, standing in well-built homes; large steel and concrete missiles thrown far distances
F5	261 to 318 mph	Homes leveled with all debris removed; schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone; top stories demolished

Table 5-16. Enhanced Fujita Tornado Scale

Fujita		
Rating	Wind Speed	Characteristic Damage
EF0	65 to 86 mph	Some damage to chimneys, TV antennas, roof shingles, trees, and windows
EF1	86 to 110 mph	Automobiles overturned, carports destroyed, and trees uprooted
EF2	111 to 135 mph	Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned
EF3	136 to 165 mph	Exterior walls and roofs blown off homes; metal buildings collapsed or are severely damaged; forests and farmland flattened
EF4	166 to 200 mph	Few walls, if any, standing in well-built homes; large steel and concrete missiles thrown far distances
EF5	>200 mph	Homes leveled with all debris removed; schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone; top stories demolished

HISTORY OF PAST OCCURRENCES

Wisconsin lies along the northern edge of the nation's tornado belt that extends northeastward from Oklahoma into Iowa. Winter, spring, and fall tornadoes are more likely to occur in southern Wisconsin than in northern counties. Yet, tornadoes have occurred in Wisconsin during every month except February.

Wisconsin's tornado season runs from the beginning of April through September. The most severe tornadoes typically occur during April, May, and June. Many tornadoes strike in late afternoon or early evening. However, tornadoes have occurred at other times. Personal property damage, deaths, and injuries have and will continue to occur in Wisconsin. On average, one person in Wisconsin dies from tornado-related injuries each year and an additional 24 are injured.

Since 1950, there have been 25 verified tornadoes in Walworth County (Table 5-17 and Appendix G). The vast majority of them were F0 or F1 (Table 5-18). Prior to 1982 when the National Weather Service officially began classifying tornadoes, ratings are at best broad estimates, with an accuracy of plus or minus 1.

The most recent tornado touched down in the Town of Linn near the Village of Walworth on November 22, 2010. Four homes were damaged and one was destroyed. Five farm buildings were damaged or destroyed. The National Weather Service determined the tornado traveled 4.2 miles and was about 300 feet wide; it was categorized as EF-1.

VULNERABILITY ASSESSMENT

Effects on Facilities – Because tornadoes apparently occur randomly across the landscape, all areas of the county are equally as likely to experience a tornado. Therefore, all of the critical facilities which have been identified in this plan are at risk.

Effects on Population Groups – Even though all areas of the county are equally likely to experience a tornado, those living in mobile homes or staying in a campground are more vulnerable than those people living in a residence with a basement. In 2008, there were 10 mobile home parks and 12 campgrounds in Walworth County. None of these had a storm shelter where people could go during a wind-related storm event.

Effects on Economic Sectors – While individual businesses may be damaged, the overall economy generally experiences short-term effects of a tornado, if at all.

Effects on New Development – Because a tornado can occur anywhere in the county, new development will not be any more or less affected than current development.

ESTIMATED DAMAGE

Based on historical occurrences and documented damage estimates, a strong tornado (EF2 or EF3) would be expected to cause about \$375,000 in damage to buildings and infrastructure. However, the range is quite wide (0 to \$3 million) depending on where the tornado occurs and its magnitude (Table 5-19).

Table 5-17. Documented Tornadoes; Walworth County: 1950 through October 2012

Year	Month	Number
1955	April	1
1957	April	1
1959	June	1
1961	August	1
1965	April	2
1966	March	1
1967	June	1
1968	May	1
1970	May	1
1972	July	1
1972	September	1
1978	June	1
1978	August	1
1980	June	1
1988	July	1
1990	June	1
1991	July	1
1992	September	1
1993	June	1
1993	July	1
1997	July	1
2004	June	1
2008	January	1
2010	November	1

Source: National Weather Service

**Table 5-18. Rated Tornadoes;
Walworth County: 1950
through October 2012**

Fujita Rating [1]	Number of Occurrences	Percent of Total
F0	4	18
F1	12	55
F2	6	27
F3	0	0
F4	0	0
F5	0	0
Total	22	100

Source: National Weather Service

Notes:

1. Refer to Table 5-15 and 5-16 for a description of the Fujita ratings
2. During this period, 3 tornadoes were not rated

**Table 5-19. Estimated Tornado
Damage: Walworth
County**

Enhanced Fujita Rating [1]	Damage Estimate
EF0	0 to \$10,000
EF1	\$25,000 to \$200,000
EF2	\$25,000 to \$1,500,000
EF3	\$250,000 to \$2,000,000
EF4	\$500,000 to \$2,500,000
EF5	\$750,000 to \$3,000,000

Notes:

1. Refer to Table 5-16 for a description of the Enhanced Fujita Scale

10. HAILSTORMS

PROFILE

A hailstorm is a weather event where water particles in the upper atmosphere form into round or irregular masses of ice that fall to earth. Hail stones form when sub-freezing temperatures in the upper atmosphere cause water in thunderstorm clouds to accumulate in layers around an icy core. When strong underlying winds no longer can support their weight, the hailstones fall to Earth. The size of hail typically ranges from one-quarter inch in diameter up to three inches.

Hail tends to fall in swaths that may be 20-115 miles long and 5-30 miles wide. The swath is not normally an even bombardment of hail, but generally consists of a series of hail strikes that are produced by individual thunderstorm clouds traversing the same general area. Hail strikes are typically one-half mile wide and up to five miles long. They may partially overlap, but often leave completely undamaged gaps between them. Hailstorms tend to occur in conjunction with severe thunderstorms.

HISTORY OF PAST OCCURRENCES

Between January 1, 1950 and October 2012, there have been 70 documented hailstorm events in Walworth County (Table 5-5).

VULNERABILITY ASSESSMENT

Effects on Facilities – The threat of hail damage increases as the size of the hailstone increases. Hail can break windows, damage roofs and siding, and dent motor vehicles. The threshold value of hail size in which damage can occur is $\frac{3}{4}$ inch (NWS issues a Severe Thunderstorm Warning for these events), however, hailstones usually need to grow to 1.5 to 1.75 inch in diameter before they result in a significant amount of damage.

Effects on Population Groups – All population segments are equally susceptible to hail storms. Hail storms while resulting in property and crop damage, rarely causes serious injury or loss of life.

Effects on Economic Sectors – Of all the economic sectors, agriculture is the most susceptible to hail damage. When hailstones approach golf ball size, crops are damaged and are not able to recover, which may result in a total loss.

Effects on New Development – Because hail storms can occur anywhere in the county, new development will not be any more or less affected than current development.

ESTIMATED DAMAGE

Based on historical data, hailstorms, while quiet numerous, normally do not cause widespread or significant damage. There is however, one exceptional event. On April 13, 2006, a group of three thunderstorms moved west to east through the counties of Iowa, Dane, Jefferson, Waukesha, Milwaukee, and also affected the southern parts of the counties of Columbia, Dodge, Washington, and Ozaukee. Collectively, property damage reached at least \$420 million. Obviously, damage can reach into the tens of millions in a single county, but this would be a rare occurrence for any single county. This single event accounts for nearly 92 percent of all the documented damage that occurred between 1950 and 2006.

For the purposes of this plan, it is estimated that a hailstorm would cause about \$5,000 to \$10,000 in property damage per localized event.

11. THUNDERSTORMS

PROFILE

Thunderstorms are severe and violent forms of convection produced when warm moist air is overlaid by dry cool air. As the warm air rises, thunderheads (cumulonimbus clouds) form and cause the strong winds, lightning, hail, and rain characteristically associated with these storms. Thunderheads may be a towering mass 6 miles or more across and 40,000 to 50,000 feet high. As much as 1.5 million tons of water may be held in a thunderhead.

A storm event arising for a single thunderhead typically lasts less than 30 minutes in a given location. However, strong frontal systems may spawn more than one squall line composed of many individual thunderheads.

As defined by the National Weather Service, a severe thunderstorm is a thunderstorm event that produces one or more of the following: downbursts with winds of 58 mile per hour or greater, hail three-quarters of an inch in diameter, or a tornado.

HISTORY OF PAST OCCURRENCES

Out of all the weather-related events in Walworth County, powerful thunderstorms are the most common. They account for 38 percent of the weather-related events documented from 1950 through October 2012. On average, county residents can expect slightly more than four significant thunderstorm events each year.

Although thunderstorms can occur throughout the year, they are most common from May through September. Typically, they occur after 12:00 p.m. until 10:00 p.m.

One of the most devastating thunderstorm to hit Walworth County occurred July 21, 1998 when scattered thunderstorms merged over the county. Hurricane-force winds were generated over the north side of Elkhorn and the resultant wind damage strongly suggests that winds gusts peaked in the 100 to 110 mph range. Elkhorn city officials declared a state of emergency due to the damage to buildings and downed trees and power lines. Several Elkhorn downtown office buildings suffered some minor damage, while six buildings on the north side along STH 67 had considerable damage. Twelve people were injured and 14 vehicles sustained damage. The storm traveled through rural farmland east to the Walworth/Racine county line, destroying three farm buildings in the process. Altogether, about 27,000 customers in Walworth County lost electric power. This event resulted in property damage totaling \$1.9 million and crop losses of \$105,000.

VULNERABILITY ASSESSMENT

Effects on Facilities – Aside from hail, downburst straight line winds from a thunderstorm can damage property and to a less extent crops. Overhead utility lines are quite susceptible to downed trees and tree branches. Entire neighborhoods and even larger areas can lose power because of a thunderstorm. All areas of the county are equally susceptible to thunderstorms, meaning that all critical facilities are at risk.

Effects on Population Groups – Wind associated with severe thunderstorms can cause injury or loss of life. With the exception of those living in mobile home parks or staying in campgrounds, no population group is uniquely susceptible to a thunderstorm event. Those in mobile homes and campgrounds are at risk from falling trees and branches, and damage to their residence or camper.

Effects on Economic Sectors – Severe thunderstorms do not affect any economic sector disproportionately more than others.

Effects on New Development – Because a thunderstorm can occur anywhere in the county, new development will not be any more or less affected than current development.

ESTIMATED DAMAGE

Based on historical data, a severe thunderstorm is expected to cause less than \$20,000 in property damage and less than \$2,000 in crop damage.

12. WINTER STORMS

PROFILE

Winter storms include a wide range of weather-related events including snowstorms, blizzards, freezing rain, sleet, and ice storms. Typical snow events produce totals of between one and three inches. On a statewide basis, heavy snowfalls happen on average five times per winter. Total snow accumulations in southern Wisconsin average about 40-50 inches. While blizzard conditions can occur in southern Wisconsin, it is rare. Both ice and sleet storms can occur at any time from October into April. They are more common in southern Wisconsin

than in the northern part of the state. Statewide, there are 3 to 5 freezing rain events each year.

HISTORY OF PAST OCCURRENCES

For the period of 1950 through October 2012, there have been 104 winter storm events in Walworth County consisting of blizzard conditions, heavy snow, ice, or sleet.

VULNERABILITY ASSESSMENT

Effects on Facilities – Heavy snow can cause the structural collapse of buildings with flat roofs. In recent memory there have been a few winter seasons where snow events taxed the ability of local governments to pay for the removal of snow from roads and keep them clear of snow.

Effects on Population Groups – Winter storms affect all population groups equally. People who commute a comparatively long distance are disproportionately affected.

Effects on Economic Sectors – A prolonged winter storm event with a large accumulation of snow can have a short term effect on the local economy in terms of lost productivity. Transportation-related businesses are often negatively affected when winter weather hits.

Effects on New Development – Because winter storms generally affect the county as a whole, new development will not be any more or less affected than current development.

ESTIMATED DAMAGE

The cost of snow removal is incorporated into local government budgets so there is no direct financial impact arising from a winter storm unless the community experiences a prolonged winter season with a high number of snowfall events, such as the 2007-2008 winter when 75 to 122 inches of snow fell across southern Wisconsin.

13. EXTREME HEAT

PROFILE

Periods of excessive heat, often referred to as heat waves, are quite common in Wisconsin during the summer months. When high temperatures do occur, they cover large areas of the country. Summertime heat and exposure to solar radiation can cause a number of heat disorders ranging from sunburn to heat stroke as described in Exhibit 5-6.

If left untreated, heat stroke can be deadly. From 1986 through 2006, about 143 people died each year from excessive heat in the United States. The elderly, small children, chronic invalids, people on certain medications or drugs, and people with weight and alcohol problems are particularly susceptible to heat disorders. The human body dissipates heat by varying the rate and depth of blood circulation, by perspiring, and as a last resort, by panting. Perspiration is an effective way of cooling the body’s surface, but as the relative humidity increases, the positive effects of perspiration decline.

Terms Related to Winter Storms

Heavy snowfall - The accumulation of six or more inches of snow in a 12-hour period or eight or more inches in a 24-hour period.

Blizzard - The occurrence of sustained wind speeds in excess of 35 miles per hour accompanied by heavy snowfall or large amounts of blowing or drifting snow.

Ice storm - An occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground and exposed objects near the ground forming an accumulation of at least 1/4” in 12 hours or less.

Freezing drizzle / freezing rain - The effect of drizzle or rain freezing upon impact on objects that have a temperature of 32 degrees Fahrenheit or below.

Sleet - Solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. Sleet does not cling to surfaces.

Exhibit 5-6. Heat Disorders and Symptoms

Heat Disorder	Symptoms
Sunburn	Redness and pain; in severe cases swelling of skin, blisters, fever, headaches
Heat Cramps	Painful spasms usually in muscles of legs and abdomen possible; heavy sweating
Heat Exhaustion	Heavy sweating, weakness, skin cold, pale and clammy; pulse thready; normal temperature possible; fainting and vomiting
Heat Stroke	High body temperature (106 or higher); hot dry skin; rapid and strong pulse; possible unconsciousness

Source: National Weather Service, National Oceanic and Atmospheric Administration

Out of all of the natural hazards in Wisconsin, excessive heat is the leading cause of fatalities.

The National Weather Service devised the Heat Index² as a way to measure the combined effects of temperature and relative humidity. The Heat Index chart (Exhibit 5-7) also shows when certain physiological responses are commonly seen with prolonged exposure and/or physical activity. As the relative humidity increases, even modest temperatures can cause heat stroke and other less serious heat disorders.

Exhibit 5-7. Heat Index (Apparent Temperature)

Air Temp. °F	Relative Humidity (%)													
	40	45	50	55	60	65	70	75	80	85	90	95	100	
110	136													
108	130	137												
106	124	130	137											
104	119	124	131	137										
102	114	119	124	130	137									
100	109	114	118	124	129	136								
98	105	109	113	117	123	128	134							
96	101	104	108	112	116	121	126	132						
94	97	100	103	106	110	114	119	124	129	135				
92	94	96	99	101	105	108	112	116	121	126	131			
90	91	93	95	97	100	103	106	109	113	117	122	127	132	
88	88	89	91	93	95	98	100	103	106	110	113	117	121	121
86	85	87	88	89	91	93	95	97	100	102	105	108	112	112
84	83	84	85	86	88	89	90	92	94	96	98	100	103	103
82	81	82	83	84	84	85	86	88	89	90	91	93	95	95
80	80	80	81	81	82	82	83	84	84	85	86	86	87	87

Source: National Weather Service, National Oceanic and Atmospheric Administration

With Prolonged Exposure and/or Physical Activity

	Extreme Danger – Heat stroke or sunstroke highly likely
	Danger – Sunstroke, muscle cramps, and/or heat exhaustion likely
	Extreme Caution – Sunstroke, muscle cramps, and/or heat exhaustion likely
	Caution – Fatigue possible

HISTORY OF PAST OCCURRENCES

From 1986 to 2006, there were 10 years in which at least one or more persons in Wisconsin died from the direct or indirect effects of excessive heat (Table 5-20).

VULNERABILITY ASSESSMENT

In those 10 years, a total of 115 people died. However, none of the deaths occurred in Walworth County. It is believed that some county residents received medical treatment for heat-related symptoms.

² The Heat Index is sometimes referred to as the apparent temperature.

During that 20-year period, 1995 was the deadliest year when a total of 82 deaths were reported. Two heat waves gripped much of the state. The first occurred in mid-June and the second in mid-July. During the second heat wave, the temperature rose to between 100°F and 108°F, with heat indices of 120°F to 130°F.

According to the National Weather Service, the mortality rate from excessive heat in Wisconsin is the highest of all natural disasters – more than four times greater than the second highest cause of death, tornadoes.

Intensely urbanized areas feel the effects of heat waves more than rural areas in that the temperature in urban areas is often elevated because radiant energy is stored in pavement and the exterior building surfaces and is released slowly over a period of time. Even during a heat wave, nighttime temperatures typically drop, but less so in urban areas because these heat reservoirs dissipate the radiant heat collected during the day time. This phenomenon is often referred to as the heat island effect.

Not only are urban areas heat islands, pollutants often build up in the lower atmosphere during periods of excessive heat, causing respiratory problems, especially for the young, the elderly, and those with respiratory ailments such as asthma.

Although the more urban areas of the county experience the heat island effect, the change in the ambient temperature is modest. This is because the urban areas of the county are relatively small and street trees help to deflect solar radiation back into the atmosphere.

Effects on Facilities – Excessive heat does not directly impact critical facilities.

Effects on Population Groups – The elderly are disproportionately affected by heat. For example, during the heat waves of 1995, three-quarters of the fatalities were 60 years of age or older (Table 5-21).

Effects on Economic Sectors – Excessive heat can accompany drought causing a loss of crops. Additionally, some businesses may close or reduce production to minimize heat effects on employees.

Effects on New Development – Most new homes that are being constructed in the area have central air conditioning. As such, those people living in new dwelling units will be less affected by extreme heat than those living in the existing housing stock, some of which do not have air conditioning.

ESTIMATED DAMAGE

Aside from health consequences for county residents, excessive heat does not cause a definable economic loss.

Table 5-20. Heat-Related Fatalities; Wisconsin: 1986 - 2006

Year	Direct Deaths	Indirect Deaths
1986	1	0
1988	1	0
1993	2	0
1995	82	72
1997	1	0
1999	12	8
2001	10	5
2002	3	5
2003	0	4
2006	3	1
Total	115	95

Source: National Weather Service, Milwaukee - Sullivan Office

Table 5-21. Heat-Related Fatalities; United States: 1995

Age	Number	Percent
0 – 19	14	1.4
20 – 29	5	0.5
30 – 39	34	3.3
40 – 49	79	7.7
50 – 59	95	9.3
60 – 69	179	17.5
70 – 79	253	24.8
80 – 89	241	23.6
90 and older	61	6.0
Unknown age	60	6.0
Total	1,021	100

Source: National Weather Service

14. EXTREME COLD

PROFILE

Periods of extreme cold temperature are common during the winter months in Wisconsin, including Walworth County. While not commonly occurring, there have been instances where outdoor temperatures dropped to -15 degrees Fahrenheit.

HISTORY OF PAST OCCURRENCES

From 1950 through October 2012, the National Weather Service documented 20 periods of extreme cold, all of which occurring from December through mid-February.

The lowest recorded temperature (-29 degrees Fahrenheit) in Walworth County was recorded on February 9, 1933 at the Williams Bay weather station and February 1, 1918, at the Delavan weather station. Based on data collected at the Lake Geneva weather station (474457), there are on average 6.6 days in January with temperatures at or below zero degrees Fahrenheit (Table 5-22).

VULNERABILITY ASSESSMENT

Effects on Facilities – Excessive cold does not directly impact most critical facilities. There may be instances where an extended period of cold causes water pipes in buildings to freeze, and if not corrected, to burst. Underground water laterals often leak because of extreme cold temperatures as the surrounding soil materials expand and contract.

Effects on Population Groups – The elderly are disproportionately affected by cold temperatures. They are often times confined to their home during extended cold periods.

Effects on Economic Sectors – Excessively cold temperatures can accompany winter storm events; which compounds a generally difficult time. Because cold temperatures do not last for an extended period, the effects of excessively cold temperatures are short lived.

Effects on New Development – Periods of extreme cold will not disproportionately affect new development.

ESTIMATED DAMAGE

Aside from health consequences for county residents, excessively cold temperatures do not cause a definable economic loss.

15. DROUGHT

PROFILE

A drought is an extended period of time when rainfall is significantly below normal amounts. Unlike other natural disasters, it is not known until much later in time, when a drought begins. A drought could last for months, several years, and in extreme conditions, much longer. Droughts are typically accompanied by higher-than-normal temperatures and lower-than-normal relative humidity levels.

Table 5-22. Temperature Extremes; Lake Geneva Weather Station: 1971-2000

Month	Number of Days	Number of Days
	≥90°F	≤0°F
January	0.0	6.6
February	0.0	3.8
March	0.0	0.2
April	0.0	0.0
May	0.9	0.0
June	4.4	0.0
July	7.4	0.0
August	4.3	0.0
September	1.3	0.0
October	0.0	0.0
November	0.0	0.1
December	0.0	2.9

Source:
http://mrcc.sws.uiuc.edu/climate_midwest/historical/temp/wi/474457_tsum.html

A drought could affect an entire region of a continent or a sub-region as small as several counties.

A number of methodologies have been developed to measure droughts from a purely meteorological standpoint. Droughts can also be defined based on the consequences which result. For the purposes of this plan, two types of drought are considered: agricultural and hydrologic. An agricultural drought causes a noticeable drop in crop yields and a hydrological drought causes a drop in lake and stream levels and lowers the height of the ground water table.

Although these two types of droughts can occur at the same time, the negative effects of a drought are first seen on crop production. Hydrologic droughts characteristically lag behind an agricultural drought because it takes time for the lack of precipitation to lower surface and ground water levels. As a result, it is possible for an area to experience a hydrologic drought long after the end of an agricultural drought.

HISTORY OF PAST OCCURRENCES

Agricultural and hydrologic droughts occur in Wisconsin on a regular basis. Since the Dust Bowl, short-lived droughts have occurred on an interval of about one in every ten years. Long-term droughts are more infrequent. Since the Dust Bowl, there have been four significant droughts in the state: 1948-1950, 1955-1959, 1976-1977, and 1987-1988.

Exhibit 5-8 shows the statewide average annual precipitation between 1895 and 2006 and the lowest annual precipitation recorded in the state for the same period. Over this period, the average annual precipitation was 31.4 inches per year on a statewide basis. There were 56 years when precipitation was below the average and 7 years when precipitation was less than 25 inches. The lowest average annual precipitation occurred in 1976 with 20.9 inches of precipitation.

On a more localized level, there have been 88 years when an area of the state with the lowest precipitation level received less than 25 inches of precipitation. As shown in Table 5-23, the lowest statewide precipitation levels occurred in Walworth County or an adjoining county on four occasions.

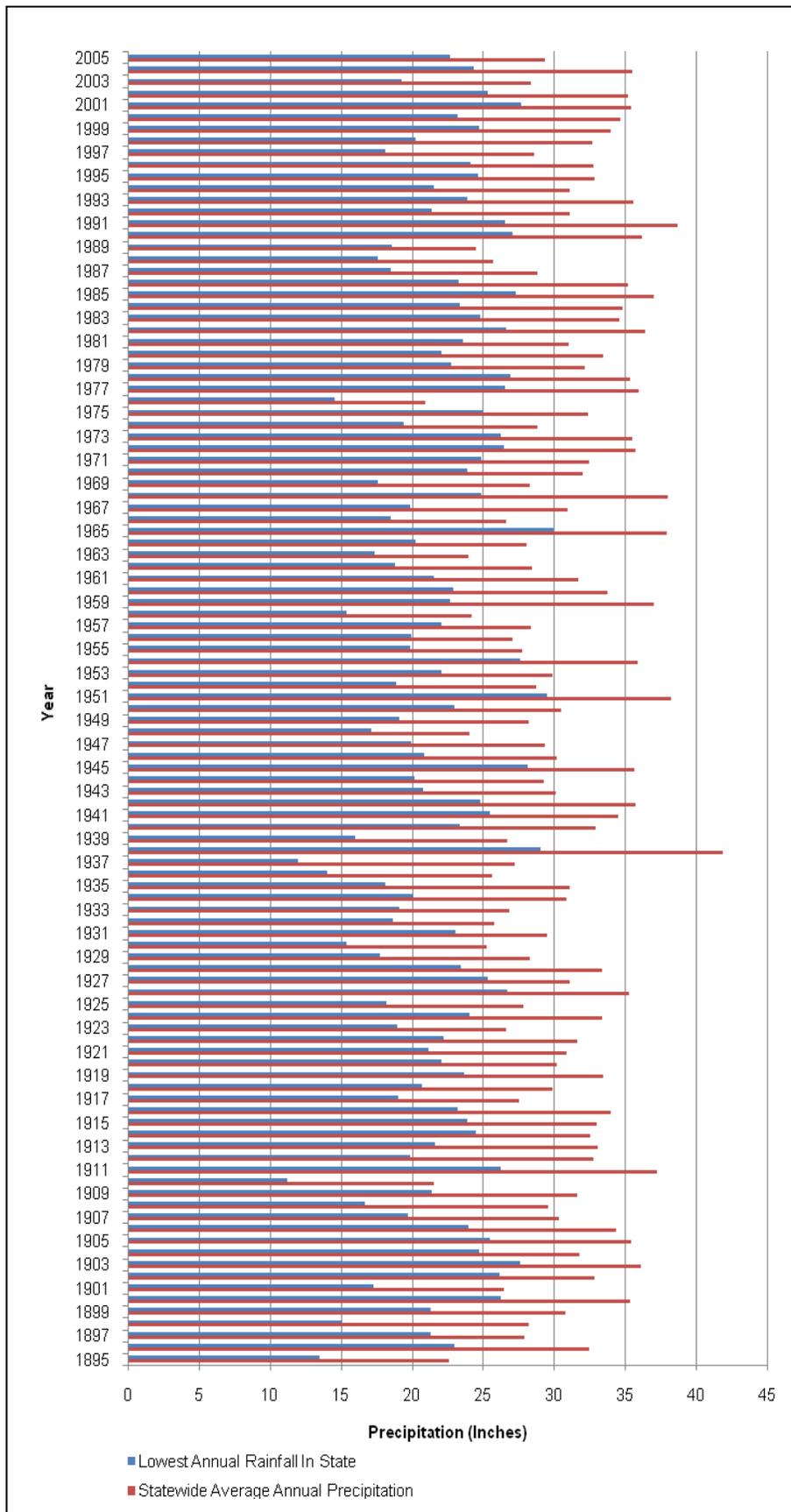
Table 5-23. Locations in and near Walworth County with the Lowest Annual Statewide Precipitation Levels: 1895-2006

Year	Statewide			Lowest Recorded Precipitation Levels	
	Average (Inches)	Precipitation (Inches)	Difference (Inches)	General Location	County
2005	29.34	22.7	6.64	Racine	Racine County
1971	32.48	24.9	7.58	Racine	Racine County
1922	31.64	22.2	9.44	Williams Bay	Walworth County
1901	26.52	17.3	9.22	Waukesha	Waukesha County

Source: Wisconsin State Climatology Office

Note: The Wisconsin State Climatology Office did not have this dataset updated when accessed in 2013

Exhibit 5-8. Wisconsin Average Annual Precipitation: 1895-2006



Source: Wisconsin State Climatology Office Note: This office did have this dataset updated when accessed in 2012

VULNERABILITY ASSESSMENT

By most accounts, the 1987-1988 drought in Wisconsin was the most severe and is estimated to have a recurrence interval of about 75 years. All Wisconsin counties were eligible for drought assistance. Agricultural losses throughout the state totaled \$1.3 billion. More than half of the farms in the state suffered crop losses of 50 percent or more, with 14 percent experiencing a crop loss of 70 percent or more.

Effects on Facilities and Population Groups – Unlike many of the other natural disasters addressed in this plan, drought conditions do not cause physical harm to people or destroy buildings and other structures.

Effects on Economic Sectors -- The two main concerns with drought relate to economic losses to agricultural crops and livestock and effects on ground water supplies available to both private and public water wells.

According to the land use inventory conducted by the Southeastern Wisconsin Regional Planning Commission in 2000, nearly two-thirds of the county was in agriculture. A drought in the county would therefore affect a significant portion of the county's economic base. During extended droughts, municipalities often see increased water usage due primarily to increased use for lawns and gardens. It is important that municipal wells are properly sized for the number of residents they are intended to serve. At times, it may be necessary to impose water restrictions when there is concern that the available water supply may not be sufficient to meet basic needs.

Because municipal wells are generally concentrated in a relatively small geographic area, extended droughts can affect the level of the water table. With decreased rainfall, the water table will naturally drop. Most public water wells draw from the deep aquifers and typically are not negatively affected. However, those wells serving an individual household are comparatively shallow and are more susceptible to a dropping water table, especially when located near a municipal well.

Effects on New Development – Aside from the potential of limiting the use of potable water for certain uses during drought periods, new development will be no more susceptible to drought than exists now.

ESTIMATED DAMAGE

It is estimated that a drought over the course of a year would cause a loss in agricultural production in the range of \$25,000 to \$50,000. This estimate is based on an average loss of \$300 per acre over 83 to 166 acres.

16. WILDLAND FIRE

PROFILE

A wildland fire is an uncontrolled fire burning natural vegetation and potentially buildings and other structures. A wildland fire can occur in a large forested area, woodlot, grassland, roadside ditch, or marsh.

Wildland fires can be ignited by lightning, human carelessness, and arson. In Wisconsin, human carelessness is the leading ignition source.

HISTORY OF PAST OCCURRENCES

Because the majority of nonurban land in Walworth County is in some form of agriculture, there have been few instances of wildland fires. Those wildland fires that have started were small and contained comparatively quickly.

VULNERABILITY ASSESSMENT

Effects on Facilities – With the exception of some utility infrastructure, no critical facilities are vulnerable to a wildland fire.

Effects on Population Groups – Wildland fires do not negatively affect any one population group more than another.

Effects on Economic Sectors – Wildland fires do not negatively affect any of the economic sectors in Walworth County.

Effects on New Development – Most new dwelling units that will be constructed in the county will occur within subdivisions and as such will not, as a general rule, be exposed to the threat of wildland fire. A small percentage of new dwelling units will however occur on larger parcels in rural areas of the county.

ESTIMATED DAMAGE

It is estimated that direct costs for fighting a five-acre grass fire is in the range of \$1,000 to \$3,000. Costs related to a fire exceeding 25 acres would be in the range of \$10,000 to \$15,000.

17. SUMMARY OF RISK BY JURISDICTION

Table 5-24 presents a summary of risk for each jurisdiction in Walworth County.

Table 5-24. Summary of Risk by Jurisdiction: 2012

	Dam Failure	Flooding [3]	Dense Fog	Tornado	Hail- storm	Thunder- storm	Winter Storms	Temp. Extremes	Drought	Wildland Fire
Town										
Bloomfield	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Darien	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Delavan	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
East Troy	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Geneva	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Lafayette	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
La Grange	Medium	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Linn	Medium	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Lyons	Medium	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Richmond	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Sharon	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Spring Prairie	Medium	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Sugar Creek	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Troy	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Walworth	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Whitewater	Medium	High	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Village										
Bloomfield [2]	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Darien	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
East Troy	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Fontana-on- Geneva Lake	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Genoa City [1]	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Mukwonago [1,2]	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Sharon [2]										
Walworth [2]	Low	High	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Williams Bay	Low	High	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
City										
Burlington [1,2]	Low	High	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Delavan	Medium	High	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Elkhorn	Low	Medium	Low	Medium	Medium	Medium	Medium	Medium	Low	Low
Lake Geneva										
Whitewater [1]										
Walworth County										

Notes:

1. Municipality located in Walworth County and another county
2. The Village incorporated on December 20, 2011
3. See Section 6 of this chapter for a detailed loss estimates.

18. SUMMARY OF DAMAGE ESTIMATES

Table 5-25 lists damage estimates for the various natural hazards reviewed in this chapter.

Table 5-25. Damage Estimates for Natural Hazards; Walworth County: 2013

Natural Hazard	Damage Estimate
Dam Failure	Unknown
Flooding [1]	\$21.6 million (maximum)
Ice Shoves	\$500 to \$5,000
Dense Fog [2]	0
Tornado	\$375,000
Hail Storms [2]	\$5,000 to \$10,000
Thunderstorm [2]	\$20,000 property; \$2,000 crop
Winter Storms [2,3]	Minimal
Extreme Temperature – heat	Minimal
Extreme Temperature – cold	Minimal
Drought - short-lived	\$25,000 to \$50,000
Drought - long-lived	0 property; \$50,000 to \$100,000 crop
Wildland fire - less than 25 acres	\$1,000 to \$3,000
Wildland fire - 25 acres or more	\$10,000 to \$15,000

Notes:

1. Based on a 100-year flood
2. Estimates do not include damage to motor vehicle or other accident-related costs
3. Estimate does not include snow removal costs. These are included in local government budgets.

MITIGATION STRATEGY



1. CHAPTER OVERVIEW

This chapter is intended to identify common mitigation strategies for each of the natural hazards reviewed in this plan and potential funding sources for carrying out mitigation activities. The bulk of the chapter is devoted to listing goals, objectives, and policies along with activities that apply broadly to the county and special programs or projects or activities that apply specifically to a town, city, or village in the county.

2. TYPES OF POTENTIAL MITIGATION STRATEGIES

Mitigation strategies can be grouped into six broad categories:

- ◆ Prevention
- ◆ Property protection
- ◆ Public education and awareness
- ◆ Natural resource protection
- ◆ Emergency services
- ◆ Structural projects

Examples are listed below for each of the natural hazards addressed in this plan.

Dam Failure

- ◆ Remove dams that don't serve a useful purpose
- ◆ Require the preparation of emergency action plans
- ◆ Ensure that emergency action plans are current
- ◆ Ensure that dam inspections are conducted as required by state law

Chapter Contents

1. Chapter Overview
2. Types of Potential Mitigation Strategies
3. Existing Mitigation Strategies
4. Funding Sources
5. Summary of Staff Capabilities
6. Goals, Objectives, Policies, and Activities

Key Terms in this Chapter

Community Rating System (CRS) – A voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum National Flood Insurance Programs requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from qualified community actions.

Goal – A statement that describes a desired condition to be achieved sometime in the future. A goal is often broad in scope, not easily measurable, and long-term in nature.

Objective – A specific and usually measurable intermediate end that is achievable and make progress toward a goal.

National Flood Insurance Program – A Federal program created in 1968 under which flood-prone areas are identified and flood insurance is made available to the owners of the property in participating communities.

Policy – A predetermined course of action or specific rule that an organization adopts and uses in decision-making and which when applied will help to achieve one or more of its goals or objectives.

Repetitive loss community – A community with one or more repetitive loss properties.

Repetitive loss property (RLP) – For purposes of the Community Rating System, a property for which two or more National Flood Insurance Program losses of at least \$1,000 each have been paid within any 10-year rolling period since 1978.

Severe residential loss (SRL) property – A residential property (1) that has at least four NFIP claim payments over \$5,000 each, when at least two such claims have occurred within any ten-year period, and the cumulative amount of such claims payments exceeds \$20,000; or (2) or which at least two separate claims payments have been made with the cumulative amount of the building portion of such claims exceeding the value of the property, when two such claims have occurred within any 10-year period.

Safe room – An above ground room within a building (most often homes) that is specifically designed to withstand high winds and provides occupants a safe refuge from tornadoes, hurricanes, or other high-wind events.

Strategy – An action or a group of actions intended to achieve a goal or objective.

- ◆ Include a dam failure in emergency planning exercises
- ◆ Minimize the level of development in a dam's hydraulic shadow in an effort to minimize damage resulting from a dam failure

Flooding

- ◆ Continue to enforce floodplain regulation and strengthen requirements when appropriate
- ◆ Limit development in the floodplain through local floodplain regulations or zoning
- ◆ Provide dryland access through flood-prone areas
- ◆ Retrofit legal nonconforming buildings that do not meet floodplain regulations (e.g., elevating, floodproofing)
- ◆ Purchase repetitive loss properties and remove structures (i.e., demolition or relocation)
- ◆ Raise the surface of local roads above 50-year flood elevations and arterials above 100-year flood elevations
- ◆ Enlarge the cross-section of culverts and bridges when they do not adequately carry anticipated flood flows
- ◆ Prohibit basements in new subdivisions where flooding from stormwater could be problematic
- ◆ Clean drainageways to allow a free flow of water
- ◆ Minimize the amount of impervious surfaces in a watershed so that stormwater can soak into the ground rather than contributing to flood water
- ◆ Maintain appropriate water rescue equipment
- ◆ Develop and implement appropriate evacuation procedures in flood-prone area
- ◆ Install gaging stations to better understand surface water flow regimes
- ◆ Construct stormwater facilities (e.g., detention and retention basins) to help manage stormwater
- ◆ Take steps to upgrade the National Flood Insurance Program requirements

Ice Shoves

- ◆ Limit development along lakeshores prone to ice shoves

Dense Fog

- ◆ Identify those roadways where fog is localized and install appropriate signage
- ◆ Install automated visibility warning systems to detect reduced visibility conditions

Tornado

- ◆ Construct storm shelters in campgrounds and mobile home parks
- ◆ Bury electrical and telephone lines and other utility cables
- ◆ Continue to enforce building codes and strengthen requirements when appropriate
- ◆ Include safety strategies for severe weather events in driver education classes

Severe Storms/Hail

- ◆ Encourage property owners to use building products (e.g., roofing, siding) resistant to hail damage or wind damage and anchoring devices in new construction

Snow Storms

- ◆ Bury electrical and telephone lines and other utility cables

- ◆ Install temporary snow fences along road ways that have experienced blowing and drifting snow
- ◆ Continue to enforce building codes and strengthen requirements when appropriate
- ◆ State and local governments can produce and distribute information to motorists relating to severe winter weather hazards
- ◆ Include safety strategies for severe weather events and winter driving in driver education classes

Extreme Temperature

- ◆ Establish heating and cooling centers for vulnerable populations including the elderly and homeless
- ◆ Encourage local residents to contact friends, neighbors, and other family members during periods of extreme temperature

Drought

- ◆ Adopt local ordinances for prioritizing water usage during drought emergencies
- ◆ Develop public wells in deep aquifers
- ◆ Maintain enough water storage capacity in public water systems
- ◆ Protect wetlands from development
- ◆ Encourage the use of water-saving devices in homes and other places where water is used
- ◆ Encourage farmers to take out crop insurance
- ◆ Protect important aquifer recharge areas from inappropriate development

Wildland Fire

- ◆ Maintain appropriate fire fighting equipment to effectively respond to wildland fires
- ◆ Ensure that new homes are well protected from wildland fires and have multiple routes of ingress and egress
- ◆ Provide homeowners with information on how to create a defensible space around structures
- ◆ Bury electrical and telephone lines and other utility cables
- ◆ Institute measures to reduce soil erosion following a wildland fire event
- ◆ Local governments in rural areas can require the issuance of burn permits
- ◆ Encourage property owners to conduct controlled burns as a means of controlling fuel buildup

3. EXISTING MITIGATION STRATEGIES

FLOOD PROTECTION

Although most of the dams in Walworth County were built for recreational purposes, a number of them provide attenuation of peak discharges on the watercourses where they are located. Como Lake, Delavan Lake, Green Lake, Lake Geneva, and Whitewater Lake provide substantial attenuation of peak discharges on the watercourses where they are located. Most other lakes provide little to no attenuation of peaks and therefore provided little in the way of flood protection.

There is a dam on Honey Creek within the corporate limits of East Troy. Its primary use is for recreation. It has little effect on attenuation of peak discharges and, therefore, offers very little flood protection. The Swan Creek Basin also contains flat marshy areas upstream of the city of Delavan. These areas, along with the two control structures at Mill Pond and Delavan Lake, provide

significant retention of floodwaters and attenuate peak discharges within the city of Delavan. The Turtle Creek Basin has a control structure at the Comus Lake outlet which, along with the flat marshy areas upstream of the city of Delavan, provides significant natural retention of floodwaters.

NATIONAL FLOOD INSURANCE PROGRAM

In 1968, Congress created the National Flood Insurance Program (NFIP)¹ to identify and map flood-prone communities and provide flood insurance to those property owners within a community that has adopted floodplain management regulations that meet minimum requirements. The Federal Insurance and Mitigation Administration, a division of the Federal Emergency Management Agency (FEMA), administers this federal program. Over 21,000 communities across the United States and its territories now participate in the NFIP.

Walworth County currently participates in the NFIP along with each of the cities and villages with the exception of the City of Elkhorn and the villages of Darien and Williams Bay (Table 6-1).

According to a fact sheet produced by FEMA, the effects of non-participation in NFIP are as follows:

1. Flood insurance will no longer be available. No resident will be able to purchase a flood insurance policy.
2. No federal grants of loans for buildings may be made in identified flood hazard areas. Includes all federal agencies such as HUD, EDA, Small Business Administration, HHS, etc.
3. Only limited federal disaster assistance may be provided in identified flood hazard areas.
4. No federal mortgage insurance may be provided in identified flood hazard areas. This includes FHA, VA, Farmers Home, etc.
5. Legislative changes to Flood Disaster Protection Act, (FDPA) lifted restriction on conventional loans in non-participating communities and replaced it with the requirement that lenders (a) must notify buyer or lessee that property is in a flood area: and (b) must notify buyer or lessee that property in flood hazard area is not eligible for Federal disaster relief in a declared disaster.
6. Actuarial rates go into effect regardless or whether or not a community participates in the program. Without a local floodplain management ordinance unsafe construction today may be prohibitively expensive, and therefore unsalable, tomorrow. Such a condition could be triggered by a community's reentry in the program at a later date. Examples of reasons for re-establishing eligibility are as follows (a) New legislative body or inclination of such a body. (b) Larger share of mortgage market through FHA, VA, Farmers Home. (c) Federal grant or loan for particular project. (d) A major disaster, triggering need for disaster aid. (e) Changed political pressures.
7. Local governing body may be susceptible to some form of liability by not participating because their action: (a) denies the ability of its citizens to purchase flood and related water damage insurance, and (b) does not take positive steps to reduce the exposure of life and property in the face of authoritative scientific and technological data. Up to now, there have been no consistent court rulings along these lines.

¹ The National Flood Insurance Program was created with the passage of the National Flood Insurance Act of 1968.

Table 6-1. National Flood Insurance Program (NFIP) Status: April 2013

Jurisdiction	Status
Village	
Bloomfield [2]	Current FIRM adopted 10/2/2009
Darien	Not in Program
East Troy	Current FIRM adopted 10/2/2009
Fontana-on-Geneva Lake	Current FIRM adopted 10/2/2009
Genoa City [1]	In program, but on probation effective June 28, 2010
Mukwonago [1]	Current as of 10/2/2009
Sharon	Not mapped
Walworth	Participating, but does not contain any [special flood hazard areas (SFHAs), all Zone C
Williams Bay	Not in Program
City	
Burlington [1]	Current FIRM adopted 05/02/2012
Delavan	Current FIRM adopted 10/2/2009
Elkhorn	Not in Program
Lake Geneva	Current FIRM adopted 10/2/2009
Whitewater [1]	Current FIRM adopted 10/2/2009
Walworth County, unincorporated	Current FIRM adopted 10/2/2009

Source: Federal Emergency Management Agency (<http://www.fema.gov/fema/csb.shtm>);
Data retrieved April 16, 2013

Notes: 1. Municipality located in Walworth County and another county; data is for entire municipality
2. The village incorporated on December 20, 2011

Participation in the NFIP is based on an agreement between a local community 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.

The Walworth County floodplain ordinance is based on a model established by the Wisconsin Department of Natural Resources. In 2008, the DNR drafted a new model ordinance. All existing floodplain ordinances need to meet the requirements.

For those jurisdictions that participate in the NFIP, property owners are able to purchase flood insurance, including those not located within a mapped floodplain area. Flood insurance pays even when no state or federal disaster is declared. Historically, federal disaster declarations have been issued in less than 50 percent of the flooding incidents.

There are two types of flood insurance. The first is a policy that insures the physical structure and the second is a policy that covers the content of the building. The standard flood insurance policy provides coverage for one building per policy. The only exception is 10 percent coverage for a detached garage. However, the total payment for flood damage to the detached garage and the house together cannot exceed the building policy limit. For coverage to apply, the garage can only be used for parking and storage. All other buildings on the premises need separate coverage. The maximum allowable limits are \$250,000 for residential properties and \$500,000 for commercial properties.

Contents are not automatically included. If contents coverage is desired, a

specific amount must be named and a separate premium charged. Contents coverage limits are \$100,000 for residential policies and \$500,000 for commercial policies.

Building property coverage includes:

- ◆ The insured building and its foundation
- ◆ The electrical and plumbing systems
- ◆ Central air conditioning equipment, furnaces, and water heaters
- ◆ Refrigerators, cooking stoves, and built-in appliances such as dishwashers
- ◆ Permanently installed carpeting over an unfinished floor
- ◆ Permanently installed paneling, wallboard, bookcases, and cabinets.
- ◆ Window blinds
- ◆ Detached garages (up to 10 percent of building property coverage)
- ◆ Debris removal

Federal disaster declarations are issued in less than 50% of the flooding incidents.

Personal property coverage includes:

- ◆ Personal belongings such as clothing, furniture, and electronic equipment
- ◆ Curtains
- ◆ Portable and window air conditioners
- ◆ Portable microwave ovens and portable dishwashers
- ◆ Carpets not included in building coverage (see above)
- ◆ Clothes washers and dryers
- ◆ Food freezers and the food in them
- ◆ Certain valuable items such as original artwork and furs (up to \$2,500)

The cost of an annual regular flood insurance policy varies depending on the site location, age of the building, design of the building, and elevation of the building if located in a flood hazard area

Sanitary sewer backups are not covered. However, many homeowners policies do have riders to cover sewer back-ups. Sewer back-up riders can cost as little as \$30 per year.

While flood insurance coverage can significantly reduce the potential economic loss to a landowner in case of a flood disaster, flood insurance also helps reduce the cost of disaster aid to the general public. It has been shown that every \$3 paid in flood insurance claims saves \$1 in disaster assistance payments.

In July 2005, there were 63 insurance policies in Walworth County with coverage of more than \$10.4 million. As of January 2013, the number of policies stands at 103, representing an increase of 63 percent when compared to 2005. Likewise, the total coverage has substantially increased to more than \$24.6 million, representing an increase of 136 percent since 2005.

Table 6-2. Flood Insurance Policies: January 2013

Jurisdiction	Policies	Total Coverage	Total Premiums
Village			
Bloomfield [2]	0	0	0
Darien	0	0	0
East Troy	2	\$780,000	\$1,567
Fontana-on-Geneva Lake	8	\$2,027,000	\$2,812
Genoa City [1]	0	0	0
Mukwonago [1]	17	\$3,695,600	\$8,914
Sharon	0	0	0
Walworth	2	\$630,000	\$783
Williams Bay	0	0	0
City			
Burlington [1]	0	0	0
Delavan	1	\$250,000	\$1,531
Elkhorn	0	0	0
Lake Geneva	6	\$1,722,000	\$3,902
Whitewater [1]	0	0	0
Walworth County, unincorporated	67	\$15,520,800	\$38,216
Total	103	\$24,625,400	\$57,725

Source: Federal Emergency Management Agency (<http://bsa.nfipstat.fema.gov/reports/1011.htm>)
Data retrieved March 13, 2013

Notes:

1. Municipality located in Walworth County and another county; data is for entire municipality
2. The village incorporated on December 20, 2011

Table 6-3. Insurance Premium Reductions for Communities in the Community Rating System

CRS Rating	Special Flood Hazard Area	Non-Special Flood Hazard Area
1	45%	10%
2	40%	10%
3	35%	10%
4	30%	10%
5	25%	10%
6	20%	10%
7	15%	5%
8	10%	5%
9	5%	5%
10	0	0

COMMUNITY RATING SYSTEM

The Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum requirements of the National Flood Insurance Program (NFIP). Because flood risk has been reduced, policy holders in participating communities enjoy lower flood insurance premiums than those located in a community that is not part of CRS. Flood insurance premium rates are discounted as shown in Table 6-3 based on a community's rating. A Class 1 community receives a 45 percent premium discount, while a Class 9 community receives a 5 percent discount. A Class 10 community is not participating in CRS and receives no discount. The CRS classes for local communities are based on 18 activities, organized under four categories (1) public information, (2) mapping and regulations, (3) flood damage reduction, and (4) flood preparedness. Nationwide, 1,049 communities are part of CRS, or roughly 5 percent of those who are eligible.

All of the jurisdictions in Walworth County that participate in the NFIP have a rating of 10 (Table 6-4).

PROPERTY ACQUISITION AND STRUCTURE REMOVAL

In some instances, communities have purchased structures that have been repeatedly flooded using federal, state, and local funding. As of 2008, Walworth County and none of the local jurisdictions have used this tool. The town of Sugar Creek purchased five homes that were flooded in 2008.

STORMREADY

StormReady is a national voluntary program, administered through local National Weather Service offices that encourages communities to take a proactive approach in developing plans to improve local hazardous weather operations and public awareness for all types of local severe weather threats². It is intended to give communities the skills and education needed to cope with and manage potential weather-related disasters, before and during the event. By participating in StormReady, local agencies can earn recognition for their jurisdiction by meeting criteria established by the National Weather Service in partnership with federal, state, and local emergency management professionals.

The program does not replace any of the various federally or state-funded hazard mitigation programs, rather, it compliments them. The entire community - from the mayor, emergency managers, to business leaders and civic groups - can take the lead on becoming StormReady. Education and communication are a key part of the StormReady program. The Wisconsin StormReady Advisory Board, comprised of National Weather Service personnel and state, regional, and county emergency managers, reviews applications and visits the jurisdictions to verify the steps made in the process to become StormReady. The designation is only valid for two years.

In Wisconsin, there are three counties and eight municipalities that are certified StormReady (Table 6-5). The city of Whitewater is the only jurisdiction in the Walworth County to be certified.

Table 6-4. Community Rating System Rating of Selected Jurisdictions; Walworth County: 2013

Jurisdiction	CRS Rating
Village	
Bloomfield [2]	10
Darien	10
East Troy	10
Fontana-on-Geneva Lake	10
Genoa City [1]	na
Mukwonago [1]	10
Sharon	10
Walworth	10
Williams Bay	na
City	
Burlington [1]	10
Delavan	10
Elkhorn	10
Lake Geneva	10
Whitewater [1]	10
Walworth County, unincorporated	10

Notes:

1. Municipality located in Walworth County and another county
2. The village incorporated on December 20, 2011

Table 6-5. StormReady Jurisdictions; Wisconsin 2013

Counties	Communities
Lincoln	Bayside
Oneida	Belleville
Racine	Cedarburg
St. Croix	Dousman
	Hillsboro
	Lake Mills
	New Berlin
	Viroqua
	Waupaca
	Whitewater

Source: www.stormready.noaa.gov/communities.htm
Data retrieved February 10, 2014

² More information about StormReady is available from the Milwaukee/Sullivan Weather Service Forecast office. www.crh.noaa.gov/mkx/?n=stormready-mkx

NOAA WEATHER RADIO ALL HAZARDS

NOAA Weather Radio (NWR) is a nationwide network of radio stations broadcasting continuous weather information direct from a nearby National Weather Service office. NWR broadcasts National Weather Service warnings, watches, forecasts, and other hazard information 24 hours a day. It is also used to broadcast warning and post-event information for all types of hazards - both natural events (e.g., severe weather, flooding) and man-made events (e.g., Amber Alerts, toxic, chemical, and biological releases, terrorist attacks). In some states, Amber alerts are not broadcast on NWR; Wisconsin is an example. The radios can be programmed to receive information specific to a certain geographic area and sound an alarm to alert users of approaching dangerous weather. NWR is the primary actuator of the Federal Communications Commission's Emergency Alert System (EAS).

The NOAA Weather Radio network provides authoritative weather and emergency information to the public.

As of April 18, 2013, the NWR network included more than 900 stations covering an estimated 97 percent of the U.S. population. The Milwaukee/Sullivan Weather Service Forecast office is located in the town of Sullivan and serves 20 counties in south-central and southeast Wisconsin and programs seven transmitter sites. NOAA Weather Radios are available through retail stores that sell electronic appliances, marine supply stores, truck stops, cable shopping networks, mail order catalogs, and the Internet.

URBAN STORMWATER MANAGEMENT ORDINANCES

New urban development brings with it increases in impervious surfaces such as rooftops, driveways, and streets. As areas develop into urban land uses, there is an increase in both volume and rate of runoff. To control the rate of runoff and potential downstream increases in peak flood elevations, some communities require detention of stormwater.

Walworth County has a stormwater management ordinance and each of the cities and villages have an ordinance as well.

EROSION AND SEDIMENT CONTROL ORDINANCES

Sediment from construction sites can deposit in local streams causing blockages that can result in potentially higher flood elevations during storm events. To control construction site erosion from construction sites, the Wisconsin Department of Commerce has adopted construction site erosion control regulations through the state Uniform Building Code. State erosion control regulations are enforced by local building inspectors. In addition to the state regulations, Walworth County has adopted a construction erosion control ordinance for new developments.

SHORELAND ZONING

Under Wisconsin Administrative Code NR 115, counties are required to adopt a shoreland zoning ordinance that controls development within the shoreland³ of lakes and streams. The shoreland-zoning ordinance establishes minimum lot sizes—10,000 square feet on public sanitary sewer and 20,000 square feet on private sanitary systems. Buildings must be setback 75 feet from the ordinary high-water mark and comply with local floodplain zoning ordinances. The ordinance regulates the cutting of trees and shrubbery within 35 feet of the ordinary high-water mark and prohibits more than 30 feet of every 100 feet to be removed. Primary uses in the shoreland-zoning district are limited to open

³ A shoreland is defined as land within the following distances from the ordinary high-water mark of navigable waters: 1000 feet from a lake, pond, or flowage; and 300 feet from a river or stream or the landward side of the floodplain, whichever is greater. (NR 115.03 (8))

space, agricultural, and maintenance of piers, roadways, and public utilities. These development standards follow land when it is annexed into a city or village, unless the municipality has adopted an ordinance as strict as the county ordinance.

Walworth County has adopted an ordinance consistent with state requirements. No city or village has adopted a shoreland zoning ordinance.

SHORELAND WETLAND ZONING

Under Wisconsin Administrative Code NR 115, counties are required to adopt a shoreland wetland zoning ordinance that creates a shoreland wetland zoning district to control the development of wetlands that are two acres or more in size within the shoreland area. Permitted uses in the shoreland wetland district are limited to:

- ◆ recreation (hiking, fishing, hunting, swimming, and boating)
- ◆ agriculture
- ◆ public roadways and railroad lines
- ◆ public utilities
- ◆ non-residential building used for aquaculture

These development standards follow land when it is annexed into a city or village, unless the municipality has adopted an ordinance as strict as the county ordinance.

Walworth County has adopted an ordinance consistent with state requirements. No city or village has adopted a shoreland-wetland zoning ordinance.

COMPREHENSIVE PLANS

In 1999, the governor signed legislation that created a new framework for comprehensive planning in Wisconsin. By January 1, 2010, any community wanting to regulate land use must have an adopted comprehensive plan that meets minimum state requirements. Although state requirements do not require that natural hazard planning be a part of a comprehensive plan, communities do have an opportunity to consider natural hazards when devising land use plans and goals, objectives, and policies relating to land use and environmental management. Table 6-6 shows the status of these plans in the county.

FARMLAND PRESERVATION PROGRAM

The state of Wisconsin created the Wisconsin Farmland Preservation Program in 1977 to support the efforts of counties to preserve agricultural resources. If a county has an approved agricultural preservation plan that meets the standards of Chapter 91, Wisconsin Statutes, qualified farmland owners are eligible to receive a state income tax credit. In 1978, the county board adopted an agricultural preservation plan. Aside from protecting farmland from urban development, the county's plan will help to protect natural floodplains and flood storage.

TORNADO SIRENS

Tornado sirens are maintained by the various cities, villages, and towns in the county. It is not known how much of the county is not covered by a siren. The emergency operations plan for Walworth County identifies the procedures and resources used to provide interagency communications between responders and the procedures and resources used to provide warning to county residents in the event of a disaster.

Table 6-6. Status of Comprehensive Plans in Walworth County: March 2013

Jurisdiction	Status
Walworth County	Adopted 2009
Village	
Bloomfield [2]	None
Darien	Not known
East Troy	Not known
Fontana-on-Geneva Lake	Adopted 2009
Genoa City [1]	Adopted 2008
Mukwonago [1]	Adopted 2009
Sharon	Adopted 2004
Walworth	In progress - started 2010
Williams Bay	Adopted 2010
City	
Burlington [1]	Not known
Delavan	Adopted 2009
Elkhorn	Adopted 2005
Lake Geneva	Adopted 2011
Whitewater [1]	Adopted 2010

Source: Verified March 2013

Notes:

1. Municipality located in Walworth County and another county
2. The village incorporated on December 20, 2011

MANAGEMENT OF FLOODED ROADWAYS

During larger flood events, some roadways in the county are blocked with water, which can create a potentially dangerous scenario for drivers, limit access to areas within the county, or cause travel delays. This section describes the ways in which flooded roads can be addressed, including roadway modification (e.g. bridge replacement and elevate roadway) and road closure.

Bridge Replacement. In some cases, an alternative to road inundation may be to increase the hydraulic opening of the bridge to allow more water to flow past the bridge and reduce the backwater on the upstream side of the bridge. When a bridge/culvert is scheduled for replacement due to age or roadway expansion, the bridge designers should look at the effect of the bridge design on the roadway overtopping. If feasible, the new bridge should be replaced with a structure that would meet the criteria outlined in Table 6-7.

The Wisconsin Department of Transportation (WDOT) provides design criteria for structure crossings a stream in the *Facilities Development Manual* (Procedure 13-10-1). Major structures, such as bridges and box culverts, are designed using a process of selecting a design frequency which best produces a balance between structure costs and the cost of potential flood-related damages or risks. Structures in new locations are generally designed to accommodate the 100-year event without increasing the upstream flood stages over existing conditions. Replacement structures are generally designed not to increase the headwater elevation from existing conditions.

In some situations, structure sizes may be increased to reduce the upstream flood elevations. In those cases, if the existing structure is causing upstream flood storage, the flows will need to be re-evaluated to determine if the new structure will increase downstream flows and stages. Under Wisconsin Administrative Code NR 116, if a new bridge results in upstream or downstream increases in the flood elevation greater than 0.01 feet (about 1/8"), easements from the affected landowners are required. Where feasible, roadway surfaces should be designed to provide emergency access during flood events.

Elevation of Roadways An alternative to roadway inundation is to raise the pavement surface to above the regional flood elevation. Placing additional fill along the roadway corridor would raise the road surface. While this alternative would help maintain public access, the raising of the road surface may increase flood elevations upstream of the fill. The fill would need to be structurally designed to withstand the hydraulic pressures of floodwaters. As roadway maintenance is scheduled, the designers should consider the alternative of roadway elevation. Roadways should only be raised where the project is cost effective.

Road Closures During Flooding Drowning is obviously the number one cause of flood deaths. What is surprising is the fact that more people drown in their cars than anywhere else. During flood events, the depth of the water over road surfaces is difficult to predict. Many drivers enter water they think is a few inches deep, only to find themselves in the center of a flowing stream.

The emergency operations plan for Walworth County outlines the procedures for emergency response during flood events including steps to close flooded roads and reroute traffic.

Table 6-7. Recommended Roadway Flood Protection Level

Roadway Classification	Recommended Protection Level
Interstate and railroads	100-year flood
State & county highway	50-year flood
Local arterial	50-year flood
Minor and collector street	10-year flood

PUBLIC INFORMATION

Information is one of the most important tools in helping people mitigate the potential impacts of natural hazards. To be effective, information needs to be available from several sources and be offered on an on-going basis.

By way of example, Exhibit 6-1 outlines the roles of the various organizations involved in public education with regards to floodplain issues.

Exhibit 6-1. Organizations and Their Roles in Distributing Public Information Regarding Floodplain Management

Organization / Activities

Federal Emergency Management Agency (FEMA)

- ◆ Provides information on National Flood Insurance Program (NFIP)
- ◆ Provides training to insurance industry on implementation of NFIP
- ◆ Provides technical information on flood mitigation activities
- ◆ Maintains a national library of floodplain maps

Wisconsin Emergency Management

- ◆ Provides information and training in emergency management including preparedness, response, recovery, and mitigation activities

Wisconsin Department of Natural Resources

- ◆ Provides information on National Flood Insurance Program (NFIP)
- ◆ Provides technical information on flood mitigation activities
- ◆ Maintains a state library of floodplain maps and flood profile models
- ◆ Provides training to local zoning administrators on implementation of floodplain zoning ordinances

Walworth County Land Use & Resource Management Department (LURM)

- ◆ Maintains local library of floodplain maps
- ◆ Provides information on National Flood Insurance Program (NFIP)
- ◆ Provides information on county floodplain regulations

Local Insurance Agents

- ◆ Provides information on National Flood Insurance Program (NFIP)

Local Lending Agencies

- ◆ Provides information on National Flood Insurance Program (NFIP). Flood insurance is required on federally-backed mortgages for properties located in a floodplain.

Real Estate Agents

- ◆ Provides information on National Flood Insurance Program (NFIP)
- ◆ Required by state law to notify buyers whether or not a structure is located in a regulatory floodplain

In an effort to keep state residents informed about natural hazards, the National Weather Service and Wisconsin Emergency Management sponsors a number of public awareness campaigns, including:

- ◆ Tornado & Severe Weather Week
- ◆ Rip Current Awareness Week
- ◆ Heat Awareness Day
- ◆ Lightning Safety Week proclamations
- ◆ Winter Awareness Week
- ◆ Flood Safety Week

4. FUNDING SOURCES

AVAILABLE FEDERAL FUNDING SOURCES

The Federal Emergency Management Agency administers a number of programs that fund mitigation activities at the local and state level.

Hazard Mitigation Grant Program 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 HMGP 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. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Flood Mitigation Assistance Program The Flood Mitigation Assistance (FMA) program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist States and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program.

Pre-Disaster Mitigation Program The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.

Repetitive Flood Claims Program The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968. Up to \$10 million is available annually for FEMA to provide RFC funds to assist States and communities reduce flood damages to insured properties that have had one or more claims to the National Flood Insurance Program. Eligible activities include acquisition of properties, and either demolition or relocation of flood-prone structures, where the property is deed restricted for open space uses in perpetuity.

Severe Repetitive Loss Program The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP). The act authorized up to \$40 million for each fiscal year 2005 through 2009.

Eligible flood mitigation project activities include floodproofing (historical properties only), relocation, elevation, acquisition, mitigation reconstruction (demolition rebuild), and minor physical localized flood control projects.

FUNDING RECEIVED

As of 2013, Walworth County has not received any federal funding for mitigation activities.

Table 6-8. Federal and State Funding for Mitigation Activities: 1965–2013

Year	Jurisdiction	Amount	Funding Source	Funded Activities
2008?	Walworth County	\$____		Preparation of initial hazard mitigation plan
2012?	Walworth County	\$____		5-year update of hazard mitigation plan
	Town of Sugar Creek ???			
	Walworth County			
	Walworth County			

Source: Walworth County Emergency Management

5. REVIEW OF CAPABILITIES

This multi-jurisdictional plan covers all of the unincorporated area of Walworth County and 14 municipalities – 9 villages and 5 cities. They all have different levels of resources and personnel that could be made available in the implementation of this plan (Table 6-8).

Table 6-8. Summary of Staff Capabilities: 2013

	Administrator	Emergency Management Staff	Community Planner
Village			
Bloomfield [2]	No	No	No
Darien	No	No	No
East Troy	Yes	No	No
Fontana-on-Geneva Lake	Yes	No	No
Genoa City [1]	No	No	No
Mukwonago [1]	Yes	No	No
Sharon	No	No	No
Walworth	Yes	No	No
Williams Bay	Yes	No	No
City			
Burlington [1]	Yes	No	No
Delavan	Yes	No	No
Elkhorn	Yes	No	Yes
Lake Geneva	Yes	Yes (0.5 FTE)	No
Whitewater [1]	Yes	Yes (1 FTE)	Yes
Walworth County	Yes	Yes (1.3 FTE)	Yes (2 FTE)

Notes:

1. Municipality located in Walworth County and another county
2. The village incorporated on December 20, 2011

6. GOALS, OBJECTIVES, POLICIES, AND ACTIVITIES

This section builds off of the previous parts of the plan and presents a unified plan of action to mitigate the effects of natural hazards on property, people, and assets. It lists goals, objectives, and policies that should guide decision-makers and other officials. Goals are intended to describe an end state, usually in general terms. In contrast, objectives describe an end state in measurable and specific terms. Policies give clear direction on what will be done to help achieve a goal and/or objective.

Following the listing of goals, objectives, and policies, a chart lists specific action items. Responsible entities are listed for each activity so that implementation is well defined.

The activity charts are a work in progress. As items are completed they should be deleted and new items will be added as new opportunities or issues arise. Further, depending on available resources, including funding and staff time, priorities may change.

PRIORITIZATION OF GOALS AND ACTIONS

Activities are prioritized as low, medium, or high based on the STAPLE+E approach. Exhibit 6-2 lists each of the criteria used to identify the priority. The mitigation actions with the highest priority were deemed to be the most cost effective and most compatible with the community's social and cultural values.

Exhibit 6-2. STAPLE+E

Criteria	Description
S- Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
T-Technical	Mitigation actions are technically most effective if they provide long- term reduction of losses and have minimal secondary adverse impacts.
A – Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
P – Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
L – Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
E – Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
E – Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

COST BENEFIT ANALYSIS FOR GOALS AND ACTIONS

Specific cost benefit reviews will occur for each action in each participating jurisdiction during annual budget scenarios. Most identified actions are programmatic and not capital expenditures. The impact and cost of each program will be determined on an as needed basis prior to implementation. The information provided with each action is intended to assist in the cost benefit evaluation of each action. Costs estimates, funding sources, schedules, and

responsible parties are preliminary and subject to change based on fiscal conditions. Federal funding for mitigation activities can only be obtained when benefits clearly outweigh the costs.

Cost estimates are provided to help formulate funding priorities. When a project is to be undertaken, a more detailed budget should be prepared to assess a project's cost. At that time, a benefit cost analysis should be completed to show how the benefits of the project compare to anticipated costs. Federal funding for mitigation activities can only be obtained when benefits clearly outweigh the costs.

RELATIONSHIP TO OTHER LOCAL PLANNING EFFORTS

It is strongly recommended that these goals and actions be adopted as part of local comprehensive planning efforts where appropriate, especially in areas where existing problems can be corrected and to prevent problems from occurring in newly developed areas.

SUMMARY OF REVISIONS TO OBJECTIVES, POLICIES, AND IMPLEMENTATION ACTIVITIES

The following exhibit presents a summary of changes in objectives, policies, and implementation activities between the 2009 plan and the 2014 plan. Cost estimates were updated as appropriate.

Exhibit 6-3. Summary of Changes to Objectives, Policies, and Activities in 2014 Plan

Goal	Objectives	Policies	Activities
Goal 1. Public Education	No change	No change	No change
Goal 2. Flooding	No change	No change	Added new action item(s) – 29, 30
Goal 3. Tornadoes	No change	No change	Added new action item(s) - 9
Goal 4. Extreme Temperature	No change	No change	No change
Goal 5. Severe Storms, Hail & High Winds	No change	No change	Added new action item(s) – 10, 11 12
Goal 6. Drought	No change	No change	No change
Goal 7. Wildland Fire	No change	No change	Deleted action item #3 in prior plan relating to a local burning permit program; burning permits are now generally required

UNIQUE IMPLEMENTATION ACTIVITIES

Most of the cities and villages adopting this plan have identified one or more unique implementation activity. After extensive consideration, the villages of Bloomfield and Fontana and the cities of Elkhorn and Genoa City determined that the action items generally applicable to the entire county were sufficient and that no special action items were warranted.

Goal 1. Public Education

Provide the public with the education they need to adequately prepare for and respond to natural hazards including dam failure, flooding, ice shoves, dense fog, tornadoes, hailstorms, thunderstorms, winter storms, extreme temperature, drought, and wildland fire. **(2009 Plan)**

Objectives

1. Strengthen emergency service preparedness and response by enhancing public education throughout the county. **(2009 Plan)**
2. Increase the number of households that have prepared a family emergency plan. **(2009 Plan)**
3. Increase the number of public outreach materials in Spanish. **(2009 Plan)**

Policies

1. Work with non-governmental organizations such as youth, service, professional, religious organizations to promote mitigation education and awareness. **(2009 Plan)**
2. Look for multiple and varied opportunities to disseminate educational information to county residents. **(2009 Plan)**

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
1. Develop and implement education programs aimed at mitigating natural hazards and reducing the risk to citizens, public agencies, private property owners, businesses, and schools. (2009 Plan; 2013 status – no action)	\$5,000	Medium	X	X	Walworth County Emergency Management; American Red Cross; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
2. Create displays for use at public events such as the county fair, wellness fairs (2009 Plan; 2013 status – no action)	Staff time and supplies	Medium	X		Walworth County Emergency Management; Walworth County Department of Health & Human Services; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
3. Work with the representatives of the public and private schools within the county to promote hazard mitigation awareness (2009 Plan; 2013 status – no action)	Staff time	Medium	X	X	Walworth County Emergency Management; American Red Cross; Walworth County Department of Health & Human Services
4. Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; American Red Cross; local jurisdictions, Walworth County Department of Land Use & Resource Management
5. Develop and maintain a geographic database for natural hazard events, including location, weather conditions, and resulting damage. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Emergency Management; Walworth County Information Systems Department, Land Information Division
6. Provide more hazard-related information in Spanish. (2009 Plan; 2013 status – no action)	Staff time	Low	X		Walworth County Emergency Management; Walworth County Department of Health & Human Services, Workforce Development
7. Work with area business representatives and citizens through our Public/Private Partnership to promote hazard mitigation awareness (2013 Plan)	Staff time	Medium	X		City of Lake Geneva

Goal 2. Flooding

Protect the public health, safety, and welfare of county residents and public and private property during flood events. **(2009 Plan)**

Objectives

1. Minimize the impact of flooding on potentially affected structures. **(2009 Plan)**
2. Decrease the number of structures currently located in the 100-year floodplain that are not properly flood-proofed. **(2009 Plan)**
3. Minimize the amount of impervious surface in new development projects to allow more infiltration of storm water into the ground. **(2009 Plan)**
4. Increase public awareness of flooding. **(2009 Plan)**
5. Improve communication between the county and local units of government when floods occur or are likely to occur. **(2009 Plan)**

Policies

1. Continue to enforce floodplain regulations to ensure that future development in the 100-year floodplain meets established standards. **(2009 Plan)**
2. Support the identification and conservation of land with high flood mitigation value (e.g., wetlands, upland storage, and infiltration areas). **(2009 Plan)**
3. Support land acquisition and other management strategies to preserve open space for flood mitigation purposes. **(2009 Plan)**
4. Ensure that governmental officials and employees, county residents, and real estate agents are aware of floodplain regulations. **(2009 Plan)**
5. Ensure that people owning property in the 100-year floodplain, and their agents, notify buyers when selling their property. **(2009 Plan)**
6. Adopt standards to control the proportion of a site that can be covered with impervious surfaces. **(2009 Plan)**
7. Locate public infrastructure outside of the 100-year floodplain. When infrastructure has been located in the 100-year floodplain, it should be flood proofed or otherwise protected from flood water. **(2009 Plan)**
8. Design and properly size all new stream crossings to not create a significant upstream back-water effect. **(2009 Plan)**
9. Continue to enforce storm water management regulations. **(2009 Plan)**
10. Update flood insurance rate maps (FIRMs) when it can be shown that they are substantially inaccurate. **(2009 Plan)**
11. Ensure that all large dams in the county have emergency action plans and that they are up to date. **(2009 Plan)**
12. Undertake such activities as may be required to remain compliant with the requirements of the National Flood Insurance Program. **(2009 Plan)**

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
1. Identify and analyze feasible mitigation options for those properties which may be designated as a repetitive flood property. (2009 Plan; 2013 status – no action)	Staff time	Low	X	X	Walworth County Emergency Management; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
2. Apply for funding through the federal Hazard Mitigation Grant program, Flood Mitigation Assistance Program, and the Pre-Disaster Mitigation Program as well as any other resources that may be available to help flood proof repetitive loss sites or remove them through acquisition followed by demolition or relocation. (2009 Plan; 2013 status – no action)	Staff time	Low	X	X	Walworth County Emergency Management; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
3. Design and budget for stormwater management facilities consistent with adopted stormwater management plans that have been or will be prepared / amended. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; local jurisdictions as appropriate [1]
4. Develop and maintain a digital inventory of bridges/culverts on a county or state road. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Public Works Department, Walworth County Information Systems Department, Land Information Division

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
5. Identify those culverts and bridges that are undersized or are otherwise unable to handle expected flood flows. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Public Works Department, cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
6. Develop and maintain a geographic database for public roadways that are susceptible to flooding. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Public Works Department, Walworth County Information Systems Department, Land Information Division
7. Prepare a strategy to prioritize road improvements for public roadways that are susceptible to flooding. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Public Works Department; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
8. Identify undeveloped areas of the county, if any, that have flood mitigation value and develop appropriate strategies to protect them. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Department of Land Use & Resource Management, cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
9. Establish a framework to compile and coordinate surface water management plans and data throughout the county. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Wisconsin Department of Natural Resources
10. Distribute National Flood Insurance Program information.* (2009 Plan; 2013 status – no action)	Staff time	Medium	X	X	Walworth County Emergency Management; Walworth County Department of Land Use & Resource Management; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
11. Explore options for improving the ability of local units of government to report flooding, receive information, and request assistance as may be needed. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management
12. Develop and maintain a geographic database for natural hazard events, including location, weather conditions, and resulting damage. (2009 Plan; 2013 status – no action)	Staff time	High	X	X	Walworth County Emergency Management; Walworth County Information Systems Department, Land Information Division]

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
13. Evaluate the support for and the feasibility of becoming part of the Community Rating System (CRS) to lower flood insurance premiums for property owners.* (2009 Plan; 2013 status – no action)	Staff time d d d d d	High	X		Walworth County Emergency Management; cities of Delavan, Lake Geneva, and Whitewater; villages of Bloomfield, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, and Walworth (Note: City of Elkhorn and the villages of Darien and Williams Bay are not part of the program)
14. Work with the DNR to ensure that an emergency action plan is prepared for large dams and that they are periodically updated. (2009 Plan; 2013 status – some new EAPs have been prepared)	Staff time	Medium	X		Walworth County Emergency Management
15. Develop a prioritized list of areas of the county meriting detailed flood studies. (2009 Plan; 2013 status – no action)	Staff time	Low	X		Walworth County Emergency Management
16. Ensure that privately-owned large dams are inspected consistent with state law. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; local jurisdictions as appropriate [1]
17. Ensure that publicly-owned large dams are inspected consistent with state law. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Local jurisdictions as appropriate [1], Wisconsin Department of Natural Resources
18. So as to continue compliance with state and federal requirements, revise existing floodplain regulations to ensure they comply with the most recent model floodplain regulations developed by the Wisconsin Department of Natural Resources.* (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Department of Land Use & Resource Management; cities of Delavan, Lake Geneva, and Whitewater; villages of Bloomfield, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, and Walworth (Note: City of Elkhorn and the villages of Darien and Williams Bay are not part of the program)
19. Undertake measures to address flooding within the Oak Knoll subdivision in the Village of Walworth. (2009 Plan; 2013 status – no action)	Unknown	High	X		Village of Walworth
20. Repair the Beulah Dam (County Highway J) (2009 Plan; 2013 status – no action)	Unknown	Medium	X		Walworth County Emergency Management; local jurisdictions [1]
21. Repair the Whitewater Lake Dam (2009 Plan; 2013 status – no action)	Unknown	High	X		Walworth County Emergency Management; local jurisdictions
22. Conduct a study to determine feasible and cost effective solutions to minimize flooding in those lake basins with a natural outlet such as Whitewater Lake and Turtle Lake and those without a natural outlet such as Lake Lorraine. (2009 Plan; 2013 status – no action)	Unknown	Medium	X		Walworth County Emergency Management; effected towns and local jurisdictions
23. Identify restrictions of water flow from Turtle Lake, Turtle Valley Wildlife Area, and Turtle Creek. Identify and analyze mitigation options for those properties and roadways affected. (2009 Plan; 2013 status – no action)	Unknown	High	X		Walworth County Emergency Management; Towns of Sugar Creek and Richmond and other effected towns and local jurisdictions
24. Address the reoccurring flooding of Chilson Road and prevent flood water from entering the sewer facility on Chilson Road. Remove trees from area by road and replace with geotextile material and rock. Also, put in a grassed waterway to help with the water flow. (2009 Plan; 2013 status – no action)	\$9,000 with potential for other funding	High	X		Town of Sharon; Walworth County Conservancy helped with the project design and will oversee the project

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
25. Conduct a study to determine feasible and cost effective solutions to minimize flooding in the Inlet Oaks subdivision and implement a long-term solution. (2009 Plan; 2013 status – no action)	Unknown	High	X		Town of Delavan; Delavan Lake Sanitary District
26. Conduct a study to determine why there is flooding on the north side of Lake Wandewega and implement a long-term solution. (2009 Plan; 2013 status – no action)	Unknown	High	X		Town of Sugar Creek
27. Address the flooding along Potter Road, Hodges Road (near bridge area), and Bray Road (by the cross culvert near Plank Road and W3873 driveway) (2009 Plan; 2013 status – no action)	Unknown	High	X		Town of La Fayette
28. Mitigate flood water at Nipersink through culvert placement and ditch improvements. (2009 Plan; 2013 status – no action)	\$35,000	High	X		Town of Bloomfield
29. Continue to evaluate flooding issues along Madison Street and Wisconsin Street by the Ponds subdivision (New in 2013)	Unknown	High	X		Village of Darien
30. Conduct a study to determine if the Mill Pond dam should be removed or updated (New in 2013)	Unknown	Medium	X		Village of East Troy
31. Continue with dam inspections for as long as dam is in place (New in 2013)	Staff time	Medium	X	X	Village of East Troy, DPW
32. Storm sewer work along George St. and Ballard St. and ditch work along Prairie St. to improve flows (New in 2013)	Unknown	Medium	X		Village of Sharon, DPW

Notes:

* Indicates policies or activities that are intended to ensure continued compliance with the National Flood Insurance Program (NFIP).

Goal 3. Tornadoes

Lessen the effects of a tornado to the extent feasible and speed recovery following an event. **(2009 Plan)**

Objectives

1. Increase public education and awareness of the potential severity of tornadoes. **(2009 Plan)**
2. Minimize the amount of time that businesses damaged by a tornado are not operational. **(2009 Plan)**
3. Minimize the amount of time it takes to rebuild or restore dwellings damaged by a tornado. **(2009 Plan)**
4. Prevent injuries and death from tornadoes. **(2009 Plan)**

Policies

1. Bury overhead power and utility lines where feasible as a way to reduce power outages during all types of storm events. **(2009 Plan)**
2. Require that mobile homes and manufactured housing are securely anchored in place. **(2009 Plan)**
3. Ensure that adequate tornado shelters are available to county residents especially those living in mobile home parks. **(2009 Plan)**
4. Include redevelopment objectives in smart growth comprehensive plans to support post-disaster development activities. **(2009 Plan)**
5. Continue to support the efforts of severe weather spotters. **(2009 Plan)**
6. Keep the current siren system functioning and in good repair. **(2009 Plan)**
7. Encourage residents to obtain NOAA weather radios especially in those areas of the county that are not covered by a siren. **(2009 Plan)**
8. Encourage home builders and others to incorporate wind-resistant features into new home construction (e.g., anchor straps). **(2009 Plan)**

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
1. Periodically assess whether there are enough shelters to house displaced persons. (2009 Plan; 2013 status – no action)	Staff time	Medium	X	X	Walworth County Emergency Management; American Red Cross
2. Apply for mitigation funding to purchase NOAA weather radios for county residents. (2009 Plan; 2013 status – no action)	Staff time	Low	X		Walworth County Emergency Management
3. Study the feasibility of and support for adopting a local regulation which would require new mobile home parks and future expansions of existing parks to provide for a tornado shelter. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management
4. Develop and implement strategies for debris management. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Public Works Department; American Red Cross
5. Amend land development regulations to require a storm shelter in mobile home parks when the number of mobile homes exceeds a threshold as established by the jurisdiction. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Land Use & Management Department, Walworth County Emergency Management; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Sharon, Walworth, Williams Bay
6. Install storm shelters near or in existing mobile home parks and high occupancy campgrounds. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Mobile home park operators and campground operations with Walworth County Emergency Management
7. Develop and maintain a geographic database for natural hazard events, including location, weather conditions, and resulting damage. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Emergency Management; Walworth County Information Systems Department, Land Information Division
8. Identify opportunities for developing a joint dispatch center (2009 Plan; 2013 status – Whitewater completed a study to determine options)	Staff time	High	X		Walworth County Emergency Management and other county departments
9. Install a backup generator in the Town of Troy Town Hall/Fire Hall (New in 2013)	\$30,000	High	X		Town of Troy

10.	Upgrade the command and control for outdoor sirens, update existing sirens as necessary, add new sirens as needed (New in 2013)	Unknown	Medium	X		City of Delavan
11.	Continue preventative maintenance of tornado sirens (New in 2013)	\$1,600 per year	High	X	X	Village of East Troy, DPW

Goal 4. Extreme Temperature

Protect the health of Walworth County residents from extreme temperature. **(2009 Plan)**

Objectives

1. Prevent deaths and injuries from extreme temperature. **(2009 Plan)**

Policies

1. Encourage volunteers to look after vulnerable individuals, especially the elderly, during times of extreme temperature. **(2009 Plan)**
2. Open county and other public facilities with air conditioning as appropriate for public access during periods of extreme heat. **(2009 Plan)**
3. Ensure that county residents are aware that there are different forms of assistance to help qualified individuals to help pay their winter heating costs. **(2009 Plan)**

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
1. Develop a directory of public buildings that would be open to the public during extended heat waves. (2009 Plan; 2013 status – no action)	Staff time	Medium	X	X	Walworth County Emergency Management; Walworth County Department of Health & Human Services
2. Call a meeting of public and nonprofit organizations that may be able to mobilize a volunteer corps of individuals willing to assist vulnerable people during periods of extreme temperature. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Emergency Management; Walworth County Department of Health & Human Services
3. Investigate the possibility of establishing a database of individuals who are vulnerable to extreme temperature and who have voluntarily placed their name on the call list (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Department of Health & Human Services; American Red Cross
4. Publicise available programs that help low-income residents pay for their utility expenses. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Department of Health & Human Services; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
5. Develop and maintain a geographic database for natural hazard events, including location, weather conditions, and resulting damage. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Emergency Management; Walworth County Information Systems Department, Land Information Division
6. Amend the county's emergency operations plan to address extreme temperatures. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management
7. Continue cooling center policy (New in 2013)	Staff time	High	X	X	Village of East Troy

Goal 5. Severe Thunderstorm Winds & Hail and Non-thunderstorm High WindsProtect and prepare Walworth County residents from the dangers of extreme weather. **(2009 Plan)****Objectives**

1. Increase public education and awareness of the potential dangers of thunderstorms, snow storms, hail, and windstorms. **(2009 Plan)**

Policies

1. Bury overhead power and utility lines where feasible as a way to reduce power outages during all types of storm events. **(2009 Plan)**
2. Provide citizens with early storm warnings. **(2009 Plan)**
3. Encourage the use of surge protectors on critical electronic equipment in governmental and critical facilities. **(2009 Plan)**
4. Work with utility companies to assess and to improve, when necessary, electric service reliability. **(2009 Plan)**
5. Work with public and private utility companies to ensure that trees are properly trimmed near utility lines. **(2009 Plan)**

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
1. Continue to update and/or monitor the County's public early warning system and network. (2009 Plan; 2013 status – no action)	Staff time	Medium	X	X	Walworth County Emergency Management; local jurisdictions
2. Review local building codes to determine if revisions are needed to improve the structure's ability to withstand greater wind velocities and encourage provision of safe rooms, especially in structures that do not have a basement. (2009 Plan; 2013 status – no action)	Staff time	Low	X		Walworth County Emergency Management; local jurisdictions
3. Produce and distribute emergency preparedness information related to thunderstorms, snow storms, hailstorms, and windstorm hazards. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; American Red Cross; local jurisdictions
4. Identify and pursue funding opportunities to develop and implement local and county mitigation activities. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; American Red Cross; local jurisdictions
5. Install lightning grade surge protection devices for critical electronic components used by government, public service, and public safety facilities, such as warning systems, control systems, communications, and computers. (2009 Plan; 2013 status – no action)	\$3,000	Medium	X		Walworth County Emergency Management; American Red Cross; local jurisdictions
6. Provide the public with information about proven lightning safety guidelines to reduce the risk of lightning hazards. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; local jurisdictions
7. Develop and implement strategies for debris management. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; Walworth County Public Works, local jurisdictions
8. Apply for mitigation funding to purchase NOAA weather radios for county residents. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management
9. Develop and maintain a geographic database for natural hazard events, including location, weather conditions, and resulting damage. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Emergency Management; Walworth County Information Systems Department, Land Information Division
10. Evaluate the feasibility and effectiveness of adding additional storm sirens (New 2013)	Unknown	Medium	X		Village of Mukwonago
11. Maintain certification as a Weather Safe Community (NWS designation) (New 2013)	Staff time	Medium	X	X	City of Whitewater
12. Continue to replace outdated storm sirens (New 2013)	Unknown	Medium	X		Village of Williams Bay
13. Continue to promote and sponsor severe weather spotter courses	Staff time	Medium	X	X	City of Lake Geneva

14. Establish a storm shelter (New 2013)	Unknown	Medium	X	Village of East Troy
15. Airport weather and wind shear equipment upgrade	Unknown	Medium	X	Village of East Troy

Goal 6. Drought

Protect the public health, safety, and welfare of county residents during periods of drought. **(2009 Plan)**

Objectives

1. Decrease water consumption during periods of drought. **(2009 Plan)**
2. Minimize the economic impacts of drought on the local economy. **(2009 Plan)**

Policies

1. Encourage water conservation during periods of drought. **(2009 Plan)**
2. Impose watering restrictions during periods of extreme drought. **(2009 Plan)**
3. Work with appropriate agencies to conserve water, provide drought prediction, and provide stream and groundwater monitoring. **(2009 Plan)**
4. Work with agencies that can assist with and promote soil health, preserve soil moisture and help to minimize the loss of the crops and topsoil in the event of a drought. **(2009 Plan)**
5. Continue to monitor groundwater levels to identify the status of groundwater resources and trends. **(2009 Plan)**
6. Work with state agencies and other levels of government in developing appropriate regional strategies to address drought conditions. **(2009 Plan)**

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
1. Create an ordinance to prioritize or control water use during drought conditions. (2009 Plan; 2013 status – no action)	Staff time	Medium	X	X	Municipalities with public water systems
2. Develop a set of procedures for water distribution during drought to those in need. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
3. Develop and maintain a geographic database for natural hazard events, including location, weather conditions, and resulting damage. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Emergency Management; Walworth County Information Systems Department, Land Information Division

Goal 7. Wildland Fire

Protect structures and people in Walworth County from uncontrolled wildfires. **(2009 Plan)**

Objectives

1. Decrease the number of wildland fires occurring in the county. **(2009 Plan)**
2. Decrease the number of acres burned from wildland fires. **(2009 Plan)**
3. Increase public education. **(2009 Plan)**

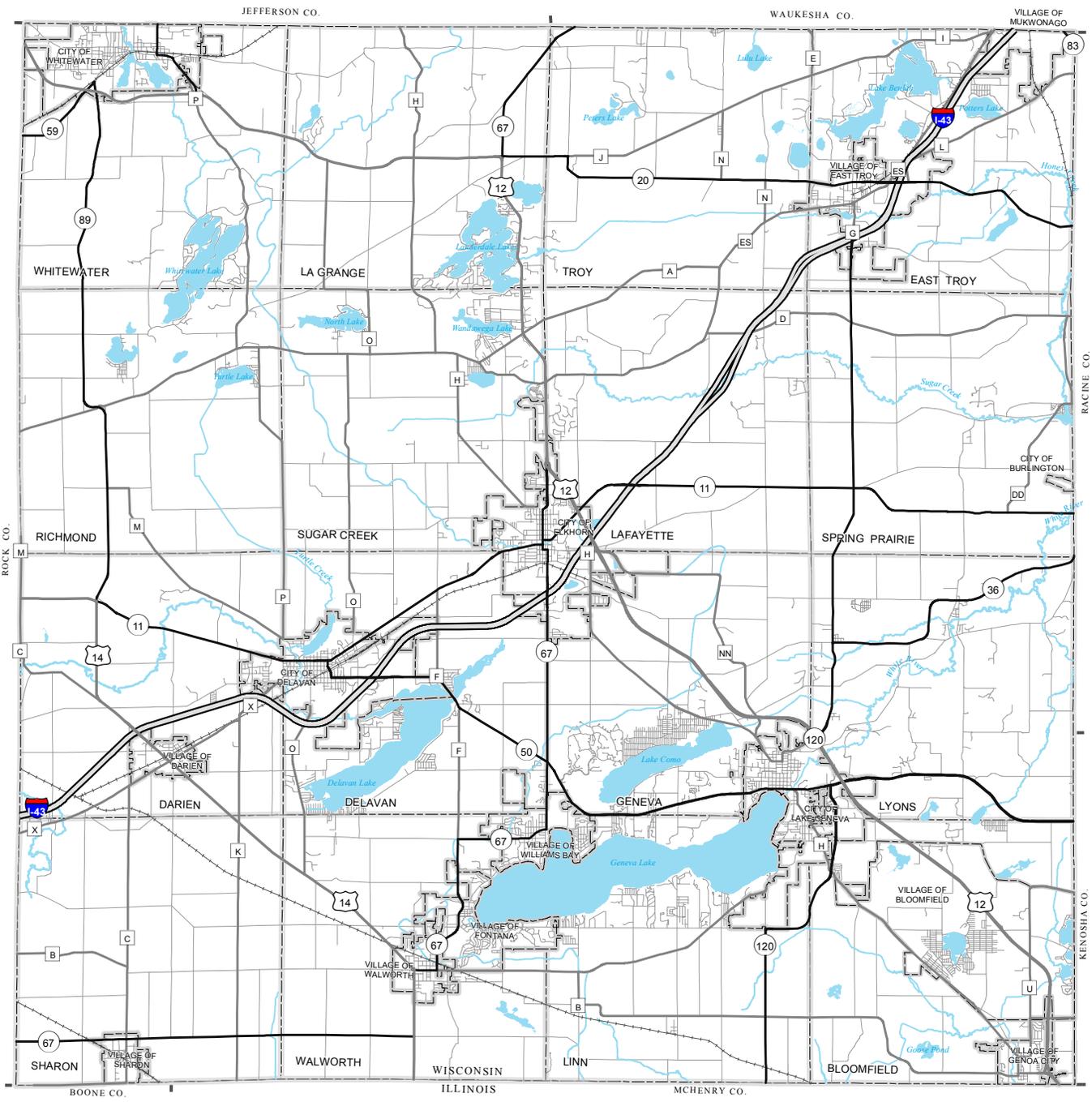
Policies

1. Support the use of controlled burns as a way of reducing the threat of dangerous wildland fires. **(2009 Plan)**
2. Enhance emergency services to increase the efficiency of wildfire response and recovery activities. **(2009 Plan)**
3. Keep track of wildfire events in the county to better document the extent and location of these events. **(2009 Plan)**

Implementation Actions / Strategies	Cost Estimate (2013)	Priority	Schedule		Responsible Entity
			2014 to 2018	2019 to 2023	
1. Apply for federal and state grants to enhance the capability of local fire departments. (2009 Plan; 2013 status – no action)	Staff time	Medium	X	X	Walworth County Emergency Management; local fire departments
2. Provide education to county and municipality personnel about federal cost-share and grant programs, fire protection agreements, and other related federal programs so the full array of assistance available to local agencies is understood. (2009 Plan; 2013 status – no action)	Staff time	Low	X		Walworth County Emergency Management; cities of Delavan, Elkhorn, Lake Geneva, and Whitewater; villages of Bloomfield, Darien, East Troy, Fontana-on-Geneva Lake, Genoa City, Mukwonago, Sharon, Walworth, and Williams Bay
3. Develop a digital database to keep track of wildfire events in the county. (2009 Plan; 2013 status – no action)	Staff time	Medium	X		Walworth County Emergency Management; local fire departments
4. Develop and maintain a geographic database for natural hazard events, including location, weather conditions, and resulting damage. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Emergency Management; Walworth County Information Systems Department; Land Information Division
5. Investigate the establishment of a uniform way of providing information to the public regarding issuance of burning permits. (2009 Plan; 2013 status – no action)	Staff time	High	X		Walworth County Sheriff's Department; local fire departments

MAP SERIES

1. Road Network: 2013
2. Surface Water Resources: 2013
3. Campgrounds and Mobile Home Parks: 2013
4. Bridges and Dams: 2013
5. Public-Use Airports and Railroads: 2013
6. Telecommunication Facilities: 2013
7. Energy Facilities: 2013
8. Public Water and Wastewater Facilities: 2013
9. Public Safety Facilities: 2013
10. Government Facilities: 2013
11. Schools: 2013
12. Special Care Residential Facilities: 2013
13. Special Care Non-Residential Facilities: 2013
14. Health Care Facilities: 2013
15. Structures in 100-Year Floodplain: 2008



Legend

- Local Road
- County Road
- State Highway
- Federal Highway
- Railroad
- Water Body
- River
- Municipal Boundary

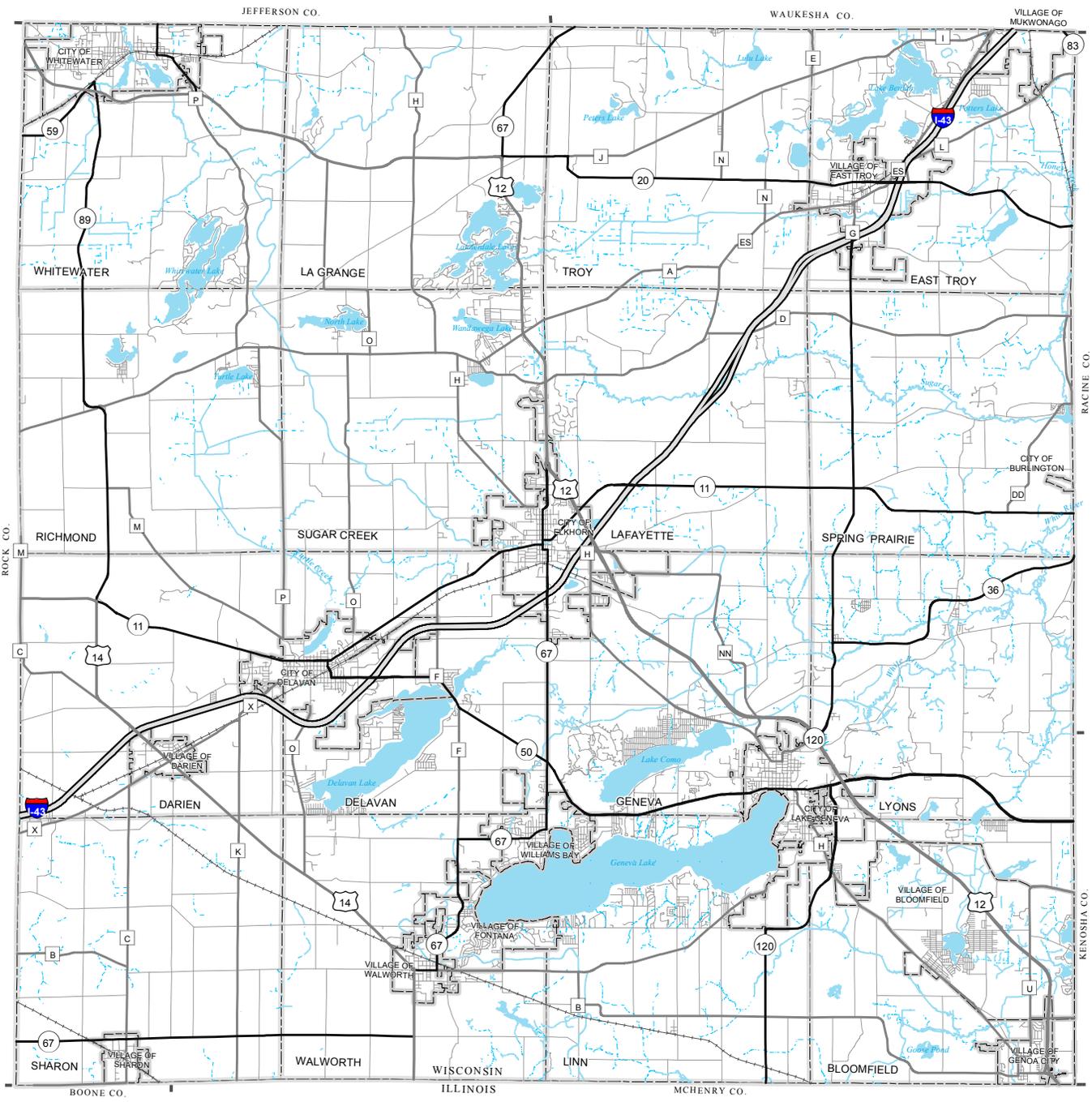
Source: Base map from Walworth County Information Systems Department



**Map 1
Surface
Transportation: 2013**

**Walworth County
Hazard
Mitigation Plan**

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Legend

-  River
-  Stream
-  Water Body
-  Municipal Boundary

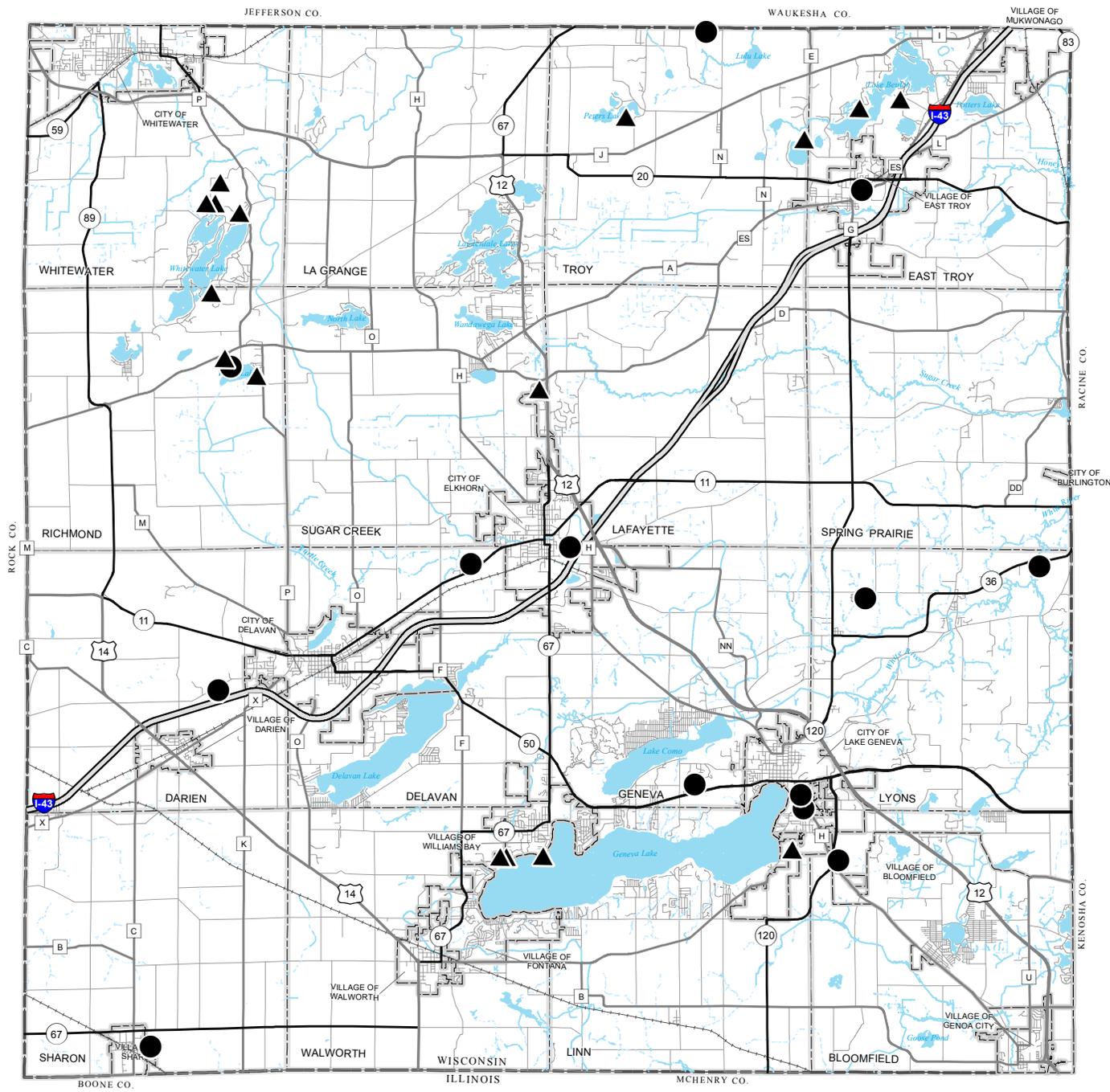
**Map 2
Surface
Water: 2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County Information Systems Department



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Legend

- ▲ Campground
- Mobile Home Park
-  Water Body
-  River
-  Municipal Boundary

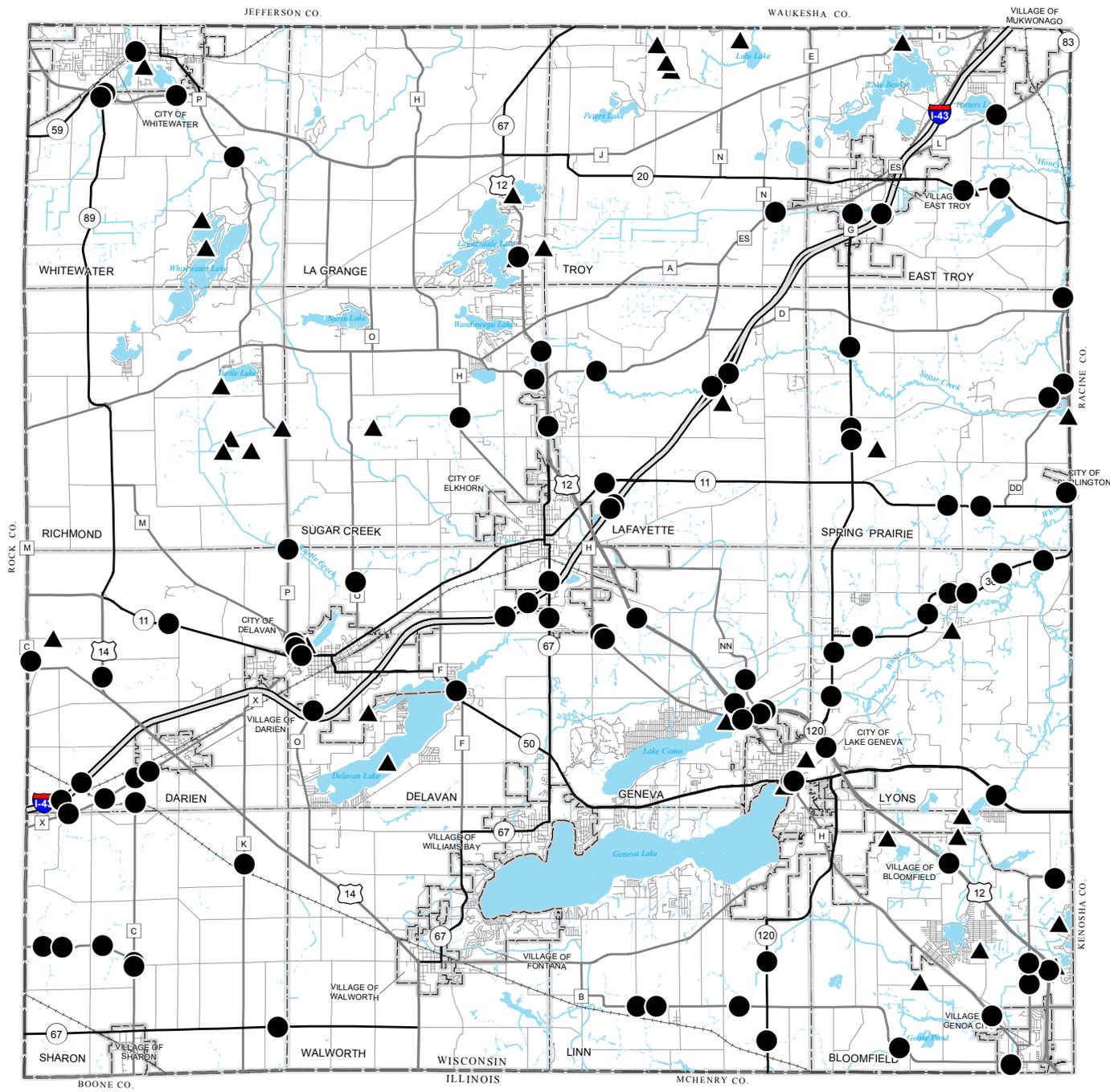
**Map 3
Campgrounds and
Mobile Home
Parks: 2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County Information Systems Department



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Legend

- ▲ Dam
- Bridge
-  Water Body
-  River
-  Municipal Boundary

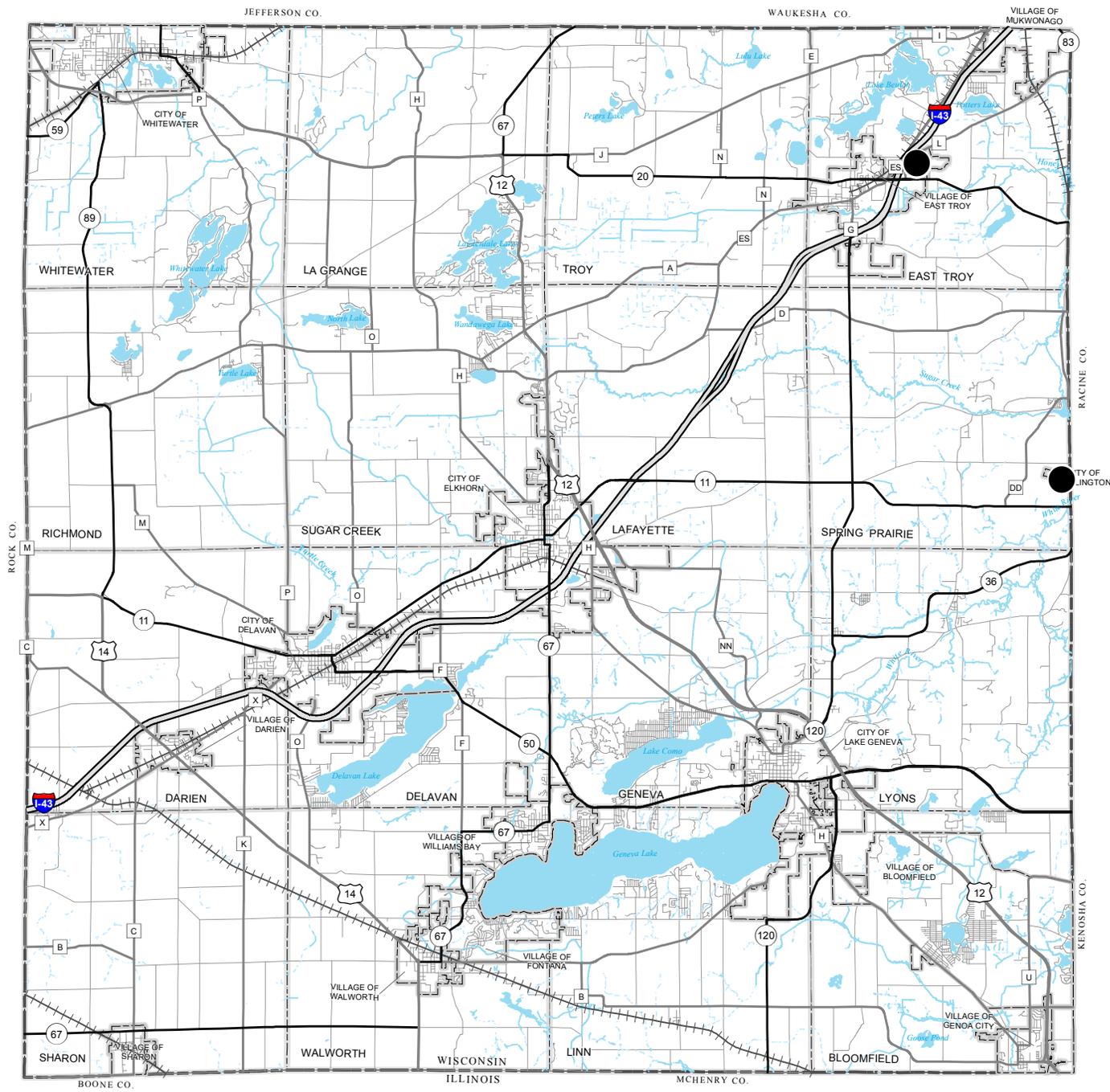
**Map 4
Bridges and
Dams: 2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County Information Systems Department



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Legend

- Public-use Airport
- +— Railroad
- Water Body
- River
- Municipal Boundary

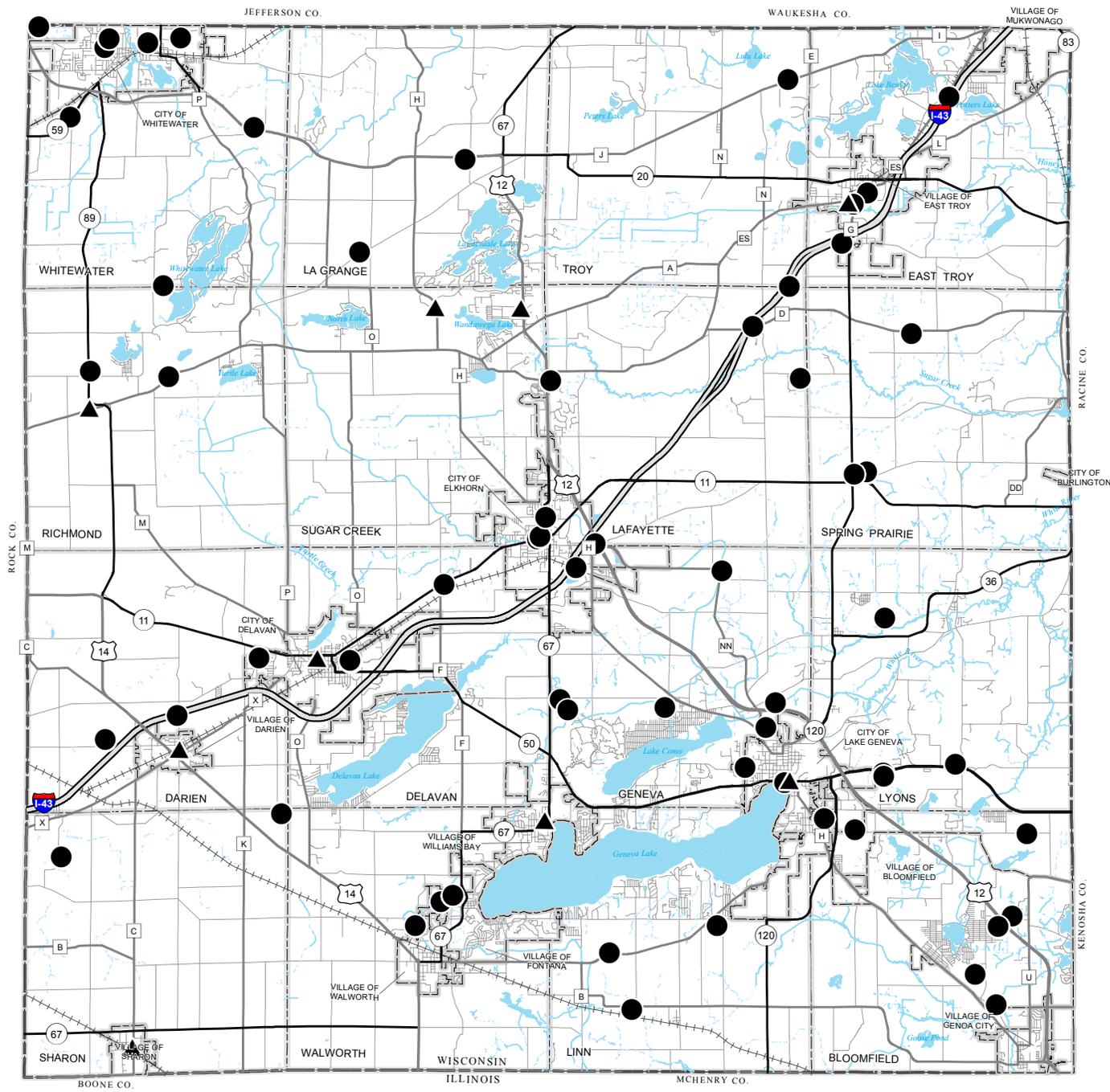
**Map 5
Public-Use
Airports and
Railroads: 2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County Information Systems Department



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Legend

- Telecommunication Tower
- ▲ Telephone Facility
-  Water Body
-  River
-  Municipal Boundary

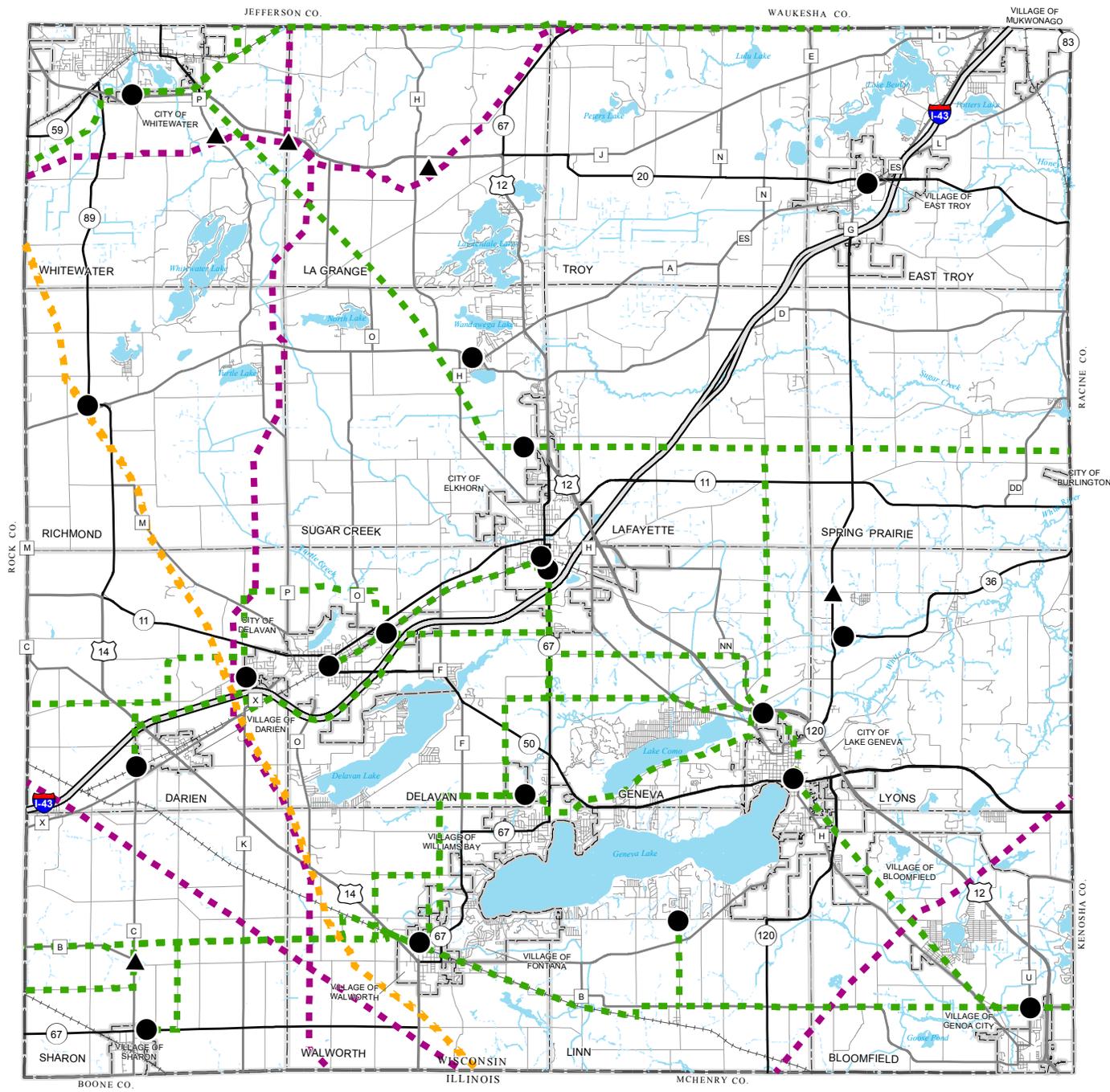
**Map 6
Telecommunication:
2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County Information Systems Department



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Legend

- Electric Substation
- ▲ Natural Gas Facility
- Crude Oil
- Electric Transmission
- Natural Gas Line
- Water Body
- River
- Municipal Boundary

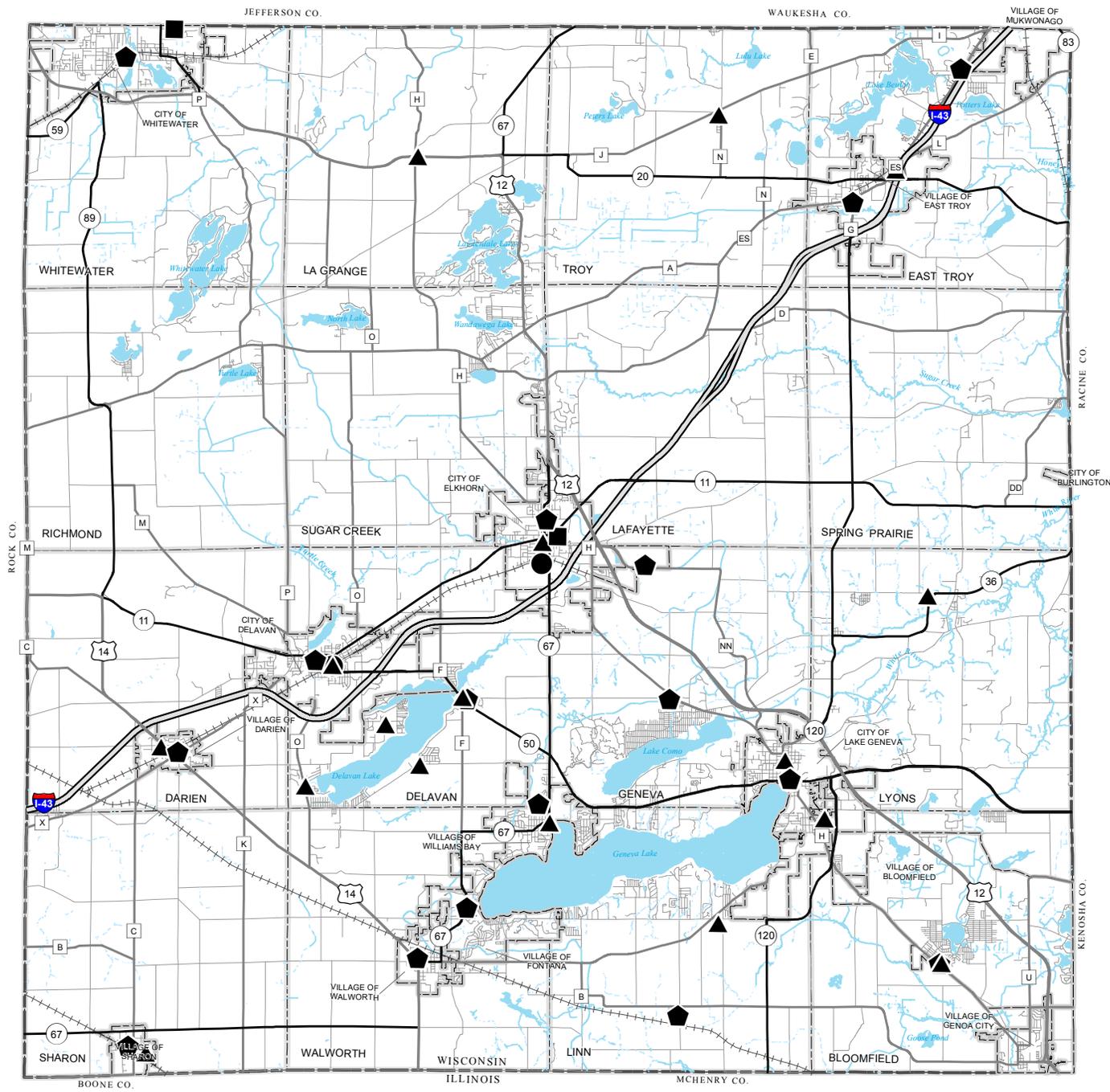
Source: Base map from Walworth County Information Systems Department



**Map 7
Energy Facilities:
2013**

**Walworth County
Hazard
Mitigation Plan**

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Legend

- EMS Facility
- ▲ Fire Department
- National Guard
- ◆ Police Department
- Water Body
- River
- Municipal Boundary

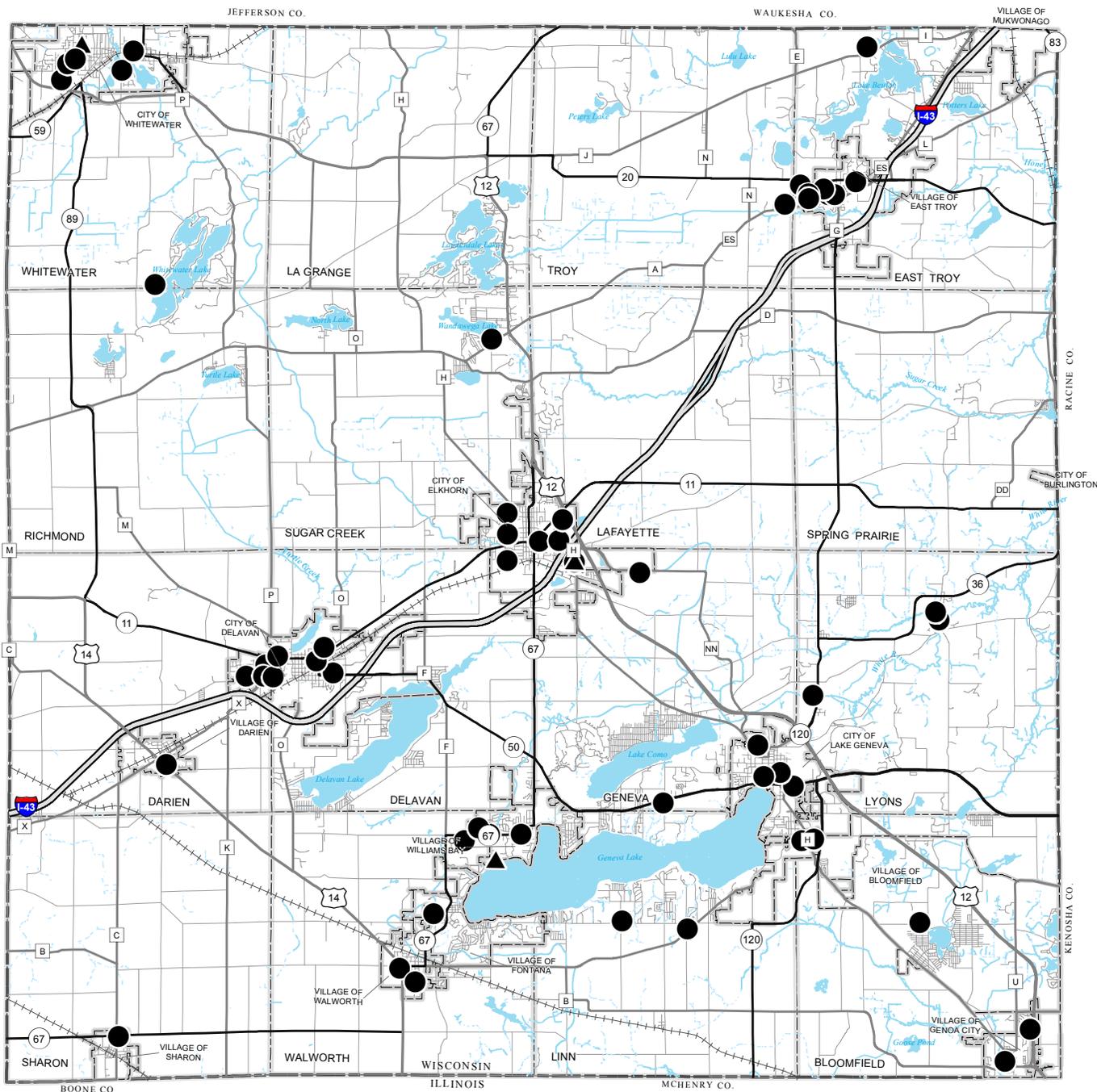
**Map 9
Public Safety
Facilities:
2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County Information Systems Department



civi **tek**
CONSULTING LLC



Legend

- K-12
- ▲ Post-Secondary
-  Water Body
-  River
-  Municipal Boundary

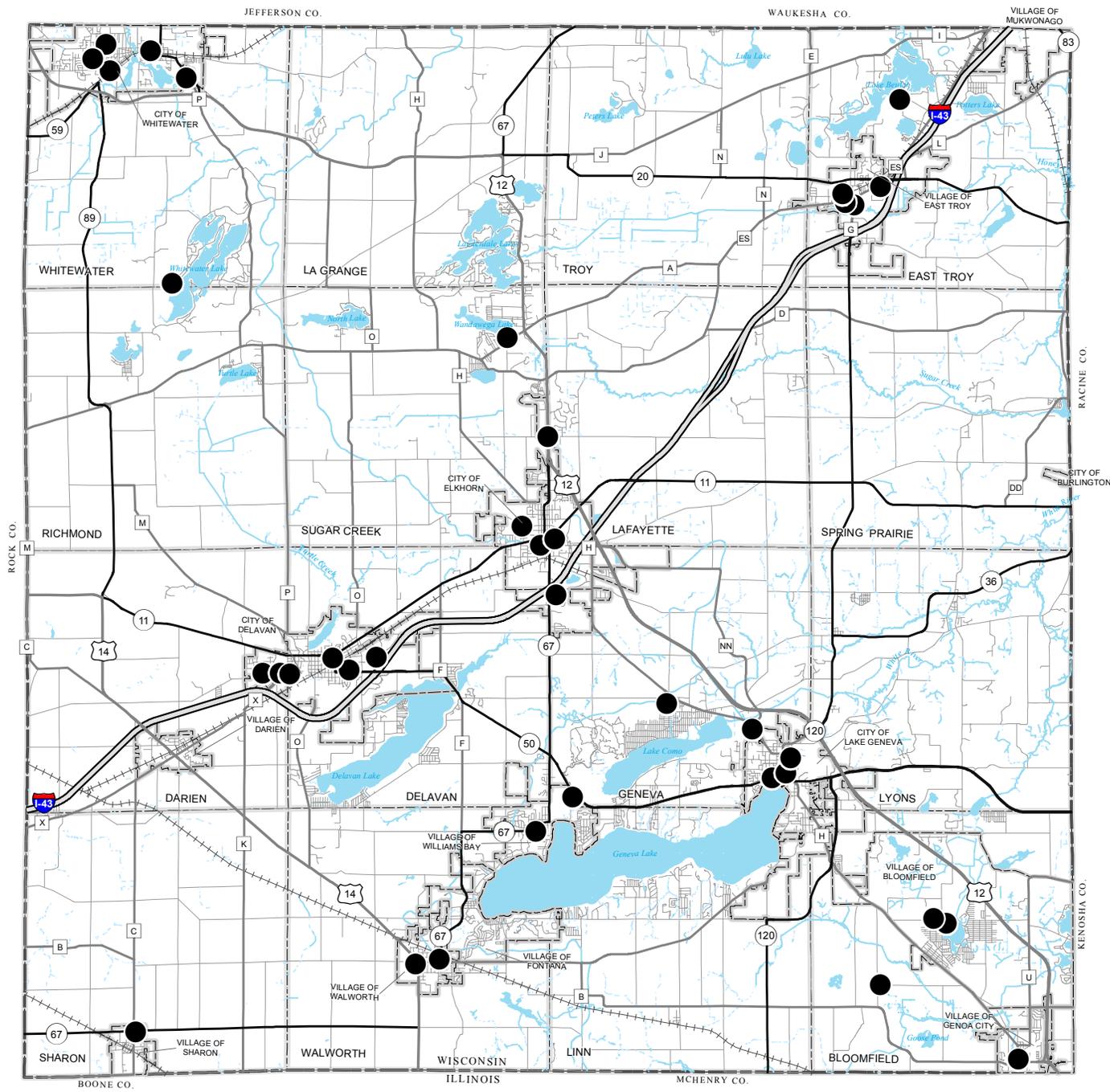
**Map 11
Schools:
2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County
Information Systems Department



civi  tek
CONSULTING LLC



Legend

- Group Day Care
-  Water Body
-  River
-  Municipal Boundary

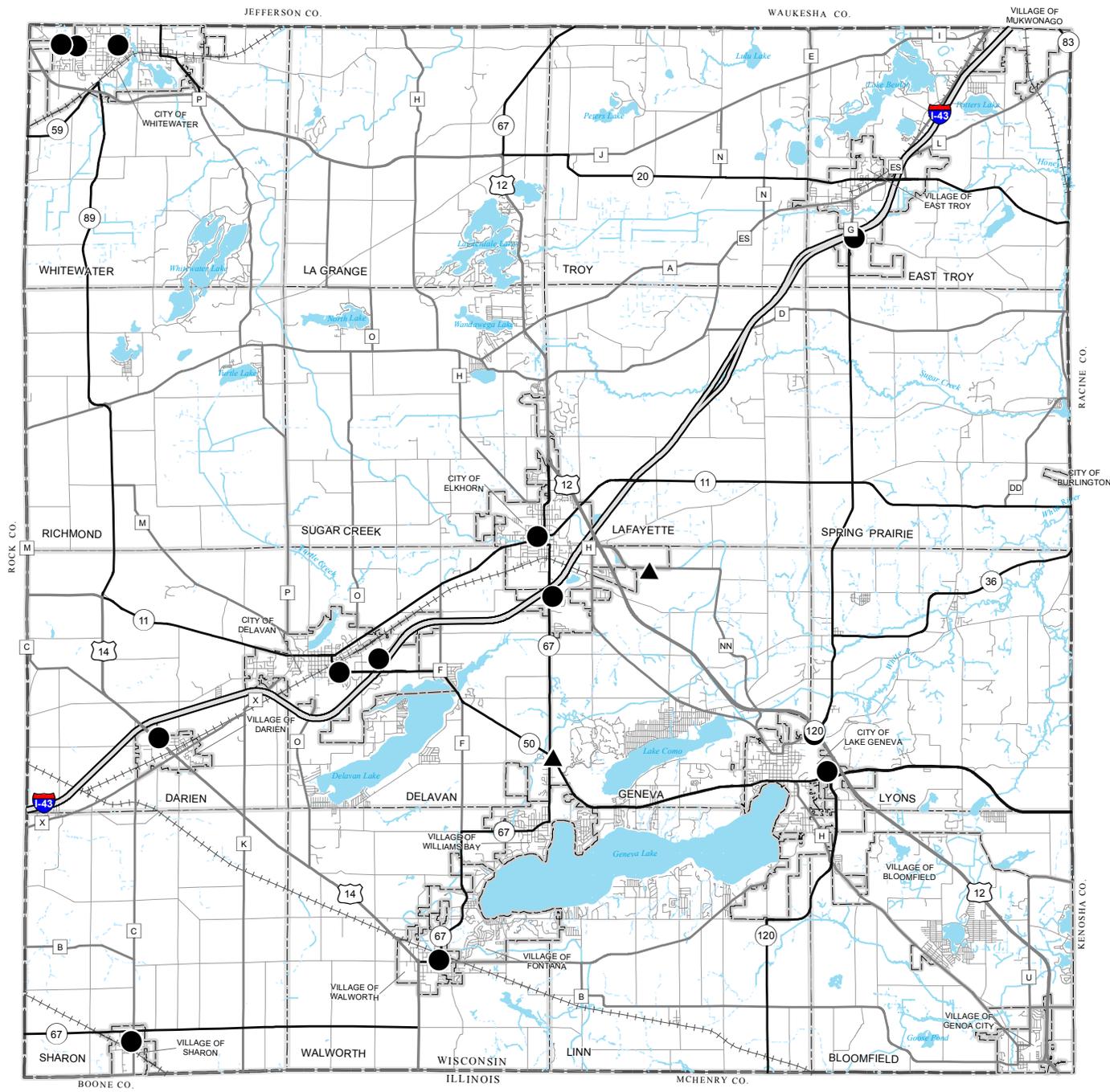
**Map 13
Special Care
Non-Residential
Facilities:
2013**

**Walworth County
Hazard
Mitigation Plan**

civi  tek
CONSULTING LLC

Source: Base map from Walworth County Information Systems Department





Legend

- Health care clinic
- ▲ Hospital
-  Water Body
-  River
-  Municipal Boundary

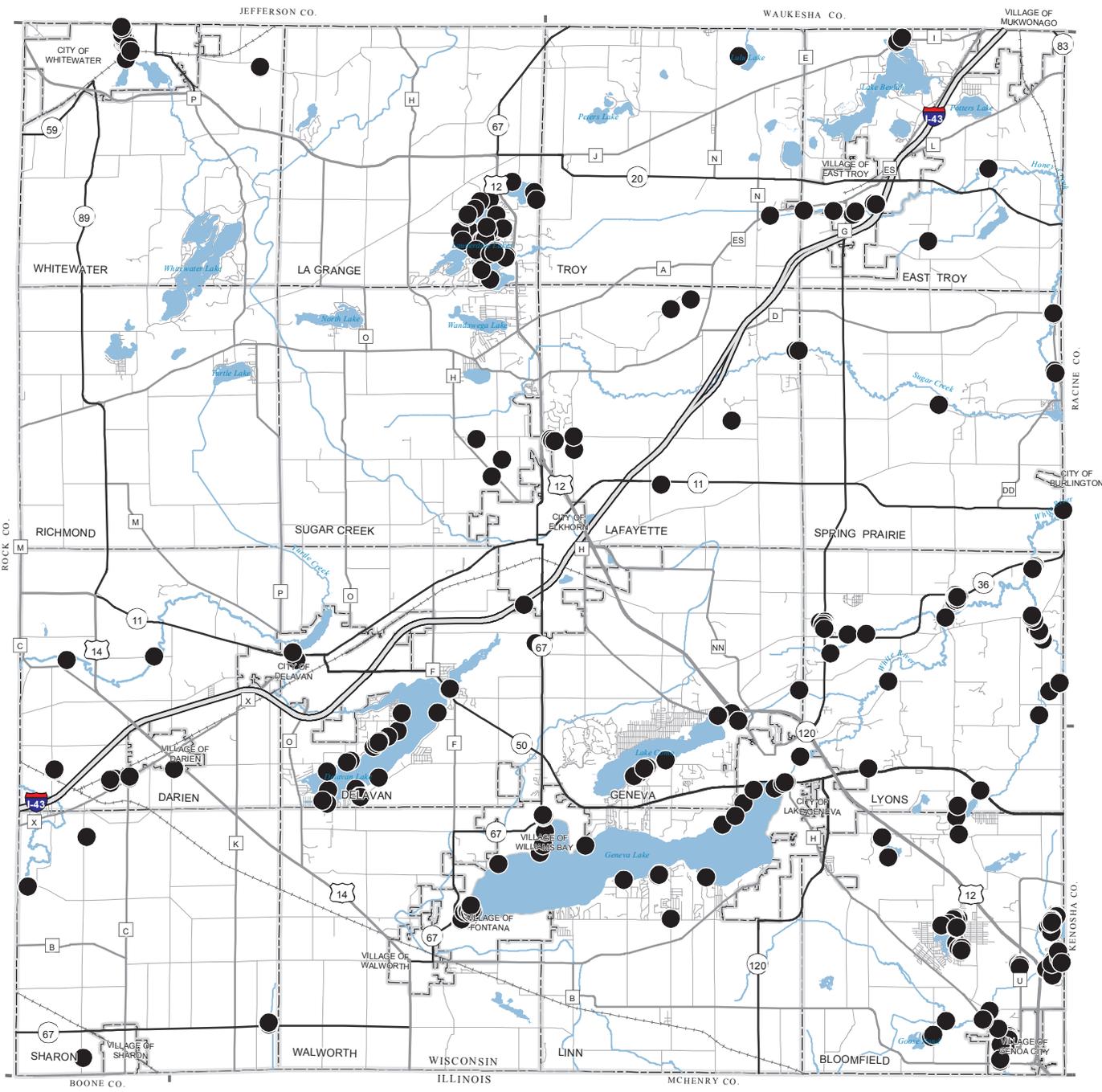
**Map 14
Health Care
Facilities:
2013**

**Walworth County
Hazard
Mitigation Plan**

Source: Base map from Walworth County Information Systems Department



civi  **tek**
CONSULTING LLC



Legend

- Structures in Floodplain
- Water Body
- River
- Municipal Boundary

**Map 15
Structures in 100-Year
Floodplain: 2008**

**Walworth County
Hazard Mitigation Plan**

civi  tek
CONSULTING LLC



Source: Base map from Walworth County
Information Systems Department



PUBLIC PARTICIPATION DOCUMENTATION

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Public Participation Plan (2013) Walworth County Natural Hazards Mitigation Plan 5-Year Update

Working in concert with local municipalities, Walworth County has initiated a project to update the Walworth County hazard mitigation plan that was first adopted in 2009. The items listed below are the ways in which the County will facilitate public participation in the plan update.

- ◆ **Formation of a Steering Committee.** A steering committee will be established to guide the project and provide oversight and input. Members will include county officials and staff and local officials and representatives who wish to participate.
- ◆ **Public Notices for Steering Committee Meetings.** All Steering Committee meetings will be formally noticed and open to the public consistent with the state's open meeting law.
- ◆ **Local Government Involvement.** Each of the local governments in Walworth County will be contacted early in the process and informed about the project and asked to enter into a memorandum of understanding (MOU) with the County. Although the MOU would be non-binding, it would establish a framework for intergovernmental cooperation and coordination in terms of information sharing and give the jurisdiction the opportunity to also adopt the updated plan making it eligible for federal mitigation funding.
- ◆ **Local Jurisdiction Survey.** A set of maps, a listing of critical facilities in the jurisdiction, and a draft version of the assessment matrix used in the plan will be sent to each of the municipalities in the County. Local officials will have an opportunity to review and comment on the materials prepared up to that date.
- ◆ **Website.** Information about the project will be posted on the County's website, along with draft documents, maps, meeting notices and agendas, and project-related news.
- ◆ **Material Availability.** As various drafts are completed, copies will be sent to each of the local jurisdictions in Walworth County and other interested parties for review and comment.
- ◆ **Acknowledgement by municipalities.** Each of the cities and villages in the county will be sent a proposed copy of the plan along with a form they can use to acknowledge that they have reviewed the plan, and either recommend one or more revisions or accept the plan as drafted.
- ◆ **Public Hearing.** The Board of Supervisors will hold at least one public hearing to formally accept public comment on the proposed plan. Each of the cities and villages in the county will need to conduct separate public hearings to collect public input from within their particular jurisdiction.
- ◆ **Press Releases.** Press releases will be issued to the local media as necessary.
- ◆ **Other Means.** The County may provide other avenues for public participation and local government involvement during the course of the project.

The County Board adopted the above public participation plan on December 11, 2012, as Resolution No. 51-12/12

Sample of Initial Letter to Jurisdictions Regarding Project



**Walworth County Sheriff Office
Emergency Management**

Daniel Schoonover, Chairperson
Town of Bloomfield
PO Box 609
Pell Lake, WI 53157

Subject: Update to Walworth County's Hazards Mitigation Plan

Dear Mr. Schoonover:

In 2008, Walworth County initiated an effort to prepare a multijurisdictional hazards mitigation plan consistent with the Disaster Mitigation Act of 2000. Walworth County and a number of cities and villages in the county adopted the plan in 2009.

The county recently received a federal grant to partially fund the preparation of a five-year update to that plan. We need the involvement of all of the towns, cities, and villages in this effort to make sure we address local issues and concerns. I hope that all of the cities and villages will adopt the updated plan, because doing so will allow them to qualify to apply for federal funding for hazard mitigation projects and activities.

If your jurisdiction would like to participate, complete the enclosed memorandum of understanding and appoint one person from your jurisdiction who will (1) verify the accuracy of a list of critical facilities that will be prepared for your jurisdiction, (2) review and comment on the draft plan, and (3) serve as a liaison during this 14-month project. If that individual would like to be more involved, he or she can also volunteer to serve on a steering committee that will have a direct role in overseeing the preparation of the plan.

I hope you can see the benefits (and low cost) of participating in this project. To participate, sign the enclosed memorandum and then appoint one person to represent your jurisdiction in the process. Please mail both of the completed forms in the enclosed stamped envelope to me by December 28, 2012.

The County Board has hired Civi Tek Consulting to help prepare the plan. If you should have any questions, you may contact me at (262) 741-4616 or jennis@co.walworth.wi.us.

Additional information is posted online at www.co.walworth.wi.us/Sheriffs%20Office/Emergency%20Management/MitigationPlan.aspx.

Sincerely,
Walworth County Emergency Management

Lieutenant John Ennis, Director

cc: Cynthia Howard, Town Clerk; PO Box 609; Pell Lake, WI 53157

Sample of Completed Form for Appointment of Point of Contact

Appointment of Local Representative

Walworth County Hazards Mitigation Plan Update

White Water (name of jurisdiction) hereby appoints the person identified below to assist in the preparation and review of the all hazards mitigation plan for Walworth County. The appointee understands that he or she will be asked to (1) verify the accuracy of a list of critical facilities that will be prepared for your jurisdiction, (2) review and comment on the draft plan, and (3) serve as a liaison – no meetings are anticipated.

If the appointee wishes, he or she may also volunteer to serve on a steering committee that is responsible for overseeing the preparation of the plan update. one meeting is anticipated. To do so, check the box.

Yes, this person is willing to serve on the steering committee.

Name: Rod Wilson

Title (if an elected official or employee): First Side Supervisor

Address: N7584 West Drive

City: White Water, WI Zip code: 53190

Daytime telephone number: 262-903-1152

Evening telephone number: 262-903-1152

Email address (if any): rodney_willie20@yahoo.com

Please complete this form and the memorandum of understanding and mail them to Lieutenant John Ennis by December 28, 2012, at the address listed below.

Lieutenant John Ennis, Director
Walworth County Emergency Management
PO Box 1004
Elkhorn WI 53121

Municipal Point of Contacts

Municipality	Point of Contact
Town	
Bloomfield	Tom Sullivan, Town Supervisor
Darien	Bill Shimmer, Highway Supervisor
Delavan	John Olson, Town Administrator
East Troy	Donald Teubel
Geneva	Joseph Kopecky, Town Chairman
La Grange	Frank Taylor, Town Chairman
Lafayette	Daniel Cooper, Town Chairman
Linn	James Bushey, Sgt. Linn Police
Lyons	David Held, Highway Superintendent
Richmond	Carol Behrens, Town Supervisor
Sharon	Richard Brandl, Town Chairman
Spring Prairie	Tom Bolfert, Town Supervisor
Sugar Creek	Diane Boyd, Town Clerk
Troy	John Kendall, Town Chairman
Walworth	Robert Hall, Citizen
Whitewater	Rod Wilson, First Side Supervisor
Village	
Bloomfield	Bill Holder, Village Trustee
Darien	Diana Dykstra, Village Administrator
East Troy	Randy Timms, Village President
Fontana-on-Geneva Lake	Kelly Hayden, Village Administrator
Genoa City	Joseph Balog, Chief of Police
Mukwonago	Jeff Stein, Fire Chief
Sharon	Kevin Day, Public Works Director
Walworth	Chris Severt, Police Chief
Williams Bay	Robert Pruessing, Chief of Police
City	
Burlington	--
Delavan	Tim O'Neill, Chief of Police
Elkhorn	David Fladten, EMT Coordinator
Lake Geneva	John Peters, Deputy Director EMT
Whitewater	Mike Ciardo, EM Coordinator, retired

Steering Committee Meeting Agenda – September 24, 2013

AGENDA

Walworth County Hazard Mitigation Plan Update Steering Committee

September 24, 2013; 6:00 p.m.

Walworth County Sheriff's Office
Second Floor Training Room
1770 Cty Rd NN; Elkhorn WI, 53121

1. Introductions
2. Project description – What is a hazard mitigation plan?
3. Role of steering committee
4. Prioritize hazards in terms of importance
5. Review mitigation strategies
6. Feedback and questions
7. Public comment
8. Set date and time for next meeting (if needed)

Correspondence Sent to the American Red Cross and Adjoining Counties



Walworth County Sheriff Office Emergency Management



Date: July 17, 2014

To: American Red Cross in Southeastern Wisconsin
Kenneth R. Yunker, Southeastern Wisconsin Regional Planning Commission
Donna Haugom, Jefferson County Emergency Management
Benn Gil, Kenosha County Emergency Management
Barry Valentine, McHenry County (Illinois) Emergency Management
David L. Maack, Racine County Emergency Management
Sgt. Shena Kohler, Rock County Emergency Management
William F. Stolte, Waukesha County Emergency Management

From: Lt. John Ennis, Walworth County Emergency Management

Subject: Walworth County Natural Hazards Mitigation Plan: 2014-2018

Walworth County Emergency Management has completed a 5-year update of its natural hazards mitigation plan in compliance with the Stafford Act, as amended, and the National Flood Insurance Act of 1968, as amended. It is posted online on our department's website. Below is the entire link

<http://www.co.walworth.wi.us/Sheriffs%20Office/Emergency%20Management/MitigationPlan.aspx>

If you should have any questions, you may contact me at (262) 741-4616 or at jennis@co.walworth.wi.us.

Sample of Correspondence Sent to the Towns Regarding Review and Comment on Draft of the Plan**Walworth County Sheriff Office
Emergency Management**

Daniel Schoonover, Chairperson
Town of Bloomfield
1100 Town Hall Rd.
PO Box 609
Pell Lake, WI 53157

Subject: Update to Walworth County's Hazards Mitigation Plan – Draft 3

Dear Mr. Schoonover:

Walworth County Emergency Management has been working with an ad hoc steering committee to update the countywide hazard mitigation plan that was first adopted in 2009. I have enclosed a section of the plan that lists the goals, objectives, and policies and activities for your review and comment. Please distribute them to the town board and others you deem appropriate, including Supervisor Sullivan who served as the point of contact for the project.

If you would like to review the entire plan, it is posted on the county's website at <http://www.co.walworth.wi.us/Sheriffs%20Office/Emergency%20Management/MitigationPlan.aspx>

If your community is thinking about doing a specific hazard mitigation project and wants to potentially apply for federal grant funding, it must be listed in the section of the plan that lists the goals, objectives, policies, and activities. If a project that you would like to do is not listed, please provide us with the following information: (1) project description; (2) cost estimate; (3) potential funding source, (4) priority - low, medium, high; (5) timeframe for doing the project; and (6) name of entity that will be responsible for spearheading the project. Please be aware that having a project listed does not obligate you to do the project, nor does it guarantee funding.

After you or others have had a chance to review the executive summary, please return the enclosed acknowledgement form to me by Friday, May 16, 2014. We will then prepare the final draft of the plan based on the comments we receive from you and the other municipalities. I will notify you when the final plan has been adopted by the County Board of Supervisors – towns do not need to take any action to adopt the plan.

If you should have any questions, you may contact me at (262) 741-4616 or at jennis@co.walworth.wi.us.

Sincerely,
Walworth County Emergency Management

Lieutenant John Ennis, Director

enc. Walworth County Natural Hazards Mitigation Plan: 2014-2018 – Section 6 of Mitigation Strategy
Acknowledgement form
cc: Cynthia Howard, Town Clerk; 1100 Town Hall Rd. PO Box 609; Pell Lake, WI 53157 (without enclosures)
Tom Sullivan, Supervisor; N2132 Cty Rd H, Lake Geneva, WI 53147 (without enclosures)

Sample of Correspondence Sent to the Cities and Villages Regarding Review and Comment on Draft of Plan



Walworth County Sheriff Office Emergency Management

Brian Olson, Mayor
City of Elkhorn
9 S. Broad Street
Elkhorn, WI 53121

Subject: Countywide Natural Hazards Mitigation Plan

Dear Mr. Olson

Walworth County Emergency Management has been working with an ad hoc steering committee to update the countywide hazard mitigation plan that was first adopted in 2009. I have enclosed the most recent draft of the updated plan for your review and comment. Please forward this plan to others you deem appropriate, including EMT Coordinator Flatten who served as the city's point of contact for this project. The plan is posted on the county's website at <http://www.co.walworth.wi.us/Sheriffs%20Office/Emergency%20Management/MitigationPlan.aspx>.

If the City of Elkhorn would like to adopt the updated plan when it is done, we need your continued involvement.

Although I encourage you to review the entire plan, you should in particular review the goals, objectives, policies, and activities listed in Chapter 6. If your community is thinking about doing a specific hazard mitigation project and wants to potentially apply for federal grant funding, it must be listed in this section. If a project that you would like to do is not listed, please provide us with the following information: (1) project description; (2) cost estimate; (3) potential funding source, (4) priority - low, medium, high; (5) timeframe for doing the project; and (6) name of entity that will be responsible for spearheading the project. Please be aware that having a project listed does not obligate you to do the project, nor does it guarantee funding.

After you or others have had a chance to review the draft plan, please return the enclosed acknowledgement form to me by Tuesday, July 7, 2014. We will then prepare the final draft of the plan based on the comments we receive from you and the other municipalities. When the final plan has been prepared, we will send you those pages of the plan that have been revised.

To adopt the plan, your municipality will need to adopt a resolution. **However, do not adopt a resolution until after you receive a letter from me along with the revised pages.** For your convenience, I will send you a sample resolution for your consideration.

If you should have any questions, you may contact me at (262) 741-4616 or at jennis@co.walworth.wi.us.

Sincerely,
Walworth County Emergency Management

Lieutenant John Ennis, Director

enc. *Walworth County Natural Hazards Mitigation Plan: 2014-2018 – DRAFT 3*
Acknowledgement form
Memorandum regarding specific mitigation activities

cc: Samuel Tapson, Administrator; City of Elkhorn; 9 S. Broad Street; P.O. Box 920, Elkhorn, WI 53121 (without enclosures)
David Flatten, EMT Coordinator; P.O. Box 920, Elkhorn, WI 53147 (without enclosures)

Acknowledgement Form – City of Delevan

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of Delevan, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: July 3, 2014

Name: Mel Nieuwenhuis

Title: Mayor

Signature: Mel Nieuwenhuis

Day Time telephone: 262-215-3266

Email: mayormel@ci.delevan.wi.us

Comments:

The City of Delevan plans to upgrade the command and control for outdoor warning sirens, the sirens themselves, related equipment including batteries and location of Outdoor Warning sirens within the next five years.

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – City of Elkhorn

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City Village of Elkhorn, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: 6/1/14

Name: Brian A. Olson

Title: Mayor

Signature: *Brian A. Olson*

Day Time telephone: 414-899-4771

Email: bolson@cityofelkhorn.org

.....
Comments:

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – City of Lake Geneva

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City Village of Lake Geneva, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: July 2, 2014

Name: DENNIS E. JORDAN

Title: CITY ADMINISTRATOR

Signature: Dennis E. Jordan

Day Time telephone: 262-249-4098

Email: djordan@cityoflakegeneva.com

.....
Comments:

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – City of Lake Geneva (continued)

2014 Walworth County Hazard Mitigation Plan

Changes

- Page 3-3 Table 3-5 Lake Geneva Estates Lake Geneva, WI 750 Lake Geneva Blvd. (Property razed)
- Page 4-9 Table 4-5 Badger High School has a back up generator
- Page 6-14 Table 6-8 Lake Geneva Emergency Management Staff Yes (1 part time employee)

Implementation Actions/Strategies

GOALS

Public Education

- Work with area business representatives and citizens through our Public/Private Partnership to promote hazard mitigation awareness

Severe Thunderstorm Winds & Hail and Non-thunderstorm High Winds

- Continue to promote and sponsor “severe weather spotters” courses

Page F-5

Add- Water Facility	Water Treatment Plant & Reservoir	361 W Main St
Add- Water Facility	Well 2	361 W Main St
Add- Water Facility	Well 3	Dunn Field
Add- Water Facility	Well 4	Dunn Field
Add- Water Facility	Well 5	Behind 201 Haskins St

Acknowledgement Form – City of Whitewater

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of Whitewater, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: 6/30/14

Name: Cameron Clapper

Title: City Manager

Signature: 

Day Time telephone (262) 473-0100

Email: cclapper@whitewater-wi.gov

Comments:

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – Village of Bloomfield

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of Bloomfield, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: June 24, 2014

Name: Kenneth H. Monroe

Title: President Village of Bloomfield

Signature: Kenneth H. Monroe

Day Time telephone: 562-279-5980 - 262-279-5520

Email: _____

.....
Comments:

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – Village of Darien

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of DARIEN, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: 6-6-14

Name: Diana Dykstra

Title: Administrator / Clerk-Treasurer

Signature: *Diana Dykstra*

Day Time telephone: 263-882-5055

Email: ddykstra@darienwi.com

.....
Comments:

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – Village of East Troy

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of EAST TROY, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: JUNE 9, 2014

Name: ALAN BOYES

Title: CHIEF OF POLICE

Signature: 

Day Time telephone: 262 642-6250

Email: aboyes@EASTTROY-wi.com

Project	Cost Estimate 2014	Priority	Scheduled		Responsible Party
			2014-2018	2019-2023	
Dam Inspection	Unk	Medium	X		DPW
Tornado Sirens Preventive Maintenance	\$1,600 per year	High	X		Completed spring of each year, current budget \$1,600 exceeded. Done, Village Hall designated Cooling Center Policy in Place
Cooling Center	Staff	High	X		
Storm Shelter	Unk	Medium		X	Discussed at board level, no action taken as of this time.
Airport weather and wind shear equipment upgrade	Unk	Medium	X		Automated Weather Observing System DPW, State of Wisconsin

Acknowledgement Form – Village of Fontana-on-Geneva Lake

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of Fontana, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: 6/9/2014

Name: Dennis Martin, Village Administrator

Title: Administrator

Signature: 

Day Time telephone: 262-275-6139

Email: dennis@villageoffontana.com

Comments:

Please update Village of Fontana contacts:
Village Administrator Dennis Martin
Fontana EMT Coordinator Kevin Kennedy

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – Village of Genoa City

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of Genoa City, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: 6/25/2014

Name: William Antti

Title: Village President

Signature: *William Antti*

Day Time telephone: 262-586-2515

Email: billantti@gmail.com

.....

Comments: Map 6 - Telecommunication Tower is on our water tower next US12 (US cellular)
Map 9 - Add Police Department to Genoa City
Map 10 - Add Post office and Municipal garage to G.C.

Acknowledgement Form – Village of Sharon

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of SHARON, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: 6/10/2014

Name: MARK A Ruosch

Title: Village President

Signature: Mark A Ruosch

Day Time telephone: 262-749-4645

Email: mruosch@amfam.com

Comments:

Plan to replace about 300 yds of storm sewer along George St & Ballard St - Will also be cleaning & scraping ditches to allow water flow on PRAIRIE St.

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – Village of Walworth

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of Walworth, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

Check one

- No changes are needed to the goals, objectives, policies and action items.
- Please make changes based on the information described below. Attach additional pages if necessary.

Date: 6-12-14

Name: David Rasmussen

Title: President

Signature: *David Rasmussen*

Day Time telephone: 262 275 5669

Email: vwalworth@charter.net

Comments:

On page F-20, add two wells

<i>Water Facility</i>	<i>Water Well</i>	<i>N. Main St.</i>
<i>Water Facility</i>	<i>Water Well</i>	<i>Brennan Dr.</i>

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Acknowledgement Form – Village of Williams Bay

Acknowledgement Letter

Walworth County Hazard Mitigation Plan

On behalf of the City/Village of Williams Bay, I hereby acknowledge that I have received *Walworth County Natural Hazards Mitigation Plan: 2014-2018* and that I have reviewed the goals, objectives policies and action items

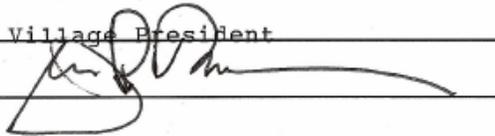
Check one

- No changes are needed to the goals, objectives, policies and action items.*
- Please make changes based on the information described below. Attach additional pages if necessary.*

Date: June 6, 2014

Name: John P. Marra

Title: Village President

Signature: 

Day Time telephone: 262-245-2700

Email: jmarra.president@gmail.com

.....
Comments:

Please return this completed form to Lt. John Ennis, Emergency Management Director by June 10th, 2014.

Executive Committee Agenda – _____, 2014

- Forthcoming -

Walworth County Board Meeting Agenda – _____, 2014

- Forthcoming -

**Correspondence to Walworth County Planning Director Regarding Incorporating
Hazard Mitigation Plan into Other Planning Efforts**

- Forthcoming -

ADOPTION RESOLUTIONS (2013 PLAN UPDATE)

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City of Delevan	B-4
City of Elkhorn	B-5
City of Lake Geneva	B-6
City of Whitewater	B-7
Village of Bloomfield	B-8
Village of Darien	B-8
Village of East Troy	B-10
Village of Fontana-on-Geneva Lake	B-11
Village of Genoa City	B-12
Village of Mukwonago	B-13
Village of Sharon	B-14
Village of Walworth	B-15

Walworth County

City of Burlington

City of Delevan

City of Elkhorn

City of Lake Geneva

City of Whitewater

Village of Bloomfield

Village of Darien

Village of East Troy

Village of Fontana-on-Geneva Lake

Village of Genoa City

Village of Mukwonago

Village of Sharon

Village of Walworth

CERTIFICATION LETTERS

Initial certification C-2

5-Year update C-3

Initial Certification

STATE OF WISCONSIN \ DEPARTMENT OF MILITARY AFFAIRS
WISCONSIN EMERGENCY MANAGEMENT2400 WRIGHT STREET
P.O. BOX 7865
MADISON, WISCONSIN 53707-7865

July 30, 2009

Lt. Kevin Williams
Walworth County Emergency Management
1770 County Rd. NN
Elkhorn, WI 53121

Dear Mr. Williams:

It gives me great pleasure to advise that the *Walworth County Hazards Mitigation Plan* has officially been approved by the Federal Emergency Management Agency. The plan complies with the requirements of the Disaster Mitigation Act of 2000. The County and participating jurisdictions are eligible to apply for funding through the Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, the Flood Mitigation Assistance Program, and the Repetitive Flood Claims Program through July 7, 2014, for projects identified in the Plan. Per the regulations, the Plan is required to be updated and resubmitted for approval every five years to remain eligible for mitigation funding.

The attached Local Hazard Mitigation Plan Review Crosswalk includes recommended revisions for the five-year update.

Congratulations on the approval of the plan. I also want to commend the County for its commitment to mitigation and reducing future disaster losses, and I look forward to working with you in the future.

If you have any questions, please feel free to call me at 608-242-3211.

Sincerely,

A handwritten signature in cursive script that reads "Roxanne K. Gray".

ROXANNE K. GRAY
State Hazard Mitigation Officer
Wisconsin Division of Emergency Managementcc Paul France, Regional Emergency Management Director
Tim Schwecke, Civi Tek Consulting

TELEPHONE (608) 242-3232 FACSIMILE (608) 242-3247 24-HOUR EMERGENCY HOTLINE 1-800-943-0003

5-Year Update

- forthcoming -

HISTORY OF ADOPTION AND AMENDMENT

Date of Action	Reference Number	Description of Action
2009 Plan		
April 21, 2009	03 – 04/09	Walworth County Board adopted the countywide hazard mitigation plan
April 27, 2009	09-R12	City of Lake Geneva adopted the countywide natural hazards mitigation plan
May 5, 2009	--	City of Whitewater adopted the countywide natural hazards mitigation plan
May 16, 2009	9-2009	Village of East Troy adopted the countywide natural hazards mitigation plan
2013 Plan		
--, 2014		Walworth County Board adopted the countywide hazard mitigation plan update
--, 2014		City of Burlington adopted the countywide hazard mitigation plan update
--, 2014		City of Delevan adopted the countywide hazard mitigation plan update
--, 2014		City of Elkhorn adopted the countywide hazard mitigation plan update
--, 2014		City of Lake Geneva adopted the countywide hazard mitigation plan update
--, 2014		City of Whitewater adopted the countywide hazard mitigation plan update
--, 2014		Village of Bloomfield adopted the countywide hazard mitigation plan update
--, 2014		Village of Darien adopted the countywide hazard mitigation plan update
--, 2014		Village of East Troy adopted the countywide hazard mitigation plan update
--, 2014		Village of Fontana-on-Geneva Lake adopted the countywide hazard mitigation plan update
--, 2014		Village of Genoa City adopted the countywide hazard mitigation plan update
--, 2014		Village of Mukwonago adopted the countywide hazard mitigation plan update
--, 2014		Village of Sharon adopted the countywide hazard mitigation plan update
--, 2014		Village of Walworth adopted the countywide hazard mitigation plan update
--, 2014		Village of Williams Bay adopted the countywide hazard mitigation plan update

CRITICAL FACILITIES SORTED BY TYPE: 2013

Jurisdiction	Facility Name	Address
Adult day care (ADC)		
City of Whitewater	Glen Adult Day Care	1281 W Main Street
City of Elkhorn	Pleasant Street Country Day	329 N Wisconsin Street
City of Elkhorn	VIP Services	811 E Geneva
Adult family home (AFH)		
Town of La Grange	Amanda Lindner Adult Family Care	W5069 Farm Village
City of Elkhorn	Arbor House	W5428 County Road A
City of Whitewater	Carrie's Home	1234 W Melrose
City of Whitewater	Chris Home	424 S Pleasant St
City of Elkhorn	Community Living Arrangements - Court	298 W Court Street
Town of La Grange	Community Living Arrangements - Dunbar	W4911 Mallard Drive
City of Elkhorn	Community Living Arrangements - Prescott	13 Prescott Street
Town of Linn	Country Joy	N501 Zenda Road
City of Whitewater	Debbie's House	241 N Queen Street
Town of Lyons	Geneva Territory	6582 Lakeside Road
Town of La Grange	Heart Prairie Way	W6359 Territorial Road
City of Whitewater	Jennie's Place	213 S Whiton Street
Town of Lafayette	Jodis Home	W3928 Potter Road
Village of Sharon	Johnson House	216 Martin Street
Town of Richmond	Kindred Hearts Family Home	N7227 Woodfield Lane
City of Whitewater	Koller House (The)	216 S Summit Street
Town of Bloomfield	Lincoln Street Adult Family Home	N2465 Lincoln Drive
Town of Delavan	Mabry Adult Family Home	7980 Summit Drive
Town of Troy	Mackenzie Adult Family Home	W4855 State Road 20
Town of Whitewater	Opal House	N9633 Howard Road
Village of Darien	P & J Assisted Living	125 E Beloit Street
Town of Geneva	Palmer Road Adult Family Home	W4080 Palmer Road
Town of Delavan	Pease Adult Family Home	5281 State Road 50
City of Whitewater	Riverwood Adult Family Home	204 N Jefferson Street
City of Lake Geneva	Sky Lane Home	109 Sky Lane
City of Delavan	Steven's Hope and Love	317 Butternut Drive
City of Whitewater	Stone Ridge Adult Family Home	204 N Jefferson
Village of Walworth	Valeries Home	208 Madison Street

Jurisdiction	Facility Name	Address
City of Delavan	Voskull Adult Family Home	337 Bradley Avenue
Village of Genoa City	We're Just Like Family	W1313 Bernice Road
Town of Whitewater	White Pines	N7453 CTH P
Bridge		
Town of Delavan	Bridge - Delavan Lake	STH 50
Town of Troy	Bridge over Honey Creek	CTH ES
Town of Whitewater	Bridge over Bluff Creek	CTH P
Town of Geneva	Bridge over Como Creek	US 12
Town of Geneva	Bridge over Como Creek	CTH H
Town of Geneva	Bridge over Como Creek	Point
Town of Lyons	Bridge over Como Creek	STH 120
Town of Bloomfield	Bridge over East Branch Nippersink Creek	US 12
Town of Bloomfield	Bridge over East Branch Nippersink Creek	CTH F
Town of Bloomfield	Bridge over East Branch Nippersink Creek	CTH U
Town of East Troy	Bridge over Honey Creek	US Highway 20
Town of Spring Prairie	Bridge over Honey Creek	CTH D
Town of Lyons	Bridge over Ivanhoe Creek	STH 50
City of Elkhorn	Bridge over Jackson Creek	S Lincoln Street (STH 67)
Town of Bloomfield	Bridge over North Branch Nippersink Creek	CTH H
Town of Bloomfield	Bridge over North Branch Nippersink Creek	CTH B
Village of Genoa City	Bridge over North Branch Nippersink Creek	Main Street (CTH B)
Town of Lyons	Bridge over Ore Creek	STH 120
Town of Lyons	Bridge over Ore Creek	STH 36
Town of Lyons	Bridge over Ore Creek	STH 36
Town of Sharon	Bridge over Piscasaw	STH 67
Town of East Troy	Bridge over Spring Creek	US Highway 20
Town of Lafayette	Bridge over Sugar Creek	I-43 (north bound)
Town of Lafayette	Bridge over Sugar Creek	I-43 (south bound)
Town of Lafayette	Bridge over Sugar Creek	CTH ES
Town of Spring Prairie	Bridge over Sugar Creek	STH 120
Town of Sugar Creek	Bridge over Sugar Creek	CTH H
Town of Sugar Creek	Bridge over Sugar Creek	CTH ES
Town of Delavan	Bridge over Swan Creek	CTH O
Town of Darien	Bridge over Turtle Creek	STH 11

Jurisdiction	Facility Name	Address
Town of Darien	Bridge over Turtle Creek	STH 89 US 14
Town of Darien	Bridge over Turtle Creek	CTH C
Town of Delavan	Bridge over Turtle Creek	CTH P
City of Delavan	Bridge over unnamed creek	Richmond Street
City of Delavan	Bridge over unnamed creek	Richmond Street
City of Delavan	Bridge over unnamed creek	W Walworth Avenue (STH 11)
City of Elkhorn	Bridge over unnamed creek	S Lincoln Street (STH 67)
City of Elkhorn	Bridge over unnamed creek	STH 12 STH 67
City of Lake Geneva	Bridge over unnamed creek	Main Street (STH 50)
City of Lake Geneva	Bridge over unnamed creek	Main Street (STH 50)
City of Whitewater	Bridge over unnamed creek	US Highway 59
City of Whitewater	Bridge over unnamed creek	E Main Street
Town of Bloomfield	Bridge over unnamed creek	US 12
Town of Bloomfield	Bridge over unnamed creek	CTH U
Town of Darien	Bridge over unnamed creek	I-43
Town of Darien	Bridge over unnamed creek	CTH X
Town of Darien	Bridge over unnamed creek	CTH C
Town of Darien	Bridge over unnamed creek	I-43
Town of Darien	Bridge over unnamed creek	CTH C (Foundry Road)
Town of Delavan	Bridge over unnamed creek	CTH O
Town of Delavan	Bridge over unnamed creek	I-43
Town of Delavan	Bridge over unnamed creek	I-43
Town of East Troy	Bridge over unnamed creek	CTH L
Town of Geneva	Bridge over unnamed creek	CTH H
Town of Geneva	Bridge over unnamed creek	CTH H
Town of Geneva	Bridge over unnamed creek	US 12
Town of Geneva	Bridge over unnamed creek	US 12
Town of Geneva	Bridge over unnamed creek	CTH NN
Town of La Grange	Bridge over unnamed creek	STH 12
Town of Lafayette	Bridge over unnamed creek	I-43
Town of Lafayette	Bridge over unnamed creek	I-43
Town of Lafayette	Bridge over unnamed creek	STH 11
Town of Linn	Bridge over unnamed creek	CTH B
Town of Linn	Bridge over unnamed creek	CTH B

Jurisdiction	Facility Name	Address
Town of Linn	Bridge over unnamed creek	STH 120
Town of Linn	Bridge over unnamed creek	CTH B
Town of Lyons	Bridge over unnamed creek	STH 50
Town of Lyons	Bridge over unnamed creek	STH 36
Town of Lyons	Bridge over unnamed creek	STH 36
Town of Lyons	Bridge over unnamed creek	STH 36
Town of Sharon	Bridge over unnamed creek	CTH X
Town of Sharon	Bridge over unnamed creek	CTH B
Town of Sharon	Bridge over unnamed creek	CTH C
Town of Sharon	Bridge over unnamed creek	CTH K
Town of Sharon	Bridge over unnamed creek	CTH O
Town of Sharon	Bridge over unnamed creek	CTH B
Town of Sharon	Bridge over unnamed creek	CTH B
Town of Spring Prairie	Bridge over unnamed creek	CTH DD
Town of Spring Prairie	Bridge over unnamed creek	STH 120
Town of Spring Prairie	Bridge over unnamed creek	CTH DD
Town of Spring Prairie	Bridge over unnamed creek	STH 120
Town of Spring Prairie	Bridge over unnamed creek	STH 11
Town of Spring Prairie	Bridge over unnamed creek	STH 120
Town of Sugar Creek	Bridge over unnamed creek	STH 12 67
Town of Whitewater	Bridge over unnamed creek	STH 89
Village of Darien	Bridge over unnamed creek	W Beloit Street (CTH X)
Village of East Troy	Bridge over unnamed creek	I-43 (north bound)
Village of East Troy	Bridge over unnamed creek	I-43 (south bound)
Village of East Troy	Bridge over unnamed creek	Church Street (CTH G)
Town of Linn	Bridge over West Branch Nippersink Creek	STH 120
Town of Lyons	Bridge over White River	STH 36
Town of Spring Prairie	Bridge over White River	STH 11
Town of Whitewater	Bridge over Whitewater Creek	US Highway 59
Campground		
Town of Troy	Alice Chester Center	N8651 Town Line Road
City of Lake Geneva	Bigfoot Beach State Park (Wis DNR)	1550 S Lake Shore Dr
Town of East Troy	Camp Charles Allis	W2035 Beulah Heights Road
Town of East Troy	Camp Edwards YMCA	N8901 Army Lake Road

Jurisdiction	Facility Name	Address
Town of Whitewater	Camp Joy	W7725 Kettle Moraine Drive
Village of Williams Bay	Conference Point Camp	300 Conference Point Road
Town of Whitewater	Hickory Woods Group Camp	Hi-Lo Road
Village of Williams Bay	Holiday Home Camp	Holiday Avenue
Town of Richmond	McIntyres Resort	N6471 Milwaukee Road
Village of Williams Bay	Norman B. Barr Camp	483 Outing Street
Town of Richmond	Scenic Ridge Campground	W7991 R&W Townline Road
Town of Richmond	Snug Harbor Inn Campground on Turtle Lake	W7785 Wisconsin Parkway
Town of Troy	Timber Lee Christian Center	N8705 Scout Road
Town of Whitewater	Whitewater Lakes-East (Wis DNR)	N8096 Hi-Lo Road
Town of Whitewater	Whitewater Lakes-West (Wis DNR)	N8095 Hi-Lo Road
Town of Sugar Creek	Willow Run RV Condo Association	W4945 County Road ES
Community based residential facility (CBRF)		
Town of Lyons	Artisan Lake Genea	6722 Highway 50 East
City of Lake Geneva	Boulevard Manor	945 Lake Geneva Boulevard
Village of Genoa City	Burr Oak Manor	264 Walworth Street
Town of Bloomfield	Casa Mia Care Center	W1043 Rosewood Road
Town of Delavan	Cobblestones	4492 Cobblestone Road
Town of La Grange	Country Home	N8525 Highway H
Town of La Grange	Fair View	W5903 STH 12
City of Whitewater	Fairhaven Retirement Community	435 W Starin Road
Village of Genoa City	Genoa City Retirement Home	1201 County Road H
Village of Walworth	Golden Years Assisted Living Residence	270 Ridge Road
City of Whitewater	Hearthstone Memory Care	426 W North Street
Town of Whitewater	Hidden View	N8425 STH 89
Town of Walworth	Inspiration Ministries	N2270 Highway 67
City of Whitewater	Jade House	1541 W Walworth Avenue
Town of Sugar Creek	Just Like Home IV	W5140 County Road A
Town of La Grange	Kettle View	N8603 Duffin Road
City of Elkhorn	Kimberly Lane CBRF	416 Kimberly Lane
City of Elkhorn	Kindred Hearts of Elkhorn	450 E Geneva Street
Town of Bloomfield	Lakeside Woodland Home	W913 Washington Avenue
City of Lake Geneva	Laura's Home	945 Lake Geneva Boulevard
Town of Geneva	New Life Lodge	N3155 County Road H

Jurisdiction	Facility Name	Address
City of Whitewater	Our House Senior Living	945 E Chicago Street
Town of Geneva	Pinecrest of Lake Geneva	N3367 County Road NN
Village of Darien	Pleasant Villa for Seniors LLC	315 W Beloit Street
Town of Geneva	Prairie View Home	W4080 Palmer Road
Town of Geneva	Prairie View Home II	N3445 CTH NN
City of Delavan	Prairie Village North	311 Turtle Creek Drive
City of Delavan	Prairie Village South	315 Turtle Creek Drive
Town of Richmond	Richmond Way	N6032 STH 89
City of Delavan	Ridgestone Village Ltd	1025 S Second Street
Town of Delavan	Rosewood Manor LLC	2220 Borg Road
Town of Geneva	Runges CBRF for Developmentally Disabled	W3705 Loveland Road
Town of Whitewater	Sapphire House	W7332 STH 12
City of Elkhorn	Sunnyside Home	1 Eastown Manor
City of Whitewater	The Glen Supportive Living	1281 W Main Street
City of Lake Geneva	Village Glen of Geneva Crossing	723 S Curtis Street
Town of Delavan	Vintage on the Ponds	N4901 Dam Road
Town of Geneva	Whispering Willows	W4517 Willow Bend Road
Dam		
Village of Bloomfield	Bloomfield Wetland Restoration	none
Town of La Grange	Cedar Grove	none
City of Delavan	Comus Lake	N Terrace Street (Dam Road)
City of Delavan	Dam	none
City of Lake Geneva	Dam	none
City of Lake Geneva	Dam	none
Town of Troy	Donnelly	none
Town of Lafayette	Droster, Elmer	none
Village of East Troy	East Troy	Higway 120
Town of Delavan	Fox, George	none
Town of Bloomfield	Fries, Elmer	none
Village of Bloomfield	Grethe	none
Town of East Troy	Hilbourn	none
Town of Spring Prairie	Honey Lake	none
Town of Richmond	Jackley Dam #1	none
Town of Richmond	Jackley Dam #2	none

Jurisdiction	Facility Name	Address
Town of Richmond	Jackley Dam #3	none
Town of Troy	Kettle Moraine Estates, Corp	none
Town of East Troy	Lake Beulah	none
Town of Geneva	Lake Como (spillway)	none
Town of Delavan	Lake Delavan	none
Town of Delavan	Lake Delavan	none
Town of Geneva	Lake Geneva	none
Village of Bloomfield	Lake Tombeau	none
Town of La Grange	Lauderdale Lake	none
Town of Darien	Morrissey	Christie Road
Town of La Grange	Motl, Laurene	none
City of Whitewater	Old Paper Mill	none
City of Whitewater	Old Stone Mill	none
Town of Troy	Pabst	none
Town of Troy	Pabst Diversion	none
Town of Bloomfield	Pell Lake	none
Town of East Troy	Potters Lake	none
Village of Bloomfield	Powers Lake	none
Town of Whitewater	Rice Lake	none
Town of Spring Prairie	Roubik, Charles J.	none
Town of Richmond	Turtle Lake	Turtle Lake Road
Town of Richmond	Turtle Valley Central Phase	none
Town of Sugar Creek	Turtle Valley Phase III	none
Town of Bloomfield	Val Sauer	none
Village of Bloomfield	Warren Smadbeck	none
Town of Whitewater	Whitewater Lake	none
Electric substation		
City of Elkhorn	Electric substation	600 S Lincoln Street
City of Elkhorn	Electric substation	Broad Street
Town of Bloomfield	Electric substation	W497 CTH U
Town of Darien	Electric substation	2918 Foundry Road
Town of Linn	Electric substation	N1479 Zenda Road
Town of Sharon	Electric substation	STH 67
Village of Williams Bay	Electric substation	Theater Road

Jurisdiction	Facility Name	Address
Town of Richmond	WE Energy Substation	N6229 Church Road
Town of Sugar Creek	Wisconsin Electric Co substation	W5567 County Road A
Village of East Troy	Wisconsin Electric Co substation	Byrnes Street
Town of Lyons	Wisconsin Electric Power substation	7093 STH 36
Town of Sugar Creek	Wisconsin Electric substation	N5843 and N5825 Voss Road
City of Delavan	Wisconsin Power & Light substation	Wisconsin Street
City of Lake Geneva	Wisconsin Power & Light substation	Mill Street
Town of Darien	Wisconsin Power & Light substation	N3366 CTH K
Town of Delavan	Wisconsin Power & Light substation	6396 Mound Road
Town of Geneva	Wisconsin Power & Light substation	CTH NN
Village of Walworth	Wisconsin Power & Light substation	520 N Main Street
Town of Whitewater	Wisconsin Power Co substation	Clover Valley Road
EMS facility (stand alone)		
City of Delavan	Delavan Rescue Squad, Inc.	651 Ann Street
City of Elkhorn	Medix Ambulance Service, Inc. - Elkhorn	501 S Nathan Lane #3
City of Lake Geneva	Medix Ambulance Service, Inc. - Lake Geneva	623 Main Street
Town of East Troy	Paratech Ambulance Service, Inc.	N8406 Highway ES
Fire department		
Village of Bloomfield	Bloomfield Genoa City Fire & Rescue	N1113 Clover Road
City of Delavan	City of Delavan Fire Department	220 S 7th
Village of Darien	Darien Fire Department	311 W Madison Street
Town of East Troy	East Troy Area Emergency Services	N8400 Highway ES
City of Elkhorn	Elkhorn Area Fire Department	13 S Broad Street
Village of Fontana on Geneva Lake	Fontana Volunteer Fire Department and Rescue Squad	190 Douglas Street
City of Lake Geneva	Lake Geneva Fire Department - Station #1	730 Marshall Street
City of Lake Geneva	Lake Geneva Fire Station #2	Host Drive
Town of La Grange	Lauderdale-La Grange Fire Department Inc.	W6080 STH 12
Town of Sharon	Sharon Fire and Rescue	182 Park Avenue
Town of Delavan	Town of Delavan Fire Department	2000 Sage Road
Town of Delavan	Town of Delavan Fire Department	6095 Bailey Road
Town of Delavan	Town of Delavan Fire Department	2704 CTH O
Town of Delavan	Town of Delavan Fire Department and EMS	5698 Town Hall Road
Town of Linn	Town of Linn Fire/EMS	N1457 Hillside Road

Jurisdiction	Facility Name	Address
Town of Lyons	Town of Lyons Fire Department	6339 Hospital Road
Town of Troy	Troy Center Fire Department	N8870 Briggs Street
Village of Walworth	Walworth Fire Department	247 N Main Street
City of Whitewater	Whitewater Volunteer Fire Department and Rescue	312 W Whitewater Street
Village of Williams Bay	Williams Bay Volunteer Fire Department and Rescue Squad	5 E Geneva Street
Group day care		
Town of Geneva	All About Children	N3241 County Road H
City of Lake Geneva	Amy's Academy Lake Geneva	601 Walworth Street
Town of Whitewater	At School Programs-Lakeview	W8363 RW Townline Road
City of Whitewater	At School Programs-Links Charter	242 S Prince Street
City of Delavan	At School Programs-Turtle Creek	1235 Creek Road
City of Whitewater	At School Programs-Washington	506 E Main Street
City of Delavan	At School Programs-Wileman	1001 E Geneva Street
Village of East Troy	Bright Beginnings Day Care	2541 E Main Street, Unit F
Village of East Troy	Bright Beginnings Day Care LLC	2040 Beulah Avenue
Town of Geneva	Calvary Maranatha Preschool	Highway 50 and Harris Road
City of Delavan	Delavan Nursery Center	115 S 7th Street
Town of East Troy	Edwards YMCA Camp	N8901 Army Lake Road
Town of Bloomfield	Garden Gate Child Care Center	W1876 Deignan Road
Village of Williams Bay	Jerris Kidz	139 Congress Street
City of Lake Geneva	Lake Geneva Day Care Center	912 Geneva Street, Suite A
City of Lake Geneva	Lake Geneva Montessori School	912 Geneva Street
City of Elkhorn	Lakeland's Little Learners	240 E Commerce Court
City of Elkhorn	Lakeland's Little Learners-Jackson	13 N Jackson Street
Town of Sugar Creek	Lakeland's Little Learners-Tibbets	W5218 County Road A
City of Whitewater	Learning Depot	560 S Elkhorn Road
City of Whitewater	Learning Depot II	707 W Walworth
Village of East Troy	Little Angel Learning Center	2141 Mill Street
Village of Walworth	Little Professors After School Care	121 Beloit Street
Village of Walworth	Little Professors Learning Center	125 N State Highway 67
Town of Geneva	Little Red Preschool of Lake Como	N3445 Como Road, Suite 5
Town of Bloomfield	Miss Vicki's (St Marys) Day Care Center	W1256 N Lake Shore Drive
Village of East Troy	Noahs Ark Christian Day Care Center	2942 Austin Street
City of Delavan	Our Redeemer Lutheran Child Care	416 W Geneva Street

Jurisdiction	Facility Name	Address
City of Delavan	Preschool for Creative Learning	1545 Hobbs Drive
Town of Whitewater	RWCFS Lakeview Head Start Center	W8363 RW Townline Road
City of Delavan	RWCFS Phoenix School Head Start Ctr	414 Beloit Street
Village of Sharon	RWCFS Sharon Community Head Start Center	104 E School Street
Village of Bloomfield	RWCFS Star Center Head Start Center	W1380 Lake Geneva Highway
City of Whitewater	RWCFS-Links Chater	242 S Prince Street
Village of Genoa City	Sommerschool Childcare and Learning	328 Freeman Street
City of Elkhorn	Step Ahead Preschool Center LLC (St. John's Lutheran Church)	104 S Broad Street
City of Elkhorn	TLC The Learning Curve	1950 N Wisconsin Street, Suite B
City of Elkhorn	TLC Westside Wrap Around	222 Sunset Drive
City of Lake Geneva	United Child Care Center	715 Wisconsin Street
City of Whitewater	UW Whitewater Childrens Center	800 W Main Street (Roseman Building - UW Whitewater)
Health care clinic		
City of Elkhorn	Aurora Health Center	209 E Commerce Court
City of Delavan	Aurora Health Center - Delavan	1550 Hobbs Drive
Village of East Troy	Aurora Health Center - East Troy	2483 Corporate Circle Drive
City of Elkhorn	Aurora Health Center - Elkhorn	20 N Church Street
City of Lake Geneva	Aurora Health Center - Lake Geneva	146 E Geneva Square
Village of Walworth	Aurora Health Center - Walworth	525 Kenosha Street, Suite A
Village of Darien	Darien Medical Center (Beloit Memorial Hospital)	300 W Bella Vista Drive
City of Delavan	Dean Clinic - Delavan	540 Bowers Boulevard
City of Whitewater	Fort HealthCare (Therapy and Sport Center)	1461 W Main Street
City of Lake Geneva	Mercy Lake Geneva Medical Center	350 Peller Road
Village of Sharon	Mercy Sharon Medical Center	118 Plain Street
City of Whitewater	Mercy Whitewater Medical Center	507 W Main Street
City of Whitewater	Whitewater Family Practice Clinic	1305 W Main Street
Hospital		
Town of Geneva	Aurora Lakeland Medical Center	W3985 County Road NN
Town of Geneva	Mercy Walworth Hospital & Medical Center	N2950 State Road 67
Library		
City of Delavan	Aram Public Library	404 E Walworth Street
Village of Williams Bay	Barrett Memorial Library	65 W Geneva Street
Village of Sharon	Brigham Memorial Library	131 Plain Street

Jurisdiction	Facility Name	Address
Village of Darien	Darien Public Library	Park Street
Village of East Troy	East Troy Lions Public Library	3094 Graydon Avenue
Village of Fontana on Geneva Lake	Fontana Public Library	166 2nd Avenue
Village of Genoa City	Genoa City Public Library	126 Freeman
City of Whitewater	Irwin L. Young Memorial Library	431 W Center Street
City of Lake Geneva	Lake Geneva Public Library	918 W Main Street
City of Elkhorn	Matheson Memorial Library	101 N Wisconsin Street
Village of Walworth	Walworth Memorial Library	101 Maple Avenue
Mobile / Manufactured home park		
City of Lake Geneva	Brooks Timbers Court	515 S Wells Street
Town of Geneva	Coachman's Terrace Manufactured Home Communit	W3540 State Road 50
Town of Lyons	Country Estates	Hospital Road
City of Elkhorn	Land O' Lakes Mobile Home Court	473 E Geneva Street
Town of Delavan	Ludwell Estates	5614 STH 11
Town of Darien	Pioneer Estates - Delavan	W7955 Creek Road
Town of Bloomfield	Pioneer Estates - Lake Geneva	N2020 CTH H
Village of Sharon	Sharon Estates	Park Road
Village of East Troy	Skyview Terrace	2742 E Main Street
Town of Richmond	Snug Harbor Manufactured Home Community	W7772 Wisconsin Parkway
Town of Troy	Troy Terrace Mobile Home Park	N9685 Nature Road
Town of Lyons	Unnamed park	Motor Drive off of STH 36
Municipal garage		
City of Elkhorn	City of Elkhorn Garage	12 E 1st Avenue
Village of Genoa City	City of Genoa Municipal Garage	
City of Lake Geneva	City of Lake Geneva Department of Public Works	1065 Carey Street
City of Whitewater	City of Whitewater Streets and Parks	W Starin Street
City of Delavan	Delavan Grounds Maintenance Garage	69 W Walworth Avenue
City of Delavan	Delavan Street Department	490 Richmond Road
Village of Fontana on Geneva Lake	Fontana Public Works	300 Wild Duck Road
Town of Lafayette	Lafayette Town Garage	W2960 State Road 11
Village of Sharon	Sharon Municipal Garage	180 George Street
Town of Darien	Town of Darien Municipal Garage	N2876 Foundry Road
Town of Delavan	Town of Delavan Highway Department	5621 Town Hall Road

Jurisdiction	Facility Name	Address
Town of East Troy	Town of East Troy Municipal Garage	N9330 Stewart School Road
Town of Geneva	Town of Geneva Municipal Garage	N3496 Como Road
Town of La Grange	Town of La Grange Highway Department	N8530 County Road H
Town of Linn	Town of Linn Garage	N611 Zenda Road
Town of Lyons	Town of Lyons Highway Garage	6339 Hospital Road
Town of Richmond	Town of Richmond Municipal Garage	W9046 CTH A
Town of Sharon	Town of Sharon Public Works and Garage	N1097 Bollinger Road
Town of Spring Prairie	Town of Spring Prairie Municipal Garage	N6097 STH 120
Town of Sugar Creek	Town of Sugar Creek Municipal Garage	N6641 CTH H
Town of Troy	Town of Troy Municipal Garage	N8851 County Road N
Town of Walworth	Town of Walworth Municipal Garage	W6741 Brich Church Road
Town of Whitewater	Town of Whitewater Highway Department	W8590 Willis Ray Road
Village of Darien	Village of Darien Municipal Garage	323 W Madison Street
Village of East Troy	Village of East Troy Dept. of Public Works	2861 Austin Street
Village of East Troy	Village of East Troy Municipal Garage	2104 Young Street
Village of Walworth	Village of Walworth Public Works Department	121 Badger Street
Town of Geneva	Walworth County Public Works	W4097 County Road NN
Village of Williams Bay	Williams Bay Street Department	230 Williams Street
Municipal office and other		
Village of Bloomfield	Bloomfield Town Hall	1100 Town Hall Road
City of Elkhorn	City of Elkhorn Parks & Recreation Department	200 S Devendorf Street
City of Whitewater	Community Development Authority	402 W Main Street
Town of Darien	Darien Town Hall	N2826 Foundry Road
Village of Darien	Darien Village Hall	24 E Wisconsin Street
City of Delavan	Delavan City Hall	123 S 2nd Street
Town of Delavan	Delavan Town Hall	5621 Town Hall Road
City of Elkhorn	Department of Transportation Division of Motor Vehicle	835 S Lincoln Street
Town of East Troy	East Troy Town Hall	N9330 Stewart School Road
Village of East Troy	East Troy Village Hall	2015 Energy Drive
City of Elkhorn	Elkhorn City Hall	9 S Broad Street
Village of Fontana on Geneva Lake	Fontana-on-Geneva Lake Village Hall	175 Valley View Drive
Town of Geneva	Geneva Town Hall	N3496 Como Road
Village of Genoa City	Genoa City Village Hall	715 Walworth Street
Town of La Grange	La Grange Town Hall	N7899 County Road H

Jurisdiction	Facility Name	Address
Town of Lafayette	Lafayette Town Hall	W4614 Potter Road
City of Lake Geneva	Lake Geneva City Hall	626 Geneva Street
City of Lake Geneva	Lake Geneva Water Commission	361 W Main Street
Town of Linn	Linn Town Hall	W3728 Franklin Walsh Street
Town of Lyons	Lyons Town Hall	6339 Hospital Road
Town of Richmond	Richmond Town Hall	W9046 CTH A
Town of Sharon	Sharon Town Hall	N1097 Bollinger Road
Village of Sharon	Sharon Village Hall	125 Plain Street
Town of Spring Prairie	Spring Prairie Town Hall	N6097 STH 120
City of Whitewater	Starin Park Community Building	504 W Starin Street
Town of Sugar Creek	Sugar Creek Town Hall	N6641 CTH H
Town of Delavan	Town of Delavan Building Inspector Office	5621 Town Hall Road
Town of Walworth	Town of Walworth Town Hall	W6741 Brich Church Road
Town of Troy	Troy Town Hall	N8870 Briggs Street
City of Elkhorn	USDA/Natural Resource Conservation Service	225 E O'Connor Drive
City of Elkhorn	Walworth County Government Center	100 W Walworth Street
Town of Geneva	Walworth County Health and Human Services	W4051 County Road NN
City of Elkhorn	Walworth County Judicial Center	1800 County Road NN
Village of Walworth	Walworth Village Hall	227 N Main Street
City of Whitewater	Whitewater Armory	146 W North Street
City of Whitewater	Whitewater City Hall	312 W Whitewater Street
Town of Whitewater	Whitewater Town Hall	W8590 Willis Ray Road
Village of Williams Bay	Williams Bay Recreation Department Office	310 Elkhorn Road
Village of Williams Bay	Williams Bay Village Hall	250 Williams Street
City of Elkhorn	Wisconsin Department of Workforce Development - Job Service	1000 E Centralia Street
City of Elkhorn	Wisconsin Office of the State Public Defender	209 E O'Connor Drive
National Guard		
City of Whitewater	Army National Guard	952 N Universal Boulevard
City of Elkhorn	Army National Guard Co 1st Bn 128th Inf	401 E Fair Avenue
Natural gas facility		
Town of La Grange	Guardian Pipeline gas facility	STH 12
Town of La Grange	Natural gas facility	W5905 STH 12
Town of Lyons	Natural gas facility	Hospital Road and STH 120

Jurisdiction	Facility Name	Address
Town of Sharon	Natural gas facility	N1146 CTH C
Town of Whitewater	Northern Natural Gas	W7960 Reliance Road
Nursing home		
Village of East Troy	East Troy Manor	3271 North Street
City of Whitewater	Fairhaven	435 W Starin Road
City of Lake Geneva	Geneva Lake Manor	211 S Curtis Street
Village of Walworth	Golden Years Health Care Center	270 Ridge Road
City of Elkhorn	Holton Manor	638 N Broad Street
City of Elkhorn	Lakeland Health Care Center	1922 County Road NN
Village of Williams Bay	Williams Bay Care Center	146 Clover Street
City of Delavan	Willowfield Nursing & Rehab Center	905 E Geneva Street
Police department		
Village of Bloomfield	Bloomfield Township Police Department	1100 Town Hall Road
Village of Darien	Darien Police Department	24 E Wisconsin Street
City of Delavan	Delavan Police Department (DVPD)	123 S 2nd Street
Town of Delavan	Delavan Township Police Department	5625 Town Hall Road
Town of East Troy	East Troy Township Police Department	N9330 Stewart School Road
Village of East Troy	East Troy Village Police Department	2015 Energy Drive
City of Elkhorn	Elkhorn Police Department	404 N Washington Street
Village of Fontana on Geneva Lake	Fontana Police Department	185 Douglas Street
Village of Genoa City	Genoa Police Department	715 Walworth Street
City of Lake Geneva	Lake Geneva Police Department (LGPD)	626 Geneva Street
Town of Linn	Linn Township Police Department	W3728 Franklin Walsh Street
Village of Sharon	Sharon Police Department	125 Plain Street
Town of Geneva	Town of Geneva Police Department	N3496 Como Road
City of Elkhorn	Walworth County Law Enforcement Center	1770 County Road NN
Village of Walworth	Walworth Police Department	227 N Main Street
City of Whitewater	Whitewater Police Department	312 W Whitewater Street
Village of Williams Bay	Williams Bay Police Department	250 Williams Street
Post office		
Village of Darien	Post Office - Darien	1 E Beloit Street
City of Delavan	Post Office - Delavan	335 E Walworth Avenue
Village of East Troy	Post Office - East Troy	2099 Mill Street

Jurisdiction	Facility Name	Address
City of Elkhorn	Post Office - Elkhorn	102 E Walworth Street
Village of Fontana on Geneva Lake	Post Office - Fontana	185 3rd Avenue
Village of Genoa City	Post Office - Genoa City	742 Walworth Street
City of Lake Geneva	Post Office - Lake Geneva	672 W Main Street
Town of Lyons	Post Office - Lyons	1447 Mill Street
Village of Bloomfield	Post Office - Pell Lake	W1265 Park Road
Village of Sharon	Post Office - Sharon	199 Walworth Street
Town of Lyons	Post Office - Springfield	7210 Springfield Road
Village of Walworth	Post Office - Walworth	206 N Main Street
City of Whitewater	Post Office - Whitewater	213 W Center Street
Village of Williams Bay	Post Office - Williams Bay	129 N Walworth Avenue
Town of Linn	Post Office - Zenda	W3724 Franklin Walsh Street
Public-use airport		
City of Burlington	Burlington Municipal Airport	703 Airport Drive
Village of East Troy	East Troy Municipal Airport	2085 Highway L
Recreation		
City of Delavan	Mill Pond Rec Building	Waterworks Drive
Residential care apartment complex (RCAC)		
City of Lake Geneva	Arbor Village of Geneva Crossing	201 Townline Road
Village of East Troy	Brolen Park	2191 Church Street
Village of Walworth	Golden Years Retirement Village	270 Ridge Road
Town of Walworth	Inspiration Ministries	N2270 Highway 67
City of Delavan	Ridgestone Court Inc	1025 S Second Street
City of Elkhorn	Ridgestone Terrace	291 W Evergreen Parkway
Village of Williams Bay	Sherwood Lodge	116 Cherry Street
School K-12		
City of Lake Geneva	Badger High School	220 E South Street
Village of Walworth	Big Foot High School	401 Devils Lane
Village of Genoa City	Brookwood Elementary School	630 Kossuth Street
Village of Genoa City	Brookwood Middle School	1020 Hunters Ridge
Village of East Troy	Byrnes Elementary School	2043 Division Street
City of Lake Geneva	Central-Denison Middle School	900 Wisconsin Street
Town of Lyons	Cornerstone Christian Academy	1553 Church Street

Jurisdiction	Facility Name	Address
Village of Darien	Darien Elementary School	125 S Walworth Street
City of Delavan	Delavan Christian School	848 Oak Street
City of Delavan	Delavan-Darien High School	150 Cummings Street
Village of East Troy	Doubek Elementary School	2040 Beulah Avenue
Village of East Troy	East Troy High School	3128 Graydon Avenue
Village of East Troy	East Troy Middle School	3143 Graydon Avenue
City of Lake Geneva	Eastview Elementary School	535 Sage Street
City of Elkhorn	Elkhorn Area High School	482 E Geneva Street
City of Elkhorn	Elkhorn Area Middle School	627 E Court Street
Town of Walworth	Faith Christian School	W5525 Highway 67
City of Lake Geneva	First Evangelical Lutheran School	1101 Logan Street
City of Elkhorn	First Lutheran School (Also preschool)	415 Devendorf Street
Village of Fontana on Geneva Lake	Fontana Elementary School	450 S Main Street
Village of East Troy	Good Shepherd Lutheran School	1936 Emery Street
City of Elkhorn	Jackson Elementary School	13 N Jackson
City of Whitewater	Kettle Moraine Baptist Academy	505 S Wisconsin Street
City of Lake Geneva	Lake Geneva Middle School	600 N Broomfield Road
Town of Geneva	Lakeland School	W3905 CTH NN
City of Elkhorn	Lakeland School of Walworth County	504 W Court Street
Town of Whitewater	Lakeview Elementary School	W8363 RW Townline Road
City of Whitewater	Links Charter School	242 S Prince Street
Town of Lyons	Lyons Center School	1622 Mill Street
Town of Lyons	Mount Zion Christian School	2330 Highway 120
Town of East Troy	Nature's Classroom Montessori School	W1802 Highway J
City of Delavan	Our Redeemer Lutheran School	416 W Geneva Street
City of Delavan	Phoenix Middle School	414 Beloit Street
Village of East Troy	Prairie View Elementary School	2131 Townline Road
Town of Linn	Reek Elementary School	W4094 S Lake Shore Drive
City of Delavan	Saint Andrews Parish School	115 S 7th Street
City of Lake Geneva	Saint Francis de Sales Grade School	130 W Main Street
City of Elkhorn	Saint Patricks Grade School	534 Sunset Drive
Village of East Troy	Saint Pauls Lutheran School	2665 North Street
Village of East Troy	Saint Peters Elementary School	3001 Elm Street
Village of Sharon	Sharon Community School	104 E School Street

Jurisdiction	Facility Name	Address
Village of Bloomfield	Star Center Elementary School	W1380 Lake Geneva Highway
Town of Sugar Creek	Tibbets Elementary School	W5218 County Road A
Town of Linn	Traver Elementary School	W3490 Linton Road (CTH BB)
City of Delavan	Turtle Creek Elementary School	1235 Creek Road
Village of Walworth	Walworth Christian School	119 Phillips Avenue
City of Elkhorn	Walworth County Educational Alternative High School	400 County Road H
Village of Walworth	Walworth Elementary and Middle School	121 Beloit Street
City of Whitewater	Washington Elementary School	506 E Main Street
City of Elkhorn	West Side Elementary School	222 N Sunset Drive
City of Whitewater	Whitewater High School	534 S Elizabeth Street
City of Whitewater	Whitewater Middle School	401 S Elizabeth Street
City of Delavan	Wileman Elementary School	1001 E Geneva Street
Village of Williams Bay	Williams Bay Elementary School	139 Congress Street
Village of Williams Bay	Williams Bay High School	500 W Geneva Street
Village of Williams Bay	Williams Bay Junior High School	500 W Geneva Street
City of Delavan	Wisconsin School for the Deaf	311 W Walworth Avenue
Town of Geneva	Woods Elementary School	N2575 Snake Road
School Post-secondary		
City of Elkhorn	Gateway Technical College	400 County Road H
Village of Williams Bay	George Williams College of Aurora University	350 Constance Boulevard
City of Elkhorn	Upper Iowa University	400 County Road H
City of Whitewater	UW-Whitewater	Main Street
Senior center		
Village of Darien	Darien Senior Center	Park Street
Telecommunication		
City of Whitewater	Board of Regents, University of Wisconsin System	none
Town of East Troy	Communication tower	N9084 Highway ES
City of Delavan	Telecommunication tower	Edwards Street
City of Delavan	Telecommunication tower	Edwards Street
City of Elkhorn	Telecommunication tower	Walworth Street
City of Elkhorn	Telecommunication tower	Walworth Street
City of Elkhorn	Telecommunication tower	404 N Washington Street
City of Elkhorn	Telecommunication tower	McKenzie Lane

Jurisdiction	Facility Name	Address
City of Lake Geneva	Telecommunication tower	North Bloomfield Road
City of Lake Geneva	Telecommunication tower	Broad Street
City of Lake Geneva	Telecommunication tower	Dodge Street and Forest Street
City of Whitewater	Telecommunication tower	E Commercial Avenue
City of Whitewater	Telecommunication tower	N9694 Old Highway 12
Town of Bloomfield	Telecommunication tower	North Bloomfield Road
Town of Bloomfield	Telecommunication tower	Twin Lakes Road
Town of Darien	Telecommunication tower	Old Highway 89
Town of Darien	Telecommunication tower	West Bound Lane
Town of Geneva	Telecommunication tower	Palmer Road
Town of Geneva	Telecommunication tower	N3403 Bird Place
Town of Geneva	Telecommunication tower	W2835 Krueger Road
Town of Geneva	Telecommunication tower	CTH H
Town of Geneva	Telecommunication tower	none
Town of La Grange	Telecommunication tower	W6586 Territorial Road
Town of La Grange	Telecommunication tower	STH 12 and Tamarack Road
Town of Lafayette	Telecommunication tower	CTH D
Town of Lafayette	Telecommunication tower	E Geneva Street (CTH NN)
Town of Lafayette	Telecommunication tower	W4889 CTH ES
Town of Linn	Telecommunication tower	W4121 CTH B
Town of Linn	Telecommunication tower	W4328 Linton Road (CTH BB)
Town of Linn	Telecommunication tower	N1459 Hillside Road
Town of Lyons	Telecommunication tower	STH 36
Town of Lyons	Telecommunication tower	6060 STH 50
Town of Lyons	Telecommunication tower	STH 50
Town of Lyons	Telecommunication tower	STH 50
Town of Richmond	Telecommunication tower	W8354 CTH A
Town of Richmond	Telecommunication tower	STH 89
Town of Sharon	Telecommunication tower	Temperance Road
Town of Spring Prairie	Telecommunication tower	Spring Prairie Road
Town of Spring Prairie	Telecommunication tower	STH 120
Town of Spring Prairie	Telecommunication tower	CTH D
Town of Troy	Telecommunication tower	W2620 CTH J
Town of Troy	Telecommunication tower	N7339 Town Line Road

Jurisdiction	Facility Name	Address
Town of Whitewater	Telecommunication tower	Taylor Road and STH 59
Town of Whitewater	Telecommunication tower	W7596 STH 12
Village of Bloomfield	Telecommunication tower	Pell Lake Drive
Village of East Troy	Telecommunication tower	2485 or 2491 Church Street (STH 120 CTH G)
Village of East Troy	Telecommunication tower	Austin Street
Village of Fontana on Geneva Lake	Telecommunication tower	300 Wild Duck Road
Village of Walworth	Telecommunication tower	Townhall Road (N Main Street)
Village of Bloomfield	Telecommunication tower (Cingular)	Pell Lake Drive
Town of Sharon	Telecommunication tower (Lakehead Pipe Line)	SD Townline Road
Village of Bloomfield	Telecommunication tower (Nextel)	W1031 Rosewood Road
Village of East Troy	Telecommunication tower (Nextel)	2029 Young Street
Town of Walworth	Telecommunication tower (Nextel, Sprint)	W Main Street
Village of Genoa City	Telecommunication tower (on water tower)	Elizabeth Lane
Town of Geneva	Telecommunication tower (Pinnacle Towers LLC)	CTH NN
City of Whitewater	Telecommunication tower (U.S. Cellular)	N Prairie Street (Winther Hall - UW Whitewater \\
Town of Whitewater	Telecommunication tower (Walworth County)	W8361 RW Townline Road
City of Delavan	Telecommunication tower (Water tower)	Chestnut Court
City of Lake Geneva	Telecommunication tower (water tower)	Host Drive
City of Whitewater	Telecommunication tower (water tower)	E Cravath Street
Town of Delavan	Telecommunications tower	STH 11
Town of Lafayette	Wisconsin, State of	N6471 Woodridge Drive
Telephone facility		
Village of Williams Bay	Ameritech Telephone	53 Cherry Street
City of Lake Geneva	AT&T telephone facility	645 Main Street
Village of East Troy	CenturyTel Telephone facility	2116 Clark Street
Village of Sharon	Sharon Telephone Company	105 Plain Street
Town of Sugar Creek	TDS Telephone substation	N7105 CTH H
Town of Sugar Creek	TDS Telephone substation	W5119 Kenosha Drive
Village of Darien	Verizon telephone facility	51 Wisconsin Street
Town of Richmond	Wisconsin Telephone Company	N6208 Church Road
City of Delavan	Wisconsin telephone facility	116 S 3rd Street
Utility office/yard		
City of Elkhorn	City of Elkhorn Electric Utility Department	400 E Koopman Lane

Jurisdiction	Facility Name	Address
City of Whitewater	City of Whitewater Water Division	W Starin Street
Town of Delavan	Delavan Lake Sanitary District #3	2990 County Road F
City of Delavan	Delavan Water	488 Richmond Road
Town of Geneva	Lake Como Sanitary District Office	N3420 Dell Place
Village of Williams Bay	Williams Bay Water Department	155 Elkhorn Road
Wastewater facility		
City of Lake Geneva	Lake Geneva Wastewater Treatment Plant	201 Haskins Street
Village of Bloomfield	Pell Lake Sanitary District 1	W974 Pell Lake Road
Village of Bloomfield	Pell Lake Sanitation District #1 wastewater plant	N1183 CTH U
Town of Lyons	Sanitary District #2	5996 Clearwater Court
Town of Sharon	Village of Walworth and Village of Fontana Wastewater Treatment Plant	N840 Chilson Road
Town of Darien	Walworth County Metropolitan Sewerage District	975 W Walworth Street (STH 11)
Village of Darien	Wastewater facility	Sharon Street
Town of Sharon	Wastewater treatment plant	N262 Saltbox Road
Village of East Troy	Wastewater treatment plant	2104 Young Street
Village of Genoa City	Wastewater treatment plant	1st Street
Water facility		
City of Whitewater	Ground reservoir (800,00 gallons)	308 N. Fremont Street
City of Elkhorn	Water reservoir and shop	410 S Broad Street
City of Delavan	Water tower	Chestnut Court
City of Delavan	Water tower	1111 Edwards Street
City of Delavan	Water tower	Woolseys Street
City of Delavan	Water tower	E Walworth Street
City of Elkhorn	Water tower	CTH NN
City of Elkhorn	Water tower	none
City of Elkhorn	Water tower	N Church Street
City of Lake Geneva	Water tower	Host Drive
City of Lake Geneva	Water tower	Center Street
City of Lake Geneva	Water tower	Dodge Street and Forest Street
Village of Darien	Water tower	Oak Street
Village of Darien	Water tower	N Badger Parkway
Village of East Troy	Water tower	2485 or 2491 Church Street (STH 120 CTH G)
Village of East Troy	Water tower	2029 Young Street

Jurisdiction	Facility Name	Address
Village of Fontana on Geneva Lake	Water tower	300 Wild Duck Road
Village of Fontana on Geneva Lake	Water tower	519 S Lakeshore
Village of Genoa City	Water tower	Elizabeth Lane
Village of Walworth	Water tower	Townhall Road (N Main Street)
Village of Williams Bay	Water tower	Theater Road
Village of Williams Bay	Water tower	240 Wesley Street
Village of Williams Bay	Water tower	Potawatomi Road
Village of Williams Bay	Water tower	Collie Street
Village of Genoa City	Water tower	Gideon Court
Town of Geneva	Water tower - Lake Como Sanitary District No. 1	N3420 Dell Place
Village of Bloomfield	Water tower - Pell Lake Sanitary District	N1555 Clover Road
City of Whitewater	Water tower (175,000 gallons)	N Prairie Street (Starin Park)
City of Whitewater	Water tower (500,000 gallons)	502 E Cravath Street
Town of Geneva	Water tower (Geneva National - private)	Palmer Road
City of Lake Geneva	Water Treatment Plant and Reservoir	361 W Main Street
Village of Fontana on Geneva Lake	Water well	504 Lake Street
Village of Fontana on Geneva Lake	Water well	W5962 Brick Church Road
Village of Fontana on Geneva Lake	Water well	W5992 Brick Church Road
Village of Fontana on Geneva Lake	Water well	140 Mayflower
Village of Fontana on Geneva Lake	Water well	140 Tarrant Court
Village of Sharon	Water well	Center Street
Village of Sharon	Water well	178 George Street
Village of Walworth	Water well	Read Street
Village of Walworth	Water well	N. Main Street
Village of Walworth	Water well	501 Brennan Drive
City of Lake Geneva	Water well #2	361 W Main Street
City of Lake Geneva	Water well #3	Dunn Field
City of Lake Geneva	Water well #4	Dunn Field
City of Lake Geneva	Water well #5	201 Haskins Street
City of Whitewater	Water well #5	308 N. Fremont Street
Village of East Troy	Water well #5	3219 North Street
Village of East Troy	Water well #5	2028 West
City of Whitewater	Water well #6	1130 W Carriage Drive
City of Whitewater	Water well #7	N Fremont Street (Starin Park)

Jurisdiction	Facility Name	Address
Village of East Troy	Water well #7	2802 Oakmont
City of Whitewater	Water well #8	951 E Commercial Avenue
Village of East Troy	Water well #8	3103 North Street
City of Whitewater	Water well #9	797 Indian Mound Parkway
Village of Williams Bay	Well #1	155 Elkhorn
Village of Williams Bay	Well #2	Olive Street
Village of Williams Bay	Well #3	N Harris Road

CRITICAL FACILITIES SORTED BY JURISDICTION: 2013

Facility Type	Facility Name	Address
City of Burlington		
Public-use airport	Burlington Municipal Airport	703 Airport Drive
City of Delavan		
Adult family home (AFH)	Steven's Hope and Love	317 Butternut Drive
Adult family home (AFH)	Voskull Adult Family Home	337 Bradley Avenue
Bridge	Bridge over unnamed creek	Richmond Street
Bridge	Bridge over unnamed creek	Richmond Street
Bridge	Bridge over unnamed creek	W Walworth Avenue (STH 11)
Community based residential facility (CBRF)	Prairie Village North	311 Turtle Creek Drive
Community based residential facility (CBRF)	Prairie Village South	315 Turtle Creek Drive
Community based residential facility (CBRF)	Ridgestone Village Ltd	1025 S Second Street
Dam	Comus Lake	N Terrace Street (Dam Road)
Dam	Dam	none
Electric substation	Wisconsin Power & Light substation	Wisconsin Street
EMS facility (stand alone)	Delavan Rescue Squad, Inc.	651 Ann Street
Fire department	City of Delavan Fire Department	220 S 7th
Group day care	At School Programs-Turtle Creek	1235 Creek Road
Group day care	At School Programs-Wileman	1001 E Geneva Street
Group day care	Delavan Nursery Center	115 S 7th Street
Group day care	Our Redeemer Lutheran Child Care	416 W Geneva Street
Group day care	Preschool for Creative Learning	1545 Hobbs Drive
Group day care	RWCFS Phoenix School Head Start Ctr	414 Beloit Street
Health care clinic	Aurora Health Center - Delavan	1550 Hobbs Drive
Health care clinic	Dean Clinic - Delavan	540 Bowers Boulevard
Library	Aram Public Library	404 E Walworth Street
Municipal garage	Delavan Grounds Maintenance Garage	69 W Walworth Avenue
Municipal garage	Delavan Street Department	490 Richmond Road
Municipal office and other	Delavan City Hall	123 S 2nd Street
Nursing home	Willowfield Nursing & Rehab Center	905 E Geneva Street
Police department	Delavan Police Department (DVPD)	123 S 2nd Street
Post office	Post Office - Delavan	335 E Walworth Avenue
Recreation	Mill Pond Rec Building	Waterworks Drive
Residential care apartment complex (RCAC)	Ridgestone Court Inc	1025 S Second Street
School K-12	Delavan Christian School	848 Oak Street

Facility Type	Facility Name	Address
School K-12	Delavan-Darien High School	150 Cummings Street
School K-12	Our Redeemer Lutheran School	416 W Geneva Street
School K-12	Phoenix Middle School	414 Beloit Street
School K-12	Saint Andrews Parish School	115 S 7th Street
School K-12	Turtle Creek Elementary School	1235 Creek Road
School K-12	Wileman Elementary School	1001 E Geneva Street
School K-12	Wisconsin School for the Deaf	311 W Walworth Avenue
Telecommunication	Telecommunication tower	Edwards Street
Telecommunication	Telecommunication tower	Edwards Street
Telecommunication	Telecommunication tower (Water tower)	Chestnut Court
Telephone facility	Wisconsin telephone facility	116 S 3rd Street
Utility office/yard	Delavan Water	488 Richmond Road
Water facility	Water tower	Chestnut Court
Water facility	Water tower	1111 Edwards Street
Water facility	Water tower	Woolseys Street
Water facility	Water tower	E Walworth Street
City of Elkhorn		
Adult day care (ADC)	Pleasant Street Country Day	329 N Wisconsin Street
Adult day care (ADC)	VIP Services	811 E Geneva
Adult family home (AFH)	Arbor House	W5428 County Road A
Adult family home (AFH)	Community Living Arrangements - Court	298 W Court Street
Adult family home (AFH)	Community Living Arrangements - Prescott	13 Prescott Street
Bridge	Bridge over Jackson Creek	S Lincoln Street (STH 67)
Bridge	Bridge over unnamed creek	S Lincoln Street (STH 67)
Bridge	Bridge over unnamed creek	STH 12 STH 67
Community based residential facility (CBRF)	Kimberly Lane CBRF	416 Kimberly Lane
Community based residential facility (CBRF)	Kindred Hearts of Elkhorn	450 E Geneva Street
Community based residential facility (CBRF)	Sunnyside Home	1 Eastown Manor
Electric substation	Electric substation	600 S Lincoln Street
Electric substation	Electric substation	Broad Street
EMS facility (stand alone)	Medix Ambulance Service, Inc. - Elkhorn	501 S Nathan Lane #3
Fire department	Elkhorn Area Fire Department	13 S Broad Street
Group day care	Lakeland's Little Learners	240 E Commerce Court
Group day care	Lakeland's Little Learners-Jackson	13 N Jackson Street

Facility Type	Facility Name	Address
Group day care	Step Ahead Preschool Center LLC (St. John's Lutheran Church)	104 S Broad Street
Group day care	TLC The Learning Curve	1950 N Wisconsin Street, Suite B
Group day care	TLC Westside Wrap Around	222 Sunset Drive
Health care clinic	Aurora Health Center	209 E Commerce Court
Health care clinic	Aurora Health Center - Elkhorn	20 N Church Street
Library	Matheson Memorial Library	101 N Wisconsin Street
Mobile / Manufactured Home Park	Land O' Lakes Mobile Home Court	473 E Geneva Street
Municipal garage	City of Elkhorn Garage	12 E 1st Avenue
Municipal office and other	City of Elkhorn Parks & Recreation Department	200 S Devendorf Street
Municipal office and other	Department of Transportation Division of Motor Vehicle	835 S Lincoln Street
Municipal office and other	Elkhorn City Hall	9 S Broad Street
Municipal office and other	USDA/Natural Resource Conservation Service	225 E O'Connor Drive
Municipal office and other	Walworth County Government Center	100 W Walworth Street
Municipal office and other	Walworth County Judicial Center	1800 County Road NN
Municipal office and other	Wisconsin Department of Workforce Development - Job Service	1000 E Centralia Street
Municipal office and other	Wisconsin Office of the State Public Defender	209 E O'Connor Drive
National Guard	Army National Guard Co 1st Bn 128th Inf	401 E Fair Avenue
Nursing home	Holton Manor	638 N Broad Street
Nursing home	Lakeland Health Care Center	1922 County Road NN
Police department	Elkhorn Police Department	404 N Washington Street
Police department	Walworth County Law Enforcement Center	1770 County Road NN
Post office	Post Office - Elkhorn	102 E Walworth Street
Residential care apartment complex (RCAC)	Ridgestone Terrace	291 W Evergreen Parkway
School K-12	Elkhorn Area High School	482 E Geneva Street
School K-12	Elkhorn Area Middle School	627 E Court Street
School K-12	First Lutheran School (Also preschool)	415 Devendorf Street
School K-12	Jackson Elementary School	13 N Jackson
School K-12	Lakeland School of Walworth County	504 W Court Street
School K-12	Saint Patricks Grade School	534 Sunset Drive
School K-12	Walworth County Educational Alternative High School	400 County Road H
School K-12	West Side Elementary School	222 N Sunset Drive
School Post-secondary	Gateway Technical College	400 County Road H
School Post-secondary	Upper Iowa University	400 County Road H
Telecommunication	Telecommunication tower	Walworth Street

Facility Type	Facility Name	Address
Telecommunication	Telecommunication tower	Walworth Street
Telecommunication	Telecommunication tower	404 N Washington Street
Telecommunication	Telecommunication tower	McKenzie Lane
Utility office/yard	City of Elkhorn Electric Utility Department	400 E Koopman Lane
Water facility	Water reservoir and shop	410 S Broad Street
Water facility	Water tower	CTH NN
Water facility	Water tower	none
Water facility	Water tower	N Church Street
City of Lake Geneva		
Adult family home (AFH)	Sky Lane Home	109 Sky Lane
Bridge	Bridge over unnamed creek	Main Street (STH 50)
Bridge	Bridge over unnamed creek	Main Street (STH 50)
Campground	Bigfoot Beach State Park (Wis DNR)	1550 S Lake Shore Dr
Community based residential facility (CBRF)	Boulevard Manor	945 Lake Geneva Boulevard
Community based residential facility (CBRF)	Laura's Home	945 Lake Geneva Boulevard
Community based residential facility (CBRF)	Village Glen of Geneva Crossing	723 S Curtis Street
Dam	Dam	none
Dam	Dam	none
Electric substation	Wisconsin Power & Light substation	Mill Street
EMS facility (stand alone)	Medix Ambulance Service, Inc. - Lake Geneva	623 Main Street
Fire department	Lake Geneva Fire Department - Station #1	730 Marshall Street
Fire department	Lake Geneva Fire Station #2	Host Drive
Group day care	Amy's Academy Lake Geneva	601 Walworth Street
Group day care	Lake Geneva Day Care Center	912 Geneva Street, Suite A
Group day care	Lake Geneva Montessori School	912 Geneva Street
Group day care	United Child Care Center	715 Wisconsin Street
Health care clinic	Aurora Health Center - Lake Geneva	146 E Geneva Square
Health care clinic	Mercy Lake Geneva Medical Center	350 Peller Road
Library	Lake Geneva Public Library	918 W Main Street
Mobile / Manufactured home park	Brooks Timbers Court	515 S Wells Street
Municipal garage	City of Lake Geneva Department of Public Works	1065 Carey Street
Municipal office and other	Lake Geneva City Hall	626 Geneva Street
Municipal office and other	Lake Geneva Water Commission	361 W Main Street
Nursing home	Geneva Lake Manor	211 S Curtis Street

Facility Type	Facility Name	Address
Police department	Lake Geneva Police Department (LGPD)	626 Geneva Street
Post office	Post Office - Lake Geneva	672 W Main Street
Residential care apartment complex (RCAC)	Arbor Village of Geneva Crossing	201 Townline Road
School K-12	Badger High School	220 E South Street
School K-12	Central-Denison Middle School	900 Wisconsin Street
School K-12	Eastview Elementary School	535 Sage Street
School K-12	First Evangelical Lutheran School	1101 Logan Street
School K-12	Lake Geneva Middle School	600 N Broomfield Road
School K-12	Saint Francis de Sales Grade School	130 W Main Street
Telecommunication	Telecommunication tower	North Bloomfield Road
Telecommunication	Telecommunication tower	Broad Street
Telecommunication	Telecommunication tower	Dodge Street and Forest Street
Telecommunication	Telecommunication tower (water tower)	Host Drive
Telephone facility	AT&T telephone facility	645 Main Street
Wastewater facility	Lake Geneva Wastewater Treatment Plant	201 Haskins Street
Water facility	Water tower	Host Drive
Water facility	Water tower	Center Street
Water facility	Water tower	Dodge Street and Forest Street
Water facility	Water Treatment Plant and Reservoir	361 W Main Street
Water facility	Water well #2	361 W Main Street
Water facility	Water well #3	Dunn Field
Water facility	Water well #4	Dunn Field
Water facility	Water well #5	201 Haskins Street
City of Whitewater		
Adult day care (ADC)	Glen Adult Day Care	1281 W Main Street
Adult family home (AFH)	Carrie's Home	1234 W Melrose
Adult family home (AFH)	Chris Home	424 S Pleasant St
Adult family home (AFH)	Debbie's House	241 N Queen Street
Adult family home (AFH)	Jennie's Place	213 S Whiton Street
Adult family home (AFH)	Koller House (The)	216 S Summit Street
Adult family home (AFH)	Riverwood Adult Family Home	204 N Jefferson Street
Adult family home (AFH)	Stone Ridge Adult Family Home	204 N Jefferson
Bridge	Bridge over unnamed creek	US Highway 59
Bridge	Bridge over unnamed creek	E Main Street

Facility Type	Facility Name	Address
Community based residential facility (CBRF)	Fairhaven Retirement Community	435 W Starin Road
Community based residential facility (CBRF)	Hearthstone Memory Care	426 W North Street
Community based residential facility (CBRF)	Jade House	1541 W Walworth Avenue
Community based residential facility (CBRF)	Our House Senior Living	945 E Chicago Street
Community based residential facility (CBRF)	The Glen Supportive Living	1281 W Main Street
Dam	Old Paper Mill	none
Dam	Old Stone Mill	none
Fire department	Whitewater Volunteer Fire Department and Rescue	312 W Whitewater Street
Group day care	At School Programs-Links Charter	242 S Prince Street
Group day care	At School Programs-Washington	506 E Main Street
Group day care	Learning Depot	560 S Elkhorn Road
Group day care	Learning Depot II	707 W Walworth
Group day care	RWCFS-Links Charter	242 S Prince Street
Group day care	UW Whitewater Childrens Center	800 W Main Street (Roseman Building - UW Whitewater)
Health care clinic	Fort HealthCare (Therapy and Sport Center)	1461 W Main Street
Health care clinic	Mercy Whitewater Medical Center	507 W Main Street
Health care clinic	Whitewater Family Practice Clinic	1305 W Main Street
Library	Irwin L. Young Memorial Library	431 W Center Street
Municipal garage	City of Whitewater Streets and Parks	W Starin Street
Municipal office and other	Community Development Authority	402 W Main Street
Municipal office and other	Starin Park Community Building	504 W Starin Street
Municipal office and other	Whitewater Armory	146 W North Street
Municipal office and other	Whitewater City Hall	312 W Whitewater Street
National Guard	Army National Guard	952 N Universal Boulevard
Nursing home	Fairhaven	435 W Starin Road
Police department	Whitewater Police Department	312 W Whitewater Street
Post office	Post Office - Whitewater	213 W Center Street
School K-12	Kettle Moraine Baptist Academy	505 S Wisconsin Street
School K-12	Links Charter School	242 S Prince Street
School K-12	Washington Elementary School	506 E Main Street
School K-12	Whitewater High School	534 S Elizabeth Street
School K-12	Whitewater Middle School	401 S Elizabeth Street
School Post-secondary	UW-Whitewater	Main Street
Telecommunication	Board of Regents, University of Wisconsin System	none

Facility Type	Facility Name	Address
Telecommunication	Telecommunication tower	E Commercial Avenue
Telecommunication	Telecommunication tower	N9694 Old Highway 12
Telecommunication	Telecommunication tower (U.S. Cellular)	N Prairie Street (Winther Hall - UW Whitewater \
Telecommunication	Telecommunication tower (water tower)	E Cravath Street
Utility office/yard	City of Whitewater Water Division	W Starin Street
Water facility	Ground reservoir (800,00 gallons)	308 N. Fremont Street
Water facility	Water tower (175,000 gallons)	N Prairie Street (Starin Park)
Water facility	Water tower (500,000 gallons)	502 E Cravath Street
Water facility	Water well #5	308 N. Fremont Street
Water facility	Water well #6	1130 W Carriage Drive
Water facility	Water well #7	N Fremont Street (Starin Park)
Water facility	Water well #8	951 E Commercial Avenue
Water facility	Water well #9	797 Indian Mound Parkway
Town of Bloomfield		
Adult family home (AFH)	Lincoln Street Adult Family Home	N2465 Lincoln Drive
Bridge	Bridge over East Branch Nippersink Creek	US 12
Bridge	Bridge over East Branch Nippersink Creek	CTH F
Bridge	Bridge over East Branch Nippersink Creek	CTH U
Bridge	Bridge over North Branch Nippersink Creek	CTH H
Bridge	Bridge over North Branch Nippersink Creek	CTH B
Bridge	Bridge over unnamed creek	US 12
Bridge	Bridge over unnamed creek	CTH U
Community based residential facility (CBRF)	Casa Mia Care Center	W1043 Rosewood Road
Community based residential facility (CBRF)	Lakeside Woodland Home	W913 Washington Avenue
Dam	Fries, Elmer	none
Dam	Pell Lake	none
Dam	Val Sauer	none
Electric substation	Electric substation	W497 CTH U
Group day care	Garden Gate Child Care Center	W1876 Deignan Road
Group day care	Miss Vicki's (St Marys) Day Care Center	W1256 N Lake Shore Drive
Mobile / Manufactured home park	Pioneer Estates - Lake Geneva	N2020 CTH H
Telecommunication	Telecommunication tower	North Bloomfield Road
Telecommunication	Telecommunication tower	Twin Lakes Road
Town of Darien		

Facility Type	Facility Name	Address
Bridge	Bridge over Turtle Creek	STH 11
Bridge	Bridge over Turtle Creek	STH 89 US 14
Bridge	Bridge over Turtle Creek	CTH C
Bridge	Bridge over unnamed creek	I-43
Bridge	Bridge over unnamed creek	CTH X
Bridge	Bridge over unnamed creek	CTH C
Bridge	Bridge over unnamed creek	I-43
Bridge	Bridge over unnamed creek	CTH C (Foundry Road)
Dam	Morrissey	Christie Road
Electric substation	Electric substation	2918 Foundry Road
Electric substation	Wisconsin Power & Light substation	N3366 CTH K
Mobile / Manufactured home park	Pioneer Estates - Delavan	W7955 Creek Road
Municipal garage	Town of Darien Municipal Garage	N2876 Foundry Road
Municipal office and other	Darien Town Hall	N2826 Foundry Road
Telecommunication	Telecommunication tower	Old Highway 89
Telecommunication	Telecommunication tower	West Bound Lane
Wastewater facility	Walworth County Metropolitan Sewerage District	975 W Walworth Street (STH 11)
Town of Delavan		
Adult family home (AFH)	Mabry Adult Family Home	7980 Summit Drive
Adult family home (AFH)	Pease Adult Family Home	5281 State Road 50
Bridge	Bridge - Delavan Lake	STH 50
Bridge	Bridge over Swan Creek	CTH O
Bridge	Bridge over Turtle Creek	CTH P
Bridge	Bridge over unnamed creek	CTH O
Bridge	Bridge over unnamed creek	I-43
Bridge	Bridge over unnamed creek	I-43
Community based residential facility (CBRF)	Cobblestones	4492 Cobblestone Road
Community based residential facility (CBRF)	Rosewood Manor LLC	2220 Borg Road
Community based residential facility (CBRF)	Vintage on the Ponds	N4901 Dam Road
Dam	Fox, George	none
Dam	Lake Delavan	none
Dam	Lake Delavan	none
Electric substation	Wisconsin Power & Light substation	6396 Mound Road
Fire department	Town of Delavan Fire Department	2000 Sage Road

Facility Type	Facility Name	Address
Fire department	Town of Delavan Fire Department	6095 Bailey Road
Fire department	Town of Delavan Fire Department	2704 CTH O
Fire department	Town of Delavan Fire Department and EMS	5698 Town Hall Road
Mobile / Manufactured Home Park	Ludwell Estates	5614 STH 11
Municipal garage	Town of Delavan Highway Department	5621 Town Hall Road
Municipal office and other	Delavan Town Hall	5621 Town Hall Road
Municipal office and other	Town of Delavan Building Inspector Office	5621 Town Hall Road
Police department	Delavan Township Police Department	5625 Town Hall Road
Telecommunication	Telecommunications tower	STH 11
Utility office/yard	Delavan Lake Sanitary District #3	2990 County Road F
Town of East Troy		
Bridge	Bridge over Honey Creek	US Highway 20
Bridge	Bridge over Spring Creek	US Highway 20
Bridge	Bridge over unnamed creek	CTH L
Campground	Camp Charles Allis	W2035 Beulah Heights Road
Campground	Camp Edwards YMCA	N8901 Army Lake Road
Dam	Hilbourn	none
Dam	Lake Beulah	none
Dam	Potters Lake	none
EMS facility (stand alone)	Paratech Ambulance Service, Inc.	N8406 Highway ES
Fire department	East Troy Area Emergency Services	N8400 Highway ES
Group day care	Edwards YMCA Camp	N8901 Army Lake Road
Municipal garage	Town of East Troy Municipal Garage	N9330 Stewart School Road
Municipal office and other	East Troy Town Hall	N9330 Stewart School Road
Police department	East Troy Township Police Department	N9330 Stewart School Road
School K-12	Nature's Classroom Montessori School	W1802 Highway J
Telecommunication	Communication tower	N9084 Highway ES
Town of Geneva		
Adult family home (AFH)	Palmer Road Adult Family Home	W4080 Palmer Road
Bridge	Bridge over Como Creek	US 12
Bridge	Bridge over Como Creek	CTH H
Bridge	Bridge over Como Creek	Point
Bridge	Bridge over unnamed creek	CTH H
Bridge	Bridge over unnamed creek	CTH H

Facility Type	Facility Name	Address
Bridge	Bridge over unnamed creek	US 12
Bridge	Bridge over unnamed creek	US 12
Bridge	Bridge over unnamed creek	CTH NN
Community based residential facility (CBRF)	New Life Lodge	N3155 County Road H
Community based residential facility (CBRF)	Pinecrest of Lake Geneva	N3367 County Road NN
Community based residential facility (CBRF)	Prairie View Home	W4080 Palmer Road
Community based residential facility (CBRF)	Prairie View Home II	N3445 CTH NN
Community based residential facility (CBRF)	Runges CBRF for Developmentally Disabled	W3705 Loveland Road
Community based residential facility (CBRF)	Whispering Willows	W4517 Willow Bend Road
Dam	Lake Como (spillway)	none
Dam	Lake Geneva	none
Electric substation	Wisconsin Power & Light substation	CTH NN
Group day care	All About Children	N3241 County Road H
Group day care	Calvary Maranatha Preschool	Highway 50 and Harris Road
Group day care	Little Red Preschool of Lake Como	N3445 Como Road, Suite 5
Hospital	Aurora Lakeland Medical Center	W3985 County Road NN
Hospital	Mercy Walworth Hospital & Medical Center	N2950 State Road 67
Mobile / Manufactured Home Park	Coachman's Terrace Manufactured Home Community	W3540 State Road 50
Municipal garage	Town of Geneva Municipal Garage	N3496 Como Road
Municipal garage	Walworth County Public Works	W4097 County Road NN
Municipal office and other	Geneva Town Hall	N3496 Como Road
Municipal office and other	Walworth County Health and Human Services	W4051 County Road NN
Police department	Town of Geneva Police Department	N3496 Como Road
School K-12	Lakeland School	W3905 CTH NN
School K-12	Woods Elementary School	N2575 Snake Road
Telecommunication	Telecommunication tower	Palmer Road
Telecommunication	Telecommunication tower	N3403 Bird Place
Telecommunication	Telecommunication tower	W2835 Krueger Road
Telecommunication	Telecommunication tower	CTH H
Telecommunication	Telecommunication tower	none
Telecommunication	Telecommunication tower (Pinnacle Towers LLC)	CTH NN
Utility office/yard	Lake Como Sanitary District Office	N3420 Dell Place
Water facility	Water tower - Lake Como Sanitary District No. 1	N3420 Dell Place
Water facility	Water tower (Geneva National - private)	Palmer Road

Facility Type	Facility Name	Address
Town of La Grange		
Adult family home (AFH)	Amanda Lindner Adult Family Care	W5069 Farm Village
Adult family home (AFH)	Community Living Arrangements - Dunbar	W4911 Mallard Drive
Adult family home (AFH)	Heart Prairie Way	W6359 Territorial Road
Bridge	Bridge over unnamed creek	STH 12
Community based residential facility (CBRF)	Country Home	N8525 Highway H
Community based residential facility (CBRF)	Fair View	W5903 STH 12
Community based residential facility (CBRF)	Kettle View	N8603 Duffin Road
Dam	Cedar Grove	none
Dam	Lauderdale Lake	none
Dam	Motl, Laurene	none
Fire department	Lauderdale-La Grange Fire Department Inc.	W6080 STH 12
Municipal garage	Town of La Grange Highway Department	N8530 County Road H
Municipal office and other	La Grange Town Hall	N7899 County Road H
Natural gas facility	Guardian Pipeline gas facility	STH 12
Natural gas facility	Natural gas facility	W5905 STH 12
Telecommunication	Telecommunication tower	W6586 Territorial Road
Telecommunication	Telecommunication tower	STH 12 and Tamarack Road
Town of Lafayette		
Adult family home (AFH)	Jodis Home	W3928 Potter Road
Bridge	Bridge over Sugar Creek	I-43 (north bound)
Bridge	Bridge over Sugar Creek	I-43 (south bound)
Bridge	Bridge over Sugar Creek	CTH ES
Bridge	Bridge over unnamed creek	I-43
Bridge	Bridge over unnamed creek	I-43
Bridge	Bridge over unnamed creek	STH 11
Dam	Droster, Elmer	none
Municipal garage	Lafayette Town Garage	W2960 State Road 11
Municipal office and other	Lafayette Town Hall	W4614 Potter Road
Telecommunication	Telecommunication tower	CTH D
Telecommunication	Telecommunication tower	E Geneva Street (CTH NN)
Telecommunication	Telecommunication tower	W4889 CTH ES
Telecommunication	Wisconsin, State of	N6471 Woodridge Drive

Town of Linn

Facility Type	Facility Name	Address
Adult family home (AFH)	Country Joy	N501 Zenda Road
Bridge	Bridge over unnamed creek	CTH B
Bridge	Bridge over unnamed creek	CTH B
Bridge	Bridge over unnamed creek	STH 120
Bridge	Bridge over unnamed creek	CTH B
Bridge	Bridge over West Branch Nippersink Creek	STH 120
Electric substation	Electric substation	N1479 Zenda Road
Fire department	Town of Linn Fire/EMS	N1457 Hillside Road
Municipal garage	Town of Linn Garage	N611 Zenda Road
Municipal office and other	Linn Town Hall	W3728 Franklin Walsh Street
Police department	Linn Township Police Department	W3728 Franklin Walsh Street
Post office	Post Office - Zenda	W3724 Franklin Walsh Street
School K-12	Reek Elementary School	W4094 S Lake Shore Drive
School K-12	Traver Elementary School	W3490 Linton Road (CTH BB)
Telecommunication	Telecommunication tower	W4121 CTH B
Telecommunication	Telecommunication tower	W4328 Linton Road (CTH BB)
Telecommunication	Telecommunication tower	N1459 Hillside Road
Town of Lyons		
Adult family home (AFH)	Geneva Territory	6582 Lakeside Road
Bridge	Bridge over Como Creek	STH 120
Bridge	Bridge over Ivanhoe Creek	STH 50
Bridge	Bridge over Ore Creek	STH 120
Bridge	Bridge over Ore Creek	STH 36
Bridge	Bridge over Ore Creek	STH 36
Bridge	Bridge over unnamed creek	STH 50
Bridge	Bridge over unnamed creek	STH 36
Bridge	Bridge over unnamed creek	STH 36
Bridge	Bridge over unnamed creek	STH 36
Bridge	Bridge over White River	STH 36
Community based residential facility (CBRF)	Artisan Lake Geneva	6722 Highway 50 East
Electric substation	Wisconsin Electric Power substation	7093 STH 36
Fire department	Town of Lyons Fire Department	6339 Hospital Road
Mobile / Manufactured Home Park	Country Estates	Hospital Road
Mobile / Manufactured Home Park	Unnamed park	Motor Drive off of STH 36

Facility Type	Facility Name	Address
Municipal garage	Town of Lyons Highway Garage	6339 Hospital Road
Municipal office and other	Lyons Town Hall	6339 Hospital Road
Natural gas facility	Natural gas facility	Hospital Road and STH 120
Post office	Post Office - Lyons	1447 Mill Street
Post office	Post Office - Springfield	7210 Springfield Road
School K-12	Cornerstone Christian Academy	1553 Church Street
School K-12	Lyons Center School	1622 Mill Street
School K-12	Mount Zion Christian School	2330 Highway 120
Telecommunication	Telecommunication tower	STH 36
Telecommunication	Telecommunication tower	6060 STH 50
Telecommunication	Telecommunication tower	STH 50
Telecommunication	Telecommunication tower	STH 50
Wastewater facility	Sanitary District #2	5996 Clearwater Court
Town of Richmond		
Adult family home (AFH)	Kindred Hearts Family Home	N7227 Woodfield Lane
Campground	McIntyres Resort	N6471 Milwaukee Road
Campground	Scenic Ridge Campground	W7991 R&W Townline Road
Campground	Snug Harbor Inn Campground on Turtle Lake	W7785 Wisconsin Parkway
Community based residential facility (CBRF)	Richmond Way	N6032 STH 89
Dam	Jackley Dam #1	none
Dam	Jackley Dam #2	none
Dam	Jackley Dam #3	none
Dam	Turtle Lake	Turtle Lake Road
Dam	Turtle Valley Central Phase	none
Electric substation	WE Energy Substation	N6229 Church Road
Mobile / Manufactured Home Park	Snug Harbor Manufactured Home Community	W7772 Wisconsin Parkway
Municipal garage	Town of Richmond Municipal Garage	W9046 CTH A
Municipal office and other	Richmond Town Hall	W9046 CTH A
Telecommunication	Telecommunication tower	W8354 CTH A
Telecommunication	Telecommunication tower	STH 89
Telephone facility	Wisconsin Telephone Company	N6208 Church Road
Town of Sharon		
Bridge	Bridge over Piskasaw	STH 67
Bridge	Bridge over unnamed creek	CTH X

Facility Type	Facility Name	Address
Bridge	Bridge over unnamed creek	CTH B
Bridge	Bridge over unnamed creek	CTH C
Bridge	Bridge over unnamed creek	CTH K
Bridge	Bridge over unnamed creek	CTH O
Bridge	Bridge over unnamed creek	CTH B
Bridge	Bridge over unnamed creek	CTH B
Electric substation	Electric substation	STH 67
Fire department	Sharon Fire and Rescue	182 Park Avenue
Municipal garage	Town of Sharon Public Works and Garage	N1097 Bollinger Road
Municipal office and other	Sharon Town Hall	N1097 Bollinger Road
Natural gas facility	Natural gas facility	N1146 CTH C
Telecommunication	Telecommunication tower	Temperance Road
Telecommunication	Telecommunication tower (Lakehead Pipe Line)	SD Townline Road
Wastewater facility	Village of Walworth and Village of Fontana Wastewater Treatment Plant	N840 Chilson Road
Wastewater facility	Wastewater treatment plant	N262 Saltbox Road
Town of Spring Prairie		
Bridge	Bridge over Honey Creek	CTH D
Bridge	Bridge over Sugar Creek	STH 120
Bridge	Bridge over unnamed creek	CTH DD
Bridge	Bridge over unnamed creek	STH 120
Bridge	Bridge over unnamed creek	CTH DD
Bridge	Bridge over unnamed creek	STH 120
Bridge	Bridge over unnamed creek	STH 11
Bridge	Bridge over unnamed creek	STH 120
Bridge	Bridge over White River	STH 11
Dam	Honey Lake	none
Dam	Roubik, Charles J.	none
Municipal garage	Town of Spring Prairie Municipal Garage	N6097 STH 120
Municipal office and other	Spring Prairie Town Hall	N6097 STH 120
Telecommunication	Telecommunication tower	Spring Prairie Road
Telecommunication	Telecommunication tower	STH 120
Telecommunication	Telecommunication tower	CTH D
Town of Sugar Creek		
Bridge	Bridge over Sugar Creek	CTH H

Facility Type	Facility Name	Address
Bridge	Bridge over Sugar Creek	CTH ES
Bridge	Bridge over unnamed creek	STH 12 67
Campground	Willow Run RV Condo Association	W4945 County Road ES
Community based residential facility (CBRF)	Just Like Home IV	W5140 County Road A
Dam	Turtle Valley Phase III	none
Electric substation	Wisconsin Electric Co substation	W5567 County Road A
Electric substation	Wisconsin Electric substation	N5843 and N5825 Voss Road
Group day care	Lakeland's Little Learners-Tibbets	W5218 County Road A
Municipal garage	Town of Sugar Creek Municipal Garage	N6641 CTH H
Municipal office and other	Sugar Creek Town Hall	N6641 CTH H
School K-12	Tibbets Elementary School	W5218 County Road A
Telephone facility	TDS Telephone substation	N7105 CTH H
Telephone facility	TDS Telephone substation	W5119 Kenosha Drive
Town of Troy		
Adult family home (AFH)	Mackenzie Adult Family Home	W4855 State Road 20
Bridge	Bridge over Honey Creek	CTH ES
Campground	Alice Chester Center	N8651 Town Line Road
Campground	Timber Lee Christian Center	N8705 Scout Road
Dam	Donnelly	none
Dam	Kettle Moraine Estates, Corp	none
Dam	Pabst	none
Dam	Pabst Diversion	none
Fire department	Troy Center Fire Department	N8870 Briggs Street
Mobile / Manufactured home park	Troy Terrace Mobile Home Park	N9685 Nature Road
Municipal garage	Town of Troy Municipal Garage	N8851 County Road N
Municipal office and other	Troy Town Hall	N8870 Briggs Street
Telecommunication	Telecommunication tower	W2620 CTH J
Telecommunication	Telecommunication tower	N7339 Town Line Road
Town of Walworth		
Community based residential facility (CBRF)	Inspiration Ministries	N2270 Highway 67
Municipal garage	Town of Walworth Municipal Garage	W6741 Brich Church Road
Municipal office and other	Town of Walworth Town Hall	W6741 Brich Church Road
Residential care apartment complex (RCAC)	Inspiration Ministries	N2270 Highway 67
School K-12	Faith Christian School	W5525 Highway 67

Facility Type	Facility Name	Address
Telecommunication	Telecommunication tower (Nextel, Sprint)	W Main Street
Town of Whitewater		
Adult family home (AFH)	Opal House	N9633 Howard Road
Adult family home (AFH)	White Pines	N7453 CTH P
Bridge	Bridge over Bluff Creek	CTH P
Bridge	Bridge over unnamed creek	STH 89
Bridge	Bridge over Whitewater Creek	US Highway 59
Campground	Camp Joy	W7725 Kettle Moraine Drive
Campground	Hickory Woods Group Camp	Hi-Lo Road
Campground	Whitewater Lakes-East (Wis DNR)	N8096 Hi-Lo Road
Campground	Whitewater Lakes-West (Wis DNR)	N8095 Hi-Lo Road
Community based residential facility (CBRF)	Hidden View	N8425 STH 89
Community based residential facility (CBRF)	Sapphire House	W7332 STH 12
Dam	Rice Lake	none
Dam	Whitewater Lake	none
Electric substation	Wisconsin Power Co substation	Clover Valley Road
Group day care	At School Programs-Lakeview	W8363 RW Townline Road
Group day care	RWCFS Lakeview Head Start Center	W8363 RW Townline Road
Municipal garage	Town of Whitewater Highway Department	W8590 Willis Ray Road
Municipal office and other	Whitewater Town Hall	W8590 Willis Ray Road
Natural gas facility	Northern Natural Gas	W7960 Reliance Road
School K-12	Lakeview Elementary School	W8363 RW Townline Road
Telecommunication	Telecommunication tower	Taylor Road and STH 59
Telecommunication	Telecommunication tower	W7596 STH 12
Telecommunication	Telecommunication tower (Walworth County)	W8361 RW Townline Road
Village of Bloomfield		
Dam	Bloomfield Wetland Restoration	none
Dam	Grethe	none
Dam	Lake Tombeau	none
Dam	Powers Lake	none
Dam	Warren Smadbeck	none
Fire department	Bloomfield Genoa City Fire & Rescue	N1113 Clover Road
Group day care	RWCFS Star Center Head Start Center	W1380 Lake Geneva Highway
Municipal office and other	Bloomfield Town Hall	1100 Town Hall Road

Facility Type	Facility Name	Address
Police department	Bloomfield Township Police Department	1100 Town Hall Road
Post office	Post Office - Pell Lake	W1265 Park Road
School K-12	Star Center Elementary School	W1380 Lake Geneva Highway
Telecommunication	Telecommunication tower	Pell Lake Drive
Telecommunication	Telecommunication tower (Cingular)	Pell Lake Drive
Telecommunication	Telecommunication tower (Nextel)	W1031 Rosewood Road
Wastewater facility	Pell Lake Sanitary District 1	W974 Pell Lake Road
Wastewater facility	Pell Lake Sanitation District #1 wastewater plant	N1183 CTH U
Water facility	Water tower - Pell Lake Sanitary District	N1555 Clover Road
Village of Darien		
Adult family home (AFH)	P & J Assisted Living	125 E Beloit Street
Bridge	Bridge over unnamed creek	W Beloit Street (CTH X)
Community based residential facility (CBRF)	Pleasant Villa for Seniors LLC	315 W Beloit Street
Fire department	Darien Fire Department	311 W Madison Street
Health care clinic	Darien Medical Center (Beloit Memorial Hospital)	300 W Bella Vista Drive
Library	Darien Public Library	Park Street
Municipal garage	Village of Darien Municipal Garage	323 W Madison Street
Municipal office and other	Darien Village Hall	24 E Wisconsin Street
Police department	Darien Police Department	24 E Wisconsin Street
Post office	Post Office - Darien	1 E Beloit Street
School K-12	Darien Elementary School	125 S Walworth Street
Senior center	Darien Senior Center	Park Street
Telephone facility	Verizon telephone facility	51 Wisconsin Street
Wastewater facility	Wastewater facility	Sharon Street
Water facility	Water tower	Oak Street
Water facility	Water tower	N Badger Parkway
Village of East Troy		
Bridge	Bridge over unnamed creek	I-43 (north bound)
Bridge	Bridge over unnamed creek	I-43 (south bound)
Bridge	Bridge over unnamed creek	Church Street (CTH G)
Dam	East Troy	Highway 120
Electric substation	Wisconsin Electric Co substation	Byrnes Street
Group day care	Bright Beginnings Day Care	2541 E Main Street, Unit F
Group day care	Bright Beginnings Day Care LLC	2040 Beulah Avenue

Facility Type	Facility Name	Address
Group day care	Little Angel Learning Center	2141 Mill Street
Group day care	Noahs Ark Christian Day Care Center	2942 Austin Street
Health care clinic	Aurora Health Center - East Troy	2483 Corporate Circle Drive
Library	East Troy Lions Public Library	3094 Graydon Avenue
Mobile / Manufactured Home Park	Skyview Terrace	2742 E Main Street
Municipal garage	Village of East Troy Dept. of Public Works	2861 Austin Street
Municipal garage	Village of East Troy Municipal Garage	2104 Young Street
Municipal office and other	East Troy Village Hall	2015 Energy Drive
Nursing home	East Troy Manor	3271 North Street
Police department	East Troy Village Police Department	2015 Energy Drive
Post office	Post Office - East Troy	2099 Mill Street
Public-use airport	East Troy Municipal Airport	2085 Highway L
Residential care apartment complex (RCAC)	Brolen Park	2191 Church Street
School K-12	Byrnes Elementary School	2043 Division Street
School K-12	Doubek Elementary School	2040 Beulah Avenue
School K-12	East Troy High School	3128 Graydon Avenue
School K-12	East Troy Middle School	3143 Graydon Avenue
School K-12	Good Shepherd Lutheran School	1936 Emery Street
School K-12	Prairie View Elementary School	2131 Townline Road
School K-12	Saint Pauls Lutheran School	2665 North Street
School K-12	Saint Peters Elementary School	3001 Elm Street
Telecommunication	Telecommunication tower	2485 or 2491 Church Street (STH 120 CTH G)
Telecommunication	Telecommunication tower	Austin Street
Telecommunication	Telecommunication tower (Nextel)	2029 Young Street
Telephone facility	CenturyTel Telephone facility	2116 Clark Street
Wastewater facility	Wastewater treatment plant	2104 Young Street
Water facility	Water tower	2485 or 2491 Church Street (STH 120 CTH G)
Water facility	Water tower	2029 Young Street
Water facility	Water well #5	3219 North Street
Water facility	Water well #5	2028 West
Water facility	Water well #7	2802 Oakmont
Water facility	Water well #8	3103 North Street
Village of Fontana on Geneva Lake		
Fire department	Fontana Volunteer Fire Department and Rescue Squ ad	190 Douglas Street

Facility Type	Facility Name	Address
Library	Fontana Public Library	166 2nd Avenue
Municipal garage	Fontana Public Works	300 Wild Duck Road
Municipal office and other	Fontana-on-Geneva Lake Village Hall	175 Valley View Drive
Police department	Fontana Police Department	185 Douglas Street
Post office	Post Office - Fontana	185 3rd Avenue
School K-12	Fontana Elementary School	450 S Main Street
Telecommunication	Telecommunication tower	300 Wild Duck Road
Water facility	Water tower	300 Wild Duck Road
Water facility	Water tower	519 S Lakeshore
Water facility	Water well	504 Lake Street
Water facility	Water well	W5962 Brick Church Road
Water facility	Water well	W5992 Brick Church Road
Water facility	Water well	140 Mayflower
Water facility	Water well	140 Tarrant Court
Village of Genoa City		
Adult family home (AFH)	We're Just Like Family	W1313 Bernice Road
Bridge	Bridge over North Branch Nippersink Creek	Main Street (CTH B)
Community based residential facility (CBRF)	Burr Oak Manor	264 Walworth Street
Community based residential facility (CBRF)	Genoa City Retirement Home	1201 County Road H
Group day care	Sommerschool Childcare and Learning	328 Freeman Street
Library	Genoa City Public Library	126 Freeman
Municipal garage	City of Genoa Municipal Garage	
Municipal office and other	Genoa City Village Hall	715 Walworth Street
Police department	Genoa Police Department	715 Walworth Street
Post office	Post Office - Genoa City	742 Walworth Street
School K-12	Brookwood Elementary School	630 Kossuth Street
School K-12	Brookwood Middle School	1020 Hunters Ridge
Telecommunication	Telecommunication tower (on water tower)	Elizabeth Lane
Wastewater facility	Wastewater treatment plant	1st Street
Water facility	Water tower	Elizabeth Lane
Water facility	Water tower	Gideon Court
Village of Sharon		
Adult family home (AFH)	Johnson House	216 Martin Street
Group day care	RWCFS Sharon Community Head Start Center	104 E School Street

Facility Type	Facility Name	Address
Health care clinic	Mercy Sharon Medical Center	118 Plain Street
Library	Brigham Memorial Library	131 Plain Street
Mobile / Manufactured Home Park	Sharon Estates	Park Road
Municipal garage	Sharon Municipal Garage	180 George Street
Municipal office and other	Sharon Village Hall	125 Plain Street
Police department	Sharon Police Department	125 Plain Street
Post office	Post Office - Sharon	199 Walworth Street
School K-12	Sharon Community School	104 E School Street
Telephone facility	Sharon Telephone Company	105 Plain Street
Water facility	Water well	Center Street
Water facility	Water well	178 George Street
Village of Walworth		
Adult family home (AFH)	Valeries Home	208 Madison Street
Community based residential facility (CBRF)	Golden Years Assisted Living Residence	270 Ridge Road
Electric substation	Wisconsin Power & Light substation	520 N Main Street
Fire department	Walworth Fire Department	247 N Main Street
Group day care	Little Professors After School Care	121 Beloit Street
Group day care	Little Professors Learning Center	125 N State Highway 67
Health care clinic	Aurora Health Center - Walworth	525 Kenosha Street, Suite A
Library	Walworth Memorial Library	101 Maple Avenue
Municipal garage	Village of Walworth Public Works Department	121 Badger Street
Municipal office and other	Walworth Village Hall	227 N Main Street
Nursing home	Golden Years Health Care Center	270 Ridge Road
Police department	Walworth Police Department	227 N Main Street
Post office	Post Office - Walworth	206 N Main Street
Residential care apartment complex (RCAC)	Golden Years Retirement Village	270 Ridge Road
School K-12	Big Foot High School	401 Devils Lane
School K-12	Walworth Christian School	119 Phillips Avenue
School K-12	Walworth Elementary and Middle School	121 Beloit Street
Telecommunication	Telecommunication tower	Townhall Road (N Main Street)
Water facility	Water tower	Townhall Road (N Main Street)
Water facility	Water well	Read Street
Water facility	Water well	N. Main Street
Water facility	Water well	501 Brennan Drive

Facility Type	Facility Name	Address
Village of Williams Bay		
Campground	Conference Point Camp	300 Conference Point Road
Campground	Holiday Home Camp	Holiday Avenue
Campground	Norman B. Barr Camp	483 Outing Street
Electric substation	Electric substation	Theater Road
Fire department	Williams Bay Volunteer Fire Department and Rescue Squad	5 E Geneva Street
Group day care	Jerris Kidz	139 Congress Street
Library	Barrett Memorial Library	65 W Geneva Street
Municipal garage	Williams Bay Street Department	230 Williams Street
Municipal office and other	Williams Bay Recreation Department Office	310 Elkhorn Road
Municipal office and other	Williams Bay Village Hall	250 Williams Street
Nursing home	Williams Bay Care Center	146 Clover Street
Police department	Williams Bay Police Department	250 Williams Street
Post office	Post Office - Williams Bay	129 N Walworth Avenue
Residential care apartment complex (RCAC)	Sherwood Lodge	116 Cherry Street
School K-12	Williams Bay Elementary School	139 Congress Street
School K-12	Williams Bay High School	500 W Geneva Street
School K-12	Williams Bay Junior High School	500 W Geneva Street
School Post-secondary	George Williams College of Aurora University	350 Constance Boulevard
Telephone facility	Ameritech Telephone	53 Cherry Street
Utility office/yard	Williams Bay Water Department	155 Elkhorn Road
Water facility	Water tower	Theater Road
Water facility	Water tower	240 Wesley Street
Water facility	Water tower	Potawatomi Road
Water facility	Water tower	Collie Street
Water facility	Well #1	155 Elkhorn
Water facility	Well #2	Olive Street
Water facility	Well #3	N Harris Road

WEATHER-RELATED EVENTS; WALWORTH COUNTY: 1950 THROUGH OCTOBER 2012

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Drought	348	Southern WI	8/1/2002	n/a	0	0	0	\$4.4M
	367	South Eastern WI	8/1/2003	n/a	0	0	0	0
	369	Southern WI	9/1/2003	n/a	0	0	0	0
	370	Southern WI	10/1/2003	n/a	0	0	0	0
	370	Southern WI	11/1/2003	n/a	0	0	0	0
	374	Southern WI	12/1/2003	n/a	0	0	0	0
	413	Southern WI	7/1/2005	n/a	0	0	0	0
	424	Southern WI	8/1/2005	n/a	0	0	0	0
	427	Southern WI	9/1/2005	n/a	0	0	0	0
	435	Southern WI	10/1/2005	n/a	0	0	0	0
	436	Southern WI	11/1/2005	n/a	0	0	0	0
	478	South Eastern WI	7/1/2007	n/a	0	0	0	\$50K
	-	Walworth County	7/1/2007	n/a	0	0	0	\$50K
	-	Walworth County	7/1/2012	n/a	0	0	0	0
	Heat [6]	104	Statewide	6/14/1994	n/a	0	0	0
115		Statewide	6/17/1995	n/a	9 / 0	0	0	0
116		Statewide	7/13/1995	n/a	57 / 0	0	0	0
137		Statewide	10/12/1995	n/a	0	0	0	0
227		Southern WI	11/23/1998	n/a	0	0	0	0
228		Southern WI	12/1/1998	n/a	0	0	0	0
250		Southern WI	7/4/1999	n/a	0	0	0	0
251		Southern WI	7/23/1999	n/a	0	0	0	0
253		Southern WI	7/29/1999	n/a	8 / 0	0	0	0
254		South Central WI	11/8/1999	n/a	0	0	0	0
255		Southern WI	11/13/1999	n/a	0	0	0	0
309		Southern WI	7/21/2001	n/a	2 / 0	0	0	0
312		South Eastern WI	7/31/2001	n/a	0	0	0	0
314		Southern WI	8/6/2001	n/a	4 / 0	0	0	0
336		Southern WI	4/15/2002	n/a	1 / 0	0	0	0
341		Walworth	6/20/2002	n/a	1 / 0	0	0	0
342		South Eastern WI	6/22/2002	n/a	1 / 0	0	0	0
343		Southern WI	6/30/2002	n/a	0	0	0	0
344		Southern WI	7/1/2002	n/a	0	0	0	0
345		Southern WI	7/8/2002	n/a	0	0	0	0
346		Southern WI	7/21/2002	n/a	0	0	0	0
420		Southern WI	7/24/2005	n/a	0	0	0	0
457		South Central WI	7/16/2006	n/a	0	0	0	0
461		Southern WI	7/30/2006	n/a	0	40 / 0	0	0

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Heat – cont.	462	Southern WI	8/1/2006	n/a	2 / 0	0	0	0
	-	Walworth County	6/23/2009	n/a	0	0	0	0
	-	Walworth County	8/11/2010	n/a	0	0	0	0
	-	Walworth County	7/17/2011	n/a	0	0	0	0
	-	Walworth County	7/21/2011	n/a	0	0	0	0
	-	Walworth County	6/28/2012	n/a	0	0	0	0
	-	Walworth County	7/3/2012	n/a	0	0	0	0
	-	Walworth County	7/16/2012	n/a	0	0	0	0
	-	Walworth County	7/23/2012	n/a	0	0	0	0
	-	Walworth County	7/25/2012	n/a	0	0	0	0
Extreme Cold	95	Statewide	1/13/1994	n/a	0	0	0	0
	141	Statewide	12/9/1995	n/a	2 [1]	21 / 0	0	0
	143	Walworth	1/9/1996	n/a	1 / 1	0	0	0
	145	Walworth	1/18/1996	n/a	1 / 1	0	0	0
	148	Southern WI	1/30/1996	n/a	2 / 0	0	0	0
	149	Southern WI	1/31/1996	n/a	0	10 / 0	0	0
	150	Southern WI	2/1/1996	n/a	4 / 0	18 / 0	0	0
	166	South Central WI	1/17/1997	n/a	0	3 / 0	\$20K	0
	230	Southern WI	1/5/1999	n/a	0	0	0	0
	437	Southern WI	12/18/2005	n/a	0	0	0	0
	442	Southern WI	2/17/2006	n/a	0	0	0	0
	443	Southern WI	2/18/2006	n/a	0	0	0	0
	-	Walworth County	2/3/2007	n/a	0	0	\$2K	0
	-	Walworth County	1/19/2008	n/a	0	0	0	0
	493	South Eastern WI	1/30/2008	n/a	0	0	0	0
	-	Walworth County	2/10/2008	n/a	0	0	0	0
	-	Walworth County	12/21/2008	n/a	0	0	0	0
	-	Walworth County	1/14/2009	n/a	0	0	0	0
	-	Walworth County	1/15/2009	n/a	0	0	0	0
-	Walworth County	1/21/2011	n/a	0	0	0	0	
Flood/Flash Flooding	133	Whitewater	8/16/1995	n/a	0	0	0	0
	157	Walworth	6/17/1996	n/a	0	0	\$200K	\$24M
	215	Sharon	6/26/1998	n/a	0	0	0	0
	222	Delevan	8/5/1998	n/a	0	0	0	0
	223	Whitewater	8/5/1998	n/a	0	0	\$30K	0
	224	Whitewater	8/5/1998	n/a	0	0	\$100K	0
	248	South Eastern WI	6/13/1999	n/a	0	0	\$900K	0
	249	Delevan	6/28/1999	n/a	0	0	0	0
	276	Walworth	6/13/2000	n/a	0	0	\$850K	\$500K
	277	Lake Geneva	6/13/2000	n/a	0	4	\$350K	\$300K
	282	Richmond	7/2/2000	n/a	0	0	0	0
	284	Pell Lake	7/10/2000	n/a	0	0	\$346K	\$300K
	297	Southern WI	2/9/2001	n/a	0	0	\$325K	0
	351	East Troy	8/12/2002	n/a	0	0	\$5K	0

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Flood/Flash Flooding – cont.	356	Walworth	9/19/2002	n/a	0	0	0	0
	388	Walworth County	6/1/2004	n/a	0	0	\$500K	\$3M
	446	Delevan	3/13/2006	n/a	0	0	\$40K	0
	484	Sharon	8/19/2007	n/a	0	0	\$150K	0
	485	Whitewater	8/22/2007	n/a	0	0	\$150K	\$200K
	-	Whitewater	6/8/2008	n/a	0	0	\$150K	\$1M
	-	Delavan	6/12/2008	n/a	0	0	\$525.6K	\$4.25M
	-	Whitewater	06/19/2009	n/a	0	0	\$10K	0
Dense Fog [7]	256	South Central WI	11/13/1999	n/a	0	0	0	0
	257	Walworth County	12/3/1999	n/a	0	0	0	0
	258	South Central WI	12/12/1999	n/a	0	0	0	0
	259	Southern WI	1/9/2000	n/a	0	0	0	0
	261	Southern WI	2/25/2000	n/a	0	0	0	0
	264	Southern WI	3/21/2000	n/a	0	0	0	0
	287	South Central WI	8/23/2000	n/a	0	0	0	0
	288	South Central WI	8/24/2000	n/a	0	0	0	0
	292	Walworth County	10/24/2000	n/a	0	0	0	0
	293	South Central WI	10/24/2000	n/a	0	0	0	0
	296	South Central WI	1/12/2001	n/a	0	0	0	0
	298	South Central WI	2/24/2001	n/a	0	0	0	0
	299	Southern WI	3/22/2001	n/a	0	0	0	0
	301	Southern WI	4/7/2001	n/a	0	0	0	0
	304	South Eastern WI	5/24/2001	n/a	0	0	0	0
	308	South Central WI	7/19/2001	n/a	0	0	0	0
	311	Southern WI	7/30/2001	n/a	0	0	0	0
	313	Southern WI	8/3/2001	n/a	0	0	0	0
	317	South Central WI	8/22/2001	n/a	0	0	0	0
	322	Walworth County	9/29/2001	n/a	0	0	0	0
	323	South Central WI	10/22/2001	n/a	0	0	0	0
	327	South Central WI	11/15/2001	n/a	0	0	0	0
	328	South Eastern WI	12/2/2001	n/a	0	0	0	0
	331	Southern WI	2/20/2002	n/a	0	0	0	0
	335	Southern WI	4/13/2002	n/a	0	0	0	0
	354	South Central WI	9/6/2002	n/a	0	0	0	0
	359	Southern WI	3/20/2003	n/a	0	0	0	0
	360	South Central WI	3/23/2003	n/a	0	0	0	0
	378	Southern WI	2/26/2004	n/a	0	0	0	0
	393	South Central WI	10/12/2004	n/a	0	0	0	0
	395	South Central WI	12/9/2004	n/a	0	0	0	0
398	Southern WI	12/29/2004	n/a	0	0	0	0	
400	Southern WI	1/11/2005	n/a	0	0	0	0	
428	South Central WI	9/4/2005	n/a	0	0	0	0	
438	South Central WI	12/27/2005	n/a	0	0	0	0	
439	South Eastern WI	1/3/2006	n/a	0	0	0	0	

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Dense Fog – cont.	444	South Central WI	3/9/2006	n/a	0	0	0	0
	448	South Central WI	3/29/2006	n/a	0	0	0	0
	450	Southern WI	5/9/2006	n/a	0	0	0	0
	467	Southern WI	9/14/2006	n/a	0	0	0	0
	468	South Central WI	9/15/2006	n/a	0	0	0	0
	-	Walworth County	12/11/2006	n/a	0	0	0	0
	-	Walworth County	12/21/2006	n/a	0	0	0	0
	-	Walworth County	3/9/2007	n/a	0	0	0	0
	-	Walworth County	3/23/2007	n/a	0	0	0	0
	475	South Central WI	3/25/2007	n/a	0	0	0	0
	-	Walworth County	6/1/2007	n/a	0	0	0	0
	486	South Eastern WI	10/1/2007	n/a	0	0	0	0
	488	South Central WI	12/19/2007	n/a	0	0	0	0
	-	Walworth County	12/21/2007	n/a	0	0	0	0
	-	Walworth County	1/5/2008	n/a	0	0	0	0
	-	Walworth County	2/4/2008	n/a	0	0	0	0
	-	Walworth County	9/21/2008	n/a	0	0	0	0
	-	Walworth County	12/26/2008	n/a	0	0	0	0
	-	Walworth County	2/9/2009	n/a	0	0	0	0
	-	Walworth County	3/7/2009	n/a	0	0	0	0
	-	Walworth County	4/30/2009	n/a	0	0	0	0
	-	Walworth County	9/4/2009	n/a	0	0	0	0
	-	Walworth County	9/10/2009	n/a	0	0	0	0
	-	Walworth County	9/12/2009	n/a	0	0	0	0
	-	Walworth County	3/7/2010	n/a	0	0	0	0
	-	Walworth County	3/10/2009	n/a	0	0	0	0
	-	Walworth County	5/21/2010	n/a	0	0	0	0
	-	Walworth County	12/30/2010	n/a	0	0	0	0
	-	Walworth County	2/2/2012	n/a	0	0	0	0
	-	Walworth County	2/15/2012	n/a	0	0	0	0
-	Walworth County	3/24/2012	n/a	0	0	0	0	
Funnel Cloud	125	Elkhorn	8/9/1995	n/a	0	0	0	0
	183	Lake Geneva	7/18/1997	n/a	0	0	0	0
	221	Williams Bay	8/5/1998	n/a	0	0	0	0
	244	Fontana	6/10/1999	n/a	0	0	0	0
	268	East Troy	5/8/2000	n/a	0	0	0	0
	403	Delevan	5/19/2005	n/a	0	0	0	0
	125	Elkhorn	8/9/1995	n/a	0	0	0	0
	-	Troy Center	07/22/2010	n/a	0	0	0	0
Hail [8]	15	Walworth County	8/3/1967	0.75 in.	0	0	0	0
	26	Walworth County	7/3/1975	1.75 in.	0	0	0	0
	29	Walworth County	9/4/1977	1.75 in.	0	0	0	0
	32	Walworth County	9/4/1979	1.75 in.	0	0	0	0
	40	Walworth County	7/16/1980	1.00 in.	0	0	0	0

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Hail – cont.	41	Walworth County	7/16/1980	1.00 in.	0	0	0	0
	42	Walworth County	7/16/1980	1.00 in.	0	0	0	0
	45	Walworth County	7/20/1980	2.50 in.	0	0	0	0
	46	Walworth County	7/20/1980	2.00 in.	0	0	0	0
	47	Walworth County	9/30/1981	1.75 in.	0	0	0	0
	62	Walworth County	9/22/1986	1.00 in.	0	0	0	0
	63	Walworth County	5/21/1987	0.75 in.	0	0	0	0
	64	Walworth County	5/21/1987	0.75 in.	0	0	0	0
	79	Walworth County	3/13/1990	1.75 in.	0	0	0	0
	101	Menomonee	6/11/1994	1.00 in.	0	0	0	0
	113	Fontana	6/7/1995	1.75 in.	0	0	0	0
	172	Genoa City	5/18/1997	0.75 in.	0	0	0	0
	188	East Troy	8/3/1997	1.00 in.	0	0	0	0
	225	Delevan	9/6/1998	0.75 in.	0	0	0	0
	242	Whitewater	6/10/1999	0.75 in.	0	0	0	0
	247	Richmond	6/11/1999	1.00 in.	0	0	0	0
	262	Lake Geneva	3/8/2000	0.75 in.	0	0	0	0
	263	Whitewater	3/8/2000	0.88 in.	0	0	0	0
	266	Darien	4/19/2000	2.00 in.	0	0	0	0
	267	East Troy	5/8/2000	1.25 in.	0	0	0	0
	269	Lake Geneva	5/8/2000	0.75 in.	0	0	0	0
	270	East Troy	5/18/2000	0.75 in.	0	0	0	0
	271	Lyons	5/18/2000	0.75 in.	0	0	0	0
	272	Pell Lake	5/18/2000	1.00 in.	0	0	0	0
	273	Richmond	5/18/2000	0.75 in.	0	0	0	0
	279	Tibbet	6/30/2000	0.75 in.	0	0	0	0
	280	Darien	6/30/2000	0.75 in.	0	0	0	0
	281	Darien	6/30/2000	1.00 in.	0	0	0	0
	303	East Troy	5/14/2001	0.88 in.	0	0	0	0
	324	Darien	10/23/2001	1.75 in.	0	0	0	0
	325	Lyons	10/23/2001	1.00 in.	0	0	0	0
	333	La Grange	3/9/2002	0.75 in.	0	0	0	0
	347	Delavan	8/1/2002	0.75 in.	0	0	0	0
	348	Spring Prairie	8/1/2002	1.25 in.	0	0	0	0
	355	Whitewater	9/9/2002	0.75 in.	0	0	0	0
	363	Delavan	7/6/2003	0.75 in.	0	0	0	0
	379	Whitewater	3/1/2004	1.50 in.	0	0	0	0
	402	East Troy	3/30/2005	0.75 in.	0	0	0	0
	405	Delavan	6/4/2005	1.75 in.	0	0	0	0
	406	Honey Creek	6/4/2005	0.75 in.	0	0	0	0
	418	East Troy	7/23/2005	0.75 in.	0	0	0	0
	425	East Troy	8/18/2005	1.00 in.	0	0	0	0
	433	Lake Geneva	9/22/2005	1.00 in.	0	0	0	0
	434	Pell Lake	9/22/2005	1.00 in.	0	0	0	0
	445	Lake Geneva	3/11/2006	0.75 in.	0	0	0	0
452	Lake Geneva	5/17/2006	0.75 in.	0	0	0	0	

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Hail – cont.	453	Darien	5/17/2006	0.75 in.	0	0	0	0
	465	Fontana	8/25/2006	1.00 in.	0	0	0	0
	466	Lyons	8/25/2006	0.75 in.	0	0	0	0
	470	Little Prairie	10/2/2006	0.75 in.	0	0	0	0
	471	La Grange	10/2/2006	0.75 in.	0	0	0	0
	479	Whitewater	7/9/2007	0.75 in.	0	0	0	0
	481	Spring Prairie	7/9/2007	0.88 in.	0	0	0	0
	482	Williams Bay	7/9/2007	1.00 in.	0	0	0	0
	490	Zenda	1/7/2008	0.75 in.	0	0	0	0
	501	Sharon	4/25/2008	0.75 in.	0	0	0	0
	-	Walworth (County?)	6/6/2008	0.75 in.	0	0	0	0
	-	Lake Geneva	6/12/2008	1.00 in.	0	0	0	0
	-	La Grange	07/23/2009	0.75 in.	0	0	0	\$2K
	-	Allen Grove	09/21/2010	1.00 in.	0	0	0	0
	-	Darien	09/21/2010	0.88 in.	0	0	0	0
	-	Delavan Lake	09/21/2010	0.88 in.	0	0	0	0
	-	East Troy	09/21/2010	1.00 in.	0	0	0	0
	-	Whitewater	05/22/2011	1.25 in.	0	0	0	0
-	Richmond	05/22/2011	1.75 in.	0	0	0	0	
Heavy Rain	178	Lake Geneva	6/30/1997	n/a	0	0	\$4K	0
	320	Genoa City	9/18/2001	n/a	0	0	0	0
	372	Elkhorn	11/1/2003	n/a	0	0	0	0
	-	Darien	7/12/2008	n/a	0	0	0	0
High Wind [9]	170	Walworth County	4/6/1997	70 kts.	0	0	\$120K	0
	199	Southern WI	3/8/1998	50 kts.	0	0	\$215K / 150K	0
	226	Southern WI	11/10/1998	50 kts.	4 / 0	14 / 1	\$10.4M / 300K	\$1.6M / 0
	300	Southern WI	4/7/2001	71 kts.	0	1	0	0
	302	Southern WI	4/11/2001	58 kts.	0	0	0	0
	334	South Central WI	3/9/2002	50 kts.	0	0	\$73K	0
	373	Walworth County	11/12/2003	56 kts.	0	0	\$10K	0
	-	Walworth County	10/26/2010	51 kts.	0	0	\$15K	0
Lightning	111	Williams Bay	6/6/1995	n/a	0	1	0	0
	120	Walworth	7/27/1995	n/a	0	1	0	0
	132	Walworth	8/9/1995	n/a	0	1	0	0
	179	Delavan	7/18/1997	n/a	0	0	\$3K	0
	187	Allen Grove	7/27/1997	n/a	0	0	\$10K	0
	189	Elkhorn	9/19/1997	n/a	0	0	\$50K	0
	190	Elkhorn	9/19/1997	n/a	0	1	0	0
	191	Sharon	9/19/1997	n/a	0	0	\$10K	0
	192	Walworth	9/19/1997	n/a	0	0	\$40K	0
	194	Lake Geneva	9/19/1997	n/a	0	0	\$50K	0
	195	Walworth	9/19/1997	n/a	0	0	\$100K	0

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Lightning – cont.	234	Williams Bay	5/16/1999	n/a	0	0	\$3K	0
	235	Williams Bay	5/16/1999	n/a	0	0	\$3K	0
	241	Elkhorn	6/10/1999	n/a	0	3	0	0
	291	Walworth	9/11/2000	n/a	0	0	\$10K	0
	350	Whitewater	8/9/2002	n/a	0	0	\$20K	0
	365	East Troy	7/6/2003	n/a	0	8	0	0
	367	East Troy	7/31/2003	n/a	0	2	0	0
	408	Lyons	6/11/2005	n/a	0	0	\$15K	0
	455	La Grange	6/26/2006	n/a	0	0	\$2K	0
	456	La Grange	6/26/2006	n/a	0	0	\$1K	0
	463	Delavan	8/2/2006	n/a	0	0	\$50K	0
	464	Lake Geneva	8/24/2006	n/a	0	0	\$10K	0
	-	Whitewater	4/25/2008	n/a	0	0	\$100K	0
	-	Lake Geneva	5/2/2008	n/a	0	0	\$10K	0
	Strong Wind [10]	196	Whitewater	9/29/1997	43 kts.	0	0	0
274		Southern WI	5/24/2000	26 kts.	0	0	\$3K	0
321		South Eastern WI	9/19/2001	49 kts.	0	0	0	0
326		Southern WI	10/24/2001	49 kts.	0	0	0	0
329		Southern WI	12/5/2001	26 kts.	0	0	\$105K	0
383		Southern WI	3/7/2004	34 kts.	0	0	\$33K	0
384		Southern WI	3/14/2004	39 kts.	0	0	\$52K	0
385		Southern WI	4/18/2004	43 kts.	0	0	\$280K	0
396		Southern WI	12/12/2004	40 kts.	0	0	\$34K	0
441		Southern WI	1/24/2006	39 kts.	0	0	\$100K	0
447		Southern WI	3/13/2006	39 kts.	0	0	\$65K	0
449		South Central WI	3/31/2006	39 kts.	0	0	\$40K	0
451		Southern WI	5/11/2006	36 kts.	0	0	\$20K	0
-		Walworth County	2/22/2007	39 kts.	0	0	\$2K	0
-		Walworth County	5/24/2007	39 kts.	0	0	\$2K	0
-		Walworth County	8/27/2007	39 kts.	0	0	\$10K	0
-		Walworth County	11/5/2007	39 kts.	0	0	\$5K	0
489		South Central WI	12/23/2007	39 kts.	0	0	\$5K	0
-		Walworth County	4/26/2008	44 kts.	0	0	\$5K	0
-		Walworth County	11/26/2008	26 kts.	0	0	\$2K	0
-		Walworth County	9/27/2009	43 kts.	0	0	\$5K	0
-		Walworth County	10/6/2009	39 kts.	0	0	\$5K	0
-		Walworth County	5/5/2010	39 kts.	0	0	\$10K	0
-		Walworth County	9/7/2010	39 kts.	0	0	\$10K	0
-		Walworth County	9/24/2010	39 kts.	0	0	\$1K	0
-		Walworth County	1/1/2011	39 kts.	0	0	\$4K	0
-		Walworth County	2/18/2011	26 kts.	0	0	\$2K	0
-		Walworth County	4/15/2011	39 kts.	0	0	\$3K	0
-		Walworth County	5/15/2011	39 kts.	0	0	\$5K	0
-		Walworth County	9/29/2011	39 kts.	0	0	\$2K	0
-	Walworth County	10/19/2011	39 kts.	0	0	\$2K	0	

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Strong Wind – cont.	-	Walworth County	11/13/2011	26 kts.	0	0	\$1K	0
	-	Walworth County	1/1/2012	28 kts.	0	0	\$1K	0
	-	Walworth County	6/18/2012	39 kts.	0	0	\$10K	0
Thunderstorm Winds [11]	2	Walworth County	7/3/1955	50 kts.	0	0	0	0
	5	Walworth County	8/3/1960	52 kts.	0	0	0	0
	7	Walworth County	7/19/1963	50 kts.	0	0	0	0
	8	Walworth County	7/19/1963	50 kts.	0	0	0	0
	11	Walworth County	3/21/1966	50 kts.	0	0	0	0
	12	Walworth County	3/21/1966	50 kts.	0	0	0	0
	17	Walworth County	7/12/1969	50 kts.	0	0	0	0
	18	Walworth County	7/16/1969	50 kts.	0	0	0	0
	19	Walworth County	7/17/1969	50 kts.	0	0	0	0
	21	Walworth County	6/1/1971	50 kts.	0	0	0	0
	24	Walworth County	6/16/1973	50 kts.	0	0	0	0
	25	Walworth County	6/20/1974	50 kts.	0	0	0	0
	27	Walworth County	6/12/1976	50 kts.	0	0	0	0
	28	Walworth County	8/13/1976	50 kts.	0	0	0	0
	33	Walworth County	9/4/1979	50 kts.	0	0	0	0
	35	Walworth County	7/5/1980	50 kts.	0	0	0	0
	36	Walworth County	7/15/1980	69 kts.	0	0	0	0
	37	Walworth County	7/15/1980	69 kts.	0	0	0	0
	38	Walworth County	7/15/1980	69 kts.	0	0	0	0
	39	Walworth County	7/15/1980	69 kts.	0	0	0	0
	43	Walworth County	7/16/1980	61 kts.	0	0	0	0
	44	Walworth County	7/16/1980	61 kts.	0	0	0	0
	48	Walworth County	7/3/1983	50 kts.	0	0	0	0
	49	Walworth County	7/17/1983	50 kts.	0	0	0	0
	50	Walworth County	7/18/1983	61 kts.	0	0	0	0
	51	Walworth County	7/19/1983	50 kts.	0	0	0	0
	52	Walworth County	7/19/1983	50 kts.	0	0	0	0
	53	Walworth County	7/19/1983	50 kts.	0	0	0	0
	54	Walworth County	8/16/1983	50 kts.	0	0	0	0
	55	Walworth County	8/27/1983	50 kts.	0	0	0	0
56	Walworth County	9/6/1983	50 kts.	0	0	0	0	
57	Walworth County	6/6/1984	50 kts.	0	0	0	0	
58	Walworth County	7/9/1984	50 kts.	0	0	0	0	
59	Walworth County	9/9/1985	50 kts.	0	0	0	0	
60	Walworth County	6/27/1986	50 kts.	0	0	0	0	
61	Walworth County	7/6/1986	50 kts.	0	0	0	0	
65	Walworth County	5/21/1987	50 kts.	0	0	0	0	
66	Walworth County	8/16/1987	50 kts.	0	0	0	0	
67	Walworth County	8/16/1987	50 kts.	0	0	0	0	
68	Walworth County	8/16/1987	50 kts.	0	0	0	0	
70	Walworth County	8/4/1988	50 kts.	0	0	0	0	

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Thunderstorm Winds – cont.	71	Walworth County	8/18/1988	50 kts.	0	0	0	0
	72	Walworth County	4/25/1989	50 kts.	0	0	0	0
	73	Walworth County	6/26/1989	50 kts.	0	3	0	0
	74	Walworth County	6/26/1989	50 kts.	0	0	0	0
	75	Walworth County	7/27/1989	50 kts.	0	0	0	0
	76	Walworth County	7/27/1989	50 kts.	0	0	0	0
	77	Walworth County	8/4/1989	50 kts.	0	0	0	0
	78	Walworth County	8/5/1989	61 kts.	0	0	0	0
	81	Walworth County	6/29/1990	50 kts.	0	0	0	0
	82	Walworth County	10/14/1990	50 kts.	0	0	0	0
	83	Walworth County	3/27/1991	50 kts.	0	0	0	0
	84	Walworth County	7/7/1991	50 kts.	0	0	0	0
	86	Walworth County	7/7/1991	50 kts.	0	1	0	0
	87	Walworth County	7/7/1991	50 kts.	0	0	0	0
	88	Walworth County	9/9/1991	56 kts.	0	0	0	0
	89	Walworth County	6/17/1992	50 kts.	0	0	0	0
	90	Walworth County	6/17/1992	50 kts.	0	0	0	0
	91	Walworth County	6/17/1992	50 kts.	0	0	0	0
	102	Sharon	6/11/1994	60 kts.	0	0	0	0
	103	Sharon	6/11/1994	50 kts.	0	0	\$5K	\$5K
	109	Walworth	4/18/1995	50 kts.	0	0	0	0
	110	Walworth	6/6/1995	50 kts.	0	0	\$40K	0
	112	Lake Geneva	6/7/1995	50 kts.	0	0	0	0
	114	Delavan	6/7/1995	50 kts.	0	0	0	0
	117	Elkhorn	7/15/1995	50 kts.	0	0	0	0
	118	Delavan	7/27/1995	50 kts.	0	0	0	0
	119	Spring Prairie	7/27/1995	50 kts.	0	0	0	0
	121	Whitewater	8/9/1995	52 kts.	0	0	0	0
	122	Whitewater	8/9/1995	50 kts.	0	0	\$10K	0
	123	Troy Center	8/9/1995	50 kts.	0	0	\$10K	0
	124	Lake Geneva	8/9/1995	50 kts.	0	0	0	0
	126	East Troy	8/9/1995	50 kts.	0	0	0	0
	127	La Grange	8/9/1995	50 kts.	0	0	0	0
	128	Elkhorn	8/9/1995	56 kts.	0	0	0	0
	129	East Troy	8/9/1995	50 kts.	0	0	0	0
	130	Lake Geneva	8/9/1995	50 kts.	0	0	0	0
131	Spring Prairie	8/9/1995	50 kts.	0	0	0	0	
134	Whitewater	8/28/1995	50 kts.	0	0	0	0	
135	Elkhorn	8/28/1995	50 kts.	0	0	0	0	
136	Genoa City	8/28/1995	50 kts.	0	0	0	0	
151	Sharon	4/19/1996	50 kts.	0	0	\$300K	0	
152	Genoa City	4/19/1996	50 kts.	0	0	\$10K	0	
153	Millard	6/2/1996	50 kts.	0	0	\$1K	0	
154	Delavan	6/2/1996	50 kts.	0	0	\$10K	0	
155	Walworth	6/2/1996	50 kts.	0	0	0	0	

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Thunderstorm Winds – cont.	156	Troy Center	6/2/1996	50 kts.	0	0	\$10K	0
	158	Whitewater	8/19/1996	50 kts.	0	0	\$20K	0
	159	Darien	8/19/1996	50 kts.	0	0	\$150K	0
	160	East Troy	10/29/1996	50 kts.	0	0	\$20K	0
	161	Lake Geneva	10/29/1996	50 kts.	0	0	\$20K	0
	162	Delavan	10/29/1996	50 kts.	0	0	\$25K	0
	163	Genoa City	10/29/1996	50 kts.	0	0	\$15K	0
	167	Walworth	4/5/1997	50 kts.	0	0	\$10K	0
	168	Whitewater	4/5/1997	50 kts.	0	0	\$5K	0
	169	Allen Grove	4/5/1997	50 kts.	0	0	\$5K	0
	173	Walworth	6/15/1997	50 kts.	0	0	\$5K	0
	174	East Troy	6/21/1997	50 kts.	0	0	\$2K	0
	175	Darien	6/24/1997	50 kts.	0	0	\$1K	0
	176	Lake Geneva	6/24/1997	50 kts.	0	0	\$4K	0
	177	Delavan	6/24/1997	56 kts.	0	0	\$1K	0
	180	Delavan	7/18/1997	50 kts.	0	0	\$1K	0
	181	Pell Lake	7/18/1997	50 kts.	0	0	\$1K	0
	184	Darien	7/26/1997	50 kts.	0	0	\$1K	0
	185	East Troy	7/26/1997	50 kts.	0	0	\$1K	0
	186	Lake Geneva	7/26/1997	50 kts.	0	0	\$1K	0
	193	Sharon	9/19/1997	50 kts.	0	0	\$250K	0
	200	Walworth	5/15/1998	50 kts.	0	0	\$12K	0
	201	Elkhorn	5/15/1998	50 kts.	0	0	\$4K	0
	202	Sharon	5/15/1998	50 kts.	0	0	\$1K	0
	203	La Grange	5/15/1998	50 kts.	0	0	\$1K	0
	204	Lake Geneva	5/15/1998	50 kts.	0	0	\$1K	0
	205	Elkhorn	5/28/1998	68 kts.	0	0	\$2K	0
	206	Lake Geneva	5/28/1998	50 kts.	0	0	\$3K	0
	207	Whitewater	5/28/1998	50 kts.	0	0	\$4K	0
	208	East Troy	5/31/1998	50 kts.	0	0	\$5K	0
	209	Walworth	5/31/1998	50 kts.	0	0	\$5K	0
	210	Darien	6/18/1998	50 kts.	0	0	\$2K	0
	211	Elkhorn	6/18/1998	50 kts.	0	0	\$3K	0
	212	Walworth	6/18/1998	50 kts.	0	0	\$27K	0
	213	Elkhorn	6/25/1998	60 kts.	0	0	0	0
	214	Lake Geneva	6/25/1998	50 kts.	0	0	\$3K	0
	216	Elkhorn	6/27/1998	52 kts.	0	0	\$4K	0
217	Delavan	7/20/1998	52 kts.	0	0	\$2K	0	
218	Lake Geneva	7/20/1998	87 kts.	0	2	\$1.5M	0	
219	Elkhorn	7/21/1998	87 kts.	0	12	\$1.9M	\$105K	
220	Sharon	7/21/1998	50 kts.	0	0	\$5K	0	
231	Whitewater	2/11/1999	50 kts.	0	0	\$1K	0	
232	Walworth	2/11/1999	50 kts.	0	0	\$5K	0	
236	Walworth	5/17/1999	50 kts.	0	0	\$3K	0	
237	Darien	6/6/1999	50 kts.	0	0	\$5K	0	

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Thunderstorm Winds – cont.	238	East Troy	6/6/1999	50 kts.	0	0	\$1K	0
	239	Elkhorn	6/6/1999	50 kts.	0	0	\$8K	0
	240	Elkhorn	6/10/1999	50 kts.	0	0	\$15K	0
	243	Delavan	6/10/1999	50 kts.	0	1	\$10K	0
	245	Lake Geneva	6/10/1999	50 kts.	0	0	\$1K	0
	246	Lake Geneva	6/11/1999	50 kts.	0	0	\$1K	0
	252	Walworth	7/23/1999	57 kts.	0	0	\$2K	0
	275	Genoa City	6/1/2000	50 kts.	0	0	\$50K	0
	278	La Grange	6/13/2000	50 kts.	0	0	\$25K	0
	283	Delavan	7/10/2000	50 kts.	0	0	\$3K	0
	285	East Troy	8/5/2000	50 kts.	0	0	\$2K	0
	286	Fontana	8/6/2000	50 kts.	0	0	\$2K	0
	289	Whitewater	9/11/2000	50 kts.	0	0	\$10K	0
	290	Elkhorn	9/11/2000	50 kts.	0	0	\$2K	0
	305	East Troy	6/11/2001	55 kts.	0	0	\$25K	0
	306	Walworth	6/11/2001	52 kts.	0	0	\$5K	0
	307	Delavan	6/14/2001	54 kts.	0	0	0	0
	310	Zenda	7/22/2001	52 kts.	0	0	0	0
	315	Richmond	8/9/2001	52 kts.	0	0	0	0
	316	Spring Prairie	8/9/2001	52 kts.	0	0	0	0
	318	Linton	9/3/2001	50 kts.	0	0	0	0
	319	Walworth	9/7/2001	56 kts.	0	0	0	0
	337	Whitewater	4/18/2002	52 kts.	0	0	0	0
	338	East Troy	6/3/2002	56 kts.	0	0	\$5K	0
	339	Fontana	6/3/2002	56 kts.	0	0	\$10K	0
	340	Sharon	6/10/2002	56 kts.	0	0	0	0
	352	Richmond	8/21/2002	52 kts.	0	0	0	0
	353	Elkhorn	8/21/2002	56 kts.	0	0	0	0
	357	Darien	10/4/2002	58 kts.	0	0	\$25K	0
	364	Delavan	7/6/2003	52 kts.	0	0	0	0
	366	Whitewater	7/15/2003	56 kts.	0	0	0	0
	380	Como	3/5/2004	52 kts.	0	0	\$1K	0
	381	La Grange	3/5/2004	56 kts.	0	0	\$1K	0
	382	La Grange	3/5/2004	52 kts.	0	0	\$1K	0
	386	La Grange	5/21/2004	56 kts.	0	0	0	0
	387	Lake Geneva	5/23/2004	65 kts.	0	0	\$50K	0
	389	Whitewater	6/23/2004	56 kts.	0	0	0	0
	391	Delavan	8/27/2004	52 kts.	0	0	0	0
	392	Pell Lake	8/27/2004	61 kts.	0	0	\$30K	0
	404	Tibbet	5/27/2005	43 kts.	0	0	\$20K	0
	407	Allen Grove	6/11/2005	52 kts.	0	0	0	0
	409	Fontana	6/11/2005	52 kts.	0	0	0	0
410	Whitewater	6/11/2005	52 kts.	0	0	0	0	
411	Sharon	6/30/2005	56 kts.	0	0	0	0	
412	Delavan	6/30/2005	52 kts.	0	0	0	0	

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Thunderstorm Winds – cont.	414	East Troy	7/23/2005	56 kts.	0	0	\$5K	0
	415	La Grange	7/23/2005	52 kts.	0	0	\$3K	0
	416	Spring Prairie	7/23/2005	56 kts.	0	0	\$3K	0
	416	Spring Prairie	7/23/2005	56 kts.	0	0	\$3K	0
	417	Whitewater	7/23/2005	52 kts.	0	0	\$1K	0
	419	East Troy	7/23/2005	56 kts.	0	0	0	0
	421	Tibbet	7/25/2005	65 kts.	0	0	\$250K	0
	422	Whitewater	7/25/2005	56 kts.	0	0	\$3K	0
	423	Tibbet	7/25/2005	52 kts.	0	0	\$1K	0
	426	La Grange	8/18/2005	56 kts.	0	0	\$1K	0
	429	Elkhorn	9/13/2005	56 kts.	0	0	0	0
	430	Delavan	9/13/2005	61 kts.	0	0	0	0
	431	La Grange	9/13/2005	56 kts.	0	0	0	0
	432	Whitewater	9/13/2005	61 kts.	0	1	0	0
	454	Lake Geneva	6/21/2006	52 kts.	0	0	0	0
	458	Zenda	7/17/2006	52 kts.	0	0	\$5K	0
	459	Darien	7/20/2006	52 kts.	0	0	\$10K	0
	460	Lake Geneva	7/20/2006	52 kts.	0	0	\$5K	0
	469	Little Prairie	10/2/2006	56 kts.	0	0	0	0
	476	Sharon	6/1/2007	56 kts.	0	0	\$5K	0
	477	Elkhorn	6/7/2007	65 kts.	0	0	\$15K	0
	480	Delavan	7/9/2007	52 kts.	0	0	0	0
	483	Genoa City	7/10/2007	50 kts.	0	0	0	0
	490	Sharon	1/7/2008	56 kts.	0	0	0	0
	416	Spring Prairie	7/23/2005	56 kts.	0	0	\$3K	0
	417	Whitewater	7/23/2005	52 kts.	0	0	\$1K	0
	419	East Troy	7/23/2005	56 kts.	0	0	0	0
	421	Tibbet	7/25/2005	65 kts.	0	0	\$250K	0
	422	Whitewater	7/25/2005	56 kts.	0	0	\$3K	0
	423	Tibbet	7/25/2005	52 kts.	0	0	\$1K	0
	426	La Grange	8/18/2005	56 kts.	0	0	\$1K	0
	429	Elkhorn	9/13/2005	56 kts.	0	0	0	0
	430	Delavan	9/13/2005	61 kts.	0	0	0	0
	431	La Grange	9/13/2005	56 kts.	0	0	0	0
	432	Whitewater	9/13/2005	61 kts.	0	1	0	0
	454	Lake Geneva	6/21/2006	52 kts.	0	0	0	0
	458	Zenda	7/17/2006	52 kts.	0	0	\$5K	0
	459	Darien	7/20/2006	52 kts.	0	0	\$10K	0
	460	Lake Geneva	7/20/2006	52 kts.	0	0	\$5K	0
	469	Little Prairie	10/2/2006	56 kts.	0	0	0	0
	476	Sharon	6/1/2007	56 kts.	0	0	\$5K	0
	477	Elkhorn	6/7/2007	65 kts.	0	0	\$15K	0
	480	Delavan	7/9/2007	52 kts.	0	0	0	0
	483	Genoa City	7/10/2007	50 kts.	0	0	0	0
	490	Sharon	1/7/2008	56 kts.	0	0	0	0

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Thunderstorm Winds – cont.	-	Delavan	6/5/2008	52 kts.	0	0	0	0
	-	Genoa City	6/6/2008	50 kts.	0	0	\$10K	0
	-	Williams Bay	6/6/2008	63 kts.	0	0	\$25K	0
	-	Richmond	6/8/2008	52 kts.	0	0	0	0
	-	Sharon	6/8/2008	50 kts.	0	0	0	0
	-	Delavan	6/12/2008	54 kts.	0	0	0	0
	-	Elkhorn	6/12/2008	50 kts.	0	0	\$30K	0
	-	East Troy	6/12/2008	78 kts.	0	0	\$150K	0
	-	Whitewater	7/10/2008	56 kts.	0	0	\$5K	0
	-	Darien	7/10/2008	65 kts.	0	0	\$100K	0
	-	Richmond	7/12/2008	56 kts.	0	0	0	0
	-	Whitewater	06/08/2009	56 kts.	0	0	\$30K	0
	-	Troy Center	06/08/2009	56 kts.	0	0	\$10K	0
	-	Millard	06/19/2009	56 kts.	0	0	0	0
	-	Elkhorn	06/19/2009	56 kts.	0	0	0	0
	-	Whitewater	06/25/2009	54 kts.	0	0	0	0
	-	Lake Geneva	08/09/2009	65 kts.	0	0	\$15K	0
	-	East Troy	08/09/2009	57 kts.	0	0	0	0
	-	Delavan	08/09/2009	64 kts.	0	0	\$25K	0
	-	Delavan	06/18/2010	52 kts.	0	0	0	0
	-	Lake Geneva	06/18/2010	56 kts.	0	0	\$25K	0
	-	Lake Geneva	06/18/2010	55 kts.	0	0	0	0
	-	East Troy	06/21/2010	65 kts.	0	0	0	0
	-	Whitewater	07/22/2010	52 kts.	0	0	0	0
	-	Walworth	08/20/2010	50 kts.	0	0	\$25K	0
	-	Delavan	08/20/2010	50 kts.	0	0	\$25K	0
	-	Whitewater	05/22/2011	52 kts.	0	0	\$5K	0
	-	Elkhorn	05/22/2011	52 kts.	0	0	\$10K	0
	-	Lyons	05/22/2011	56 kts.	0	0	0	0
	-	Walworth County	06/08/2011	70 kts.	0	0	0	0
	-	Walworth County	06/08/2011	54 kts.	0	0	0	0
	-	Walworth County	06/08/2011	65 kts.	0	0	0	0
	-	Walworth County	06/21/2011	52 kts.	0	0	0	0
	-	Delavan	07/11/2011	70 kts.	0	0	\$100K	0
	-	Tibbet	07/11/2011	56 kts.	0	0	\$800K	0
	-	Lake Geneva	07/11/2011	56 kts.	0	0	\$8K	0
	-	Como	07/23/2011	50 kts.	0	0	0	0
	-	Delavan Airport	08/02/2011	56 kts.	0	0	0	0
	-	Williams Bay	08/02/2011	56 kts.	0	0	0	0
	-	Pell Lake	05/20/2012	56 kts.	0	0	\$10K	0
-	Sharon	07/24/2012	56 kts.	0	0	0	0	
-	Lake Geneva	07/24/2012	56 kts.	0	0	0	0	
-	La Grange	07/30/2012	56 kts.	0	0	0	0	
Tornado [12,13]	1	Walworth County	4/18/1955	F2	0	1	\$250K	0

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]	
Tornado – cont.	3	Walworth County	4/19/1957	F2	0	0	\$250K	0	
	4	Walworth County	6/6/1959	Unknown	0	0	0	0	
	6	Walworth County	9/22/1961	F2	0	1	\$25K	0	
	9	Walworth County	4/11/1965	F1	0	0	\$250K	0	
	10	Walworth County	4/11/1965	F1	0	0	\$25K	0	
	13	Walworth County	3/21/1966	F2	0	1	\$2.5M	0	
	14	Walworth County	6/10/1967	F1	0	0	\$250K	0	
	16	Walworth County	5/27/1968	F0	0	0	\$25K	0	
	20	Walworth County	5/9/1970	F1	0	0	\$25K	0	
	22	Walworth County	7/14/1972	F1	0	0	\$250K	0	
	23	Walworth County	9/28/1972	F2	0	0	\$250K	0	
	30	Walworth County	6/20/1978	Unknown	0	0	0	0	
	31	Walworth County	8/15/1978	Unknown	0	0	0	0	
	34	Walworth County	6/6/1980	F2	0	0	\$250K	0	
	69	Walworth County	7/16/1988	F1	0	0	\$25K	0	
	80	Walworth County	6/2/1990	F1	0	0	\$25K	0	
	85	Walworth County	7/7/1991	F0	0	0	0	0	
	92	Walworth County	9/2/1992	F1	0	0	\$25K	0	
	-	Sharon-Walworth	6/26/1993	F0	0	0	\$3K	\$40K	
	-	Genoa City	7/5/1993	F1	0	0	\$200K	\$30K	
	181	Sharon	7/18/1997	F0	0	0	0	0	
	390	Whitewater	6/23/2004	F1	0	0	\$5K	0	
	492	Pell Lake	1/7/2008	EF1	0	0	\$100K	0	
	-	Walworth	11/22/2010	EF1	0	0	\$1M	0	
	Winter Storms [14]	93	Statewide	1/13/1993	n/a	0	0	0	0
		94	Southern WI	1/5/1994	n/a	0	0	0	0
		96	Statewide	1/26/1994	n/a	0	0	0	0
97		South Eastern WI	2/12/1994	n/a	0	0	0	0	
98		Southern WI	2/22/1994	n/a	0	0	0	0	
99		Southern WI	2/25/1994	n/a	0	0	0	0	
105		Southern WI	12/5/1994	n/a	0	0	0	0	
106		Statewide	1/19/1995	n/a	0	0	0	0	
107		Southern WI	2/26/1995	n/a	0	0	0	0	
138		South Eastern WI	11/11/1995	n/a	0	0	0	0	
139		Southern WI	11/26/1995	n/a	0	1	0	0	
140		Statewide	12/8/1995	n/a	0	0	0	0	
142		Southern WI	12/13/1995	n/a	0	0	0	0	
144		South Central WI	1/16/1996	n/a	0	0	0	0	
146		South Central WI	1/23/1996	n/a	0	0	0	0	
147		Southern WI	1/29/1996	n/a	0	0	0	0	
164		South Central WI	12/25/1996	n/a	0	0	0	0	
165		Southern WI	1/16/1997	n/a	0	0	0	0	
171		South Central WI	4/11/1997	n/a	0	0	0	0	
197	Walworth County	11/14/1997	n/a	0	0	0	0		
198	Southern WI	1/8/1998	n/a	0	0	0	0		

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Winter Storms – cont.	229	Southern WI	1/2/1999	n/a	0	5	\$11K	0
	233	South Central WI	3/9/1999	n/a	0	0	0	0
	260	Walworth County	2/18/2000	n/a	0	0	0	0
	265	South Central WI	4/7/2000	n/a	0	0	0	0
	294	South Central WI	12/11/2000	n/a	0	0	0	0
	295	South Central WI	12/18/2000	n/a	0	0	0	0
	330	Walworth County	1/31/2002	n/a	0	0	0	0
	332	Southern WI	3/2/2002	n/a	0	0	0	0
	358	South Central WI	2/3/2003	n/a	0	0	0	0
	360	Southern WI	4/4/2003	n/a	0	0	0	0
	362	Southern WI	4/7/2003	n/a	0	0	0	0
	375	Southern WI	1/4/2004	n/a	0	0	0	0
	376	Southern WI	1/16/2004	n/a	0	0	0	0
	377	Southern WI	2/8/2004	n/a	0	0	0	0
	394	South Central WI	11/30/2004	n/a	0	0	0	0
	397	South Eastern WI	12/18/2004	n/a	0	0	0	0
	399	Southern WI	1/6/2005	n/a	0	0	0	0
	401	Southern WI	1/22/2005	n/a	0	0	0	0
	440	Walworth County	1/20/2006	n/a	0	0	0	0
	-	Walworth County	11/10/2006	n/a	0	0	0	0
	-	Walworth County	12/1/2006	n/a	0	0	0	0
	-	Walworth County	1/12/2007	n/a	0	0	0	0
	-	Walworth County	1/14/2007	n/a	0	0	0	0
	-	Walworth County	1/21/2007	n/a	0	0	0	0
	472	South Eastern WI	2/23/2007	n/a	0	0	0	0
	473	Walworth County	2/24/2007	n/a	0	0	0	0
	474	Walworth County	2/25/2007	n/a	0	0	0	0
	-	Walworth County	3/2/2007	n/a	0	0	0	0
	-	Walworth County	4/11/2007	n/a	0	0	\$10K	0
	-	Walworth County	11/2/2007	n/a	0	0	0	0
	-	Walworth County	12/4/2007	n/a	0	0	0	0
	-	Walworth County	12/11/2007	n/a	0	0	0	0
	-	Walworth County	12/15/2007	n/a	0	0	0	0
	-	Walworth County	12/28/2007	n/a	0	0	0	0
	487	South Central WI	12/1/2007	n/a	0	0	0	0
	-	Walworth County	1/21/2008	n/a	0	0	0	0
	493	Southern WI	1/29/2008	n/a	0	0	0	0
	495	Walworth County	1/31/2008	n/a	0	0	0	0
	496	Walworth County	2/1/2008	n/a	0	0	0	0
	497	South Eastern WI	2/3/2008	n/a	0	0	0	0
	498	South Central WI	2/5/2008	n/a	0	0	0	0
	-	Walworth County	2/9/2008	n/a	0	0	0	0
	-	Walworth County	2/11/2008	n/a	0	0	0	0
	499	Walworth County	2/17/2008	n/a	0	0	0	0
	500	South Central WI	2/25/2008	n/a	0	0	0	0
	-	Walworth County	3/21/2008	n/a	0	0	0	0

Event Type	Record Number [1]	Location	Date	Magnitude	Direct Deaths [2]	Direct Injuries [3]	Property Damage [4]	Crop Damage [5]
Winter Storms – cont.	-	Walworth County	11/24/2008	n/a	0	0	0	0
	-	Walworth County	11/30/2008	n/a	0	0	0	0
	-	Walworth County	12/1/2008	n/a	0	0	0	0
	-	Walworth County	12/3/2008	n/a	0	0	0	0
	-	Walworth County	12/8/2008	n/a	0	0	0	0
	-	Walworth County	12/16/2008	n/a	0	0	0	0
	-	Walworth County	12/18/2008	n/a	0	0	0	0
	-	Walworth County	12/21/2008	n/a	0	0	0	0
	-	Walworth County	12/23/2008	n/a	0	0	0	0
	-	Walworth County	12/24/2008	n/a	0	0	0	0
	-	Walworth County	12/25/2008	n/a	0	0	0	0
	-	Walworth County	12/27/2008	n/a	0	0	0	0
	-	Walworth County	1/3/2009	n/a	0	0	0	0
	-	Walworth County	1/9/2009	n/a	0	0	0	0
	-	Walworth County	1/12/2009	n/a	0	0	0	0
	-	Walworth County	1/13/2009	n/a	0	0	0	0
	-	Walworth County	1/21/2009	n/a	0	0	0	0
	-	Walworth County	1/26/2009	n/a	0	0	0	0
	-	Walworth County	3/28/2009	n/a	0	0	0	0
	-	Walworth County	12/8/2009	n/a	0	0	0	0
	-	Walworth County	12/23/2009	n/a	0	0	0	0
	-	Walworth County	1/7/2010	n/a	0	0	0	0
	-	Walworth County	2/8/2010	n/a	0	0	0	0
	-	Walworth County	3/19/2010	n/a	0	0	0	0
	-	Walworth County	12/3/2010	n/a	0	0	0	0
	-	Walworth County	12/9/2010	n/a	0	0	0	0
	-	Walworth County	12/11/2010	n/a	0	0	0	0
	-	Walworth County	12/20/2010	n/a	0	0	0	0
	-	Walworth County	1/17/2011	n/a	0	0	0	0
	-	Walworth County	2/1/2011	n/a	0	0	0	0
	-	Walworth County	2/6/2011	n/a	0	0	0	0
	-	Walworth County	2/21/2011	n/a	0	0	0	0
-	Walworth County	12/29/2011	n/a	0	0	0	0	
-	Walworth County	1/12/2012	n/a	0	0	0	0	
-	Walworth County	1/17/2011	n/a	0	0	0	0	
-	Walworth County	1/20/2012	n/a	0	0	0	0	
-	Walworth County	2/23/2012	n/a	0	0	0	0	
-	Walworth County	3/2/2012	n/a	0	0	0	0	

Source: National Climatic Data Center database accessed on November 9, 2012 <http://www.ncdc.noaa.gov/stormevents/>

- Note:
1. Records numbers are not assigned for the more recent records
 2. The first number denotes the number of deaths attributed to the event and the second number is the number of deaths specifically in Walworth County.
 3. The first number denotes the number of injuries attributed to the event and the second number is the number of injuries specifically in Walworth County.
 4. In some cases, it was possible to disaggregate the overall event to identify the property damage just in Walworth County. In such instances, the first number is the total property damage and the second number is specifically for Walworth County.
 5. In some cases, it was possible to disaggregate the overall event to identify the property damage just in Walworth County. In such instances, the first number is the total property damage and the second number is specifically for Walworth County.

6. Heat is defined as a Heat Index Value of 105-110 degrees Fahrenheit for 3 hours or more during the day or 75 degrees or higher at night for a 24-hour period.
7. Dense fog is defined as visibility less than ¼ mile
8. Large hail is ¾ inch in diameter or larger
9. High wind is defined as non-thunderstorm sustained wind 40 mph or more for 1 hour or more or any gust 58 mph or higher
10. Strong wind is defined as non-thunderstorm sustained wind 30 mph or more for 1 hour or more or any gust 45-57 mph
11. Thunderstorm wind is defined as winds of 58 mph or greater
12. The location for some events is denoted by direction from the center of a nearby community and distance.
13. Tornadoes through the end of 2006 were rated on the Fujita Tornado Scale. Beginning January 1, 2007, the Enhanced Fujita Tornado scale was used.
14. Heavy snow or blizzard is defined as 6 inches of snow or more in 12 hours or less or 8 inches or more in 24 hours or less

METHODOLOGY FOR ESTIMATING FLOOD DAMAGE (2008)

Overview – This narrative is intended to document the resources, process, and assumptions used in estimating how much damage would occur to buildings during a 100-year flood in 2008. Although flood damages were calculated for each building in the floodplain, it should be emphasized that the total calculated damage estimate was prepared to compare damage from flooding to damage caused by other natural hazards. This was done to help decision makers set priorities and devise appropriate mitigation activities.

Resources Used – Walworth County has a well-developed geographic information system (GIS) with a topographic relief map with two-foot contour intervals and an orthographic base with a resolution of two feet. The GIS system also includes property tax information for every parcel in the county.

Beginning in 2006, the Federal Emergency Management Agency, in collaboration with the Wisconsin Department of Natural Resources, initiated a multi-year effort to create and adopt digital flood insurance rate maps (FIRMs) for Walworth County and the municipalities. Preliminary FIRM maps were produced as part of that effort and were made available in November, 2007. It is anticipated that the County and local municipalities will adopt the maps by March 16, 2009. Because the preliminary FIRMs represented the best available data at the time, they were used in this project.

Methodology and Assumptions – The approach was straight forward – identify buildings located within the 100-year floodplain and estimate how much damage each would suffer during a 100-year flood. Initially, a query was used to identify those parcels that were located, in whole or in part, in the 100-year floodplain. The consultant then viewed each of those parcels to determine if a principal building (e.g., house, commercial building, industrial building) was located within the 100-year floodplain. In some cases, a single parcel had more than one building in the floodplain. For example, there were many parcels that had a house with a detached garage. To determine which of the buildings is the principal building, the consultant viewed the orthographic map and considered the size of the buildings and proximity to driveways or other access points.

Once the relevant structures were located, they were “clipped” by the preliminary 100-year floodplain polygon in order to derive the actual structure area that is within the floodplain. A point was located on the approximate center of the clipped principal building to identify it and its location. The elevation of the ground at the point was derived from the relief map. It was assumed that the first floor was 18 inches above the ground elevation.

The closest flood levels at each of the points were derived from the preliminary flood data and surface elevation. Accuracy was ensured by extrapolating and summarizing only elevations that were nearest to the intended structures that intersected or were within the 100-year floodplain. The first floor elevation and flood elevation were then compared. The extent of damage for each principal building was expressed as a percent based on standardized flood loss tables prepared by the Federal Emergency Management Agency. For this analysis, damage estimates for one or two story buildings with basements were used (Table H-1).

Table H-1. Percent of Building Damaged Based on Extent of Flooding

First Floor Flood Depth (feet)	Percent of Building Damaged
-2	4
-1	8
0	11
1	15
2	20
3	23
4	28
5	33
6	38
7	44
8	49
>8	51

Source: Based on Table 3 of *Resource Guide to All Hazards Mitigation Planning In Wisconsin*, 2003. Wisconsin Emergency Management

ESTIMATED FLOOD DAMAGE TO BUILDINGS: 2008

Jurisdiction	Land Use	Market Value of Structure	Percent Damage	100-Year Flood Damage
Bloomfield, Town	Residential	\$95,200	20%	\$19,040
Bloomfield, Town	Residential	\$88,900	20%	\$17,780
Bloomfield, Town	Residential	\$60,600	20%	\$12,120
Bloomfield, Town	Residential	\$9,400	20%	\$1,880
Bloomfield, Town	Residential	\$130,100	15%	\$19,515
Bloomfield, Town	Residential	\$24,600	20%	\$4,920
Bloomfield, Town	Residential	\$103,800	20%	\$20,760
Bloomfield, Town	Residential	\$110,000	20%	\$22,000
Bloomfield, Town	Residential	\$71,700	20%	\$14,340
Bloomfield, Town	Swamp and Waste	\$110,000	20%	\$22,000
Bloomfield, Town	Residential	\$126,000	15%	\$18,900
Bloomfield, Town	Residential	\$44,400	20%	\$8,880
Bloomfield, Town	Residential	\$99,600	20%	\$19,920
Bloomfield, Town	Residential	\$27,000	20%	\$5,400
Bloomfield, Town	Residential	\$62,300	20%	\$12,460
Bloomfield, Town	Residential	\$130,200	15%	\$19,530
Bloomfield, Town	Residential	\$52,300	15%	\$7,845
Bloomfield, Town	Residential	\$105,000	33%	\$34,650
Bloomfield, Town	Residential	\$107,700	20%	\$21,540
Bloomfield, Town	Residential	\$105,400	15%	\$15,810
Bloomfield, Town	Mercantile	\$279,800	15%	\$41,970
Bloomfield, Town	Residential	\$79,000	20%	\$15,800
Bloomfield, Town	Residential	\$199,500	15%	\$29,925
Bloomfield, Town	Residential	\$139,100	20%	\$27,820
Bloomfield, Town	Residential	\$132,400	15%	\$19,860
Bloomfield, Town	Residential	\$132,900	20%	\$26,580
Bloomfield, Town	Residential	\$246,300	51%	\$125,610
Bloomfield, Town	Residential	\$189,600	23%	\$43,608
Bloomfield, Town	Residential	\$167,100	20%	\$33,420
Bloomfield, Town	Residential	\$298,800	15%	\$44,820
Bloomfield, Town	Residential	\$67,100	15%	\$10,065
Bloomfield, Town	Residential	\$53,600	20%	\$10,720
Bloomfield, Town	Swamp and Waste	\$150,200	15%	\$22,530
Bloomfield, Town	Residential	\$500	15%	\$75
Bloomfield, Town	Residential	\$222,800	28%	\$62,384
Bloomfield, Town	Residential	\$539,000	20%	\$107,800
Bloomfield, Town	Residential	\$23,500	20%	\$4,700
Bloomfield, Town	Residential	\$117,600	23%	\$27,048
Bloomfield, Town	Mercantile	\$113,900	15%	\$17,085
Bloomfield, Town	Residential	\$709,000	15%	\$106,350
Bloomfield, Town	Residential	\$52,900	20%	\$10,580
Bloomfield, Town	Residential	\$89,800	20%	\$17,960
Bloomfield, Town	Residential	\$80,200	20%	\$16,040
Bloomfield, Town	Residential	\$364,000	20%	\$72,800
Bloomfield, Town	Residential	\$111,500	20%	\$22,300
Bloomfield, Town	Residential	\$97,500	20%	\$19,500
Bloomfield, Town	Residential	\$271,200	15%	\$40,680
Bloomfield, Town	Residential	\$62,100	20%	\$12,420
Bloomfield, Town	Residential	\$102,000	15%	\$15,300
Bloomfield, Town	Residential	\$107,400	20%	\$21,480
Bloomfield, Town	Residential	\$62,100	20%	\$12,420
Bloomfield, Town	Residential	\$40,400	15%	\$6,060

Jurisdiction	Land Use	Market Value of Structure	Percent Damage	100-Year Flood Damage
Bloomfield, Town	Residential	\$52,700	15%	\$7,905
Bloomfield, Town	Residential	\$79,000	15%	\$11,850
Bloomfield, Town	Residential	\$148,200	15%	\$22,230
Bloomfield, Town	Residential	\$47,200	23%	\$10,856
Bloomfield, Town	Residential	\$56,800	23%	\$13,064
Bloomfield, Town	Residential	\$91,500	20%	\$18,300
Bloomfield, Town	Residential	\$74,600	15%	\$11,190
Bloomfield, Town	Mercantile	\$92,500	20%	\$18,500
Bloomfield, Town	Mercantile	\$131,100	20%	\$26,220
Bloomfield, Town	Residential	\$120,200	20%	\$24,040
Bloomfield, Town	Residential	\$64,100	20%	\$12,820
		\$7,924,900.00		\$1,541,975.00
Darien, Town	Manufacturing	\$6,777,050	20%	\$1,355,410
Darien, Town	Manufacturing	\$6,777,050	20%	\$1,355,410
Darien, Town	Agriculture	\$56,300	20%	11,260
Darien, Town	Mercantile	13,554,000	33%	4,472,800
Darien, Town	Agriculture	\$9,200	33%	\$3,036
Darien, Town	Residential	\$124,200	20%	\$24,840
Darien, Town	Residential	\$46,900	15%	\$7,035
Darien, Town	Agriculture	\$32,600	20%	\$6,520
		\$27,377,300.00		\$7,236,311.00
Darien, Village	Residential	\$132,000	20%	\$26,400
				\$26,400
Delavan, City	Residential	\$217,400	15%	\$32,610
Delavan, City	Mercantile	\$43,700	23%	\$10,051
		\$261,100.00		\$42,661.00
Delavan, Town	Residential	\$384,000	15%	\$57,600
Delavan, Town	Residential	\$107,400	20%	\$21,480
Delavan, Town	Residential	\$279,700	15%	\$41,955
Delavan, Town	Residential	\$118,800	20%	\$23,760
Delavan, Town	Residential	\$253,900	23%	\$58,397
Delavan, Town	Residential	\$112,300	20%	\$22,460
Delavan, Town	Residential	\$105,300	20%	\$21,060
Delavan, Town	Residential	\$142,600	15%	\$21,390
Delavan, Town	Residential	\$116,400	23%	\$26,772
Delavan, Town	Residential	\$171,500	15%	\$25,725
Delavan, Town	Residential	\$150,200	20%	\$30,040
Delavan, Town	Residential	\$115,000	38%	\$43,700
Delavan, Town	Residential	\$122,600	15%	\$18,390
Delavan, Town	Residential	\$133,600	33%	\$44,088
Delavan, Town	Residential	\$140,800	20%	\$28,160
Delavan, Town	Residential	\$166,400	20%	\$33,280
Delavan, Town	Residential	\$66,000	33%	\$21,780
Delavan, Town	Residential	\$170,500	38%	\$64,790
Delavan, Town	Residential	\$89,600	28%	\$25,088
Delavan, Town	Residential	\$158,000	20%	\$31,600
Delavan, Town	Residential	\$100,000	20%	\$20,000
Delavan, Town	Residential	\$80,800	23%	\$18,584
Delavan, Town	Residential	\$160,800	23%	\$36,984
Delavan, Town	Residential	\$75,800	23%	\$17,434
Delavan, Town	Residential	\$72,000	51%	\$36,720
Delavan, Town	Residential	\$154,500	49%	\$75,705

Jurisdiction	Land Use	Market Value of Structure	Percent Damage	100-Year Flood Damage
Delavan, Town	Residential	\$46,200	23%	\$10,626
Delavan, Town	Residential	\$116,500	20%	\$23,300
Delavan, Town	Residential	\$145,900	33%	\$48,147
Delavan, Town	Residential	\$126,200	20%	\$25,240
Delavan, Town	Residential	\$76,200	20%	\$15,240
Delavan, Town	Residential	\$126,400	20%	\$25,280
Delavan, Town	Residential	\$164,400	20%	\$32,880
Delavan, Town	Residential	\$88,000	20%	\$17,600
Delavan, Town	Residential	\$96,000	15%	\$14,400
Delavan, Town	Residential	\$957,500	20%	\$191,500
Delavan, Town	Mercantile	\$13,400	20%	\$2,680
Delavan, Town	Mercantile	\$201,500	15%	\$30,225
Delavan, Town	Residential	\$131,200	20%	\$26,240
Delavan, Town	Residential	\$112,000	20%	\$22,400
Delavan, Town	Residential	\$312,500	23%	\$71,875
Delavan, Town	Residential	\$59,000	20%	\$11,800
Delavan, Town	Residential	\$125,100	20%	\$25,020
Delavan, Town	Residential	\$301,500	20%	\$60,300
Delavan, Town	Residential	\$466,800	49%	\$228,730
Delavan, Town	Residential	\$574,300	20%	\$114,860
Delavan, Town	Residential	\$464,300	20%	\$92,860
Delavan, Town	Residential	\$341,700	15%	\$51,255
Delavan, Town	Mercantile	\$37,500	20%	\$7,500
Delavan, Town	Residential	\$79,100	20%	\$15,820
Delavan, Town	Residential	\$763,700	20%	\$152,740
Delavan, Town	Residential	\$308,400	20%	\$61,680
Delavan, Town	Other Land	\$191,100	20%	\$38,220
		\$10,174,900.00		\$2,285,360.00
East Troy, Town	Residential	\$54,700	38%	\$20,786
East Troy, Town	Residential	\$229,800	20%	\$45,960
East Troy, Town	Residential	\$151,400	20%	\$30,280
East Troy, Town	Other Land	\$317,100	20%	\$63,420
East Troy, Town	Agriculture	\$198,600	20%	\$39,720
East Troy, Town	Other Land	\$145,900	23%	\$33,557
		\$1,097,500.00		\$233,723.00
East Troy, Village	Residential	\$166,500	15%	\$24,975
East Troy, Village	Manufacturing	\$120,000	20%	\$24,000
East Troy, Village	Mercantile	\$135,800	15%	\$20,370
East Troy, Village	Mercantile	\$135,800	20%	\$27,160
		\$558,100.00		\$96,505.00
Elkhorn, City	County Land	\$163,600	15%	\$24,540
Fontana-on-Geneva Lake, Village	Residential	\$26,950	20%	\$5,390
Fontana-on-Geneva Lake, Village	Residential	\$26,950	20%	\$5,390
Fontana-on-Geneva Lake, Village	Residential	\$26,950	15%	\$4,043
Fontana-on-Geneva Lake, Village	Residential	\$26,950	20%	\$5,390
Fontana-on-Geneva Lake, Village	Residential	\$26,950	20%	\$5,390
Fontana-on-Geneva Lake, Village	Residential	\$26,950	20%	\$5,390
Fontana-on-Geneva Lake, Village	Residential	\$74,100	20%	\$14,820
Fontana-on-Geneva Lake, Village	Residential	\$74,100	20%	\$14,820
Fontana-on-Geneva Lake, Village	Other Land	\$575,100	20%	\$115,020
Fontana-on-Geneva Lake, Village	Residential	\$99,400	23%	\$22,862
Fontana-on-Geneva Lake, Village	Residential	\$575,100	20%	\$115,020
Fontana-on-Geneva Lake, Village	Other Land	\$575,100	20%	\$115,020

Jurisdiction	Land Use	Market Value of Structure	Percent Damage	100-Year Flood Damage
Fontana-on-Geneva Lake, Village	Other Land	\$575,100	20%	\$115,020
Fontana-on-Geneva Lake, Village	Mercantile	\$55,200	15%	\$8,280
		\$2,764,900.00		\$551,855.00
Geneva, Town	Residential	\$151,200	20%	\$30,240
Geneva, Town	Residential	\$212,300	20%	\$42,460
Geneva, Town	Residential	\$348,500	20%	\$69,700
Geneva, Town	Residential	\$180,100	20%	\$36,020
Geneva, Town	Residential	\$299,800	20%	\$59,960
Geneva, Town	Residential	\$109,500	20%	\$21,900
Geneva, Town	Residential	\$227,800	20%	\$45,560
Geneva, Town	Residential	\$75,000	20%	\$15,000
Geneva, Town	Residential	\$142,300	20%	\$28,460
Geneva, Town	Residential	\$36,000	20%	\$7,200
Geneva, Town	Residential	\$95,800	20%	\$19,160
Geneva, Town	Residential	\$322,000	20%	\$64,400
Geneva, Town	Residential	\$71,000	20%	\$14,200
Geneva, Town	Residential	\$58,000	15%	\$8,700
Geneva, Town	Mercantile	\$85,000	20%	\$17,000
Geneva, Town	Mercantile	\$85,000	20%	\$17,000
Geneva, Town	Mercantile	\$1,171,300	15%	\$175,700
Geneva, Town	Mercantile	\$220,000	20%	\$44,000
		\$3,890,600.00		\$716,660.00
Lafayette, Town	Residential	\$75,500	20%	\$15,100
Lafayette, Town	Residential	\$53,000	20%	\$10,600
Lafayette, Town	Residential	\$195,000	15%	\$29,250
Lafayette, Town	Residential	\$85,000	20%	\$17,000
Lafayette, Town	Mercantile	\$4,843,500	20%	\$968,700
Lafayette, Town	Other	\$4,500	20%	\$900
Lafayette, Town	Residential	\$197,000	20%	\$39,400
Lafayette, Town	Residential	\$191,500	20%	\$38,300
Lafayette, Town	Residential	\$262,500	20%	\$52,500
Lafayette, Town	Swamp and Waste	\$86,500	11%	\$9,515
		\$5,994,000.00		\$1,181,265.00
LaGrange, Town	Residential	\$545,300	15%	\$81,795
LaGrange, Town	Residential	\$355,200	23%	\$81,696
LaGrange, Town	Residential	\$228,600	20%	\$45,720
LaGrange, Town	Residential	\$186,200	20%	\$37,240
LaGrange, Town	Residential	\$141,300	28%	\$39,564
LaGrange, Town	Residential	\$55,900	20%	\$11,180
LaGrange, Town	Residential	\$23,400	51%	\$11,934
LaGrange, Town	Residential	\$225,900	20%	\$45,180
LaGrange, Town	Residential	\$180,100	23%	\$41,423
LaGrange, Town	Residential	\$122,700	20%	\$24,540
LaGrange, Town	Residential	\$15,500	20%	\$3,100
LaGrange, Town	Other Land	\$203,700	20%	\$40,740
LaGrange, Town	Other Land	\$199,300	15%	\$29,895
LaGrange, Town	Residential	\$372,700	20%	\$74,540
LaGrange, Town	Residential	\$441,600	20%	\$88,320
LaGrange, Town	Residential	\$151,900	20%	\$30,380
LaGrange, Town	Residential	\$324,100	20%	\$64,820
LaGrange, Town	Residential	\$440,700	15%	\$66,105
LaGrange, Town	Residential	\$124,700	20%	\$24,940
LaGrange, Town	Residential	\$113,800	20%	\$22,760
LaGrange, Town	Residential	\$135,900	11%	\$14,949

Jurisdiction	Land Use	Market Value of Structure	Percent Damage	100-Year Flood Damage
LaGrange, Town	Residential	\$165,200	20%	\$33,040
LaGrange, Town	Residential	\$188,600	15%	\$28,290
LaGrange, Town	Residential	\$227,800	44%	\$100,230
LaGrange, Town	Residential	\$210,000	20%	\$42,000
LaGrange, Town	Residential	\$140,100	20%	\$28,020
LaGrange, Town	Residential	\$79,100	15%	\$11,865
LaGrange, Town	Residential	\$157,300	20%	\$31,460
LaGrange, Town	Other Land	\$346,900	23%	\$79,787
LaGrange, Town	Residential	\$157,700	15%	\$23,655
LaGrange, Town	Residential	\$244,000	20%	\$48,800
LaGrange, Town	Residential	\$278,100	20%	\$55,620
LaGrange, Town	Residential	\$406,700	20%	\$81,340
LaGrange, Town	Residential	\$451,800	20%	\$90,360
LaGrange, Town	Residential	\$867,800	23%	\$199,590
LaGrange, Town	Residential	\$451,800	20%	\$90,360
LaGrange, Town	Residential	\$175,400	20%	\$35,080
LaGrange, Town	Residential	\$207,600	20%	\$41,520
LaGrange, Town	Residential	\$272,000	20%	\$54,400
LaGrange, Town	Residential	\$226,400	20%	\$45,280
LaGrange, Town	Residential	\$83,600	20%	\$16,720
LaGrange, Town	Residential	\$200,200	20%	\$40,040
		\$10,126,600.00		\$2,058,278.00
Lake Geneva, City	Mercantile	\$1,121,500	20%	\$224,300
Lake Geneva, City	Other Land	\$93,700	15%	\$14,055
Lake Geneva, City	Mercantile	\$210,700	23%	\$48,461
Lake Geneva, City	Residential	\$1,096,500	20%	\$219,300
Lake Geneva, City	Mercantile	\$270,500	20%	\$54,100
Lake Geneva, City	Other Land	\$1,321,700	20%	\$264,340
Lake Geneva, City	Other Land	\$114,800	20%	\$22,960
		\$4,229,400.00		\$847,516.00
Linn, Town	Residential	\$233,700	20%	\$46,740
Linn, Town	Residential	\$125,200	15%	\$18,780
Linn, Town	Residential	\$1,867,500	44%	\$821,700
Linn, Town	Residential	\$1,682,400	20%	\$336,480
Linn, Town	Residential	\$1,181,700	38%	\$449,050
Linn, Town	Residential	\$203,000	20%	\$40,600
Linn, Town	Residential	\$2,953,200	20%	\$590,640
		\$8,246,700.00		\$2,303,990.00
Lyons, Town	Residential	\$57,300	20%	\$11,460
Lyons, Town	Residential	\$167,300	51%	\$85,323
Lyons, Town	Mercantile	\$53,000	20%	\$10,600
Lyons, Town	Mercantile	\$243,000	15%	\$36,450
Lyons, Town	Mercantile	\$488,200	51%	\$248,980
Lyons, Town	Mercantile	\$488,200	51%	\$248,980
Lyons, Town	Mercantile	\$92,200	20%	\$18,440
Lyons, Town	Mercantile	\$23,050	20%	\$4,610
Lyons, Town	Agriculture	\$191,800	15%	\$28,770
Lyons, Town	Residential	\$91,900	28%	\$25,732
Lyons, Town	Residential	\$102,500	20%	\$20,500
Lyons, Town	Residential	\$13,614	20%	\$2,723
Lyons, Town	Residential	\$13,614	28%	\$3,812
Lyons, Town	Residential	\$13,614	20%	\$2,723
Lyons, Town	Residential	\$13,614	23%	\$3,131
Lyons, Town	Residential	\$13,614	20%	\$2,723

Jurisdiction	Land Use	Market Value of Structure	Percent Damage	100-Year Flood Damage
Lyons, Town	Residential	\$13,614	20%	\$2,723
Lyons, Town	Residential	\$13,614	15%	\$2,042
Lyons, Town	Residential	\$143,600	28%	\$40,208
Lyons, Town	Residential	\$98,200	23%	\$22,586
Lyons, Town	Agriculture	\$104,400	28%	\$29,232
Lyons, Town	Residential	\$24,500	20%	\$4,900
Lyons, Town	Residential	\$53,800	20%	\$10,760
Lyons, Town	Residential	\$109,800	20%	\$21,960
Lyons, Town	Residential	\$76,200	20%	\$15,240
Lyons, Town	Residential	\$153,400	15%	\$23,010
Lyons, Town	Residential	\$139,900	15%	\$20,985
Lyons, Town	Residential	\$128,200	15%	\$19,230
Lyons, Town	Residential	\$111,200	23%	\$25,576
Lyons, Town	Residential	\$158,600	15%	\$23,790
Lyons, Town	Residential	\$143,700	15%	\$21,555
Lyons, Town	Residential	\$126,100	15%	\$18,915
Lyons, Town	Residential	\$155,700	20%	\$31,140
Lyons, Town	Residential	\$162,700	23%	\$37,421
Lyons, Town	Residential	\$121,300	28%	\$33,964
Lyons, Town	Residential	\$129,500	20%	\$25,900
Lyons, Town	Residential	\$159,000	20%	\$31,800
Lyons, Town	Residential	\$111,800	20%	\$22,360
Lyons, Town	Residential	\$158,500	20%	\$31,700
Lyons, Town	Residential	\$145,400	20%	\$29,080
Lyons, Town	Residential	\$128,700	20%	\$25,740
Lyons, Town	Residential	\$152,400	20%	\$30,480
Lyons, Town	Residential	\$129,700	15%	\$19,455
Lyons, Town	Residential	\$149,200	23%	\$34,316
Lyons, Town	Residential	\$150,700	15%	\$22,605
Lyons, Town	Residential	\$133,300	15%	\$19,995
Lyons, Town	Agriculture	\$47,550	20%	\$9,510
Lyons, Town	Swamp and Waste	\$500	20%	\$100
Lyons, Town	Agriculture	\$47,550	20%	\$9,510
Lyons, Town	Other Land	\$102,100	20%	\$20,420
Lyons, Town	Mercantile	\$23,050	15%	\$3,458
Lyons, Town	Mercantile	\$23,050	15%	\$3,458
Lyons, Town	Mercantile	\$23,050	15%	\$3,458
Lyons, Town	Residential	\$66,100	20%	\$13,220
Lyons, Town	Residential	\$84,000	20%	\$16,800
Lyons, Town	Residential	\$42,000	15%	\$6,300
Lyons, Town	Residential	\$29,700	20%	\$5,940
Lyons, Town	Residential	\$103,000	20%	\$20,600
Lyons, Town	Residential	\$900	20%	\$180
Lyons, Town	Agriculture	\$60,500	20%	\$12,100
Lyons, Town	Residential	\$75,000	20%	\$15,000
Lyons, Town	Mercantile	\$10,800	20%	\$2,160
Lyons, Town	Agriculture	\$96,100	20%	\$19,220
		\$6,488,198.00		\$1,615,059.00
Sharon, Town	Other Land	\$36,900	20%	\$7,380
Sharon, Town	Residential	\$200,700	15%	\$30,105
Sharon, Town	Agriculture	\$145,100	20%	\$29,020
Sharon, Town	Agriculture	\$145,100	20%	\$29,020
Sharon, Town	Residential	\$103,500	20%	\$20,700
		\$631,300.00		\$116,225.00
Spring Prairie, Town	Residential	\$66,000	20%	\$13,200

Jurisdiction	Land Use	Market Value of Structure	Percent Damage	100-Year Flood Damage
Spring Prairie, Town	Swamp and Waste	\$215,800	20%	\$43,160
Spring Prairie, Town	Residential	\$87,400	20%	\$17,480
Spring Prairie, Town	Residential	\$101,000	15%	\$15,150
Spring Prairie, Town	Residential	\$81,600	15%	\$12,240
Spring Prairie, Town	Residential	\$92,000	15%	\$13,800
Spring Prairie, Town	Residential	\$90,000	20%	\$18,000
Spring Prairie, Town	Residential	\$78,000	20%	\$15,600
		\$811,800.00		\$148,630.00
Sugar Creek, Town	Residential	\$143,700	15%	\$21,555
Sugar Creek, Town	Residential	\$147,100	23%	\$33,833
Sugar Creek, Town	Residential	\$147,100	20%	\$29,420
Sugar Creek, Town	Agriculture	\$67,400	15%	\$10,110
Sugar Creek, Town	Agriculture	\$108,100	20%	\$21,620
		\$613,400.00		\$116,538.00
Troy , Town	Other Land	\$153,500	20%	\$30,700
Troy , Town	Residential	\$112,400	20%	\$22,480
		\$265,900.00		\$53,180.00
Whitewater, City	Other Land	\$101,700	15%	\$15,255
Whitewater, City	Residential	\$137,200	15%	\$20,580
Whitewater, City	Residential	\$68,000	15%	\$10,200
Whitewater, City	Residential	\$139,100	15%	\$20,865
Whitewater, City	Residential	\$82,300	20%	\$16,460
Whitewater, City	Residential	\$130,900	15%	\$19,635
Whitewater, City	Residential	\$142,300	20%	\$28,460
Whitewater, City	Residential	\$66,400	20%	\$13,280
Whitewater, City	Residential	\$101,900	20%	\$20,380
Whitewater, City	Residential	\$127,900	20%	\$25,580
Whitewater, City	Residential	\$112,000	15%	\$16,800
Whitewater, City	Residential	\$101,700	15%	\$15,255
Whitewater, City	Residential	\$126,600	15%	\$18,990
Whitewater, City	Residential	\$61,900	20%	\$12,380
Whitewater, City	Residential	\$54,100	20%	\$10,820
Whitewater, City	Residential	\$82,000	15%	\$12,300
Whitewater, City	Residential	\$138,300	15%	\$20,745
Whitewater, City	Residential	\$122,200	20%	\$24,440
Whitewater, City	Residential	\$131,200	20%	\$26,240
Whitewater, City	Residential	\$68,600	20%	\$13,720
Whitewater, City	Residential	\$82,300	20%	\$16,460
Whitewater, City	Residential	\$157,200	20%	\$31,440
Whitewater, City	Residential	\$36,900	20%	\$7,380
Whitewater, City	Other	\$139,100	20%	\$27,820
		\$2,511,800.00		\$445,485.00
Whitewater , Town	Residential	\$208,800	15%	\$31,320
Whitewater , Town	Residential	\$49,800	20%	\$9,960
		\$258,600.00		\$41,280.00
			Total	\$21,683,406