



Common Council

Regular Meeting

335 South Broadway
De Pere, WI 54115
<http://www.de-pere.org>

Agenda

Tuesday, September 3, 2013

7:30 PM

De Pere City Hall Council Chambers

Pursuant to Wisconsin Statutes 19.84, Notice is hereby given to the public that a Regular Meeting of the **Common Council** of the City of De Pere will be held on **September 3, 2013** at **7:30 PM** in the **De Pere City Hall Council Chambers, 335 S. Broadway Street, De Pere, WI 54115**.

1. Roll call.
 - A. Roll Call
2. Pledge of Allegiance to the Flag.
3. Minutes approval.
 - A. Approval of the Minutes of the August 14 Special Meeting of the Common Council.
 - B. Approval of the Minutes of the August 20, 2013 Common Council Meeting.
4. Public comment upon matters not on agenda or other announcements.
5. Discussion items.
 - A. Presentation by the Beautification Committee, Garden of Merit Winners.
6. Items
 - A. Recommendation from Plan Commission for the extra-territorial Belle Isle Meadows Plat located in the Town of Ledgeview.
 - B. Recommendation from Plan Commission for a 2 lot CSM on Millennium Court.
 - C. Recommendation from the License Committee to approve Application for a Special Permit Allowing Consumption of Alcohol Beverages on Public Ways. Submitted by Definitely De Pere, Inc. For Fashions Night Out on Thursday, September 5th from 1:00 p.m. to 9:00 p.m.
 - D. Resolution #13-114, Introduction of Resolution Regarding the Vacation of a Public Thoroughfare (A portion of Galway Lane) (refer to public hearing).
 - E. Resolution #13-115, Authorizing Automated Metering Project Agreement.
 - F. Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.
 - G. Discuss Status of Former Claude-Allouez Bridge Approach Site
 - H. Operator License Applications.
 - I. Voucher Approval.
7. Future agenda items.
8. Adjournment.

Any person wishing to attend this meeting who, because of disability, requires special accommodations should contact the Clerk-Treasurer's office at 339-4050 by Noon, September 3rd so that arrangements can be made.

Agenda sent to:

Mayor

Alderspersons

Department Heads

TV, Newspapers & Radio Stations

Kress Family Library

De Pere Chamber of Commerce

Jill Konopasek (Garden of Merit)

Randal Rake (Garden of Merit)

Erika Johnson (Garden of Merit)

Carolyn Jahns (Garden of Merit)

Scott and Sally Kazik (Garden of Merit)

Michael and Gail Cashman (Garden of Merit)

Nell and Associates (Garden of Merit)

Stanly Van Off (Garden of Merit)

Garritys Glen LLC

Bayland Buildings (David O'Brien)

MACH IV (Benjamin LaCount)

Mau & Associates (Steve Beida)

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: City Clerk-Treasurer

FROM: Shana Defnet

SUBJECT: Approval of the Minutes of the August 14 Special Meeting of the
Common Council.

ATTACHMENTS:

- Minutes Council Special Meeting 8-14-2013 City of De Pere (PDF)



Common Council

Special Untelevised

335 South Broadway
De Pere, WI 54115
<http://www.de-pere.org>

3.A.a

Minutes

Wednesday, August 14, 2013

5:30 PM

De Pere City Hall Council Chambers

Agenda for Said Meeting:

The meeting was called to order at 5:30 PM on August 14, 2013 at De Pere City Hall Council Chambers, 335 S. Broadway Street, De Pere, WI.

1. Roll Call – Present were Alderpersons Bauer, Boyd, Crevier, Donovan, Heuvelmans, Kneiszel, Lueck, Rafferty, and Mayor Walsh.
2. MinuteTraq software training session for Council Members.

Members of the Common Council watched a video outlining the new way of accessing agendas and meeting packets for City of De Pere meetings and were given a copy of the "Guide to the Meeting Web Portal".

3. Discussion regarding the purchase of tablets for Council Members.

Aldersperson Lueck moved, seconded by Aldersperson Boyd to receive a stipend in the amount of \$1000 to use towards the purchase of a personal device for accessing meeting packets electronically. Upon vote, motion failed with Alderspersons Kneiszel, Crevier, Donovan, Bauer, Rafferty, and Heuvelmans voting nay.

A motion was made by Aldersperson Bauer, seconded by Aldersperson Rafferty to receive a stipend in the amount of \$750. Upon vote, motion carried unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Kevin Bauer, Aldersperson
SECONDER:	Lisa Rafferty, Aldersperson
AYES:	Lueck, Boyd, Kneiszel, Crevier, Donovan, Bauer, Rafferty, Heuvelmans, Walsh

4. **Motion to:** Adjourn.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Larry Lueck, Aldersperson
SECONDER:	James Kneiszel, Aldersperson
AYES:	Lueck, Boyd, Kneiszel, Crevier, Donovan, Bauer, Rafferty, Heuvelmans, Walsh

Respectfully submitted,

Shana Defnet
Clerk-Treasurer

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: City Clerk-Treasurer

FROM: Shana Defnet

SUBJECT: Approval of the Minutes of the August 20, 2013 Common Council Meeting.

ATTACHMENTS:

- Minutes Council 08-20-2013 City of De Pere (DOCX)

**COMMON COUNCIL MEETING
CITY OF DE PERE, WISCONSIN – August 20, 2013**

The Common Council of the City of De Pere, Wisconsin, met in regular session at the Council Chambers in City Hall on Tuesday, August 20, 2013.

Mayor Mike Walsh called the meeting to order at 7:30 p.m. Roll call was taken and the following members were present: Alderpersons Kevin Bauer, James Boyd, Scott Crevier, Michael Donovan, Robert Heuvelmans, Jim Kneiszel, Larry Lueck, and Lisa Rafferty. The Council said the Pledge of Allegiance to the Flag.

3. Alderperson Donovan moved, seconded by Alderperson Crevier, to approve the minutes of the August 6, 2013 Regular Meeting of the Common Council. Upon vote, the minutes were approved unanimously.

4. Public Hearing to act on creating a Conditional Use Permit approval for temporary overnight shelter facilities was presented. Clerk Shana Defnet announced the Notice of Public Hearing was published in the City's Official Newspaper, the De Pere Journal, on August 1st and August 8th, 2013.

City Planner Ken Pabich stated that the Plan Commission recommended approval and gave an overview of the proposed ordinance.

Mayor Walsh declared the public hearing open for anyone wishing to speak at 7:35 p.m.

The following people spoke on the ordinance:

Tony Pickler spoke in favor of the ordinance; encouraged elimination of the 45-day maximum stay.

Karena O'Malley spoke in favor of the ordinance; stated that the 45-day limit hinders homeless individuals; shared that 1308 students in Brown County are homeless.

Clelia O'Malley spoke in favor of the ordinance; stated the length of stay should be at the discretion of shelter employees.

Father Al McBride spoke in favor of the ordinance.

Father Jay Fostner spoke in favor of the ordinance.

Father Ken DeGroot spoke in favor of the ordinance.

Robert Pine spoke in favor of the ordinance and supported elimination of the 45-day limitation.

Dan Robinson spoke in favor of the ordinance; mentioned implications of a 45-day limitation and of implementing a day-time responsibility for the shelter.

Father Brendan McKeough spoke in favor of the ordinance.

The public hearing was declared closed at 8:07 p.m. Ordinance 13-15, Creating Conditional Use Permit Approval For Overnight Shelter Facilities was presented. Alderperson Donovan moved, seconded by Alderperson Bauer to approve the ordinance. Discussion followed. Upon roll call vote, the motion to approve the ordinance failed 5-3 with Alderpersons Crevier, Kneiszel and Rafferty voting ay. Alderperson Bauer moved, seconded by Alderperson Heuvelmans, to strike the 45/60 day restriction from the ordinance. Upon vote, motion carried 7-1 with Alderperson Donovan voting nay.

Discussion followed. Alderperson Bauer moved, seconded by Alderperson Boyd to strike the word "temporary" from the ordinance. Upon vote, motion carried unanimously. Alderperson Lueck moved, seconded by Alderperson Crevier to open the meeting. Upon vote, motion carried unanimously. Dan Robinson spoke on the conflict of the City of Green Bay and St. John's Homeless Shelter. Alderperson Crevier moved, seconded by Alderperson Boyd to close the meeting.

Upon vote, motion carried unanimously. Discussion followed. Alderperson Crevier moved, seconded by Alderperson Donovan to remove "single-night" from text of section 14-03, definition 176. Discussion followed. Upon vote, motion carried unanimously. Alderperson Donovan moved, seconded by Alderperson Bauer, to approve the ordinance as amended. Upon vote, motion carried unanimously.

5. Public comment upon matters not on the agenda or other announcements.

Donna Gilson read a statement regarding donated lunches for employees.

County Supervisor Dan Robinson invited De Pere residents to attend the following County Strategic Planning Public Listening Sessions:

- Wednesday, September 4th from 6-7:30 p.m. in the City of Green Bay Council Chambers
- Thursday, September 12th from 6-7:30 p.m. at Wrightstown High School.

6. ITEMS

a. Recommendation of the Board of Public Works to approve request of Azure Contemporary Fashion & Accessories request to donate City traffic control services for Fashion Night Out event to be held on September 5, 2013 was presented. Alderperson Heuvelmans moved, seconded by Alderperson Bauer to approve the recommendation. Upon roll call vote, motion carried unanimously.

b. Recommendation from the Personnel & Finance Committee to approve a request to change the staffing schedules and rate of pay for paid on call firefighters to increase the overall response effectiveness of the Fire Department was presented. Alderperson Crevier moved, seconded by Alderperson Rafferty to approve the recommendation. Upon roll call vote, motion carried unanimously.

c. Recommendation from the Finance/Personnel Committee to increase retiree premium rates as identified in Exhibit A over a 3 year period; also to change our health plan to pay as if Medicare eligible retirees have Medicare Part D was presented. Alderperson Lueck moved, seconded by Alderperson Kneiszel to approve the recommendation. Discussion followed. Alderperson Donovan moved, seconded by Alderperson Rafferty to open the meeting. Upon vote, motion carried unanimously.

The following people spoke out against the recommendation:

Judy DeCleene
Paul Minten
Dan Carpenter
Victor Van Gemert

Alderperson Heuvelmans moved, seconded by Alderperson Rafferty to close the meeting. Upon vote, motion carried unanimously. Discussion followed. Upon vote on the recommendation, motion failed unanimously. Alderperson Lueck moved, seconded by Alderperson Boyd to change the plan to pay as if Medicare eligible retirees have Medicare Part D. Upon vote, motion carried unanimously. Discussion followed.

d. Recommendation from Finance/Personnel Committee to replace roof using funding from Ice Arena Fund was presented. Alderperson Crevier moved, seconded by Alderperson Rafferty to approve the recommendation. Upon roll call vote, motion carried unanimously.

e. Ordinance 13-16, Amending Chapter 150 De Pere Municipal Code Regarding Traffic Regulations was presented. Alderperson Crevier moved, seconded by Alderperson Kneiszel to approve the ordinance. Discussion followed. Upon vote, motion carried unanimously.

f. Ordinance 13-17, Making Various Corrections throughout the De Pere Municipal Code was presented. Alderperson Rafferty moved, seconded by Alderperson Crevier to approve the ordinance. Upon vote, motion carried unanimously.

g. Ordinance 13-18, Amending §8-1, De Pere Municipal Code Relating to State Statutes Adopted by Reference was presented. Alderperson Crevier moved, seconded by Alderperson Rafferty to approve the ordinance. Upon vote, motion carried unanimously.

h. Resolution 13-104, Amending Municipal Court Bond Schedule was presented. Alderperson Crevier moved, seconded by Alderperson Boyd to approve the resolution. Upon vote, motion carried unanimously.

i. Resolution 13-105, Setting Various Fees was presented. Alderperson Crevier moved, seconded by Alderperson Boyd to approve the resolution. Upon vote, motion carried unanimously.

j. Resolution 13-106, Authorizing Sidewalk Cafe Permit for Paintin' Pottery II or Bead It, LLC was presented. Alderperson Rafferty moved, seconded by Alderperson Kneiszel to approve the resolution. Upon vote, motion carried unanimously.

k. Resolution 13-107, Approving Agreement for Consulting Services Between the City of De Pere and Beacon Electric LLC (Pedestrian Signal Installation) was presented. Alderperson Crevier moved, seconded by Alderperson Bauer to approve the resolution. Upon roll call vote, motion carried unanimously.

l. Resolution 13-108, Authorizing Agreement With CGI Communications, Inc. Regarding Community Video Tour was presented. Alderperson Boyd moved, seconded by Alderperson Rafferty to approve the resolution. Upon vote, motion carried unanimously.

m. Resolution 13-109, Authorizing Software Purchase Agreement Between The City Of De Pere And Civic Systems, LLC (Water Billing Software) was presented. City Attorney Judy Schmidt Lehman requested that Council remove the word "technical" from the resolution. Alderperson Crevier moved, seconded by Alderperson Kneiszel to remove the language. Upon roll call vote, motion carried unanimously. Alderperson Crevier moved, seconded by Alderperson Kneiszel to approve the resolution. Upon roll call vote, motion carried unanimously.

n. Resolution 13-110, Authorizing Agreement With Green Bay Metropolitan Sewerage District Regarding Wastewater Sampling. Water/GBMSD Sampling Agreement was presented. Alderperson Heuvelmans moved, seconded by Alderperson Lueck to approve the resolution. Upon roll call vote, motion carried unanimously.

o. Resolution 13-111, Authorizing Emergency Medical Service Medical Director Agreement Between The City Of De Pere, Baycare Aurora, LLC D/B/A Aurora Baycare Medical Center And Baycare Clinic, L.L.P. was presented. Alderperson Crevier moved, seconded by Alderperson Rafferty to approve the resolution. Upon vote, motion carried 7-0 with Alderperson Kneiszel abstaining.

p. Resolution 13-112, Authorizing Agreement For Professional Services Between The City Of De Pere And EMS Medical Billing Associates, LLC (Emergency Medical Service User Fee Billing Services) was presented. Alderperson Donovan moved, seconded by Alderperson Lueck to approve the resolution. Fire Chief Jeffrey Roemer answered the Council's questions. Discussion followed. Upon roll call vote, motion carried unanimously.

q. Resolution 13-113, Authorizing Amendment To Intergovernmental Agreement Between The City Of De Pere And Town Of Ledgeview Regarding Crossing Guard Service was presented. Alderperson Lueck moved, seconded by Alderperson Heuvelmans to approve the resolution. Upon vote, motion carried unanimously.

r. The vouchers were presented. Alderperson Rafferty moved, seconded by Alderperson Crevier to approve the vouchers. Upon vote, motion carried unanimously.

s. Applications for Operator's Licenses were presented.

CITY OF DE PERE - August 20, 2013					
ITEM#	NAME	ADDRESS	CITY	ST	ZIP
TEMPORARY OPERATOR LICENSE APPLICATIONS					
1	OSHEFSKY, NECOLE L.	2053 SHADY LN.	GREEN BAY	WI	54313
PREVIOUSLY TABLED OPERATOR LICENSE APPLICATIONS					
1	MONTANYE, TIFFANY M.	226 E. ALLOUEZ AVE.	GREEN BAY	WI	54301
2	WILLEMS, NATHAN L.	602 MORRIS AVE.	GREEN BAY	WI	54304
3	WILLIAMS, MATTHEW D.	901 CLINTON ST., APT. #1	GREEN BAY	WI	54302
OPERATOR LICENSE APPLICATIONS FOR THE 2012-2014 LICENSING PERIOD					
1	ELWELL, ALEXANDRA G.	610 N. 9TH ST.	DE PERE	WI	54115
2	FLAUGER, IAN J.	1343 CAMELOT	ONEIDA	WI	54155
3	SPEJCHER, JOHN V.	218 S. BUCHANAN ST.	GREEN BAY	WI	54303
4	SWEENEY, HEATHER L.	6770 DEUSTER RD.	GREENLEAF	WI	54126
5	THORNTON, BRENDAN A.	1223 ROBIN ST.	DE PERE	WI	54115
6	THORPE, KARL A.	1725 WESTERN AVE. #4	GREEN BAY	WI	54303
7	WENDTLAND, ADAM J.	2883 MADRID DR.	GREEN BAY	WI	54311
8	WILLIAMS, BRENDA L.	127 S. WISCONSIN ST.	DE PERE	WI	54115

Alderson Bauer moved, seconded by Alderson Boyd to approve Temporary Operator License Application #1. Upon vote, motion carried unanimously. Alderson Bauer moved, seconded by Alderson Heuvelmans to approve Previously Tabled Operator Licenses #1 - 3. Upon vote, motion carried unanimously. Alderson Bauer moved, seconded by Alderson Boyd to table Operator License #1 and to approve Operator Licenses #2-8. Upon vote, motion carried unanimously.

8. Future Agenda Items (moved prior to entering closed session). Alderson Bauer requested that staff address a new ordinance establishing an ordinance for permanent homeless shelters. Alderson Heuvelmans requested that staff address donated lunches to employees.

7. Alderson Rafferty moved, seconded by Alderson Kneiszel to enter into closed session at 10:26 p.m. Upon roll call vote, motion carried unanimously. The Council addressed the annual performance evaluation of City Administrator. Alderson Bauer moved, seconded by Alderson Crevier to reconvene in open session. Upon roll call vote, motion carried unanimously. No action was taken in closed session.

Alderson Boyd moved, seconded by Alderson Crevier to adjourn. Upon vote, motion carried unanimously. The Common Council adjourned at 11:20 p.m.

Respectfully submitted,

Shana Defnet
Clerk-Treasurer

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: City Clerk-Treasurer

FROM: Shana Defnet

SUBJECT: Presentation by the Beautification Committee, Garden of Merit Winners.

ATTACHMENTS:

- Beautification Committee Garden of Merit Winners (PDF)



**TO: Shana Defnet, City Clerk
De Pere City Hall**

**RE: Presentation at Common Council Meeting: Garden of Merit Winners
September 3, 2013**

Residences:

Scott and Sally Kazik West Side
435 S. Ninth Street

Michael and Gail Cashman East Side
231 Oak Water Ct.

Non-Residences:

Prairie Garden East Side
Fox River Trail/Voyageur Park

Contacts: George Lepak
Randal Rake
Bill Niedwiedz

Nell and Associates West Side
380 Main Ave.

Special Recognition:

Ericka Johnson
1301 Franklin St.

Stanly Van Hoff
625 N. Clay St.

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: Planning

FROM: Ken Pabich

SUBJECT: Recommendation from Plan Commission for the extra-territorial
Belle Isle Meadows Plat located in the Town of Ledgeview.

The Plan Commission recommend approval of the plat meeting all state and local regulations.

ATTACHMENTS:

- BelleMeadowPlat (PDF)

Item #10: Review the Plat application for a preliminary extra-territorial Bell Isles Meadows Plat in the Town of Ledgeview.

A proposed 48 lot and 1 outlot certified survey map (CSM) located in the extraterritorial jurisdiction of Ledgeview, Brown County has been submitted by Land Surveyor Mau & Associates, for its owner Bell Isles Meadows, LLC. The proposed CSM is located east of Monroe Road (GV) and north of Dickinson Road, on the northern side of the lots located on Bingham Drive. The proposed CSM would contain lots ranging from 12,128 square feet (.28 acre, or 90' x 134.8') to 26,340 square feet (.60 acres, or 195' x 135') and Outlot 1 of 220,594 square feet (5.06 acres).

Recommendation

Staff would recommend the approval of the Plat subject to the following conditions:

1. Meeting all other state and local regulations.
2. The Plat needs approval of the City Council.



CITY OF DE PERE
APPLICATION FOR
PLAT REVIEW

Fee: \$ **2250.00**
Receipt #: **84535**
Date: **7-18-13**

Read all instructions provided before completing. If additional space is needed, attach additional pages. Type or use black ink.

SECTION 1: Applicant / Permittee Information

Applicant Name (Ind., Org. or Entity) Mau & Associates, LLP	Authorized Representative Steve Bieda	Title Managing Partner	
Mailing Address 400 Security Blvd	City Green Bay	State WI	ZIP Code 54313
Email Address sbieda@mau-associates.com	Phone Number (incl. area code) 920-434-9670	Fax Number (incl. area code) 920-434-9672	

SECTION 2: Landowner Information (complete these fields when project site owner is different than applicant)

Name (Ind. Org. or Entity) Belle Isle Meadows, LLC	Contact Person Pat Kaster	Title	
Mailing Address 1317 Lombardi Access Rd	City Green Bay	State WI	ZIP Code 54304
Email Address patkaster@rivercityrealtors.com	Phone Number (incl. area code) 920-497-5090	Fax Number (incl. area code) 920-497-4881	

SECTION 3: Project or Site Location

Project Address/Description Bower Creek Road, Town of Ledgeview	Parcel No. D-427-3, D-427-4, D-427-2
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SECTION 4: Plat Review

Review Type:	☒ Preliminary Plat ☐ Final Plat	
Fee:	Preliminary Plat Fee: \$250 + (50 # of lots * \$40) Final Plat Fee: \$160	\$2,250.00
Present Use of Parcel:	Undeveloped	
Proposed Use of Lots:	Residential	

Please submit 1 hard copy and 1 PDF copy of the Plat if the property is located within the City
or if the property is located within the extraterritorial jurisdiction.

SECTION 5: Certification and Permission

Certification: I hereby certify that I am the owner or authorized representative of the owner of the property which is the subject of this Permit Application. I certify that the information contained in this form and attachments is true and accurate. I certify that the project will be in compliance with all permit conditions. I understand that failure to comply with any or all of the provisions of the permit may result in permit revocation and a fine and/or forfeiture under the provisions of applicable laws.

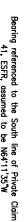
Permission: I hereby give the City permission to enter and inspect the property at reasonable times, to evaluate this notice and application, and to determine compliance with any resulting permit coverage.

Name of Owner/Authorized Representative (please print) Steven M. Bieda	Title Managing Partner	Phone Number 920-434-9670
Signature of Applicant 		Date Signed 08/15/2013

TO BE COMPLETED BY CITY STAFF

Plat Review authorized by the De Pere Municipal Code, Chapter 46.	
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Attachment: BelleMeadowPlat (1317 : Recommendation from Plan Commission Extra)



Belle Isle Meadows

a preliminary plat of:

Part of Private Claim 41, East Side of the Fox River, in the Town of Ledgerview, Brown County, Wisconsin

Graphic Scale

Belle Isle Meadows, LLC
317 Lombardi Access Road
Green Bay, WI 54304
(920) 497-5090

DEVELOPER:

APPROVING / OBJECTING
AGENCIES:

AGENCIES:

Town of Ledgeview
Brown County Planning
Commission

Village of Bellevue
City of DePere

DEVELOPER:

Belle Isle Meadows, LLC
317 Lombardi Access Road

Green Bay, WI 54304
(920) 497-5090

1

AL DESCRIPTION	ACREAGE	OWNER	DATE
of Private Claim 41, East Side of the Fox of Lakeview, Brown County, Wisconsin, m			

Side of the Fox River, thence N64°11'35"W along the South line of said Private Claim

1.99 feet above said line; thence N25°48'25" E along a previously surveyed and monumented line S64°08'28" E, 347.89 feet; thence N25°53'00" E, 100.00 feet; thence S67°17'21" E, 408.00 feet; thence

53.21 W, 1,250.85 feet to the point of beginning contains 1,090,494 square feet / 25.03 or less.

PC 41

20°01'05" 250

SE Corner
PC 41, ESFR
(Set 1" Post)

W/WH/

Gov't Lot 2

Section 30

former 31
R21E
Brass

31
R21E
Brass

A vertical tube with a piston at the bottom. A shaded region is shown above the piston, representing a gas sample.

TAX PARCEL NO. D-427-2, 427-3 & D-427-4

SCALE
1"=100'

DRAWN BY
BAR

DRAWING BY
BAR

Preliminary Plat

Mau & Associates
LAND SURVEYING & PLANNING
CIVIL & WATER RESOURCE ENGINEERING
Phone: 920-434-9670 Fax: 920-434-9672

Belle Isle Meadows

PROJECT NO.
D 0713

SHEET NO.

○

DRAWING
D-29

A.

a

11

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: Planning

FROM: Ken Pabich

SUBJECT: Recommendation from Plan Commission for a 2 lot CSM on Millennium Court.

The Plan Commission recommended approval of the CSM meeting all state and local regulations.

ATTACHMENTS:

- PC_CSM_Gandrud_August2013 (PDF)

Item #7: Review the CSM application for a 2 lot CSM on Millennium Court. Applicant: City of De Pere.

A Proposed two lot certified survey map (CSM) located north of Rockland Road on the south side of Millennium Court has been submitted by surveyor Steven M. Bieda on behalf of the City of De Pere. The proposed two lot CSM would contain one lot measuring 43, 680 square feet (156' x 280' or 1 acre) and a second lot measuring 48,337 square feet (172' x 280' or 1.11 acres).

The property is zoned I-3 which is General Industrial District. I-3 is designed to accommodate those heavy industrial activities which, by their character, should be relatively remote from residential and business development and found not to be noxious, unhealthful, or offensive by reason of the potential emission or transmission of noise, vibration, smoke, dust, odors, toxic or noxious matter, or glare or heat. The proposed lot meets these requirements.

Recommendation

The proposed CSM has been reviewed by staffs of the Planning and Public Works Departments. Based upon these reviews, planning staff would recommend the approval of the CSM subject to the following conditions:

1. Meeting all other state and local regulations.



CITY OF DE PERE

APPLICATION FOR CSM REVIEW

Fee: \$ 300.00

Receipt #: _____

Date: _____

Please print or type using black ink for duplicating purposes.

A. Property Owner: Name: City of De Pere

Mailing Address: 335 S Broadway, De Pere WI 54115

Phone: 920-339-4043 Fax #: _____

Email: _____

I hereby appoint the following as my agent for purposes of this application:

Agent:

Name: _____

Mailing Address: _____

Phone: _____ Fax #: _____

Email: _____

B. Property Information

Address/Location of Property: Millennium Court

Parcel #: ED-2313

NOTE: Please submit 1 hard copy and 1 PDF copy of the CSM if the property is located within the City or if the property is located within the extraterritorial jurisdiction.

A CSM Review is requested as authorized by the De Pere Municipal Code, Chapter 46.

Owner Signature

Date

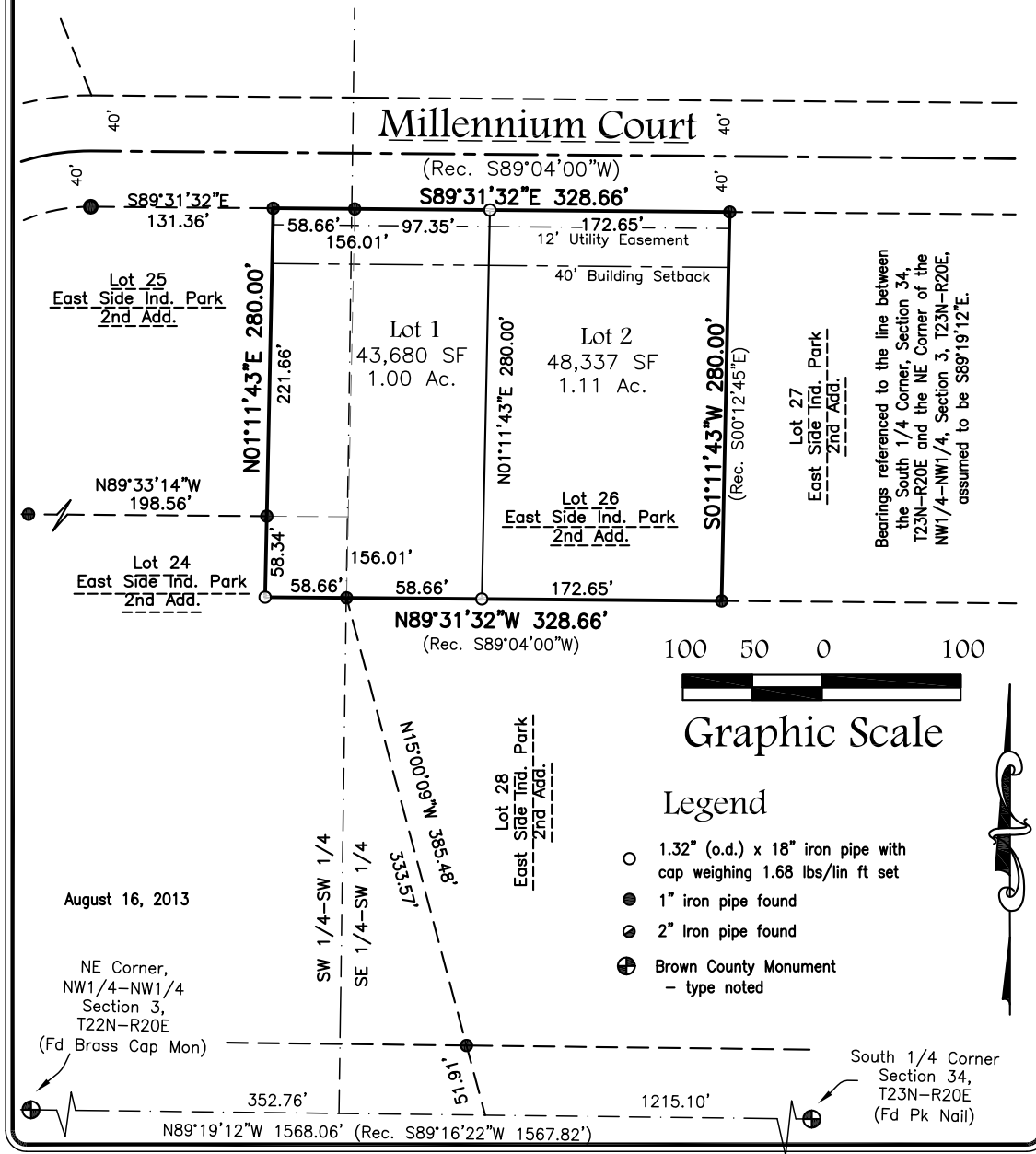
Ken Pabich

Agent Signature

Date

Certified Survey Map

All of Lot 26 and part of Lots 24 & 25 of the recorded plat, "East Side Industrial Park Second Addition", (Volume 21, Plats, page 57, Doc. No. 1701384, Brown County Records), located in part of the Southeast 1/4 of the Southwest 1/4 and part of the Southwest 1/4 of the Southwest 1/4, Section 34, T23N-R20E, City of DePere, Brown County, Wisconsin



Client: City of De Pere
Drafted By: JMP
File: C-1108 CSM 081613.dwg

Scale: 1"=100'
Tax Parcel Number
ED-2313, ED-2311

Mau & Associates
LAND SURVEYING & PLANNING
CIVIL & WATER RESOURCE ENGINEERING
Phone: 920-434-9670 Fax: 920-434-9672

Sheet One of Three
Project No.: C-1108
Drawing No.: L-8624

SURVEYOR'S CERTIFICATE

I, Steven M. Bieda, Registered Land Surveyor, S-2275, do hereby certify that I have surveyed, divided and mapped all of Lot 26 and part of Lots 24 & 25 of the recorded plat, "East Side Industrial Park Second Addition", (Volume 21, Plats, page 57, Doc. No. 1701384, Brown County Records), located in part of the Southeast 1/4 of the Southwest 1/4 and part of the Southwest 1/4 of the Southwest 1/4, Section 34, T23N-R20E, City of DePere, Brown County, Wisconsin, more fully described as follows:

Commencing at the South 1/4 Corner, Section 34, R23N-R20E; thence N89°19'12"W, 1215.30 feet along the South line of the Southwest 1/4, said Section; thence N15°00'09"W, 385.48 feet to the Southwest Corner of Lot 26 of the recorded plat, "East Side Industrial Park Second Addition", (Volume 21, Plats, page 57, Document No. 1701384, Brown County Records) and the point of beginning; thence N89°31'32"W, 58.66 feet; thence N01°11'43"E, 280.00 feet along the West line and its extension of Lot 25, said Plat to the South right of way of Millennium Court; thence S89°31'32"E, 328.66 feet along said South right of way; thence S01°11'43"W, 280.00 feet along the East line of said Lot 26; thence N89°31'32"W, 270.00 feet along the South line of said Lot 26 to the point of beginning.

Parcel contains 92,017 square feet / 2.11 acres more or less.

Parcel subject to any easements and restrictions of record.

That such plat is a correct representation of all the exterior boundaries of the land survey and the division thereof. That I have made such a survey, land division and plat by the direction of the owners listed hereon. That I have fully complied with the provisions of Chapter 236, section 236.34 of the Wisconsin Statutes, the City of De Pere, in surveying, dividing and mapping the same.

Steven M. Bieda S-2275
August 16, 2013

TREASURER'S CERTIFICATE

As duly elected City Treasurer and Brown County Treasurer, We hereby certify that the records in our office show no unredeemed tax sales and no unpaid taxes or special assessments affecting any of the lands included in this Certified Survey Map as of the dates listed below.

Shana Defner Date
City Treasurer

Kerry M. Blaney Date
Brown County Treasurer

As Owners, We hereby certify that we caused the land described and easements granted on this Certified Survey Map to be surveyed, divided, mapped and dedicated as represented hereon. We understand that the City will discontinue any public improvements upon discovery or notice of any other condition requiring abnormal public improvement costs. We further acknowledge that the City's action or inaction in this regard shall not be construed as an admission of liability for hazardous waste clean-up or burial site preservation costs.

Personally came before me this ____ day of _____, 20____, the above named Owners, to me known to the persons who executed the foregoing instrument and acknowledged the same.

STATE OF WISCONSIN]
COUNTY OF BROWN] SS

- 1) The land on all side and rear lot lines of all lots shall be graded by the property owner and maintained by the abutting property owners to provide for adequate drainage of surface water.
- 2) Each lot owner shall grade the property to conform to the adopted sidewalk grade elevation and maintain said elevation for future sidewalks.
- 3) No poles, pedestals or buried cable are to be placed so as to disturb any survey stake or obstruct vision along any lot lines or street line, a disturbance of a survey stake by anyone is a violation of section 236.32 of the Wisconsin Statutes.

Sheet Three of Three
Project No.: C-1108
Drawing No.: L-8624

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: City Clerk-Treasurer

FROM: Shana Defnet

SUBJECT: Recommendation from the License Committee to approve Application for a Special Permit Allowing Consumption of Alcohol Beverages on Public Ways. Submitted by Definitely De Pere, Inc. For Fashions Night Out on Thursday, September 5th from 1:00 p.m. to 9:00 p.m.

ATTACHMENTS:

- Street Closure (PDF)



DEFINITELY DE PERE

DOWNTOWN DE PERE INC.—A MAIN STREET COMMUNITY

111 S. Broadway
De Pere, WI 54115

August 26, 2013

Dear Mayor Walsh, Committee members and Alderpersons:

This year, on September 5th, we continue the third annual De Pere's FASHION NIGHT OUT event from 6pm-9pm on North Wisconsin St. between George St. and the Seroogy's parking lot entrance.

We are working with the police and public works departments and have obtained the necessary permits for road closure.

We will have music, food, drink, and a fashion show during this event.

Our continued vision is that this event will bring new visitor traffic to De Pere and encourage downtown residents to partake in an evening emphasizing small businesses.

To accomplish this we ask you to

- Grant us a Special Use Permit for the event as part of the street closure
- Grant us a Public Street License for street consumption of alcohol at this event

We look forward to the success of this event and our continued partnership with the City of De Pere!

Sincerely,

Allyson Watson
Executive Director, Definitely De Pere

STREET CLOSURE PERMIT APPLICATION

Please complete the following information and return to the Department of Public Works, 925 S. Sixth St. or Police Department, 325 S. Broadway. Once the information is received, the permit will be reviewed. If approved, you will be sent a copy of the permit.

Shanna Zeitler
Applicant's Name

7/1/2013
Date

113 N. Wisconsin St.
Address

De Pere, WI 54115
City/State

920 347 2720
Phone

☐ Lane ☒ Road ☐ Parking Lane

Description of closure: Wisconsin St in front of Azure & Sweetpea, end @ George
(113 N. Wisconsin) (106 N. Wisconsin)

On the following date/s Sept 5th

Between the hours of 1 pm and 9 pm or ☐ for 24 hours a day.

[Signature]
Applicant's Signature

Azure - Owner
Applicant's Company and Title - please print

Once signed by the Department of Public Works or by the Police Department, you are hereby granted lane closure at the above-mentioned location. Permission is subject to the following provisions:

1. The lane/road closure takes place on the following date/s _____ and between the hours of _____ and _____ or ☐ for 24 hours a day.
2. You notify the De Pere Police @ 920-339-4078 and Fire Department 920-339-4085 when the work begins and ends.
3. You notify all adjacent property owners affected by the closure.
4. You comply with the City's noise ordinance requirements [(Ch. 146) online at www.de-pere.org] which prohibit utility work exceeding noise limits between 10:00 pm and 7:00 a.m.
5. The street and sidewalk will be cleared of all debris resulting from your project.
6. The City is held harmless from any claims arising from injuries or damages caused by the permitted work.
7. Traffic control is conducted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) to mark the closure. * City to provide traffic control *
8. A Barricade Lending form needs to be completed if barricades are necessary (non-contractors only). The barricades can be picked up and returned to the Municipal Service Center, 925 S. 6th St., between 7:30 am and no later than 2:00 pm. Contractors are to provide their own barricades.

[Signature] ☒ Approved ☐ Denied
Scott Thoresen, P.E. OR Derek Beiderwieden
Director of Public Works Chief of Police

cc: Applicant

Emailed to: PW Director, Street Superintendent, Fire Chief and Police Chief

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: Planning

FROM: Ken Pabich

SUBJECT: Resolution #13-114, Introduction of Resolution Regarding the Vacation of a Public Thoroughfare (A portion of Galway Lane) (refer to public hearing).

ATTACHMENTS:

- Resolution #13-114, Regarding The Vacation Of A Public Thoroughfare (a portion of Galway Lane).(DOCX)
- Exhibit A - Galway vacation (DOCX)
- Exhibit B - Galway vacation (PDF)
- Street Vacation Memo to Council (PDF)
- Portion of Galway Street Vacation (PDF)

RESOLUTION #13-114

REGARDING THE VACATION OF A PUBLIC THOROUGHFARE
(A portion of Galway Lane)

WHEREAS, the Common Council of the City of De Pere has initiated the vacation and discontinuance of portions of public thoroughfares in accordance with the requirements of Wis. Stats. §66.1003(4)(a); and

WHEREAS, the public interest may require the vacation of such rights-of-way; and

WHEREAS, the Plan Commission has reviewed and recommended approval of such vacation and discontinuance, with a public hearing on said vacation to be held in accordance with Wis. Stats. §66.1003(4)(b), on _____, 2013 at _____ p.m.

NOW, THEREFORE, BE IT HEREBY RESOLVED THAT:

Section 1. The portion of Galway Lane, easterly of Lawrence Drive and at the east end of Tullig Place, West Side of Fox River, City of De Pere, Brown County, Wisconsin more fully described on Exhibit A, attached hereto and incorporated by reference herein, be and the same is hereby wholly vacated and discontinued as a public thoroughfare. All utility easements are retained. Said public right-of-way to be vacated is shown on the scale map attached hereto and incorporated by reference herein as Exhibit B.

Section 2. The City Clerk-Treasurer is hereby authorized and directed to file and record this resolution, with the legal description and map attached, in the Office of the Register of Deeds for Brown County and to amend the Official Map of the City in conformity with this Resolution.

Resolution #13-114

Page 2 of 2

Introduced to the Common Council of the City of De Pere at its regular meeting held on the 3rd day of September, 2013.

Adopted by the Common Council of the City of De Pere, Wisconsin, this _____ day of _____, 2013.

APPROVED:

Michael J. Walsh, Mayor

ATTEST:

Shana L. Defnet, Clerk-Treasurer

Ayes: _____

Nays: _____

Exhibit A

Located in part of Lot 103 of William's Grant Subdivision, City of De Pere, Brown County Wisconsin, more fully described as follows:

Commencing at the Northwest Corner of Lot 103 of "William's Grant Subdivision"; thence S52°36'03"E, 1039.62 feet along the North line of said Lot 103 to the Northeast corner of Outlot 5 of "Garrity's Glen" recorded in Volume 22, Plats, Page 241, Document Number 2193288, Brown County Records; thence S73°03'47"W, 31.78 feet along an East line of said Outlot 5; thence S08°15'58"W, 245.79 feet along said East line; thence S47°58'38"W, 120.81 feet along said East line and the East line of Lot 66 of "Garrity's Glen First Addition" recorded in Volume 23, Plats, Page 32, Document Number 2520716 of Brown County Records; thence S18°57'48"W, 111.45 feet along said East line to the Southeast corner of Outlot 8 of said "Garrity's Glen First Addition", the North right-of-way line of Galway Lane and the point of beginning; thence S52°36'02"E, 73.79 feet to the East right-of-way line of Galway Lane; thence S18°57'48"W, 63.25 feet along said East right-of-way line to the South right-of-way line of Galway Lane; thence N52°36'02"W, 251.15 feet along said South right-of-way line; thence 18.85 feet along the arc of a 12.00 foot radius curve to the left whose long chord bears S82°23'57"W, 16.97 feet to the Southeasterly right-of-way of Tullig Place; thence N37°23'58"E, 74.26 feet to the Northeast right-of-way of Galway Lane; thence 7.47 feet along said Northeasterly right-of-way being the arc of a 12.00 foot radius curve to the left, whose long chord bears S34°45'56"E, 7.35 feet; thence S52°36'02"E, 162.36 feet to the point of beginning.

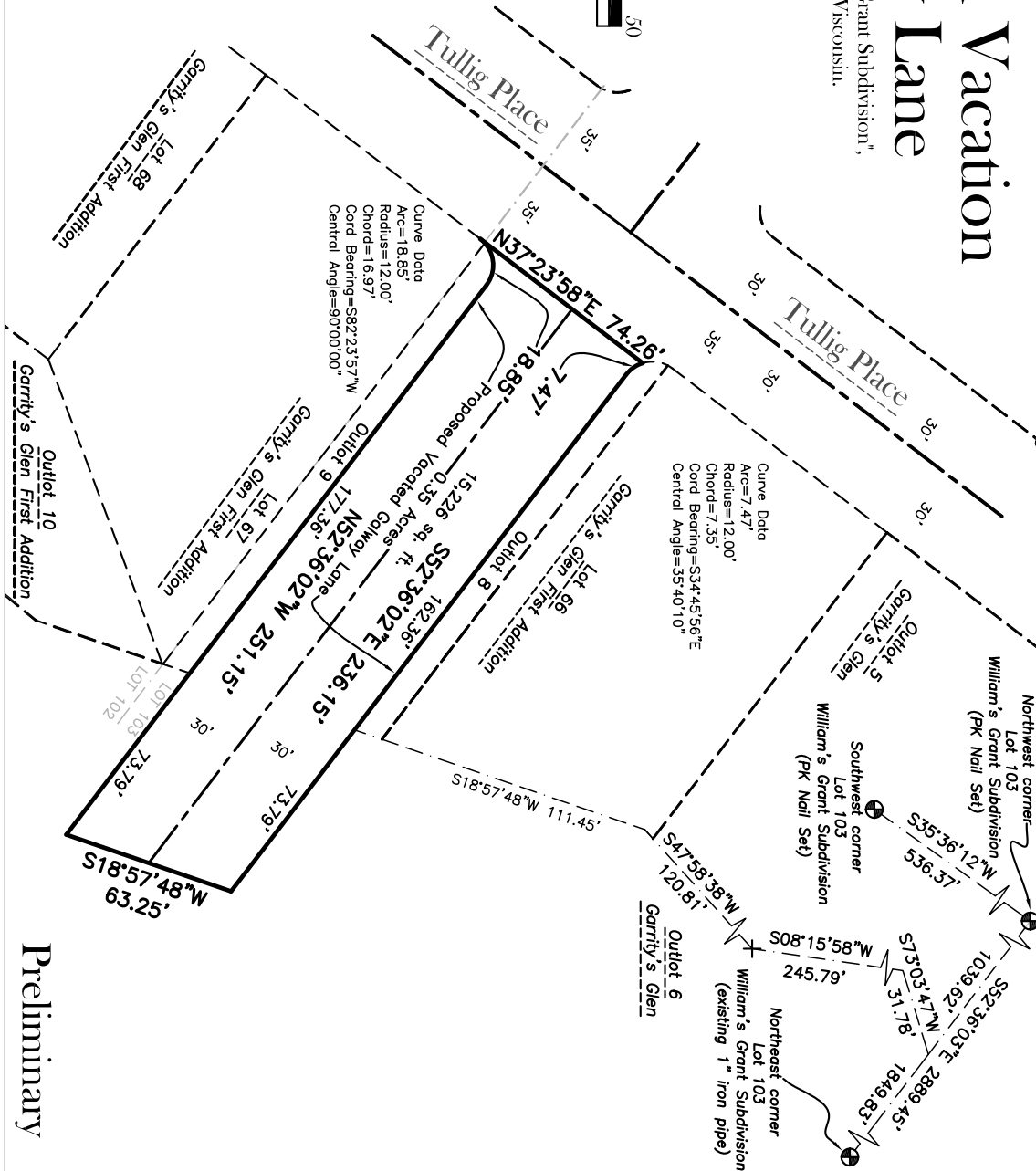
Said Parcel contains 15,226 sq. ft. / 0.35 Acres more or less

Parcel subject to easements and restrictions of record.

Proposed Road Vacation For Galway Lane

Located in part of 103 of the "Williams Grant Subdivision",
City of DePere, Brown County, Wisconsin.

Bearings referenced to the
North line of Lot 103,
Williams Grant Subdivision,
assumed to bear
S52°36'03"E.



Preliminary

Mach IV

Engineering & Surveying LLC
211 N. Broadway, Suite 114, Green Bay, WI 54303
PH: 920-569-3765 Fax: 920-569-3767

Client: Pat Kaster

Drafted By: BJL

Tax Parcel No.:

Scale:

1" = 50'

Sheet 1 of 1

Project No. 0336-03-13

Drawing No. 852

CITY OF DE PERE

MEMO

To: Michael J. Walsh, Mayor
Members of the Common Council *Judy*
From: Judith Schmidt-Lehman, City Attorney
RE: Resolution #13-114 (Street Vacation)
Date: August 27, 2013

The statutory process for the City to initiate a street vacation is a bit out of the ordinary. Since the City Council does not vacate street right-of-way often, I thought I would send along this memo to explain the process.

Under Wis. Stats. §66.1003, the City may initiate vacating street right-of-way. This is done by the Council introducing the vacation resolution at a Council meeting. The matter is then set for public hearing, with the same resolution coming back before the Council for action at that public hearing.

Therefore, the action to be taken at the September 3, 2013 meeting as to Resolution #13-114 is merely to refer the Resolution forward for a public hearing. It will then be placed on the Council agenda at the time of public hearing, at which time the merits of the vacation can be debated and acted upon.

If you have any questions regarding this process, please let me know.

JSL:jld

cc: Lawrence Delo, City Administrator
Kenneth Pabich, Director of Planning and Economic Development

H:\jdupont\Memos\2013\Mayor & CC-street vacation- 8-27-13-168-001-13.docx

Item #9: Review the Vacation application for portion of Galway Way. Applicant: Garrity's Glen.

A proposed road vacation has been submitted by Land surveyor Benjamin J. LaCount, for its owner Garrity's Glen LLC. The road vacation is located in Garrity's Glen First Addition between Lot 66 and Lot 67, east of Lawrence drive on the east end of Tullig Place in lot 103 of the Williams Grant Subdivision. The proposed road vacated Galway Lane measures .35 acres. The road right of way is no longer needed to access property that was planned for future development to the east.

Recommendation

Staff would recommend approval of the vacation and that the request be forwarded to the City Council.



CITY OF DE PERE

APPLICATION FOR
ROW VACATION

Fee: \$250.00

Receipt #: _____

Date: _____

Please print or type using black ink for duplicating purposes.

A. Property Owner: Name: Garrity's Glen LLCMailing Address: 1317 Lombardi Access Rd, Green Bay, WI 54304Phone: 920-497-5090Email: patrickster@rivercityrealtors.com

I hereby appoint the following as my agent for purposes of this application:

Agent:

Name: Benjamin LaCountMailing Address: 211 N. Broadway, Suite 114 Green Bay, WI 54303Phone: 920-569-5765Email: blacount@wack-iv.com

B. ROW Vacation

Name of ROW: Galway Ln.

Legal Description of Vacation Area (attach separate sheet if necessary):

Attached

C. Reason for Requesting Vacation

Combine into Lots attached CSM

Patricia Koster
Owner Signature GARRITY'S GLEN, LLC

8-12-2013
Date

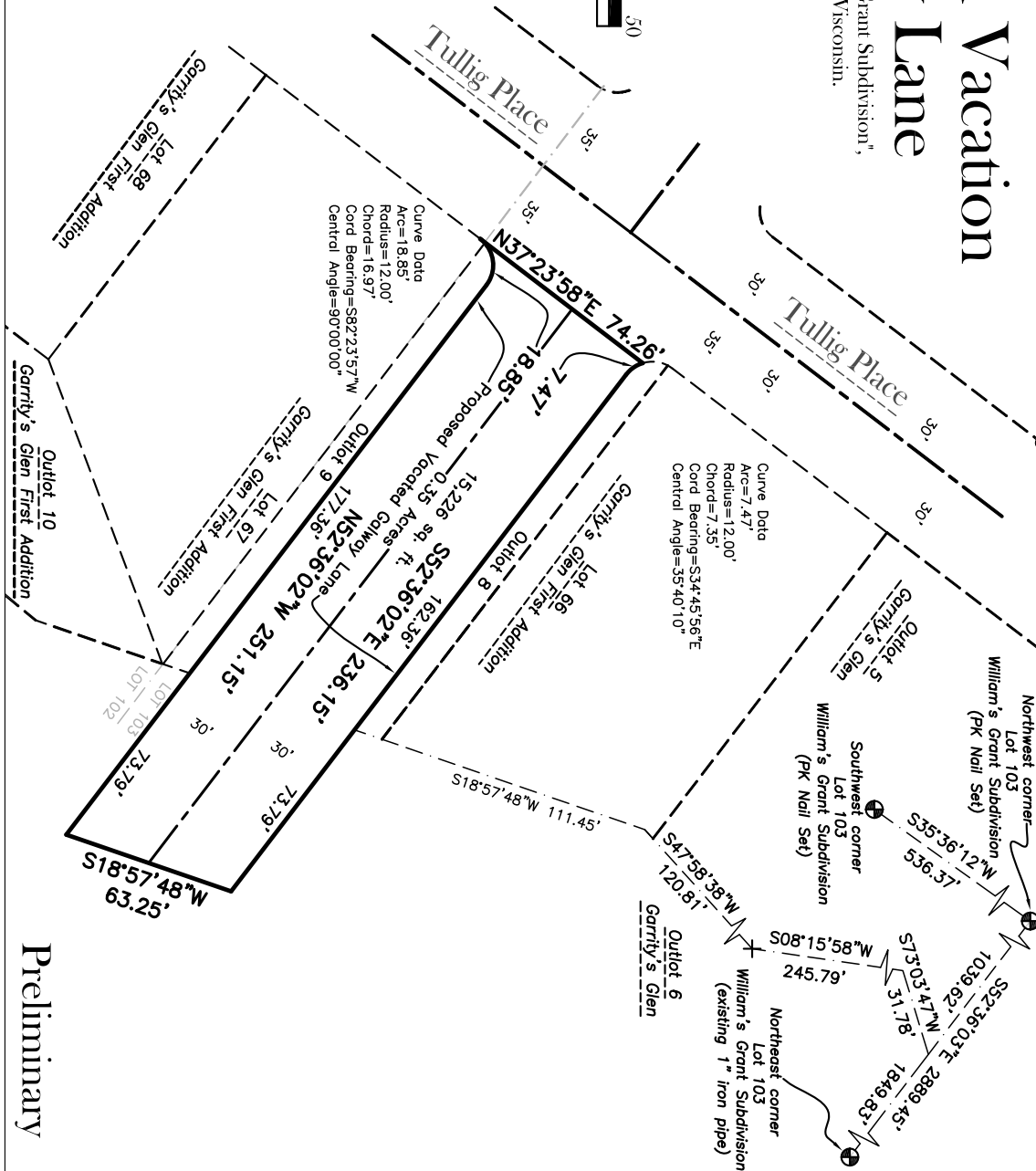
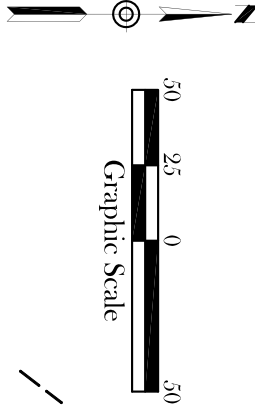
Benjamin LaCount
Agent Signature

8-12-2013
Date

Proposed Road Vacation For Galway Lane

Located in part of 103 of the "Williams Grant Subdivision",
City of DePere, Brown County, Wisconsin.

Bearings referenced to the
North line of Lot 103,
Williams Grant Subdivision,
assumed to bear
S52°36'03"E.



Preliminary

Mach IV

Engineering & Surveying LLC
211 N. Broadway, Suite 114, Green Bay, WI 54303
PH: 920-569-3765 Fax: 920-569-3767

Client: Pat Kaster

Drafted By: BJL

Tax Parcel No.:

Scale:

1" = 50'

Sheet 1 of 1

Project No. 0336-03-13

Drawing No. 852

Description of proposed Vacated Galway Lane

Located in part of Lot 103 of William's Grant Subdivision, City of De Pere, Brown County Wisconsin.

Commencing at the Northwest Corner of Lot 103 of "William's Grant Subdivision"; thence S52°36'03"E, 1039.62 feet along the North line of said Lot 103 to the Northeast corner of Outlot 5 of "Garrity's Glen" recorded in Volume 22, Plats, Page 241, Document Number 2193288, Brown County Records; thence S73°03'47"W, 31.78 feet along an East line of said Outlot 5; thence S08°15'58"W, 245.79 feet along said East line; thence S47°58'38"W, 120.81 feet along said East line and the East line of Lot 66 of "Garrity's Glen First Addition" recorded in Volume 23, Plats, Page 32, Document Number 2520716 of Brown County Records; thence S18°57'48"W, 111.45 feet along said East line to the Southeast corner of Outlot 8 of said "Garrity's Glen First Addition", the North right-of-way line of Galway Lane and the point of beginning; thence S52°36'02"E, 73.79 feet to the East right-of-way line of Galway Lane; thence S18°57'48"W, 63.25 feet along said East right-of-way line to the South right-of-way line of Galway Lane; thence N52°36'02"W, 251.15 feet along said South right-of-way line; thence 18.85 feet along the arc of a 12.00 foot radius curve to the left whose long chord bears S82°23'57"W, 16.97 feet to the Southeasterly right-of-way of Tullig Place; thence N37°23'58"E, 74.26 feet to the Northeast right-of-way of Galway Lane; thence 7.47 feet along said Northeasterly right-of-way being the arc of a 12.00 foot radius curve to the left, whose long chord bears S34°45'56"E, 7.35 feet; thence S52°36'02"E, 162.36 feet to the point of beginning.

Said Parcel contains 15,226 sq. ft. / 0.35 Acres more or less

Parcel subject to easements and restrictions of record.

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: Public Works

FROM: Karen Heyrman

SUBJECT: Resolution #13-115, Authorizing Automated Metering Project Agreement.

This item is a follow-up to the August 6, 2013 Common Council Meeting. At the meeting, the Board acted on the recommendation to enter into contract with HD Supply Waterworks, Ltd. (including data hosting with Sensus) to purchase Sensus water meters and communication system. The agreement with CBCWA is for the software, data hosting, and FCC licensed frequency for the AMI system.

DISCUSSION

De Pere, Allouez, Howard, and Bellevue entered into agreements with HD Supply Waterworks for new water meters and the support infrastructure for a complete smart meter system. The communities realized significant savings by jointly purchasing software, data hosting and a dedicated radio frequency for the Automated Metering Project. CBCWA agreed to obtain the software services and Federal Communication Commission license rights for the group to enable the joint use of the AMI System.

The joint procurement allows the communities to purchase and share software and the FCC license. CBCWA will allocate these costs equally to each community. Hosting fees were negotiated by the group for the first 5 years and future increases were limited to CPI (construction). CBCWA will allocate this cost based on the proportionate number of meters for each community as compared to the total number of meter for all communities.

PROJECT FUNDING

Costs for these components of the project are included in the system costs provided on August 6, 2013. Funding comes from the wastewater utility and water utility budgets.

STAFF RECOMMENDATION

Staff is recommending approval of the CBCWA Intergovernmental Agreement for AMI.

ATTACHMENTS:

- Reso13-115 (DOCX)
- AMI Project Agreement (A1667614) (DOCX)

RESOLUTION #13-115

AUTHORIZING AUTOMATED METERING PROJECT AGREEMENT

WHEREAS, the City of De Pere and the Villages of Allouez, Bellevue and Howard have contracted with HD Supply Waterworks for automated water meter infrastructure (AMI) and other data collection to be used jointly to collect metering information; and

WHEREAS, the City of De Pere and the Villages of Allouez, Bellevue and Howard have jointly requested that the Central Brown County Water Authority (CBCWA) act on their behalf to enter into an agreement with Sensus USA Inc. to obtain rights and services, including software serviced and Federal Communications Commission license rights, to enable their joint use of an AMI System; and

WHEREAS, CBCWA is willing to enter into the Sensus Agreement to facilitate the joint use of an AMI System by the City of De Pere and the Villages of Allouez, Bellevue and Howard provided all CBCWA costs related thereto and arising therefrom are borne by those communities; and

WHEREAS, CBCWA and the City of De Pere and the Villages of Allouez, Bellevue and Howard enter into this Agreement under Wis. Stats. §66.0823(5)(a),(b),(j),(r) and (s) in order to allocate the costs and responsibilities associated with this Agreement among the City of De Pere and the Villages of Allouez, Bellevue and Howard.

NOW, THEREFORE, BE IT HEREBY RESOLVED THAT:

The Mayor and Clerk-Treasurer are authorized and directed to enter into the Automated Metering Project Agreement attached hereto and incorporated by reference as Exhibit 1.

Attachment: Reso13-115 (1306 : Resolution #13-115, Authorizing Automated Metering Project Agreement.)

Resolution #13-115

Page 2 of 2

BE IT FURTHER RESOLVED THAT:

All City officials, officers and employees are further authorized and directed to take such steps as are lawful and necessary in furtherance thereof.

Adopted by the Common Council of the City of De Pere, Wisconsin, this 3rd day of September, 2013.

APPROVED:

Michael J. Walsh, Mayor

ATTEST:

Shana L. Defnet, Clerk-Treasurer

Ayes: _____

Nays: _____

Attachment: Reso13-115 (1306 : Resolution #13-115, Authorizing Automated Metering Project Agreement.)

AUTOMATED METERING PROJECT AGREEMENT

This Automated Metering Project Agreement is entered into this _____ day of _____ by and between Central Brown County Water Authority, a joint local water authority organized and operated in accordance with Wis. Stat. § 66.0823, and the City of De Pere, the Village of Allouez, the Village of Bellevue and the Village of Howard, all of which are local governmental members of the CBCWA.

RECITALS

WHEREAS, CBCWA is a joint local water authority formed by agreement to provide functions, services, and facilities to assist its local governmental members in providing water to their residents; and

WHEREAS, the current local governmental members of the CBCWA are the City of De Pere, the Villages of Allouez, Bellevue and Howard, the Town of Lawrence, and Ledgeview Sanitary District No. 2; and

WHEREAS, CBCWA and its local governmental members have investigated the purchase of replacement meters and use of automated metering infrastructure and technology in order to reduce costs and increase operational efficiency for member utilities; and

WHEREAS, the City of De Pere, and the Villages of Allouez, Bellevue and Howard, desire to proceed with the purchase of replacement meters and use of automated metering infrastructure in a coordinated manner; and

WHEREAS, the City of De Pere, and the Villages of Allouez, Bellevue and Howard will each individually purchase from a third party vendor meters, encoders, transmitters and other equipment necessary for them to transmit information to an AMI System; and

Exhibit 1

WHEREAS, the City of De Pere, and the Villages of Allouez, Bellevue and Howard will also purchase from a third party vendor and arrange for the initial installation of antennae, base stations, and other data collection infrastructure to be used jointly by the Participating Members to collect metering information through an AMI System; and

WHEREAS, the City of De Pere, and the Villages of Allouez, Bellevue and Howard have jointly requested that CBCWA act on their behalf to enter into an agreement with Sensus USA Inc. to obtain rights and services, including software services and Federal Communications Commission license rights, to enable their joint use of an AMI System; and

WHEREAS, CBCWA is willing to enter into the Sensus Agreement to facilitate the joint use of an AMI System by the City of De Pere, and the Villages of Allouez, Bellevue and Howard provided all CBCWA costs related thereto and arising therefrom are borne by those communities; and

WHEREAS, CBCWA has the authority to enter into the Sensus Agreement and take other action to facilitate the joint use of an AMI System by the City of De Pere, and the Villages of Allouez, Bellevue and Howard under Wis. Stat. § 66.0823(5)(a) and (b); and

WHEREAS, CBCWA and the City of De Pere, and the Villages of Allouez, Bellevue and Howard enter into this Agreement under Wis. Stat. § 66.0823(5)(a),(b),(j)(r) and (s) in order to allocate the costs and responsibilities associated with this Agreement among the City of De Pere, and the Villages of Allouez, Bellevue and Howard;

NOW, THEREFORE, in consideration of the premises and mutual promises contained in this Agreement, the Parties agree as follows:

1 DEFINITIONS

1.1 "Agreement" means this Automated Metering Project Agreement.

- 1.2 "Agreement Costs" means CBCWA's costs related to the Sensus Agreement and other costs related to this Agreement.
- 1.3 "AMI System" means the automated metering infrastructure and technology to be installed and operated to receive metering information from the Participating Members using an FCC licensed radio frequency.
- 1.4 "AMI System Equipment" means the equipment needed for operation of the AMI System, including but not limited to meters, encoders, transmitters, antennae, and base stations. AMI System Equipment does not include software or FCC license rights to be provided by Sensus.
- 1.5 "CBCWA" means the Central Brown County Water Authority, a joint local water authority, established by agreement among its local governmental members, and organized and operated in accordance with Wis. Stat. § 66.0823.
- 1.6 "CBCWA Agreement" means the Agreement Establishing the Central Brown County Water Authority, first approved September 9, 1998, as subsequently amended and restated.
- 1.7 "CBCWA Board" means the CBCWA Board of Directors.
- 1.8 "CBCWA Members" means the City of De Pere, the Villages of Allouez, Bellevue and Howard, the Town of Lawrence, and Ledgeview Sanitary District No. 2.
- 1.9 "Effective Date" means the latest date that an Original Participating Member signs this Agreement.
- 1.10 "FCC" means the Federal Communications Commission.

- 1.11 "HD Supply" means HD Supply Waterworks, 2100 Little Rapids Road, De Pere, WI 54115. HD Supply is the distributor of the automated metering infrastructure equipment for the AMI System.
- 1.12 "New Member" means any CBCWA Member who is not an Original Participating Member, and who signs this Agreement after the Effective Date.
- 1.13 "Original Participating Member" means any of the City of De Pere, the Village of Allouez, the Village of Bellevue, or the Village of Howard, individually. "Original Participating Members" means the City of De Pere, the Village of Allouez, the Village of Bellevue, or the Village of Howard, collectively.
- 1.14 "Participating Member" means any the City of De Pere, the Village of Allouez, the Village of Bellevue, the Village of Howard, or any New Member, individually.
- 1.15 "Participating Members" means the City of De Pere, the Village of Allouez, the Village of Bellevue, the Village of Howard, and any New Members, collectively.
- 1.16 "Parties" means CBCWA and the Participating Members, collectively.
- 1.17 "Party" means CBCWA, or any Participating Member, individually.
- 1.18 "Sensus" means Sensus USA Inc., 8601 Six Forks Road, Suite 700, Raleigh, NC 27615. Sensus is the provider of software services and FCC license rights needed for use of the AMI System.
- 1.19 "Sensus Agreement" means the agreement between CBCWA and Sensus, substantially in the form set forth in Exhibit A, under which the CBCWA will obtain rights and services, including software services and FCC license rights, on behalf of the Participating Members, to enable their joint use of the AMI System.

2. OBLIGATIONS OF PARTICIPATING MEMBERS

- 2.1 Installation and Maintenance of AMI System Equipment. Each Participating Member shall purchase and arrange for the installation, at its cost, of the AMI System Equipment deemed necessary for the operation of the AMI System that is to be located within the Participating Member's jurisdictional borders. Each Participating Member shall retain responsibility for operating and maintaining the AMI System Equipment located within its jurisdictional borders.
- 2.2 Agreement Costs. Participating Members shall, in accordance with Section 4, reimburse CBCWA for all costs incurred by CBCWA under this Agreement, including but not limited to costs related to the Sensus Agreement.
- 2.3 Accessing Metering Information. Metering information from a Participating Member's water system transmitted by and through the AMI System shall become and be solely the property of the applicable Participating Member. No Participating Member shall obtain access to, utilize, review or release metering information pertaining to the customers of another Participating Member.
- 2.4 Cooperation. Each Participating Member shall cooperate with CBCWA, HD Supply, and Sensus, to best accomplish the goals related to the establishment and use of the AMI System. Each Participating Member shall designate a primary contact person for purposes of communicating with CBCWA, HD Supply and Sensus related to the AMI System.
- 2.5 Confidentiality and FCC Compliance. Under the Sensus Agreement, CBCWA is responsible for complying with certain FCC rules and policies. Participating Member agrees to cooperate with CBCWA and to provide CBCWA with such information as may

be necessary to comply with such rules and policies. Subject to applicable open records laws, Participating Member agrees to keep strictly confidential any confidential information received from CBCWA, except to those officers, employees or other Participating Member authorized agents and representatives to whom disclosure is reasonably necessary.

3. OBLIGATION AND POWERS OF CBCWA

- 3.1 Sensus Agreement. CBCWA will enter into an agreement with Sensus, substantially in the form set forth in Exhibit A, under which CBCWA will obtain rights and services, including software services and FCC license rights, from Sensus to enable Participating Members' use of the AMI System.
- 3.2 No Access to Participating Members' Metering Information. CBCWA shall not obtain access to, utilize, review or release metering information pertaining to the customers of any Participating Member. Metering information from a Participating Member's water system transmitted by and through the AMI System shall become and be solely the property of that applicable Participating Member.
- 3.3 CBCWA Action. Decisions of CBCWA shall be made in accordance with the CBCWA Agreement. In accordance with the CBCWA Agreement, the CBCWA Board may delegate to a committee created by the Board the responsibility to manage the Sensus Agreement. CBCWA may appoint a Project Manager to handle, on behalf of the CBCWA, contractual, administrative, and other matters related to this Agreement.
- 3.4 Financial Management. CBCWA shall account for all costs to carry out this Agreement, and shall allocate such costs among the Participating Members in accordance with Section 4. Funds collected from the Participating Members shall be disbursed by

CBCWA to pay the costs of this Agreement. CBCWA shall maintain financial records documenting the costs and payment of costs under this Agreement. The records may be inspected and/or copied by a CBCWA Member upon request.

4. RESPONSIBILITY FOR COSTS

4.1 Allocation of Costs. A Participating Member's share of Agreement Costs shall be determined in accordance with this Section 4.1.

a. *Set-up Fees and Administrative Costs.* Set-up fees from Sensus, and financial, legal, and other administrative costs identified by CBCWA related to this Agreement shall be divided equally between the Participating Members.

b. *Data Hosting Fees.* Data hosting fees shall be allocated among the Participating Members based on the proportionate number of meters of the Participating Member as compared to the total number of meters for all Participating Members. Total data hosting fees will be determined in accordance with the Sensus Agreement. If total data hosting fees are based on agreed upon meter delivery schedules, a Participating Member's share of costs shall be based upon the agreed upon meter delivery schedule for that Participating Member.

c. *Module Hosting Fees.* The module hosting fee for each installed module shall be allocated equally among the Participating Members using the module.

d. *Other Fees and Costs.* CBCWA shall allocate other Agreement Costs not covered by 4.1a. through 4.1c. in a manner CBCWA determines best reflects the intent of the Parties to equitably share the cost related to this Agreement. If a Participating Member disputes the allocation method applied by CBCWA, the Participating Member

shall nevertheless pay its allocated share when due and proceed to resolve the dispute accordance with Paragraph 8.3.

- 4.2 Invoices. CBCWA shall periodically submit invoices to each Participating Member for its share of Agreement Costs. Within 30 days of receipt of an invoice, a Participating Member shall submit payment to CBCWA. If a Participating Member disputes all or any part of an invoice, the Participating Member shall nevertheless pay the full amount of the invoice when due and include with the payment written notification that the invoice is in dispute. The dispute is to be resolved in accordance with Paragraph 8.3. A Participating Member who fails to timely pay an invoice shall be directly and solely responsible for interest, late payment fees, or other costs or damages arising out of the late payment.

5. **RISK MANAGEMENT**

- 5.1 Limitation of Liability; Release. Each Participating Member agrees that no other Participating Member, nor the CBCWA, shall be liable for injury or damages of any kind or nature, whether general, special, direct, indirect, consequential, or incidental, related to the Participating Member's use of the AMI System, including the use of services provided under the Sensus Agreement; and hereby releases the CBCWA and all other Participating Members from and against any liability or damages that may be incurred by the Participating Member use of AMI System, including the use of services under the Sensus Agreement.
- 5.2 Insurance. Each Participating Member shall be responsible to acquire and provide for insurance against any and every risk, hazard, or liability, of whatever nature, affecting (a) any property, of whatever kind, owned or otherwise held by that Participating Member; (b) any business or operation of the Participating Member; (c) any business or operation

of the CBCWA to the extent of the Participating Member's liability; and (d) any officer, appointee, employee, agent, or independent contractor of the Participating Member arising out of such person's present or past affiliation with the Participating Member, the CBCWA or the performance or non-performance of such person's duties and responsibilities with respect to the Participating Member or the CBCWA.

- 5.3 Tort Immunity. CBCWA and the Participating Members, and each of their respective present and former Directors, Commissioners, Committee members, officers, appointees, employees, agents, and independent contractors shall have the same privileges with respect to the limitation of, and exemption and immunity from, liability as are provided in the local government immunity provisions of the Wisconsin Statutes. Notwithstanding anything in this Agreement to the contrary, no provision of this Agreement is intended, or shall be construed to be a waiver by any Participating Member of the provisions of Wisconsin Statutes § 893.80, 895.52, and § 345.05 or any other applicable limits on municipal liability.

6 NEW MEMBERS

- 6.1 New Members. A CBCWA Member who is not a Participating Member may become a New Member under this Agreement by agreeing to the terms and conditions of this Agreement. A New Member must sign this Agreement. No separate approval by a Participating Member is necessary to amend this Agreement to include a New Member.

7 DURATION; TERMINATION

- 7.1 Term of Agreement. The Agreement will be effective as of the Effective Date and will remain in effect for as long as the term of the Sensus Agreement. No Party may terminate its participation in this Agreement until the Agreement expires.

8 MISCELLANEOUS

- 8.1 Interpretation. It is the express intent of the Parties that this Agreement shall be construed and interpreted so as to preserve its validity and enforceability as a whole. In case of any conflict among the provisions of this Agreement, the provision that best promotes and reflects the intent of the Parties shall control.
- 8.2 Severability. If any provision of this Agreement is construed or held to be void, invalid, or unenforceable in any respect, the remaining provisions of this Agreement shall not be affected thereby but shall remain in full force and effect. The Parties agree that in such event they will negotiate an amendment of this Agreement in good faith to affect the intent of the Parties as originally set forth herein.
- 8.3 Dispute Resolution. If a dispute or controversy exists between the Parties regarding any matter relating to the relationship created by this Agreement, or if a dispute exists between CBCWA and one or more of the Participating Members, any Party involved in the dispute may send a written notice to the other Parties involved in the dispute asking for a meeting to discuss resolution of the dispute. The written notice shall identify the nature of the dispute, and shall be delivered to the other Parties in accordance with Paragraph 8.4 of this Agreement. Within 30 days of the date written notice is delivered, a meeting between the Parties involved in the dispute or controversy shall be held to attempt in good faith to negotiate a resolution of the dispute or controversy. In the event that a dispute is not resolved pursuant to the procedures of this Section, any Party involved in the dispute may elect to resolve the dispute by other means.
- 8.4 Notices. Any notice provided for or concerning this Agreement shall be (a) in writing and delivered by person, mail or facsimile or (b) sent by electronic transmission with

reasonable verification of receipt by the party to whom the notice is transmitted, to the following:

If to CBCWA:

Central Brown County Water Authority
3100 Eaton Road
Bellevue, WI 54311
Attention: General Manager

If to the City of De Pere:

City of De Pere:
335 S. Broadway Street
De Pere, WI 54115
Attention: Utility Manager

If to the Village of Allouez:

Village of Allouez
1900 Libal Street
Green Bay, WI 54301
Attention: Utility Manager

If to the Village of Bellevue:

Village of Bellevue
2828 Allouez Avenue
Green Bay, WI 54311
Attention: Utility Manager

If to the Village of Howard:

Village of Howard
2456 Glendale Avenue
Green Bay, WI 54313
Attention: Utility Manager

Such notice shall be effective when received by the Parties to whom it is sent.

- 8.5 Successor and Assigns. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns, provided, however, that no Participating Member shall have the right to assign its rights, obligations, and interests in

or under this Agreement to any other entity without the prior written consent of the other Parties hereto. Any assignment without such prior written consent shall be null and void and without effect.

- 8.6 Amendment, Modification or Waiver. Except as provided in Paragraph 6.1, no amendment, modification, or waiver of any condition, provision, or term of this Agreement shall be valid or of any effect unless made in writing and signed by the Party or Parties to be bound, or its duly authorized representative(s). Any waiver by a Party shall be effective only with respect to the subject matter thereof and the particular occurrence described therein, and shall not affect the rights of any other Party with respect to any similar or dissimilar occurrences in the future.
- 8.7 Representations. Each Party represents to the other Parties that (i) this Agreement has been duly authorized; (ii) this Agreement has been duly executed and delivered on its behalf; and (iii) it has all requisite power and authority necessary to enter into this Agreement and perform its obligations hereunder.
- 8.8 Execution. This Agreement shall be executed by all of the Parties in identical original duplicates and each duplicate shall, individually and taken together, constitute one and the same Agreement.
- 8.9 Governing Law. This Agreement shall be construed in accordance with the laws of the State of Wisconsin.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first set forth above.

CENTRAL BROWN COUNTY WATER AUTHORITY

By: _____
Printed Name: _____
Title: _____

Attest: _____
Printed Name: _____

CITY OF DE PERE

By: _____
Printed Name: Michael J. Walsh
Title: Mayor

Attest: _____
Printed Name: Shana L. Defnet, Clerk-Treasurer

EXHIBIT A
SENSUS AGREEMENT

Attachment: AMI Project Agreement (A1667614) (1306 : Resolution #13-115, Authorizing Automated Metering Project Agreement.)

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: Fire Department

FROM: Jeffrey Roemer

SUBJECT: Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.

Brown County Emergency Management is requesting our approval of the All Hazard Mitigation Plan Update. I have reviewed the plan and agree with the updates. Chief Kiser was involved in the update process.

ATTACHMENTS:

- Reso13-116 (DOCX)
- 2012 All Hazard Final DRAFT VI (PDF)

RESOLUTION #13-116

ADOPTING BROWN COUNTY
ALL HAZARDS MITIGATION PLAN

WHEREAS, the City of De Pere recognizes that natural hazards pose a threat to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazards mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the County Board of Brown County has adopted the *Brown County All Hazards Mitigation Plan* as its official plan; and

WHEREAS, the City Fire Chief has reviewed such plan and recommends approval thereof for the City of De Pere.

NOW, THEREFORE BE IT RESOLVED THAT:

The Common Council of the City of De Pere, Brown County, Wisconsin, hereby adopts the *Brown County All Hazards Mitigation Plan*, a copy of which is on file with the City Clerk-Treasurer, as its official plan and directs that a copy of the same be forwarded to the Brown County Emergency Management Department.

BE IT FURTHER RESOLVED THAT:

Upon approval of the *Brown County All Hazards Mitigation Plan*, the Bay-Lake Regional Planning Commission is requested to, on behalf of the City of De Pere, submit the adopted plan to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval, as required under the Hazard Mitigation Grant Program.

Resolution #13-116
Page 2 of 2

Adopted by the Common Council of the City of De Pere, Wisconsin, this 3rd day of
September, 2013.

APPROVED:

Michael J. Walsh, Mayor

ATTEST:

Shana L. Defnet, Clerk-Treasurer

Ayes: _____

Nays: _____

Attachment: Reso13-116 (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

Brown County, Wisconsin 2012 All Hazards Mitigation Plan



Prepared by the Brown County All Hazard Plan Steering Committee
with Assistance from the Brown County Planning Commission
July XX, 2013



Brown County, Wisconsin

Steering Committee Members

Cullen Peltier, Brown County Emergency Management
Paul Gazdik, Brown County Emergency Management
Chuck Lamine, Brown County Planning
Aaron Schuette, Brown County Planning
Peter Schleinz, Brown County Planning
Bill Bosiacki, Brown County Zoning
Matt Heyroth, Brown County Zoning
Jeff DuMez, Brown County Land Information
John Paul, Brown County Public Health
Brian Lamers, Brown County Highway Department
Captain David Konrath, Brown County Sheriff's Department
Larry Ullmer, County Rescue Services
Chief Robert Goplin, City of Green Bay Fire Department
Kent Taylor, City of Green Bay Water Utility
Chris Pirlot, City of Green Bay Department of Public Works
Chief Robert Kiser, City of De Pere Fire and Rescue
Chief Mark Thiry, Village of Ashwaubenon Public Safety
Kurt Minten, Town of Lawrence Fire Department
Tom Kujawa, UW-Green Bay Public Safety
Michael Moore, Georgia Pacific
Tom Collins, LEPC Chair
Tom Ginter, Aurora BayCare
Judy Gregory, American Red Cross
Rochelle Bissing, Wisconsin Public Service

BROWN COUNTY
ALL HAZARDS MITIGATION PLAN
ADOPTED: [MONTH - DAY], 2013



Prepared by:

Brown County Planning Commission
305 E. Walnut St., Room 320
Green Bay, WI 54305-3600
(920) 448-6480

The preparation of this document was financed with a grant from the State of Wisconsin Department of Military Affairs Division of Emergency Management (Project Number PDMC-PL-05-WI-2011-011) with local matching in-kind funds from Brown County.

RESOLUTION OF ADOPTION

SAMPLE

Resolution No. _____

A RESOLUTION adopting the *Brown County All Hazards Mitigation Plan*.

WHEREAS, Brown County recognizes the threat that natural hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazards mitigation plan is required as a condition of future grant funding for mitigation projects.

NOW, THEREFORE BE IT RESOLVED, that the County Board of Brown County, Wisconsin, hereby adopts the *Brown County All Hazards Mitigation Plan* as an official plan; and

BE IT FURTHER RESOLVED, that upon approval of the *Brown County All Hazards Mitigation Plan*, the Brown County Planning Commission, on behalf of the Brown County Emergency Management Department, will submit the adopted plan to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval, as required under the Hazard Mitigation Grant Program.

I HEREBY CERTIFY that the foregoing Resolution was duly passed by the County Board of Brown County, Wisconsin, on the _____ day of _____, 2013.

Dated _____, 2013. _____

County Clerk

Approved _____, 2013. _____

County Board Chair

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CHAPTER 1: INTRODUCTION AND PLANNING PROCESS

PURPOSE FOR THE PLAN

Development of an updated version of the *Brown County, Wisconsin 2012 All Hazards Mitigation Plan* began in January 2012 and was approved by the Brown County Board of Supervisors on [MONTH – DAY], 2013. A Steering Committee comprised of local and county officials and emergency management personnel guided the plan development process over a nine-month timeframe with professional planning support from the Brown County Planning Commission.

The purpose for the plan is to evaluate the county's potential exposure to natural hazards and to identify appropriate mitigation strategies. Consistent with the Code of Federal Regulations (44 CFR Part 201.6), the county decided to initially limit the scope of this planning effort to natural hazards. Based on these required components, this plan conforms to Federal All Hazards Mitigation Planning requirements.

Completion of the 2012 plan will further assist Brown County emergency personnel in identifying areas of risk, assessing the magnitude of the risk, and developing strategies for reducing this risk. Through this process, the county can address issues related to incompatible land uses; the identification and protection of critical facilities; and the reduction of community and taxpayer costs associated with natural disaster relief and rescue efforts. Completion and approval of the plan will also make Brown County eligible to apply for future disaster relief and mitigation project funds to implement applicable recommended mitigation strategies.

The following sections discuss the Disaster Mitigation Act of 2000 which led to the requirement for All Hazards Mitigation Plans as well as the funding of this planning effort to develop the five parts of this plan.

DISASTER MITIGATION ACT OF 2000

The development of the *Brown County, Wisconsin 2012 All Hazards Mitigation Plan* is in response to passage of the Disaster Mitigation Act (DMA) of 2000. The act attempts to stem the losses from disasters, reduce future public and private expenditures, and speed up response and recovery from disasters. The following is a summary of the parts of the Disaster Mitigation Act of 2000 that pertain to local governments and tribal organizations. The Act:

- Establishes a new requirement for local governments and tribal organizations to prepare an All Hazards Mitigation Plan in order to be eligible for funding from FEMA through the Pre-Disaster Mitigation Assistance Program and the Hazard Mitigation Grant Program.
- Establishes a requirement that natural hazards need to be addressed in the risk assessment/vulnerability analysis part of the All Hazards Mitigation Plan. Addressing man-made/technological hazards is encouraged, but not required.

- Authorizes up to seven percent of Hazard Mitigation Grant Program funds available to a state after a federal disaster to be used for development of state, local and tribal organization All Hazards Mitigation Plans.
- Established November 1, 2004, as the date by which local governments and tribal organizations are to prepare and adopt their respective plans in order to be eligible for the FEMA Hazard Mitigation Grant Program. This deadline was November 1, 2003 for the Pre-Disaster Mitigation Program.

The plan is being revised in 2012 with a five year update to remain current and eligible for funding. In the past, if a plan is not prepared by November 1, 2004, local units of government would have had to agree to prepare an All Hazards Mitigation Plan within one year to be eligible for funding if a major disaster is declared. By not having an All Hazards Mitigation Plan, local governments and tribal organizations would not have been able to utilize funding through the Pre-Disaster Mitigation Grant Program.

PLANNING VISION

This plan establishes three major visions in fulfilling the requirements established through DMA 2000:

Reduce Hazard Risks and Impacts – This All Hazard Mitigation Plan assessed vulnerability of life and property to a broad range of potential natural hazards, and developed a prioritized range of corresponding mitigation strategies to reduce both risks and impacts.

Build on Existing Efforts – Many cities, villages, towns, school districts, and businesses, often lead by county personnel, have already engaged in mitigation and/or response planning. The intent of this plan is to maximize these efforts by inventorying, coordinating, and building on these efforts when possible, and developing new strategies to fill any gaps identified among existing efforts. This plan incorporates information and strategies from existing emergency response plans and other relevant public documents.

Share Information and Raise Awareness – Public engagement methods used in the preparation of this plan sought input from a diverse range of stakeholders including the general public and various public, private, and non-profit sector representatives. One of the most commonly heard messages throughout these planning meetings and workshops is the need for clear information and ongoing communication among all stakeholders. Mitigation strategies identified in this plan address the public information and communication component in a universal manner (regardless of hazard type) and within a hazard-specific context, as applicable.

PLANNING GOAL

Historically, Brown County had several federal disaster declarations for flooding, severe storms (including winter storms), and tornadoes. More generally, Wisconsin disasters over the same period incurred millions of dollars in Federal Emergency Management Agency (FEMA) expenditures. As of the creation of this update, the Wisconsin governor

requested a federal disaster declaration for drought for every county in the southern two-thirds of the state, including Brown County.

The goal of this plan is to meet the requirements established by the Disaster Mitigation Act of 2000, and to eliminate or reduce vulnerability to significant or repetitive damage from one or more hazards determined to have potential in Brown County, Wisconsin.

PLANNING PROCESS

Development of the *Brown County, Wisconsin 2012 All Hazards Mitigation Plan* was based on the planning requirements and guidance provided by the Federal Emergency Management Agency (FEMA) and the Wisconsin Department of Military Affairs, Wisconsin Emergency Management (WEM). Following these requirements and guidance, the plan meets the requirements of the Disaster Mitigation Act of 2000. Since the Wisconsin Emergency Management guidance for All Hazards Mitigation Plans recommended that planning areas “be consistent with a community’s comprehensive planning boundary,” the planning area for this *Brown County, Wisconsin 2012 All Hazards Mitigation Plan* includes all of the County of Brown, encompassing the cities of Green Bay and De Pere; villages of Allouez, Ashwaubenon, Bellevue, Denmark, Hobart, Howard, Pulaski, Suamico, and Wrightstown; and towns of Eaton, Glenmore, Green Bay, Holland, Humboldt, Lawrence, Ledgeview, Morrison, New Denmark, Pittsfield, Rockland, Scott, and Wrightstown thus making this a comprehensive multi-jurisdictional plan.

PLANNING APPROACH

Brown County initiated development of this updated plan with a pre-planning meeting held in January, 2012. Brown County staff and representatives from each of the communities were invited to a meeting on February 8, 2012 to inform them of the process and to encourage their input and participation during the plan development period.

Development of the plan was structured along a four-phase planning process:

Phase I: Start-Up, Assess Community Support

Phase II: Assess Risks

Phase III: Develop a Mitigation Plan

Phase IV: Implement the Mitigation Plan

STEERING COMMITTEE

Brown County established a Hazard Mitigation Plan Steering Committee to oversee the development of the plan. Committee members were selected from all county departments involved in emergency management issues (i.e. Emergency Management, Sheriff, Highway, Health, Planning, Zoning, and Water Utility), county officials, and local community emergency personnel. Because the plan focused on updates, the Steering Committee did not include representation from adjacent counties, however draft copies of the plan were sent to the adjacent counties prior to FEMA approval, and final copies were sent after approval occurred. The Steering Committee was responsible for providing input, guiding the planning process, reviewing and commenting on draft

chapters of the plan, and advocating for approval at the county level. Brown County's Emergency Management Coordinator collected and distributed information along with the Brown County Planning Commission for Steering Committee meetings in addition to handling the administrative portion of the grant.

During the assessment of natural hazard conditions, the Steering Committee reviewed and adjusted the prioritized potential natural hazards facing Brown County. The committee's risk assessment for natural hazards can be found in Table 3.1 of Chapter 3 of this plan. Based on the results of this exercise and analysis of past natural hazards, the Steering Committee prioritized and selected the natural hazards that were to be the focus of this plan: Natural disasters related to flooding, lightning storms and thunderstorms, extreme heat, winter storms, extreme cold, and fog. It was determined that man-made disasters would not be included with this plan update.

The 2012 Brown County All Hazards Mitigation Plan Steering Committee held meetings on the following dates:

1. February 8, 2012
2. March 14, 2012
3. April 11, 2012
4. May 9, 2012
5. July 18, 2012
6. August 8, 2012
7. September 12, 2012

INCORPORATED COMMUNITY INVOLVEMENT

This adopted *Brown County, Wisconsin 2012 All Hazards Mitigation Plan* covers all the unincorporated towns within the county. The plan enables those communities to be automatically eligible for pre and post disaster funding opportunities. The county's eleven incorporated communities (two cities and nine villages) will need to adopt the All Hazards Mitigation Plan as their own in order to be eligible for these pre and post disaster funding grants.

The county's incorporated communities were invited to participate in the development of the plan throughout the nine month process. Through the Brown County Emergency Management Department and Brown County Planning and Land Services Department, each municipality in Brown County was informed of the update and invited to the initial Steering Committee meeting held February 8, 2012. Emergency management personnel from the cities of Green Bay and De Pere, the Village of Ashwaubenon, and the Town of Lawrence were selected to participate as Steering Committee members to oversee the development of the plan. The Steering Committee revised the types of critical facilities to be considered during the plan development process. In July of 2006, critical facilities maps were printed for each community. They were sent to every municipality with instructions to



verify the location and type of critical facilities within their boundaries. In 2012, the map was updated by Brown County Planning and Land Services Staff and the data was reentered into a central database.

A near final-draft plan summary was sent to each community in August 2012 to keep the municipalities updated with the planning process. A final plan was provided to the Brown County Board of Supervisors through the emergency management and planning committees to keep them informed of the progress being made on the development of the county's All Hazards Mitigation Plan. To ensure each municipality within Brown County had input regarding mitigation strategies applicable to their respective community, a request was sent to each town, village, and city requesting input on areas determined to be potential problems, with a focus being made on site specific issues that may be unique to each community. The results of that information were gathered in Chapter 4 of this Plan.

Once a draft of the All Hazard Plan and Mitigation Strategies was completed, the document was shared with each municipality. A CD of the completed draft was sent to each of the incorporated communities for their review and comment during the same time WEM was reviewing the document. Each of the incorporated communities was asked to review the document with their appropriated committee(s) to ensure the plan addresses their specific mitigation needs and to provide feedback to the Steering Committee as necessary. Municipality involvement was utilized in order to allow communities to provide comments, to allow the communities to offer information that would increase the plan eligibility for pre and post disaster funding, and to allow the municipality an opportunity to adopt the plan.

RELATIONSHIP TO BROWN COUNTY EMERGENCY PLANS

Brown County has prepared and adopted three emergency plans for the county as part of its overall preparedness strategy. The ***Brown County Evacuation Plan*** is to be used in conjunction with the ***Brown County Disaster Plan*** and the ***Emergency Operations Plan (EOP)*** each updated in 2012. This plan eliminates the need for an annual Hazard Analysis Report that identifies those hazards that have or could occur in Brown County. It includes a description of each hazard, its frequency of occurrence, and actions being taken to mitigate the hazard. These hazards are the basis for the development of all county emergency management plans.

The ***Brown County Evacuation Plan*** is a guide for evacuating residents during a catastrophic event while placing an emphasis on the special needs populations. The document does not recommend a specific evacuation route, but identifies evacuation tools and resources that could be utilized in an emergency evacuation. The plan has a letter of agreement with Outagamie County for emergency management services, if the need arises where mutual aid is needed.

The purpose of the ***Brown County Disaster Plan*** is to help government protect lives, property, and the environment from major emergencies of any nature. If assessment of an incident indicates a response beyond the capability of a single jurisdiction and routine mutual aid, the county may activate the Brown County Disaster Plan. The Brown County Disaster Plan will facilitate integrated operations planning by response agencies

to help them adapt and respond together effectively to emergencies of unusual nature, scale, or multi-agency impact through the allocation of emergency responsibilities and authority among town, municipal, and county agencies, and coordination of activities among agencies and levels of Government.

The ***Emergency Operations Plan*** addresses response training and all aspects of response from occurrence forward. The purpose of the County Emergency Operations Plan is to:

1. Facilitate the protection of lives, property and the environment in major disasters of any nature.
2. Coordinate response to disasters, assess damages, identify mitigation opportunities and implement recovery efforts.
3. Describe the county's relationship in support of local units of governments during response and recovery.
4. Serve as a coordinating document for supporting Internal Agency Plans (IAP) (i.e., Policy and Procedures.)
5. Reflect information collected, decisions made and procedures developed in the planning process and during response.
6. Provide a link between the county and municipal plans.

The All Hazards Mitigation Plan is complementary to the EOP and seeks to reduce hazard risks and impacts on a pre-event basis through:

- Structural hazard control or protection measures;
- Retrofitting of facilities;
- Acquisition and relocation of repetitive loss structures;
- Development of mitigation standards, regulations, policies, and programs;
- Review, updating, and enforcement of building codes;
- Public awareness and education programs; and
- Development or improvement of warning systems.

PLAN ORGANIZATION

The 2012 *Brown County All Hazards Mitigation Plan* is divided into five chapters to specifically address each of FEMA's local mitigation plan requirements. The five chapters are as follows:

Chapter 1 – Introduction is the executive summary of the *Brown County All Hazards Mitigation Plan*. It provides the overarching vision, purpose, and regulatory context for preparing this plan. The chapter also provides a brief synopsis of the plan's main sections as outlined below.

Chapter 2 – County Profile of Brown County is its physical, social, economic, and political characteristics comprised mainly of the following:

Historical Setting	Schools
Climate	Public Facilities
Geology	Transportation

Topography and Soils
 Hydrology
 Land Cover and Land Use
 Community Infrastructure
 Emergency Response Resources

Utilities
 Population and Housing
 Demographic Trends
 Economics and Labor

Chapter 3 – Risk Assessment profiles a range of potential natural hazards that could pose a threat to Brown County. As appropriate, selected events that may originate outside of the county have been included if they could jeopardize safety and stability within the county. This chapter also assesses vulnerabilities to the potential hazards based on a variety of considerations. This resulting assessment was used with other factors to identify priorities for future mitigation efforts.

Chapter 4 – Mitigation Strategies are a series of goals, objectives, and action steps to mitigate the impacts of each hazard. Each strategy has a lead department(s) responsible for addressing that strategy and for setting benchmarks to measure progress toward implementation.

Chapter 5 – Plan Adoption and Maintenance describes the planning process in terms of its technical, political, and public engagement components. This section also sets the course for plan implementation and updating, measuring progress, and continued engagement of persons with a stake in this plan; e.g., residents, municipal governments, county government, businesses, non-profit organizations, and schools.

EXECUTIVE SUMMARY

BROWN COUNTY PROFILE SUMMARY (CHAPTER 2)

Located in eastern Wisconsin, Brown County sits at the mouth of the Fox River. Brown County is the fourth most populous county in Wisconsin with a population of 248,007 in 2010. Of the 615 square miles that comprise the county, most of the population is concentrated in the central portion, while the south and eastern areas are largely rural. Brown County is becoming increasingly urbanized and has been one of the most rapidly growing counties in the State of Wisconsin in the past and current decade. Much of the new population growth is occurring in second and third ring suburbs around Green Bay such as Howard, Suamico, Bellevue, and Ledgeview. The county enjoys a diversified economy and is home to some of the region's largest employers such as Georgia-Pacific, Schneider National, Inc., Humana, and Green Bay Area School District.

As stated in the *1974 Soil Survey of Brown County*, most of the soils in the county formed of glacial till and lake sediment that are high in clay. Overall, the survey identifies ten soil associations in the county and each is susceptible to erosion problems. Agriculture lands comprise 169,661 acres of the county's total acreage of 342,252, or 49.6 percent. The local climate is characterized by cold, snowy winters and warm, humid summers. The growing season is approximately 152 days.

RISK ASSESSMENT SUMMARY (CHAPTER 3)

Natural hazards profiled by this plan include:

Severe Winter Storms	Severe Summer Storms
Extreme Temperatures	Flooding
Fog	Wild Fires
Coastal Hazards	Agriculture
Drought	Earthquakes
Landslides	Subsidence
Agriculture	

Technological hazards briefly discussed in this plan include:

Communicable Diseases
HAZMAT Hazards
Transportation Hazards
Well Contamination (from agriculture run-off)

The following information is provided for each hazard: a general description of the hazard, its event history in the county, vulnerability considerations, possible cascading effects, existing plans and programs to address the hazard, and known gaps and deficiencies in these programs.

Chapter 3 includes a three-part assessment of hazard concerns in Brown County:

1) Critical Facilities by Jurisdiction: The plan includes a summary of critical facilities vulnerable to accidents or terrorism as identified by communities within Brown County. Community representatives used CBRNE principles (chemical, biological, radiological, nuclear, and explosives) to assess critical facility vulnerability within their own jurisdictions.

2) All Hazards by Jurisdiction: Community representatives also identified top hazard concerns for their individual communities from a broader range of possible incidents, including natural and man-made hazards. Nearly every participating community identified severe weather incidents as their top hazard concern.

3) Countywide Vulnerability and Priorities: Vulnerability was then assessed on a countywide basis using the following parameters to determine an overall priority rating: past events, frequency of occurrence, warning time, geographic extent, and likely adverse impact. This assessment yielded the following hazards listed by priority:

- 1) Lightning/Thunderstorms
- 2) Heavy Snow Storms
- 3) Ice Storms
- 4) Tornadoes/High Winds
- 5) Blizzards
- 6) Storm Water Flooding

- 7) Flooding (flash, riverine, and lake)
- 8) Extreme Cold
- 9) Extreme Heat
- 10) Fog
- 11) Hail Storms
- 12) Dam Failure Flooding
- 13) Wildland Fires
- 14) Coastal Hazards
- 15) Agriculture
- 16) Earthquake

MITIGATION STRATEGIES SUMMARY (CHAPTER 4)

Mitigation goals, objectives, and strategies were developed to:

- Reduce risks and potential impacts of the specific hazard events noted above.
- Address gaps in current preparedness plans and programs, as identified in Chapter 3.
- Deal with concerns of collaborating entities (public, private, and non-profit sector representatives).
- Build on existing efforts, when possible.
- Enhance communication, information sharing, and education, when possible.

An overarching set of goals were developed to be applicable to any or all hazard situations, namely 1) communication, information sharing, and education; and 2) public health protection. Individual strategies within each of these goals were ranked based on priority, an identification of any new vs. ongoing efforts, target implementation dates, lead and participating agencies, potential funding sources, and possible benchmarks for future evaluation.

PLAN ADOPTION AND MAINTENANCE SUMMARY (CHAPTER 5)

Plan Adoption Process

A Steering Committee comprised of local and county officials and emergency management personnel from area businesses guided the plan development process over a 9-month timeframe with professional planning support from the Brown County Planning Commission. Wisconsin Emergency Management (WEM) and FEMA reviewed the county's draft All Hazards Mitigation Plan. Their comments are on file and were incorporated into the final draft of the plan. Development of the updated plan began in January 2012, and was approved a resolution by the Brown County Board of Supervisors on July XX, 2013 adopting the plan.

Public Review Process

The public was able to comment during the drafting stage of the plan because all plan development meetings were posted and open to the public. A planning summary sheet was prepared and sent to each community within Brown County to keep them informed

of the process. A request was sent to each community to solicit their input on potential hazard problems within their municipality and possible mitigation strategies to address those conditions.

While WEM and FEMA were reviewing the draft *Brown County All Hazards Mitigation Plan* during September through December 2012, a CD copy of the plan was provided to each of the incorporated communities not represented on the Steering Committee, a PDF copy of the plan was posted on the Brown Planning and Land Services Department website. Steering Committee members and communities were directed to the site to review the document with a complete set of maps, and hard copies were located at three key locations throughout the county for review by the public. The *Green Bay Press Gazette* ran an article letting the public know about the plan development process and how and where they could review this important document. A public viewing of the document was held in August 30, 2012 to allow the public to gain familiarity with the planning process and the contents of the all hazards mitigation plan, ask questions, and provide additional comments.

Plan Implementation

Brown County's Office of Emergency Management will oversee the implementation, evaluation, and maintenance of the *Brown County All Hazards Mitigation Plan*. This plan incorporates many of the county's emergency operations plans already in place; therefore the mitigation strategies and procedures overlap and are to act in conjunction with one another. The implementation of this All Hazards Plan will also satisfy the conditions and actions in other plans to include the *Brown County 2004 Comprehensive Plan*, capital improvements budget, and applicable ordinances. By September of 2007, all of the Brown County communities had a comprehensive plan in place. As local communities update their comprehensive plans and emergency operations procedures/plans, each municipality should reference the mitigation strategies outlined in this all hazard mitigation plan. In turn, updated mitigation actions created at the local level should be reviewed for inclusion in any future updates of the *2012 Brown County All Hazards Mitigation Plan*.

Plan Evaluation

Each mitigation strategy includes a matrix for monitoring implementation progress. More detailed steps will be developed, as needed, for more complex initiatives. At minimum, the Brown County's Office of Emergency Management's designated committee will meet with municipalities and implementation partners to evaluate progress for each mitigation strategy, compile summary progress report, and promote findings through the media, County Board of Supervisors, county committees, and local communities on an annual basis. This collaborative implementation approach will also provide a forum for identifying additional mitigation gaps.

Plan Maintenance

The Brown County's Office of Emergency Management will review the plan annually with an update completed every five years. Brown County Emergency Management staff will maintain progress reports on all mitigation projects and include this information in plan updates. Newly identified mitigation needs will be addressed through the

development of additional goals, objectives, or strategies, as applicable. If there are changes needed in the priorities for implementation, the rationale will be documented. Revisions and updates will be distributed to the oversight committee appointed by the Brown County Emergency Management Office, municipalities, and implementation partners such as local hospitals and the Red Cross for review and approval.

Plan revisions will be made available through the Brown County's Office of Emergency Management website for general public review and comment during the plan updating process. Public comment on revisions and updates also will be solicited through a comprehensive public outreach strategy (news releases, open houses, partnerships). Updates and revisions to the plan will also be a way to further promote the need for continued hazard preparedness at all levels. The updated plan will be submitted for approval by the Brown County Board of Supervisors, WEM, and FEMA every five years.

CHAPTER 2 BROWN COUNTY PROFILE

INTRODUCTION

During the early stages of the planning process, it was important to understand the physical elements and social components of the county and how these elements would influence the contents and scope of the plan. This chapter of the *Brown County All Hazards Mitigation Plan* inventories and details the county's history, general physical composition, land cover and land use, demographics, development patterns, critical infrastructure, and emergency response resources.



The profile draws on data and information from the US Census Bureau; Wisconsin Department of Natural Resources; *Brown County Comprehensive Plan*; the *Brown County Farmland Preservation Plan*; watershed plans; FEMA regulations; infrastructure maps (sewer, water, etc.); and utility maps. Information used to prepare the maps in this chapter were drawn from the Brown County Land Information Office, Brown County Planning Commission, existing county plan documents, and the State of Wisconsin.

HISTORICAL AND CULTURAL SETTING

It is believed that human habitation of the area that would one day become Brown County may have existed near the Red Banks area along the east shore of the Bay of Green Bay as far back as 7000 B.C. Since then, many different Indian tribes have periodically inhabited the lands adjacent to the Bay of Green Bay and the Fox River. Prior to the 1600s, the Winnebago and Menomonee Indian tribes inhabited what is now Brown County. However, by the mid-1600s, other tribes, such as the Ottawa, Huron, Fox, Sauk, Potawatomi, and Ojibwa, moved into the area as they were displaced from 297 acres of their ancestral lands further east, and they, in turn, displaced the Winnebago and Menomonee tribes. In the early 1800s the Oneida tribe was relocated to the west side of Brown County from the State of New York.

Jean Nicolet has commonly been cited as being the first European to set foot in what would one day become the State of Wisconsin when he arrived at the Red Banks area in 1634. This event heralded a period of rapid change for the area adjacent to the bay and the Fox River as other French explorers and fur traders quickly followed Nicolet. By the mid-1600s, French missionaries also began to visit the area. These visits eventually became so numerous that in 1671 the first permanent European development, the St. Francis Xavier mission, was established along the Fox River near the De Pere rapids. In 1701, following this initial wave of French explorers, fur traders, and missionaries, the French government established a military stockade called Fort St. Francis in the area along the bay near the mouth of the Fox River where the Canadian National Railroad yards in the City of Green Bay are now located. By 1764, the first recorded settler, Augustin de Langlade, moved to this area and established a trading post.

Eventually, the French presence in this region gave way to British influences. In 1761, the French Fort St. Francis was rebuilt by the British and renamed Fort Edward Augustus. In 1763, France ceded the area to England. By the mid-1780s, the colony

established by de Langlade, which would eventually become part of the City of Green Bay, had reached a population of about 50 people.

In 1783, England ceded this region to the United States. However, it was not until after the War of 1812 that the British presence was, in turn, supplanted by the American when pioneers from New England and New York outnumbered the original French-Canadian settlers. By 1812, the population of the settlement established by de Langlade had increased to about 250 people. In 1816, Fort Edward Augustus was once again rebuilt and renamed Fort Howard. At that point in time, the Fort Howard area was the second largest settlement in Wisconsin. By 1824, the settlement originally founded by de Langlade had reached a population of about 500 people with an additional 600 troops stationed at Fort Howard. In 1824, Brown County's first county courthouse was founded. In 1854, Green Bay incorporated as a city. Large-scale immigration into this area began by the late 1840s, so that by 1860 about 11,800 people inhabited the area identified today as Brown County.

Brown County was created in 1818 as part of the Michigan Territory, and at that time, it included much of Upper Michigan and all of Wisconsin from Lake Michigan to the Wisconsin River and south to Illinois. By the time the Wisconsin Territory was established in 1836, the southern one-third of Brown County had been removed to form new counties in the rapidly growing southeastern portion of the territory. When Wisconsin became a state in 1848, the counties of Door, Oconto, Outagamie, and Waupaca were created from Brown County. The following year, Kewaunee County was created. By 1853, Brown County was confined to its present size (534 square miles) when Shawano County was created. Brown County was formally established by congress in 1861.

Brown County's first communities, Navarino (which later became part of the City of Green Bay) and De Pere, were founded in 1829 along the shores of the Fox River near the Bay of Green Bay. Other early Brown County communities, Astor (which later became part of the City of Green Bay) and Wright (which later became the Village of Wrightstown), were also located along the Fox River. Jurisdictional changes continue to the present with incorporation of the Town of Allouez as a village in 1986, the Towns of Bellevue and Hobart as villages in 2002, and the Town of Suamico as a village in 2003. The 24 municipalities of present-day Brown County include 2 cities, 9 villages, and 13 towns. Since its inception, the City of Green Bay has always been and continues to be Brown County's largest community.

PHYSICAL CHARACTERISTICS

Climate

The climate of Brown County is classified as continental. This climate type is characterized by an extreme disparity between summer and winter temperatures that range from cold, snowy winters and warm summers with periods of hot, humid conditions. According to the Midwestern Regional Climate Center, the average annual temperature is 44.4 degrees with the coldest month being January at approximately 15.6 degrees and the warmest month July at approximately 69.9 degrees. The nearby Bay of Green Bay can have a modifying influence on the area's climate unlike more inland locations where the cool breezes off the bay have little or no effect.

The annual precipitation of 29.57 inches, or 65.4 percent, falls from April through September with June traditionally being the wettest month (3.88 inches). This time period also encompasses the growing season for most crops. Overall, the varied climate is favorable for many agricultural purposes and suitable for a number of outdoor activities ranging from biking and camping to snowmobiling and skiing.

Geology

A portion of Brown County includes the Niagara Escarpment, which is associated with karst features consisting of cracked and fractured bedrock, such as limestone located close to the earth's surface. This bedrock is easily dissolved by water, and its cracks and layers allow water and pollutants to easily reach the groundwater. Sinkholes, shallow soils, sinking streams, and springs are commonly found in such areas. These features are located adjacent to the escarpment and more extensively in the Town of Green Bay, Town of Scott, Town of Ledgeview, and Town of Morrison.

Soils

Soil properties are used to describe soil for problems involving agriculture and land development. Of these, texture and composition are usually the most meaningful. From them, inferences about fertility, bearing capacity, internal drainage, erodibility, slope stability, etc. can be made.

As stated in the 1974 Soil Survey of Brown County, most of the soils in Brown County formed in glacial till and lake sediment that were high in clay. These soils are generally rich, heavy soils common to gently rolling topography and are well suited to farming. In the northwestern part of Brown County, the soils are slightly lighter (containing higher sand content) but remain acceptable for farming. On the south and west sides of the Bay of Green Bay and scattered throughout the rest of the County, the soils are organic peat and are poorly suited for farming. The 1974 Soil Survey of Brown County also states that ten soil associations are located within Brown County. A soil association is a landscape that has a distinctive proportional pattern of soils. Soil associations are useful in that they provide a general idea of the soils in a county, facilitate simple comparisons, and provide a general indication of the suitability of large areas for various land uses.

Topography

The topography of Brown County has been greatly modified by glacial action and today is generally characterized by gently rolling moraines. The western two-thirds of Brown County are associated with the roughly four-mile-wide Fox River Valley, a continuation of the same depression forming the Bay of Green Bay. This area slopes gently northeastward from Lake Winnebago in east central Wisconsin, drains to the bay, and is generally level to gently rolling. This lowland area contains many glacial landforms, including eskers, moraines, and remnants of extinct glacial lakes. During glacial times, the flat marshy land west and south of the bay had been covered by the bay. Most streams in the area flow northeastward and parallel to the escarpment to the bay. Most streams also possess shallow channels, except in a few instances where the streams have cut through softer underlying glacial landforms, such as the Fox River in Wrightstown.

Forming the eastern boundary of the Fox River Valley is a steep escarpment referred to as the Niagara Escarpment, which rises relatively abruptly as high as 200 to 250 feet

above the valley floor. East of, and alongside most of the Niagara Escarpment, is a narrow strip of level land. East of that is generally a slightly rolling plain that drains east and southeast toward Lake Michigan. The headwaters of a number of streams that drain to Lake Michigan are located within this area. However, gaps in the Niagara Escarpment allow two streams—Baird Creek and Bower Creek—to flow westward to the Bay of Green Bay. The area is generally well drained but has many small wet depressions in places. Due to its location between two lobes of the last glacier to advance through Wisconsin, the southeastern portion of the County is extremely hilly and has many poorly drained depressions. This area, which extends into southeastern Wisconsin, is called the Kettle Moraine area of the state. Land relief within the County ranges from approximately 600 feet above sea level to approximately 1,000 feet above sea level. The low point in the County, at an elevation of about 580 feet, is located in the City of Green Bay where the Fox River enters the bay. The highest point in the County is located in the Town of Holland, southeast of the unincorporated community of Greenleaf, at an elevation of about 1,020 feet.

Hydrology

Groundwater

The City of De Pere, City of Green Bay, Village of Allouez, Village of Ashwaubenon, Village of Bellevue, Village of Howard, Town of Ledgeview, and Town of Scott obtain their water supply by pipelines from Lake Michigan. Groundwater is the source of drinking water used by all other municipalities within Brown County. The groundwater source is located within two shallow aquifers, as well as two deeper aquifers.

Most private wells in Brown County obtain water from the two shallow aquifers, while most public wells obtain water from the deeper St. Peter Sandstone aquifer. Based upon data obtained from the Wisconsin Department of Natural Resources' drinking water website, there are 134 separate public water supply systems (systems which can be used by the general public and which are regulated by the DNR) within Brown County. They include 19 municipal community systems. The remainder are primarily associated with parks, eating and drinking establishments, or food processing plants. There are approximately 7,515 documented, private potable wells used for human consumption, sanitary use, or for the preparation of food in Brown County. It is likely that additional undocumented wells (old, inactive, or otherwise unrecorded with the DNR) are located throughout Brown County.

Surface Waters

These surface waters provide recreational opportunities as well as support a diverse number of ecosystems. They also drain the land after heavy rains, provide habitat for countless plants, fish, and animals, are a source of drinking water for many communities, and are a source of process water for industry and agriculture.

Brown County contains numerous significant surface water resources. The



largest and most important are the Green Bay of Lake Michigan and the Fox River. Based upon a 2010 land use inventory undertaken by the Brown County Planning Commission, surface water features (including the Bay of Green Bay) encompassed approximately 55,552 acres or 14.1 percent of Brown County. The Fox River is the largest and most important river in northeastern Wisconsin. It is a navigable river that flows northward 155 miles from its headwaters in southern Green Lake County in east-central Wisconsin to the Bay of Green Bay. Its basin drains over 2,700 square miles of east-central and northeastern Wisconsin. In Brown County, it extends 19 miles from the Village of Wrightstown to its downstream end at Green Bay of Lake Michigan and drains about 311 square miles, or almost half of Brown County.

Other significant surface water resources in Brown County include its three named lakes: the small Lily, Middle, and Third Lakes located adjacent to one another in the eastern portion of the County, comprising approximately 50 acres. Also included are the numerous smaller rivers and streams, the biggest of which include Duck Creek, the East River, and the Suamico River.

Floodplains

Floodplains are natural extensions of surface waters. They store floodwaters, reduce flood peaks and velocities, and reduce sedimentation. They also provide wildlife habitat and serve to filter out pollution from water. Like surface waters, the importance of floodplains is also recognized and is regulated by federal, state, and local governments. The State of Wisconsin mandates floodplain zoning for all communities under Wisconsin Administrative Code NR 116. These minimum standards must be implemented in order to meet eligibility requirements for federal flood insurance programs. As required by NR 116, Brown County has adopted and enforces Chapter 23 of the Brown County Code.

The Federal Emergency Management Agency (FEMA) has prepared floodplain mapping for many of the larger rivers and streams, such as the East and Fox Rivers. The Brown County Planning Commission and many local communities also often require flood studies and the mapping of floodplains when development occurs adjacent to rivers and streams. New FEMA maps were approved by Brown County in 2009. This project resulted in a standardized format at one location with most of the flood studies currently undertaken to date.

Wetlands

Wetlands are defined as areas where water is at or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which have soils indicative of wet conditions. Wetlands are a significant natural resource that serves several important functions. They enhance water quality by absorbing excess nutrients into the roots, stems, and leaves of its plants and by slowing the flow of water to let suspended pollutants settle out. Wetlands help regulate storm water runoff, which minimizes floods and periods of low flow. Today many of these wetlands have been destroyed or degraded through development, farming, and grazing. The significant loss of wetlands along the southern and eastern shores of the Bay of Green Bay provides a clear example of this trend. However, the wetlands along the west shore of the bay, while adversely impacted by adjacent development and past farming practices, still

remain the largest wetlands complex within Brown County. Other relatively large areas of wetlands are located in the southeastern portion of the Town of Holland and the northern portion of the Towns of Scott and Green Bay.

The Wisconsin Wetlands Inventory maps for Brown County identify wetlands throughout the entire County, which are primarily along its lakes, rivers, and streams. According to the Wisconsin Department of Natural Resources inventory, about 38,864.2 acres of Brown County, or about 9.9 percent, was comprised of wetlands in 2010.

Watersheds

A watershed is an area of land where all of the water on it and under it drains to the same place. Brown County is located within the Great Lakes-St. Lawrence drainage basin. Approximately one-fourth of the County is drained by streams tributary to Lake Michigan, and the remainder of the area is drained by streams tributary to the Bay of Green Bay and through the bay to Lake Michigan. Portions of four river basins and ten watersheds are located within Brown County.

1. The East River Watershed encompasses about 203 square miles, or about 38 percent of the County. Major streams within this area include the East and Fox Rivers and Baird and Bower Creeks.
2. The Apple and Ashwaubenon Creeks Watershed encompass about 47 square miles, or about 9 percent of the County. Major streams within this area include Apple, Ashwaubenon, and Dutchman Creeks.
3. The Plum Creek Watershed encompasses about 13 square miles, or about 2 percent of the County. Major streams within this area include Plum Creek.
4. The Duck Creek Watershed encompasses about 48 square miles, or about 9 percent of the County. Major streams within this area include Duck and Trout Creeks.
5. The West Twin River Watershed encompasses about 75 square miles, or about 14 percent of the County. Major streams within this area include the Devils and Neshota Rivers, and King and Twin Hill Creeks.
6. The Kewaunee River Watershed encompasses about 27 square miles, or about 5 percent of the planning area. Major streams within this area include School Creek.
7. The Red River and Sturgeon Bay Watershed encompasses about 13 square miles, or about 2 percent of the planning area. Major streams within this area include Gilson Creek.
8. The Branch River Watershed encompasses about 40 square miles, or about 7 percent of the County. Major streams within this area include the Branch River.
9. The Lower Manitowoc River Watershed encompasses about 2 square miles, or about 1 percent of the County. Major streams within this area include Mud Creek.

Demographics

In order to plan for any natural hazards that may occur within Brown County, it is important to gain an understanding of the population and housing characteristics for each community within the county. The population estimates provided by the Wisconsin Department of Administration (WDOA) and U.S. Bureau of the Census provide a clearer picture of where the largest population increases are expected to occur within the planning area. The increase in population will drive the need for new homes (single and multi-family) and the services needed to meet the needs of those new residents. The following tables summarize basic population and housing data for the 24 municipalities within the Brown County planning area.

Population

Table 2.1 indicates Brown County gained 21,349 new residents, an 8.6 percent increase from year 2000 to 2010. Map Figure 2-2 highlights the population change by community from 2000 to 2010. WDOA is further projecting that Brown County will add an additional 58,924 residents from 2010 to 2030, which represents a 20.8 percent increase during this 20-year time period.

Brown County's largest community, the City of Green Bay, is estimated to experience an increase in population of 12,223 residents over the same 20 year period, which equates to 11.4 percent. The county's only other city, De Pere, is estimated to experience an increase in population of 7,823 residents over the same 20 year period, which equates to 32.2 percent. The county's villages that are anticipated to grow at the highest rate include Hobart at 78.9 percent, Denmark at 60.9 percent and Wrightstown at 53.9 percent. In total, the incorporated communities will add 37,859 new residents in the next 20 years or 64.2 percent of the overall county increase in residents. Some of these figures may change due to annexations of surrounding fast growing towns.

The 13 towns are projected to add 15,032 new residents by 2030. This is 35.8 percent of the county's overall anticipated increase in residents. The towns of Wrightstown at 129.0 percent, Lawrence at 62.1 percent and Ledgeview at 62.0 percent are expected to have the highest rate of increase.



Table 2.1: Population Comparison by Municipality, 2000 - 2030, Brown County, Wisconsin									
	Census	Census		WDOA Projections				Number Change	Percent Change
Municipality	2000	2010		2010	2015	2020	2030	2010 - 2030	2010 - 2030
CITIES									
City of De Pere	20,559	23,800		24,279	26,321	28,370	32,102	7,823	32.2%
City of Green Bay	102,767	104,057		107,147	110,654	114,088	119,370	12,223	11.4%
VILLAGES									
Village of Allouez	15,443	13,975		15,651	15,962	16,259	16,619	968	6.2%
Village of Ashwaubenon	17,634	16,963		18,074	18,571	19,056	19,757	1,683	9.3%
Village of Bellevue	11,828	14,570		14,441	14,899	15,348	16,030	1,589	11.0%
Village of Denmark	1,958	2,123		2,376	2,744	3,116	3,822	1,446	60.9%
Village of Hobart*	5,090	6,182		7,042	8,447	9,867	12,600	5,558	78.9%
Village of Howard	13,546	17,399		16,022	16,565	17,098	17,927	1,905	11.9%
Village of Pulaski (part)	3,013	3,321		3,606	3,973	4,343	5,028	1,422	39.4%
Village of Suamico	8,686	11,346		11,064	11,556	12,042	12,851	1,787	16.2%
Village of Wrightstown	1,934	2,676		2,700	3,071	3,446	4,155	1,455	53.9%
TOWNS									
Town of Eaton	1,414	1,508		1,684	1,826	1,968	2,227	543	32.2%
Town of Glenmore	1,187	1,135		1,317	1,389	1,460	1,582	265	20.1%
Town of Green Bay	1,772	2,035		2,121	2,323	2,527	2,902	781	36.8%
Town of Holland	1,339	1,519		1,536	1,627	1,716	1,875	339	22.1%
Town of Humboldt	1,338	1,311		1,499	1,569	1,637	1,754	255	17.0%
Town of Lawrence	1,548	4,284		2,862	3,313	3,769	4,638	1,776	62.1%
Town of Ledgeview	3,363	6,555		5,452	6,311	7,179	8,832	3,380	62.0%
Town of Morrison	1,651	1,599		1,776	1,849	1,922	2,039	263	14.8%
Town of New Denmark	1,482	1,541		1,641	1,709	1,776	1,886	245	14.9%
Town of Pittsfield	2,433	2,608		2,716	2,860	3,004	3,250	534	19.7%
Town of Rockland	1,522	1,734		1,843	2,035	2,229	2,589	746	40.5%
Town of Scott	3,138	3,545		3,990	4,446	4,906	5,766	1,776	44.5%
Town of Wrightstown	2,013	2,221		3,201	4,235	5,283	7,330	4,129	129.0%
TOTAL	226,658	248,007		254,040	268,255	282,409	306,931	52,891	20.8%

*Includes Oneida Nation

Source: U.S. Bureau of the Census 2000 and 2010; WDOA Demographic Services Center 2008, and Brown County Planning Commission.

Households

A *household* includes all the people who occupy a housing unit as their usual place of residence and a person, or one of the people, in whose name the home is owned, being bought, or rented. If there is no such person present, any household member 15 years old and over can serve as the householder for the purposes of the census.

The number of households in Brown County has increased by 12,633 from 2000 to 2010 (Table 2.2). Map Figure 2-3 reflects the additional number of households from 2000 to 2010. In 2010, there were approximately 99,928 households in Brown County, up from 87,295 in 2000. From 2000 to 2010, the City of Green Bay added an additional 653 households, and the City of De Pere added another 1,530 households during this same time period. The 11 incorporated communities added 7,019 new households in that 10 year time span, while the 13 towns added 3,431. In 2010, the incorporated communities contained 72.8 percent of Brown County's households with the remaining 27.2 percent dispersed amongst the towns. The towns of Lawrence, Ledgeview, and Bellevue experienced the highest percentage increase in number of households.

Brown County has been following the national and state trend of fewer persons per household. In 1990, there were 2.69 persons per household. In 2000, that number had dropped to 2.60 persons per household. And in 2010, that number dropped again to 2.48 persons per household.

Housing Units

A *housing unit* is a house, an apartment, a mobile home or trailer, a group of rooms, or a single room occupied as a separate living quarters, or if vacant, intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants live separately from any other individuals in the building and which have direct access from outside the building or through a common hall. For vacant units, the criteria of separateness and direct access are applied to the intended occupants whenever possible.



Table 2.2 provides a housing unit comparison between 2000 and 2010 for Brown County and each of its 24 municipalities. Map Figure 2-4 provides a comparison by community for their respective housing unit changes for 2000 and 2010. In 2000, there were 90,199 housing units in Brown County. By 2010, that number expanded to 105,854 for a 14.8 percent increase. According to these numbers, Brown County is adding approximately 1,566 new housing units each year or 130 per month. Of the total number of housing units in 2010, 86.9 percent were located in one of the 11 incorporated communities. The villages of Wrightstown at 28.7 percent, Suamico at 27.3 percent and Bellevue at 24.6 percent lead the way in new housing units from 2000 to

2010. In contrast, the towns added 3,803 new housing units during this ten year time period or 380 per year. A slowdown in development during the second half of the decade may be a contributing factor for the decreased number of housing units added during this time.

- When comparing Brown County's housing vacancy rates for 2000 and 2010, the vacancy rate increased from 3.2 percent to 4.3 percent.

Table 2.2: Population and Housing Comparisons, 2000 and 2010, Brown County, Wisconsin									
Municipality	Persons			Households			Housing Units		
	2000	2010	Change	2000	2010	Change	2000	2010	Change
CITIES									
City of De Pere	20,559	23,800	13.6%	7,724	9,254	16.5%	7,993	9,742	18.0%
City of Green Bay	102,767	104,057	1.2%	41,591	42,244	1.5%	43,123	45,241	4.7%
VILLAGES									
Village of Allouez	15,443	13,975	-10.5%	5,397	5,432	0.6%	5,512	5,707	3.4%
Village of Ashwaubenon	17,634	16,963	-4.0%	7,137	7,421	3.8%	7,260	7,797	6.9%
Village of Bellevue	11,828	14,570	18.8%	4,624	7,421	37.7%	4,759	6,314	24.6%
Village of Denmark	1,958	2,123	7.8%	801	923	13.2%	833	988	15.7%
Village of Hobart*	5,090	6,182	17.7%	1,717	2,180	21.2%	1,758	2,275	22.7%
Village of Howard	13,546	17,399	22.1%	5,236	6,941	24.6%	5,350	7,223	25.9%
Village of Pulaski (part)	3,013	3,321	9.3%	1,169	1,353	13.6%	1,238	1,458	15.1%
Village of Suamico	8,686	11,346	23.4%	2,966	4,092	27.5%	3,078	4,235	27.3%
Village of Wrightstown	1,934	2,676	27.7%	666	969	31.3%	729	1,022	28.7%
TOWNS									
Town of Eaton	1,414	1,508	6.2%	469	548	14.4%	480	565	15.0%
Town of Glenmore	1,187	1,135	-4.6%	375	405	7.4%	382	418	8.6%
Town of Green Bay	1,772	2,035	12.9%	600	771	22.2%	685	863	20.6%
Town of Holland	1,339	1,519	11.8%	433	528	18.0%	444	538	17.5%
Town of Humboldt	1,338	1,311	-2.1%	453	492	7.9%	460	510	9.8%
Town of Lawrence	1,548	4,284	63.9%	531	1,665	68.1%	546	1,766	69.1%
Town of Ledgeview	3,363	6,555	48.7%	1,180	2,442	51.7%	1,214	2,579	52.9%
Town of Morrison	1,651	1,599	-3.3%	564	592	4.7%	579	636	9.0%
Town of New Denmark	1,482	1,541	3.8%	515	561	8.2%	528	579	8.8%
Town of Pittsfield	2,433	2,608	6.7%	818	954	14.3%	838	978	14.3%
Town of Rockland	1,522	1,734	12.2%	483	595	18.8%	495	622	20.4%
Town of Scott	3,138	3,545	11.5%	1,145	1,337	14.4%	1,234	1,475	16.3%
Town of Wrightstown	2,013	2,221	9.4%	701	808	13.2%	681	840	18.9%
TOTAL	226,658	248,007	8.6%	87,295	99,928	12.6%	90,199	104,371	13.6%
2000 Persons per Household:	2.60			2010 Persons per Household:	2.48				
2000 Housing Vacancy Rate:	3.2%			2010 Housing Vacancy Rate:	4.3%				

*Includes Oneida Nation

Source: U.S. Bureau of the Census 2000 and 2010; and Brown County Planning Commission.

Employment

As shown on Table 2.3, Brown County added 5,245 workers in that ten year time frame. The number and type of employment opportunities grew slightly as well. Brown County continues to enjoy a very diverse economy. In 2000, 23.9 percent of the county's labor force worked in the professional services sector while manufacturing comprised 21.1 percent and wholesale/retail trade comprised 16.6 percent. Ten years later, in 2010, the professional services workforce declined but continued to comprise the largest percentage at 20.6 percent. Manufacturing also declined to 17.9 percent, and wholesale/retail category declined to 15.0 percent from 2000 to 2010. An increase in agriculture/forestry/fishing/hunting/mining offset some of the decline in workforce in Brown County.

Table 2.3: Employment by Category, 2000 and 2010, Brown County, Wisconsin

Employment Category	Number Employed in 2000		Percentage Employed in 2000		Est. Number Employed in 2010		Est. Percentage Employed in 2010		Percent Change 2000 - 2010
Agriculture, Forestry, Fishing, Hunting, Mining		1,503		1.2%		1,904		1.5%	21.1%
Construction		7,436		6.2%		6,233		5.0%	-19.3%
Manufacturing		25,449		21.1%		22,456		17.9%	-13.3%
Wholesale, Retail Trade		20,053		16.6%		18,926		15.0%	-6.0%
Transportation, Warehousing, Utilities		9,880		8.2%		8,776		7.0%	-12.6%
Information		-		-		2,125		1.7%	-
Finance, Insurance, Real Estate, Rental, Leasing		9,805		8.1%		9,806		7.8%	0.0%
Miscellaneous Services		14,166		11.8%		8,628		6.9%	-64.2%
Professional Services		28,774		23.9%		25,965		20.6%	-10.8%
Arts, Entertainment, Recreation, Food Services		-		-		11,815		9.4%	-
Other Services		-		-		5,477		4.4%	-
Public Administration		3,464		2.9%		3,664		2.9%	5.5%
TOTAL		120,530		100.0%		125,775		100.0%	4.2%

Source: U.S. Bureau of the Census American Community Survey, Brown County Planning Commission

Geography

Community Size

Table 2.4 lists each Brown County municipality size in square miles. Brown County is 616 square miles including land and water areas. Incorporated communities cover 220.1 square miles or 35.7 percent of the total county.

Table 2.4: Municipality Size in Square Miles, Brown County, Wisconsin

	Total Planning Area				
Municipality	(Square Miles)				
CITIES					
City of De Pere			11.3		
City of Green Bay			54.3		
Sub-Total			65.6		
VILLAGES					
Village of Allouez			5.2		
Village of Ashwaubenon			12.7		
Village of Bellevue			14.3		
Village of Denmark			1.9		
Village of Hobart*			33.3		
Village of Howard			22.9		
Village of Pulaski (part)			2.2		
Village of Suamico			59.3		
Village of Wrightstown			2.7		
Sub-Total			154.5		
TOWNS					
Town of Eaton			24.3		
Town of Glenmore			32.7		
Town of Green Bay			30.7		
Town of Holland			36.0		
Town of Humboldt			23.9		
Town of Lawrence			16.1		
Town of Ledgeview			17.8		
Town of Morrison			36.5		
Town of New Denmark			34.8		
Town of Pittsfield			32.2		
Town of Rockland			22.9		
Town of Scott			54.3		
Town of Wrightstown			33.7		
Sub-Total			395.9		
TOTAL			616.0		

*Includes Oneida Nation

Source: U.S. Bureau of the Census, Brown County Planning Commission.

Note: Total Planning Area includes both water and land areas.

Land Use

Brown County comprises over of 342,252 acres of land. Of this total, approximately 98,025 acres or 28.6 percent of the land mass of the county is developed. Approximately 242,277 acres or 71.4 percent of the land in the county is undeveloped.

These undeveloped lands consist largely of agricultural lands, pastures, woodlands, and other natural features. A detailed inventory of land uses was completed in 2010 by Brown County Planning Commission staff. The land use information was then compiled into generalized land use categories and presented in Map Figure 2-5.



Table 2.5: Land Use, 2010, Brown County, Wisconsin			
Land Use Type		Actual Total	
Residential		45,068	
Commercial		4,750	
Industrial		6,619	
Transportation		27,490	
Communications / Utilities		2,109	
Governmental / Institutional		3,560	
Park / Recreation		8,429	
Agricultural		169,661	
Natural Features		74,566	
TOTAL		342,252	

Source: Brown County Planning Commission Land Use Inventory 2010.

Residential Land

Residential land accounts for 45,068 acres, or 13.2 percent of the land in the county. The majority of this land is single family residential. Other residential land uses in Brown County included two family residential, multi-family residential, group quarters, and mobile homes. In addition, there is vacant residential land.

Commercial Land

Although commercial land is scattered throughout the county, significant areas of commercial development can be seen along the major highways of Interstate 43, U.S. Highway 41, and State Highway 172; within the central business districts in cities and some villages; and lining commercial strip development along certain urban corridors such as East and West Mason Street. Total commercial land comprises of 4,750 acres, or 1.4 percent of Brown County.

Industrial Land

Industrial land covers 6,619 acres or 1.9 percent of Brown County. Although the majority of the industrial land is dedicated to manufacturing, significant proportions of the industrial land is dedicated to warehousing and storage. Traditionally, industrial lands are generally situated along rail corridors and along rivers. Within the past two

decades, industrial parks have emerged in many of the Brown County cities and villages as well along major highway corridors such as I-43 and U.S. Highway 41.

Transportation Land

The 27,490 acres or 8.0 percent of Brown County transportation land encompasses all modes of transportation. This includes roads, rail, air, marine, and non-motorized modes of moving people, goods, and services. It is the second largest category for developed land. Streets and roads constitute the majority of this land use, but off-street parking and rail and air related uses are also significant transportation land uses.

Communications and Utilities Land

Over 2,109 acres or 0.6 percent of land in Brown County is for communications and utilities uses. Some of the more significant communications/utilities related land uses (in terms of land mass occupied) in Brown County include landfills, recycling plants and other non-landfill disposal facilities, sewage treatment plants, electric power plants and substations, and water utility facilities. Other key uses which fall under this category include natural gas terminals, local telephone services, radio stations and towers.

Governmental and Institutional Land

Governmental and institutional land uses include public and private facilities for education, health or assembly, for cemeteries and/or related facilities, and for all government facilities used for administration or safety, except public utilities and areas of outdoor recreation. This category accounts for 3,560 acres or 1.0 percent of land within Brown County. Examples of institutional or governmental facilities in Brown County include city, village and town halls; post offices; hospitals and clinics; municipal garages; fire stations; law enforcement facilities including prisons and jails, educational facilities, churches and cemeteries.

Park and Recreational Land

Park and recreational land uses include outdoor sports and general recreation, camping and picnicking facilities, nature exhibits, areas designated for the preservation of historic or cultural resources. Park and recreational land accounts for 8,429 acres or 2.5 percent of the land within Brown County, and comprises the third largest developed land category in the county.

Agricultural Land

Agricultural land uses include farm buildings and accessories (barns, silos and sheds used for agricultural purposes), as well as lands devoted to animal husbandry and fish hatcheries/aquaculture. This category accounts for 169,661 acres or 49.6 percent of the land in Brown County.

Natural Features

Natural features include all other natural areas and environmentally sensitive areas not included in the above referenced undeveloped areas. This category accounts for 74,566 acres or 21.8 percent of the total land area in Brown County.

General Development Trends

The following development trends have been observed in Brown County. It is expected that these trends will influence the county's future growth and its preservation of natural,

agricultural, and agricultural resources. All local municipalities in the county will need to address them within their planning processes. These basic development trends include:

- Existing areas of higher density development will continue as new areas outside established neighborhoods in cities and villages develop at lower densities.
- Brown County can expect an increase in the number of dwelling units over the next several years.
- Brown County's natural features will continue to be impacted due to the high rate of development throughout the county, increasing the potential for negative impacts.
- Commercial and industrial land uses will continue to increase along main transportation corridors Interstate 43, U.S. Highways 41 and 141, State Highways 32, 57, 54, 29, and 172 to capitalize on good visibility and ease of access.
- Brown County will experience an increased demand for services as the population's median age continues to increase.

CRITICAL COMMUNITY INFRASTRUCTURE (“CRITICAL FACILITIES”)

A critical facility is a structure that, if destroyed, would present an immediate threat to life, public health, and safety. Brown County determined criticality based on the relative importance of its various assets for the delivery of vital services, the protection of special populations, and other important functions. Impacts on critical facilities include impacts to schools, communication facilities, utilities, health facilities, police and fire stations, municipal and county government structures, hospitals and major clinics, prisons and jails, shelters, etc.

Table 2.6 lists the critical facility categories selected by the Brown County All Hazards Mitigation Plan Steering Committee. Figure 2.6 at the end of this chapter shows all critical facilities in the county classified by critical facility type.



Table 2.6: Critical Facility Categories, Brown County, Wisconsin									
Administrative Building					Post Office				
Bridge					Pre-School / Day Care				
Dam					Prison or Jail				
Electric Power Facility					Radio / Television Station				
Electric Power Plant					Radio / Television Transmission Towers / Antenna				
Generation / Processing of Communication Utilities					School				
Health Institution / Government Facility					School - Higher Education				
Hospital					Sewage Sludge or Water Supply Chemical Disposal				
Long-Term Health Care Facility					Sewage Treatment Plant				
Major Electric Power Transmission Lines					Sports Stadium / Arena				
Military Installation					Telephone Terminal / Dispatch Center				
Mobile Home Park					Transmission of Communication / Utilities				
Natural Gas Substation					Water Supply Booster / Pumping Station				
Natural Terminals Plant					Water Supply Filter Treatment Plant				
Other Liquid Fuel Substation					Water Supply Storage Tank / Reservoir				
Other Liquid Fuel Terminal Plant					Water Supply Well				
Police / Fire Station / Office									

Source: Brown County All-Hazards Mitigation Plan Steering Committee

Schools

Brown County has 12 school districts within the county borders. Four of those school districts do not have any facilities within Brown County: Brillion, Kaukauna, Luxemburg-Casco, and Reedsville. Table 2.7 references the number of facilities and Map Figure 2-7 displays boundaries of each of the 12 school districts. PreK-12 schools are also highlighted on the county critical facilities Map Figure 2-6 as “School” and institutions of higher education are displayed as “School - Higher Education”.

There are several private schools in Brown County that complement the local public schools. Some of the larger facilities include Notre Dame Academy, and Northeastern Wisconsin Lutheran High School.

Table 2.7: Public School Districts Within Brown County, Wisconsin

School District	Number of Facilities	Student Enrollment
Ashwaubenon	5	3,164
Denmark	5	1,493
Brillion	-	-
De Pere	5	3,860
Green Bay	36	20,287
Howard-Suamico	7	5,391
Kaukauna	-	-
Pulaski	7	3,729
Luxemburg-Casco	-	-
Reedsville	-	-
West De Pere	3	2,875
Wrightstown	3	1,296
TOTAL	71	42,095

Source: CESA 7 Website, Brown County Planning Commission.

In addition to the area public school districts, Brown County also has a number of institutions of higher education. They include:

- University of Wisconsin-Green Bay
- Northeast Wisconsin Technical College
- St. Norbert College
- Bellin College of Nursing
- College of Menominee Nation
- Globe University
- ITT Technical Institute
- Rasmussen College



Brown County Public Facilities

Brown County owns a large number of public parks, administrative buildings, government offices, maintenance facilities, public works, and open spaces throughout the county. Several of these public facilities have been identified as critical facilities and are mapped on Map Figure 2-6.

Places of Interest

There are several sites in Brown County that are regional attractions that draw a large number of visitors for special events, as well as on a seasonal or year-round basis. These areas have been identified as locations for concern and specific mitigation strategies have been developed during the planning process to appropriately address problems resulting from natural disasters. These sites include:

- Lambeau Field
- Resch Center/Shopko Hall/Brown County Arena
- Kress Events Center at UW-Green Bay
- N.E.W Zoo
- Bay Park Square
- Schuldes Sports Center at St. Norbert College
- Bay Beach Amusement Park
- Bay Beach Wildlife Sanctuary
- Brown County Fairgrounds
- Green Bay Botanical Gardens
- Oneida Casino
- KI Convention Center
- National Railroad Museum
- Heritage Hill State Park
- Weidner Center for the Performing Arts



Events

In addition to places of interest in Brown County, there are a number of short-term or day-long events held throughout the year that draw a large number of spectators or participants. These events have been examined and appropriate mitigation strategies have been developed if a natural disaster were to occur during the events. These highly attended events include:

- | | |
|--|------------------------------|
| • Artstreet | • Hispanic Festival |
| • Bellin Run | • Native American Festival |
| • Celebrate De Pere | • PFC Ryan Jerabek Challenge |
| • Cellcom Green Bay Marathon | • Pulaski Polka Days |
| • Festival Foods Fireworks & Celebrate Americafest | • Oneida Nation Pow-Wwow |

Transportation

The transportation system in Brown County provides the primary means by which people and goods move about the county. The county's transportation infrastructure is comprised of roads, bridges, railroads, airports, transit, and ports/marinas. The transportation infrastructure of the county is crucial for providing emergency services and evacuation before, during, and after a hazard event. Hazard events can have other significant impacts on the transportation systems such as snow and ice, major accidents, or hazardous materials spills. Impacts to transportation infrastructure are evaluated for each hazard event in Chapter 3. Transportation facilities in Brown County, such as airport facilities, bridges, and bus facilities, are displayed on the county critical facilities map, Map Figure 2-6 and the county transportation network is displayed on Map Figure 2-8.

Roads

Brown County currently contains one interstate highway, two US highways, nine state highways, several county trunk highways, and many local streets. These streets and highways are currently the primary means of reaching the County's residential, commercial, industrial, and other destinations. There are 2,107 gross miles of roads in Brown County. Of that total, 1,750 miles are under jurisdiction of the local communities and 357 miles are maintained by the county. For maps of county roads by functional class, please refer to the *Brown County Comprehensive Plan*.



Bridges

There are a significant number of bridges in Brown County when considering all overpasses for highways, roads, and streets, rail, and water bodies. Note: Bridges for the purposes of this plan also include culverts. Although a majority of these critical passageways are small, local bridges providing passage across waterway, many are considered vital to the movement of people and goods around the county, particularly those that cross the Fox River. These include the Leo Frigo, Main Street (Nitschke), Walnut Street, Mason Street (Tilleman), and the Claude Allouez (De Pere), STH 172, and STH 96 (Wrightstown) bridges.



Railroads

Brown County has two railroads serving customers throughout the county-Canadian National Railroad and the Escanaba and Lake Superior Railroad Company. Canadian National has three rail lines: one runs from Green Bay to the Village of Luxemburg in Kewaunee County; the second runs from Green Bay to the Village of Denmark; and a third run stretches north-south from the Fox Valley north to the City of Oconto in Oconto County. The 208 mile mainline of the Escanaba and Lake Superior Railroad Company extends from Ontonagon, Michigan on the shores of Lake Superior to Green Bay. In addition to the mainline, two key branches are the 6-mile Stiles Junction to Oconto Falls line and the 21-mile Crivitz to Marinette/Menominee line.

Airports

Brown County is served by one major airport, the Austin Straubel International Airport. As the third largest airport in the State of Wisconsin, Austin Straubel International Airport operates a 24 hour, 365 day a year operation. As such, the airport is a key ingredient to northeastern Wisconsin's economic growth and quality of life. The airport provides job opportunities for over 2,000 people in northeast Wisconsin. Austin Straubel International Airport serves the citizens and business community of Brown County and Northeast Wisconsin by operating the facilities necessary to support commercial and general aviation activities. The Airport is currently served by four major airlines with seven direct service cities with connections available to any destination in the world. Austin Straubel International Airport is also a regional base of operations for the Federal Aviation Administration and the Transportation Security Administration serving one-third of Wisconsin and the Upper Peninsula of Michigan.

Transit

The urbanized portion of Brown County is served by two public transit agencies (Green Bay Metro and the Oneida Transit System) and several private transit providers that primarily offer services to elderly and disabled residents of the area. Green Bay Metro operates 14 full service fixed routes and several limited service routes in the Cities of Green Bay and De Pere and the Villages of Allouez, Ashwaubenon, and Bellevue (see Figure 3-5 for Metro's fixed route system). Metro also connects with the Oneida Transit System on the west side of Green Bay to enable people to transfer between the two systems.

Ports and Marinas

Brown County has one port, (Port of Green Bay) and nine marinas with five of them in Green Bay: Eagles Nest Marina, Green Bay Yachting Club, City Centre Marina, South Bay Marina, The Boat Yard Marina, and the Allouez Yacht Harbor; River Place Yacht Club in Ashwaubenon; and the Shipyard, Joe's Anchor, and Windjammer's Sailing Club in Suamico.

Dams

According to the Wisconsin Department of Natural Resources, Brown County has 37 dams of various sizes located throughout the county (Appendix G). Of those 37 dams, there is one large dam with a "high" hazard rating located in Ashwaubenon. There are two additional large dams with estimated hazard ratings, based on a WDNR assessment of downstream land uses, of "significant" hazard rating in De Pere and

Lawrence. The remaining structures are large and small dams with “low” hazard ratings. Dams in Brown County are displayed on the county critical facilities map, Map Figure 2-6.

The large dam with a “high” hazard rating in Ashwaubenon is the Lamers Pond Dam over the Dutchman’s Creek Tributary. The Village of Ashwaubenon hired Foth and Van Dyke to complete an emergency action plan for the dam in 2002. The *Emergency Action Plan: Lamers Packerland Drive Detention Basin Control Structure* describes the dam hazard area; identifies those responsible for dam operation and implementation of the EAP; and describes the procedures for training participants, and reviewing, testing, and updating the EAP.

Dam Description:

The Lamers Basin control structure is located on a tributary to Dutchman’s Creek as it passes under Packerland Drive just north of Interstate Highway 172, in Section 5, T23N, R20E. The dam is formed by the Packerland Drive roadway, which is owned and operated by the Brown County Highway Department. The Village of Ashwaubenon constructed and operates the control structure, regulating discharges through the Packerland culvert system. The drainage area at the dam is approximately three square miles. The reservoir flood storage capacity is 55 acre-feet at the emergency spillway crest (top of Packerland Drive), elevation 661.1 feet. Downstream of the dam, this tributary winds through fully developed residential areas before its confluence with Dutchman’s Creek near STH 172/41 interchange. The main components of the dam are:

- Homogenous earth embankment, approximately 200 feet long at the toe, with a crest (top of road) elevation of 661.1 feet and an approximate structure height of 19 feet.
- Embankment slopes of 3H:1V, with a 76 feet wide road surface on the top (back of curb to back of curb).
- Basin outlet control structure which reduces the existing twin 54-inch culverts under Packerland Drive to twin 42-inch pipe outlets.
- Basin outlet control structure also includes a box configuration with a concrete weir overflow (elevation 651.3) and a low-flow fish gate with flowline at elevation 645.0.

The Brown County Highway Department and Village of Ashwaubenon replaced the single 60” culvert in 1998 with the twin 54” culvert which now exist under Packerland Drive.

Area Affected by a Breach or Major Flooding:

A detailed floodplain study was completed throughout this stream system establishing floodplain limits for floodplain zoning. A 100-year storm event with dam “non-existent” was also performed to determine the area that would be inundated if the dam were not in place and future development were to occur throughout the drainage basin. This

higher flow condition has been mapped as the regulated downstream floodplain. A limited dam failure analysis was also performed downstream of the detention basin. The results of that evaluation showed the “hydraulic shadow” to be well contained within the valley section and below all residences except as noted below. The “hydraulic shadow” ends within about 2,000 feet of Packerland Drive.

Population Affected

Only one residence (a low-lying home with a walk-out basement on the left overbank just upstream of Shady Lane) may be subject to flooding during the 100-year flood. Otherwise, no other residences, buildings, or campgrounds would be inundated during flooding or by the failure of the structure. The 2012 total assessed value of the one residence is \$182,500.

Critical Facilities

No critical facilities, such as hospital, rescue and relief facilities, water supply facilities, hazardous waste facilities, or bridges, are in the hazard area.

Communication Facilities

Brown County has an extensive communications infrastructure. Television, radio, newspapers, and broader electronic and print media serve as the primary means of notifying the public of hazard events in Brown County. These various types of communication facilities are displayed on the county critical facilities map, Map Figure 2-6. In addition to the traditional communication methods, hazard events are increasingly noticed by way of social media and can be distributed by way of text messages.

Newspaper

Brown County is served by one newspaper, the Green Bay Press-Gazette, which is a daily newspaper owned by Gannett Company, Inc.

Television

There are seven local broadcast television stations that service Brown County. Table 2.8 identifies each of these stations as well as their national affiliate and the location from which they broadcast.

Table 2.8: Broadcast Television Stations Serving Brown County, Wisconsin				
Name	Channel		Affiliate	Broadcast Location
WBAY-TV	2	2-1, 2-2, 2-3	ABC	Green Bay
WFRV-TV	5		CBS	Green Bay
WLUK-TV	11		Fox	Green Bay
WCWF	14		CW	Suring
WGBA	26	26-1, 26-2	NBC	Green Bay
WACY	32		MNT	Appleton
WPNE	38	38-1, 38-2, 38-3	PBS	Green Bay

Source: Wikipedia®, a registered trademark of the Wikimedia Foundation, Inc., 2012.

Radio

There are 45 FM and AM radio stations that broadcast to Brown County. The following chart lists these stations.

Call Sign & Frequency	Station Name	Location	Format
WHID 88.1 FM	Wisconsin Public Radio	Green Bay, WI	Public Radio, Radio
WRGX 88.5 FM	The eXtreme	Sturgeon Bay, WI	Christian Contemporary, Radio
WPNE 89.3 FM	Wisconsin Public Radio	Green Bay, WI	Public Radio, Radio
WHND 89.7 FM	Wisconsin Public Radio	Sister Bay, WI	Public Radio, Radio
WORQ 90.1 FM	Q90 Christian Rock Radio Station	Green Bay, WI	Christian Contemporary, Radio
WPFF 90.5 FM	WPFF 90.5 FM Sturgeon Bay	Sturgeon Bay, WI	Christian Contemporary, Radio
WLFM 91.1 FM	Lawrence University	Appleton, WI	Public Radio, Radio
WEMY 91.5 FM	Christian Family Radio	Green Bay, WI	Religious, Radio
WHDI 91.9 FM	Wisconsin Public Radio	Sister Bay, WI	Public Radio, Radio
WJMQ 92.3 FM		Clintonville, WI	Country, Radio
WAUN 92.7 FM		Kewaunee, WI	Talk, Radio
WOZZ 93.5 FM	WOZZ 93.5 FM - The Classic Rock Station	New London, WI	Classic Rock, Radio
WDOR 93.9 FM	WDOR 93.9 FM	Sturgeon Bay, WI	Country, Radio
WZOR 94.7 FM	Razor 94.7 WZOR	Mishicot, WI	Rock, Radio
WLST 95.1 FM		Marinette, WI	Adult Contemporary, Radio
WKSZ 95.9 FM	Mix 95.9 FM - Today's Best Variety	De Pere, WI	Top-40, Radio
WSFQ 96.3 FM		Peshtigo, WI	Oldies, Radio
WBDK 96.7 FM		Algoma, WI	Oldies, Radio
WSRG 97.7 FM		Sturgeon Bay, WI	Adult Contemporary, Radio
WQLH 98.5 FM	Star 98 - A better variety of music	Green Bay, WI	Hot AC, Radio
WOWN 99.3 FM		Shawano, WI	Oldies, Radio
WLYD 99.7 FM	Wild 99.7 FM - Green Bay's Party Station	Sturgeon Bay, WI	Top-40, Radio
WNCY 100.3 FM	Y100 - Wisconsin's Favorite Country	Neenah-Menasha, WI	Country, Radio
WIXX 101.1 FM	101 WIXX - Your #1 Hit Music Station	Green Bay, WI	Top-40, Radio
WRKU 102.1 FM		Forestville, WI	Oldies, Radio
WRVM 102.7 FM	Wisconsin's Radio Voice of the Master	Suring, WI	Religious, Radio
WOGB 103.1 FM	GB's Oldies Station - Super Hits of 60s and 70s	Kaukauna, WI	Oldies, Radio
WRLU 104.1 FM		Algoma, WI	Country, Radio
WECB 104.3 FM	104.3 The Breeze	Seymour, WI	Adult Contemporary, Radio
WPCK 104.9 FM		Denmark, WI	Country, Radio
WAPL 105.7 FM	105.7 WAPL Wisconsin's Rock Station	Appleton, WI	Rock, Radio
WJLW 106.7 FM	106.7 The Eagle - The Rock of Green Bay	Allouez, WI	Classic Rock, Radio
WOCO 107.1 FM		Oconto, WI	Nostalgia, Radio
WDUZ 107.5 FM	The Fan Sports Radio 107.5 FM	Brillion, WI	Sports, Radio
WLWR 107.7 FM		Marinette, WI	Variety, Radio
WMAM 570 AM		Marinette, WI	Sports, Radio
WDOR 910 AM		Sturgeon Bay, WI	Nostalgia, Radio
WTCH 960 AM		Shawano, WI	Country, Radio
WJOK 1050 AM		Kaukauna, WI	Religious, Radio
WOCO 1260 AM		Oconto, WI	Country, Radio
WTAQ 1360 AM	News Radio 1360	Green Bay, WI	News/Talk, Radio
WFCL 1380 AM		Clintonville, WI	Nostalgia, Radio
WDUZ 1400 AM	The Fan Sports Radio 1400 AM	Green Bay, WI	Sports, Radio
WNFL 1440 AM	The Talk that Rocks	Green Bay, WI	Talk, Radio
WTRW 1590 AM	The Oldies Station	Two Rivers, WI	Oldies, Talk, Radio

Source: OnTheRadio.Net, 2012.

Power Facilities

The energy generating plants located in Brown County include both publicly- and privately-owned facilities. Various types of power facilities are mapped on the county critical facilities map, Map Figure 2-6.

Public Water Supply Systems

Based upon data obtained from the Wisconsin Department of Natural Resources' drinking water website, there are 149 separate public water systems within Brown County. These systems can be used by the general public and are regulated by the WDNR. There are approximately 6,640 documented wells including those serving residents living in unincorporated and incorporated communities outside the Green Bay metro area. The City of Green Bay and Village of Ashwaubenon obtain their water from Lake Michigan through a pipeline originating near the City of Kewaunee. The City of De Pere and the villages of Allouez, Bellevue, and Howard and towns of Lawrence and Ledgeview comprise the Central Brown County Water Authority and are receiving water from Lake Michigan through a pipeline originating in the City of Manitowoc.

Wastewater Treatment Systems

Most of Brown County is served by Green Bay Metropolitan Sewerage District wastewater treatment system and is within the Brown County Sewer Service Area (SSA). The City of De Pere system was connected to the Green Bay Metropolitan Sewerage District wastewater treatment system in 2009. The SSA Plan identifies those areas eligible to receive sanitary sewer service so that wastewater treatment facilities can be designed to provide adequate treatment capacity for the anticipated population growth in the sewer service area, while protecting sensitive natural areas and water quality.

Military Installations

Brown County has two military installations. The Army National Guard Unit is located on Military avenue in Green Bay. The Army Reserve 432nd Civil Affairs Unit is stationed in Ashwaubenon. These military installations are displayed on the county critical facilities map, Map Figure 2-6.

EPCRA Facilities

Emergency Planning and Community Right to Know Act (EPCRA) establishes requirements for Federal, State and local governments, Indian Tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment. EPCRA facilities in Brown County are displayed on the county critical facilities map, Map Figure 2-6.

EMERGENCY SERVICES AND FACILITIES

The Brown County Dispatch Center provides county-wide communications for the public to police, fire, and emergency medical services. Emergency facilities, such as police, fire, and medical, are displayed on the county critical facilities map, Map Figure 2-6.

Police

The Brown County Sheriff's Department, located in Bellevue, is a full service law enforcement agency that serves all portions of Brown County that do not provide their own law enforcement and protection services, including Allouez, Bellevue, Eaton, Glenmore, Green Bay (town), Holland, Howard, Humboldt, Ledgeview, Morrison, New Denmark, Pittsfield, Rockland, Scott, Suamico, and Wrightstown (town). The communities of Allouez, Bellevue, Howard, and Suamico also contract for additional police services from the sheriff's department.

The remaining communities within Brown County provide their own law enforcement, including the Cities of De Pere and Green Bay, the Village of Ashwaubenon, and the Oneida Nation. The communities of Denmark, Hobart, Lawrence, Pulaski, and the Village of Wrightstown also provide their own law enforcement but contract with the sheriff's department for backup service when necessary.

Fire, Rescue, and Emergency Medical Services

As with most counties in Wisconsin, Brown County does not provide fire, rescue services or emergency medical services. Fire services in Brown County are provided on an individual community basis or are obtained through contracts with neighboring communities. There are 18 fire districts in Brown County. They include Bellevue; Denmark (with service to Eaton, portions of Glenmore, and New Denmark in Brown County and Franklin in Manitowoc County); Hobart; Holland; Pulaski (with service to Pittsfield); Suamico; Wayside; Wrightstown (village); Lawrence; New Franken (a joint department between the towns of Green Bay, Humboldt, and Scott); Greenleaf (with service to the western half of Rockland and to the Town of Wrightstown); Morrison (with service to the eastern half of Rockland, portions of Glenmore, and to Morrison); Ledgeview (with service to portions of Glenmore); De Pere (with service to Lawrence); Allouez; Howard; and the City of Green Bay. Lastly, Austin Straubel International Airport has a private contracted Fire Department (Protect), and many of the area paper mills and one chemical company have internalized Fire Brigades both structural and incipient.

The Federal and State governments define departments as *Career departments – 100% paid FTE with not part-time supplemental staffing*. Currently Green Bay is the only completely career department in Brown County. Combination departments – some career positions supplemented with paid on call or part-time coverage. Allouez, Ashwaubenon, Bellevue, Howard, and De Pere are officially combination departments. Volunteer – do not work duty shifts, receive no pay per call, or only receive a stipend for expenses per the IRS “*bright line*” test. Morrison, Holland Town, Greenleaf, New Franken, Pulaski, Hobart, Suamico and Lawrence fall into this category.

Rescue and emergency medical services are also provided on an individual community basis or are obtained through agreements/contracts with neighboring communities or private providers. As examples, most communities in Brown County rely upon County Rescue Services, a private provider located in the Village of Bellevue with additional stations in Howard, Suamico and Denmark that is supported by a joint partnership with Bellin and St. Vincent Hospitals. These communities include the towns of Eaton, Glenmore, Green Bay, Hobart, Holland, Howard, Humboldt, Morrison, Rockland, Scott,

Suamico, Wrightstown (both village and town) and the Village of Bellevue. The villages of Allouez and Ashwaubenon and cities of De Pere (with service to Lawrence and Ledgeview) and Green Bay provide their own rescue services.

Hospitals

Brown County has four hospitals serving the county and municipalities. They are the Aurora BayCare Medical Center on 2845 Greenbrier Road in Green Bay; St. Mary's Hospital on 1726 Shawano Avenue in Green Bay; Bellin Health Center on 744 S. Webster Avenue in Green Bay; and St. Vincent Hospital on 835 S. Van Buren Street in Green Bay.

Medical Clinics

The Brown County Hazard Mitigation Plan identified clinics facilities that can immediately, and/or easily, be adapted to shelter-in-place inpatient and victim medical services. These facilities may be needed in the time of a community disaster that requires hospitals to activate surge capacity and/or should a hospital disaster occur that renders the facility inhospitable for patient occupancy. As agreed upon by the Steering Committee, elements of consideration for these critical facilities are those buildings that may have medical utilities (electrical generators, medical gas systems, life safety compartmentalization, imaging equipment, laboratory services, and surgical capabilities), physically large enough to provide critical mass, and/or are under the business auspice of the hospital. The identified critical clinic facilities are:

Aurora BayCare Health Clinic located at 2845 Greenbriar Road in Green Bay, Wisconsin. Aurora BayCare Health Clinic located at 2253 West Mason Street in Green Bay, Wisconsin. These clinics are affiliated with Aurora BayCare Medical Center.

Bellin Health located at 2020 South Webster Avenue in Allouez, Wisconsin. This clinic is associated with Bellin Health.

Brown County Community Treatment Center located at 3150 Gershwin Drive in Green Bay, Wisconsin. This is a Brown County owned and operated facility.

Webster Medical Building located at 725 South Webster Avenue in Green Bay, Wisconsin; and the Ashwaubenon Clinic and Sports Center located at 1630 Commanche Avenue in Green Bay, Wisconsin. Both clinics are affiliated with Bellin Health.

Riverside Psychiatric Group located at 1325 Angel's Path in the Town of Ledgeview. This clinic is privately owned.

St. Mary's Hospital Community Center located at 1673 Dousman Street in Green Bay, Wisconsin; and Manor Care West located at 1760 Shawano Avenue in Green Bay, Wisconsin. Both clinics are affiliated with St. Mary's Hospital.

Prevea Clinic Allouez Site located at 1821 South Webster Avenue in Green Bay, Wisconsin; and Prevea Clinic Webster Site located at 900 South Webster Avenue in Green Bay, Wisconsin; Out-Patient Dialysis Center located in Allouez Plaza at 1920 Libal Street in Green Bay, Wisconsin; and the Aldo Leopold located at 622 Eliza Street in Green Bay, Wisconsin, which would be used as Family Care Center. Prevea Ashwaubenon Health Center at 2502 Ashland in Green Bay, Wisconsin which is

connected to Western Racquet Club. The above-listed clinics are affiliated with St. Vincent Hospital.

A Future Veteran's Clinic, located at the 2800 block of Curry Court and University Avenue in Green Bay. This clinic will be under construction until spring of 2013.

Emergency Warning Systems

Most of the cities and villages in Brown County have emergency sirens to warn residents in the event of a tornado. There are 55 tornado sirens in the county. The county Dispatch Center is responsible for testing and activating the systems.

Emergency Operations Center

Brown County emergency response operations will be carried out at Brown County's designated Emergency Operations Center (EOC) in the City of Green Bay. The EOC has 24-hour per day operational capabilities.

Heavy Equipment Inventory

Brown County and each of the municipalities maintain a wide array of heavy equipment that could be available during specific emergency response situations. On certain projects and during times of an emergency, the county and communities will share specific pieces of equipment on a lease or rental basis.

Community	Emergency Contact	24-Hour Contact
Brown County	Paul Van Noie, Public Works Director	920-676-5270
City of Green Bay	Ed Wiesner, Public Works Director	920-448-3105
City of De Pere	Scott Thoresen, Public Works Director	920-339-4060
Oneida Tribe	Bruce Danforth, Public Works Manager	920-869-1059
Village of Allouez	Craig Berndt, Public Works Director	920-448-2800, ext. 108
Village of Ashwaubenon	Doug Martin, Director of Eng. & Utilities	920-492-2337
Village of Howard	Geoff Farr, Public Works Director	920-434-4060
Village of Bellevue	Bill Balke, Public Works Director	920-468-5225
Village of Hobart	Jerry Lancelle, Pub. Works Coordinator	920-869-3807
Village of Suamico	Randy Loberger, Public Works Director	920-434-8410
Village of Denmark	J. Everett Mitchell, Administrator	920-863-6400
Village of Pulaski	Tom Holewinski, Street Superintendent	920-822-5192
Village of Wrightstown	Steve Johnson, Administrator	920-532-6006
GB Water Department	Bill Nabak, General Manager	920-448-3489
Wisconsin Public Service	Mike Steier	920-433-1359

Private Contractors

Brown County and several communities work with the following major vendors to secure heavy equipment/vehicles when needed:

Aring Equipment Company, Inc., 1800 N. Ashland Avenue, De Pere, WI 54115, 920-336-3601

Badger Crane & Dragline, 1316 Russett Court, Green Bay, WI 54313, 920-662-7624

Barlament Erection and Crane Rentals, 1575 Lineville Road, Green Bay, WI 54313, 920-434-3677

Brooks Tractor Incorporated, 1031 Lawrence Drive, De Pere, WI 54115, 920-336-5711

Fabco Equipment Inc., 600 Hansen Road, Green Bay, WI 54301, 920-498-8000

Fabco Rents, 1654 Morrow Street, Green Bay, WI 54302, 920-432-0100

4 Star Equipment, Inc. 1201 O'Hare Blvd, Hobart, WI 54115 920-983-9300

Kocken Construction Equipment, 780 Morris Ave., Green Bay, WI 54304, 920-494-7429

Miller-Bradford & Risberg Inc., 3203 French Road, De Pere, WI 54115, 920-338-5800.

M&R Track Service, 3751 Creamery Road, De Pere, WI 54115, 920-336-3036

Riesterer & Schnell, Inc., N2909 State Highway 32, Pulaski, WI 54162, 920-822-3077

Riesterer & Schnell, Inc., 3200 S. County Road P, Denmark, WI 54208, 920-863-2181

Roland Machinery Company, 3275 French Road, De Pere, WI 54115, 920-532-0165

RSC Rental Equipment, 3161 Market Street, Green Bay, WI 54304, 920-337-0777

Service Motor Company, 3969 Champeau Road, New Franken, WI 54229, 920-468-7700

United Rentals, 2046 Creamery Road, De Pere, WI 54115, 920-336-2144

Weyers Equipment, Inc., N1957 E. Frontage Road, Kaukauna, WI 54130, (920) 766-1861

Bulk Fuel

A major regional critical facility is the West Shore Pipe Line. This petroleum pipeline system originates in the Chicago area and extends north to Green Bay, Wisconsin. The pipeline system transports refined petroleum products to markets in northern Illinois and Wisconsin from the greater Chicago area. The operation and ownership of the original West Shore Pipe Line was combined with the former Badger pipeline system in 1998. A limited disruption of the flow of petroleum product through the pipeline could be offset by a number of local and regional bulk fuel haulers as listed below.

- Kwik Trip – 1626 Oak St., La Crosse, WI 54603, Phone: 608-781-8988
- Titledown Oil – 1275 Glory Rd., Green Bay, WI 54304, Phone: 920-336-8983
- Packer City International – 611 Hansen Rd., Green Bay, WI 54304, Phone: 920-499-0878

- Halron Oil Company – 1618 State St., Green Bay, WI 54306, Phone: 920-436-4000
- Klemm Tank Lines – 2204 Pamperin Rd., Howard, WI, 54313, Phone: 920-434-6343
- Semfuel – 955 Challenger Dr., Green Bay, WI 54311, 800-236-5858 for 24-hour petroleum delivery, Joe Vandenhouten, Great Lakes Region Manager, Phone: 920-437-0466
- Tilot Oil Company, 1121 McDonald St., Green Bay, WI 54303, Phone: 920-432-7711

OTHER INFORMATION

Additional pre- and post-disaster information may be needed during or after a disaster event. The following is some information that could be helpful.

Pre-Disaster

Elderly Housing

The elderly population is a demographic that may be exceptionally vulnerable to hazard events. Brown County has a large number of elderly housing facilities located throughout the county. Each of the individual facilities should maintain their own emergency preparedness and evacuation procedures. “Long-term Health Care Facilities” are displayed on the county critical facilities map, Map Figure 2.6.

Staging Areas

As stated in the Brown County Evacuation Plan, temporary collection points will be set up at the county polling places located within the evacuation area. Community Emergency Response Team (CERT) Volunteers will be assist evacuees at these polling places. Transportation resources will be directed to the staging area as determined by officials in the incident command center. A list of polling places and evacuation routes are provided in the county’s evacuation plan.

Temporary Shelters

Temporary shelters, designed for short duration lodging, may be needed before, during, and after a hazard event to provide beds and basic sanitary facilities. Brown County has identified 22 temporary emergency shelters located throughout the county that can provide interim housing for people evacuated from their homes. These shelters consist primarily of schools and churches, plus facilities such as the Red Cross building and other public owned buildings. A list of Brown County shelters can be found in the *Brown County Evacuation Plan*.

The primary temporary shelters are located at the city’s four high schools-Preble, Green Bay East, Green Bay West, and Green Bay Southwest. One of the high schools will be designated as a special needs shelter and the required, pre-position, supplies will be distributed to that shelter. This shelter will be staffed by non-Red Cross volunteers.

The Red Cross currently has 22 agreements with various public and private facilities to temporarily house displace persons in Brown County. Total sleeping capacity available through these agreements is 13,835 persons and total feeding capacity is 8,218 persons. Eleven facilities provide eating, sleeping, and emergency back-up power in the same location.

Temporary Pet Shelters

Temporary pet shelters may also be needed before, during, and after a hazard event if people are required to evacuate their homes. It is important to provide a method to segregate the pets in the shelters. Aside from the Bay Area Humane Society, there are no other temporary pet shelters in the county.

Post-Disaster**Solid and Special Waste Landfills**

Often, the remaining debris from a destructive storm event cannot be land filled in typical landfills. Therefore, it is important to know where the nearest subtitle-d solid and special waste landfills are located. Brown County does not maintain a landfill of this nature in the county. However, the Veolia Inc. landfill in Outagamie County and Waste Management's landfill near Whitelaw may be used as disposal sites in case of an emergency.

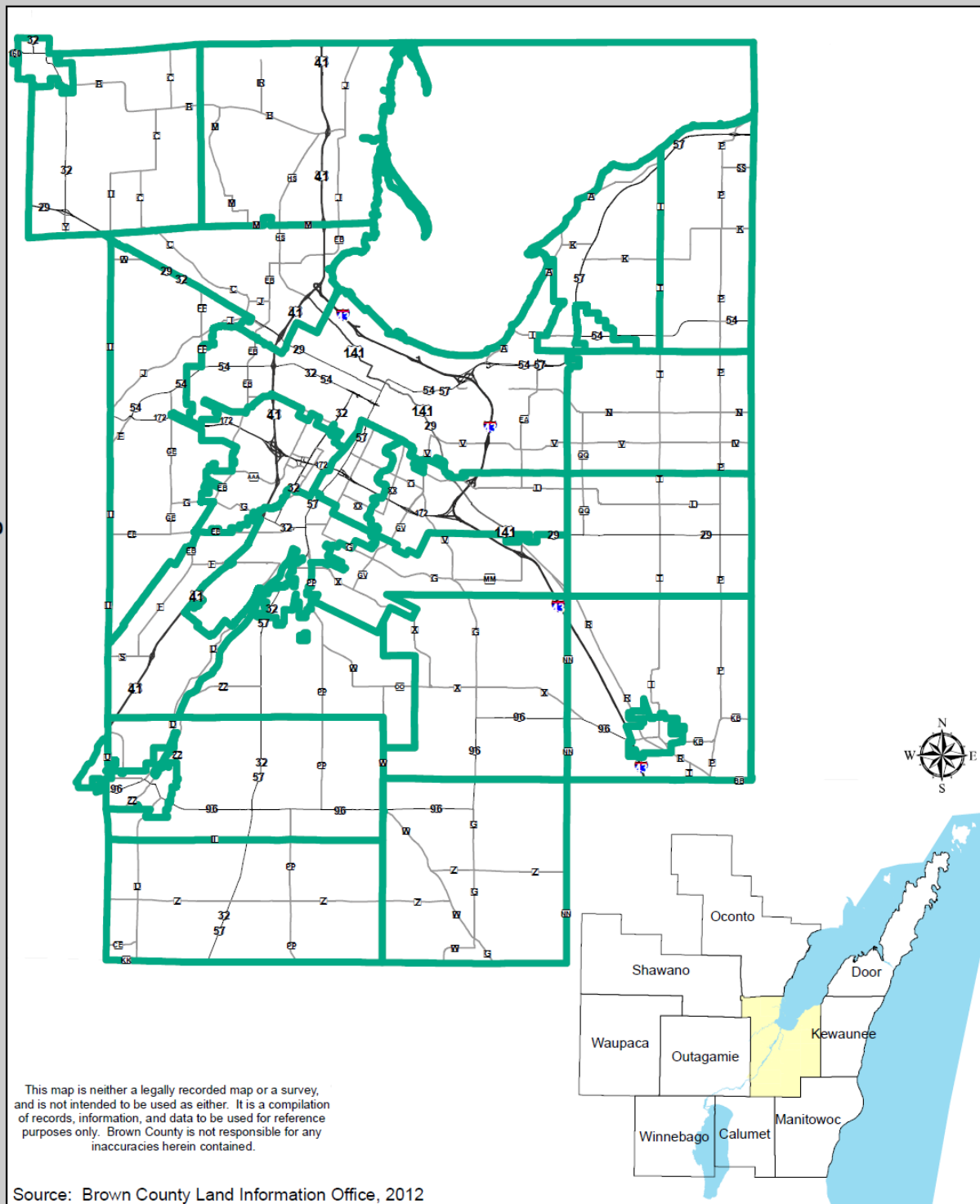
Long Term Shelters

Long term shelters may be needed if people are unable to return to their homes for an extended period after a hazard event. Brown County has identified 22 long term shelters located throughout the county with a capacity of 6,724 people. Housing arrangements for those residents permanently displaced by the natural disaster will be made primarily through the Brown County Department of Human Services or Integrated Community Services.

Long Term Pet Shelters

Humane Societies often serve as long-term pet sheltering facilities if needed after a hazard event. Bay Area Humane Society may be able to fill this role along with volunteer pet owners.

Figure 2-1

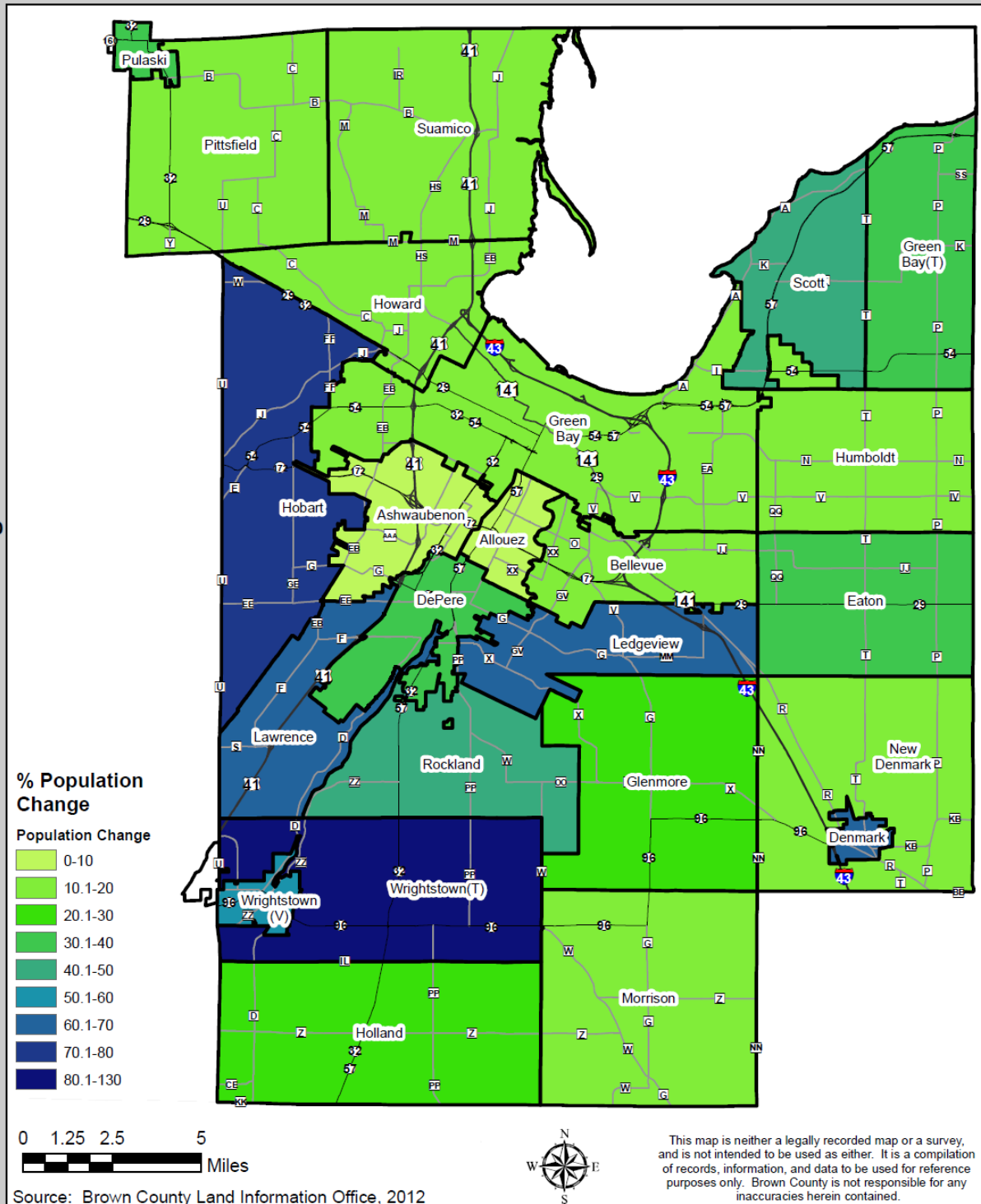


Population Percent Change 2000-2010

Brown County All Hazard Mitigation Plan

Brown County, WI

Figure 2-2

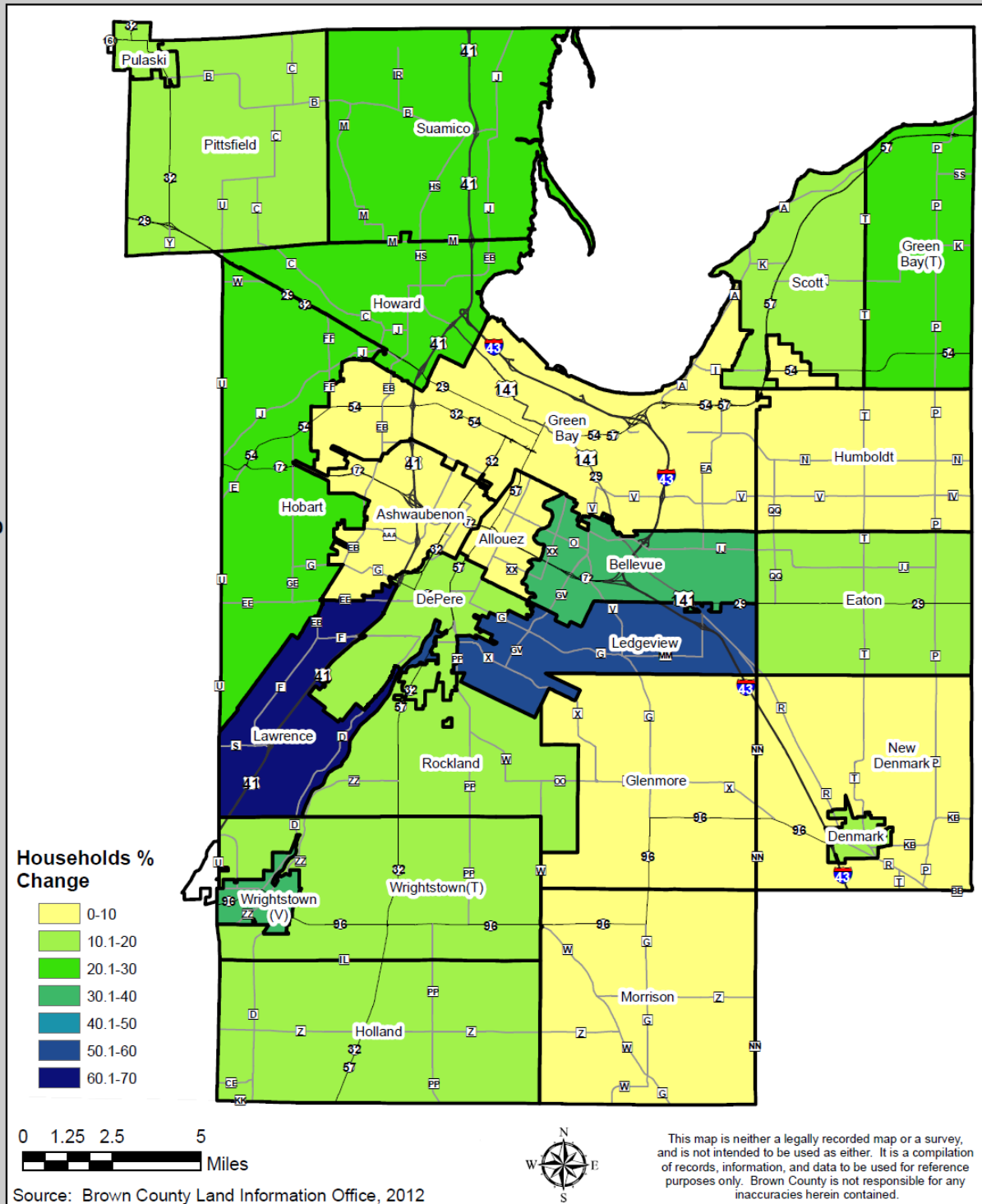


Households Percent Change 2000-2010

Brown County All Hazard Mitigation Plan

Brown County, WI

Figure 2-3

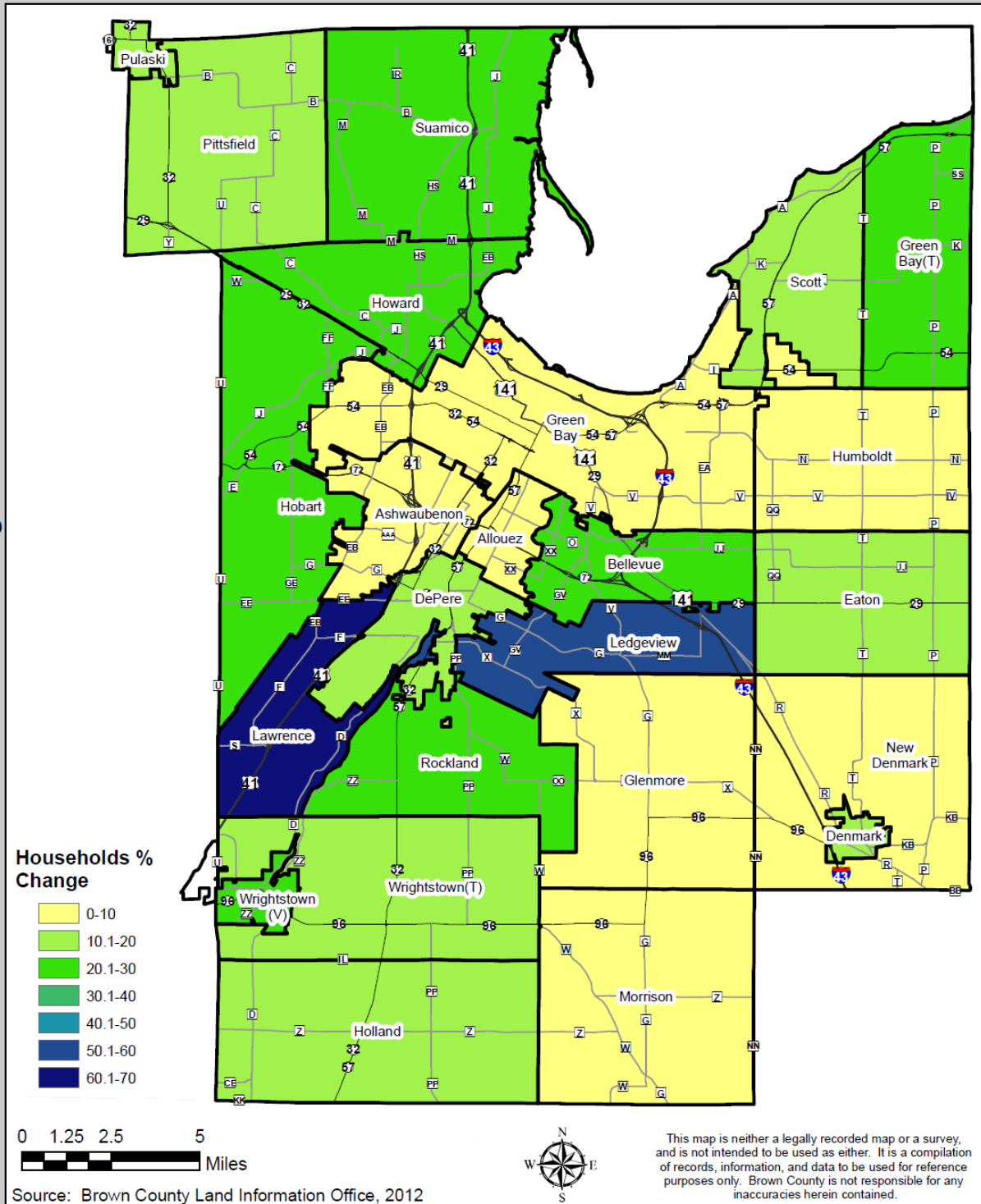


Housing Units Percent Change 2000-2010

Brown County All Hazard Mitigation Plan

Brown County, WI

Figure 2-4



2010 Land Use

Brown County All Hazard Mitigation Plan

Brown County, WI

Figure 2-5

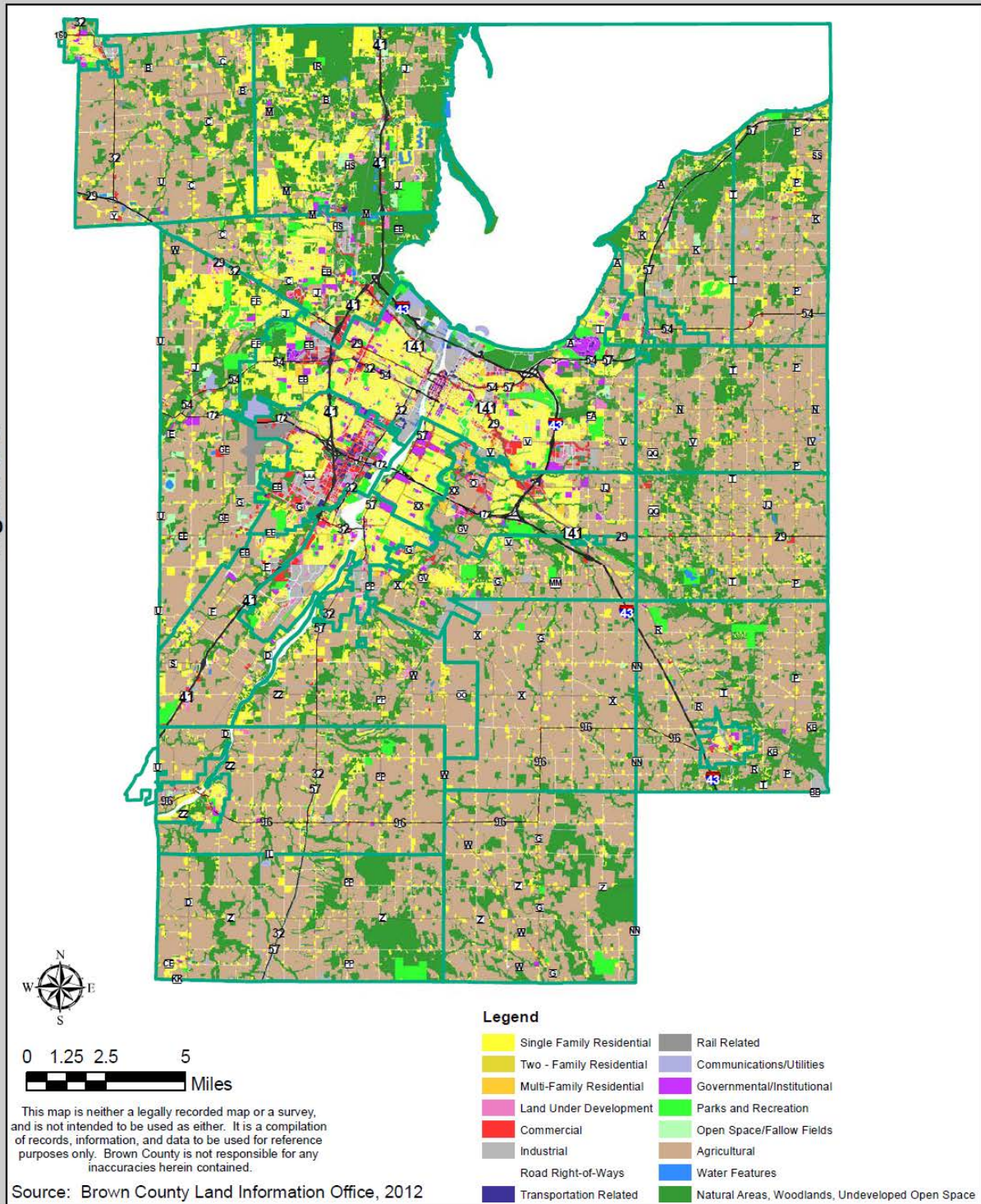


Figure 2-6

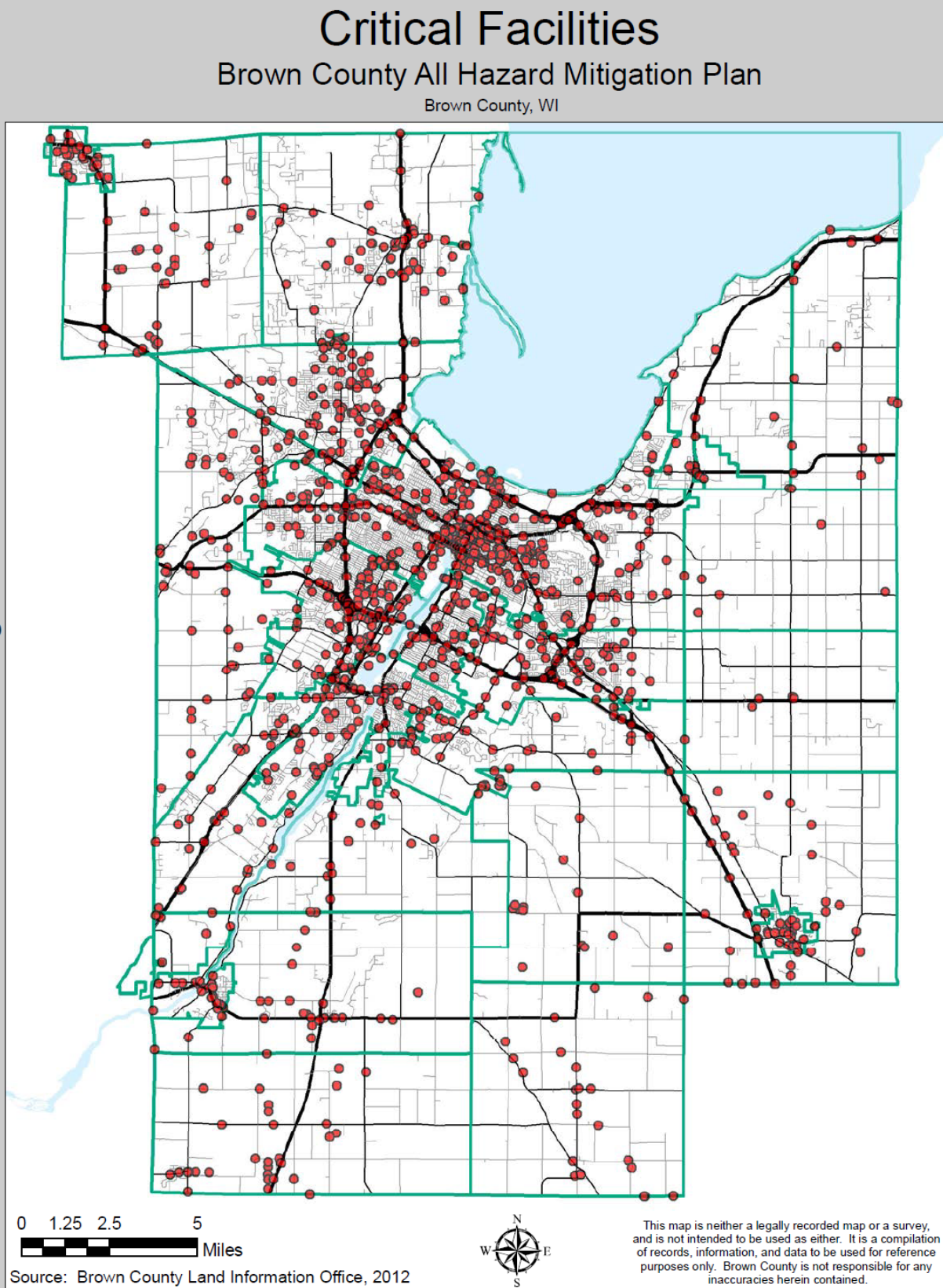
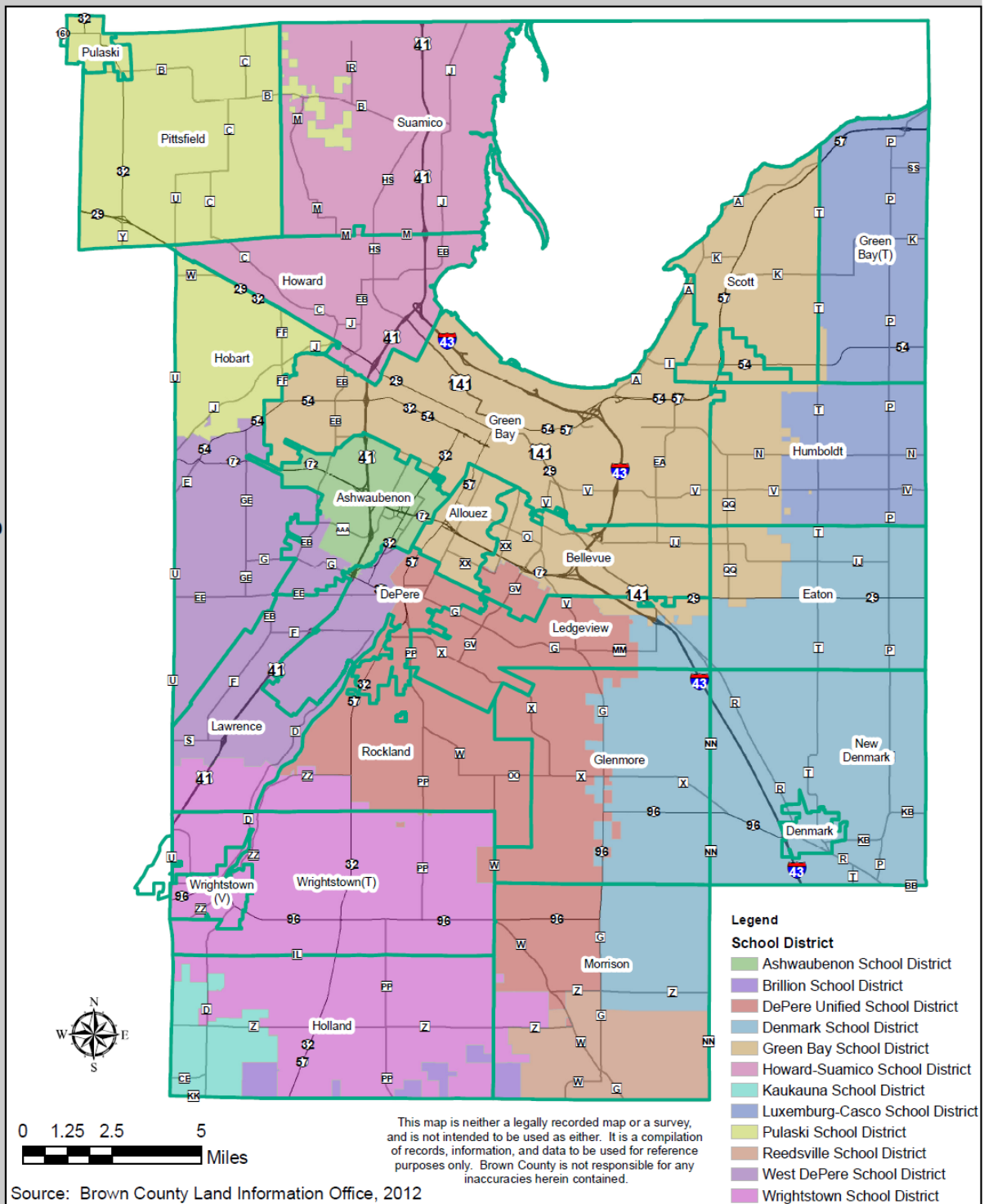


Figure 2-7

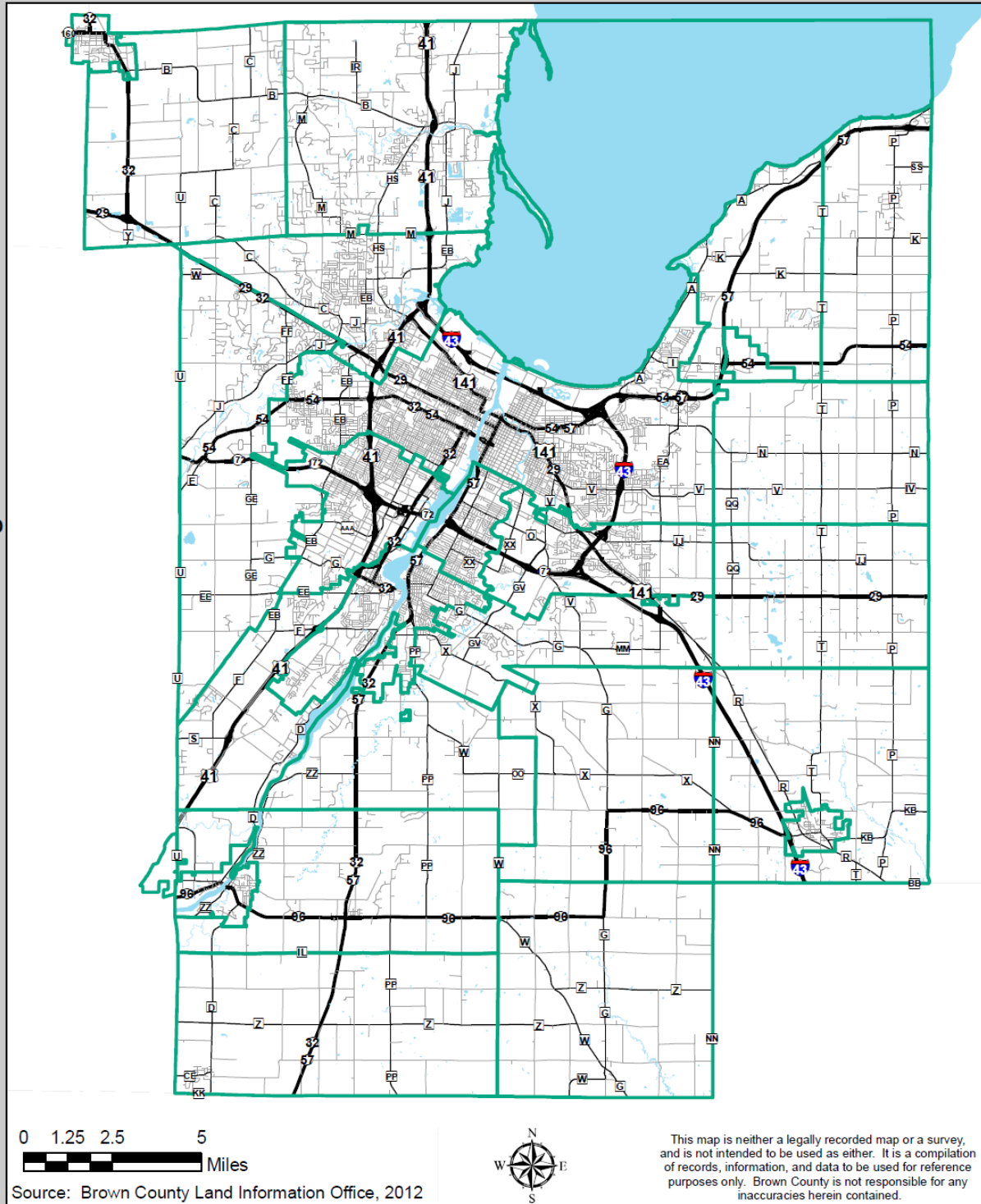


Transportation Network

Brown County All Hazard Mitigation Plan

Brown County, WI

Figure 2-8



CHAPTER 3 RISK ASSESSMENT

This risk assessment has been prepared to identify the hazards believed to pose the greatest risk to the residents of Brown County; to profile the extent and severity of past county hazards; and to assess the vulnerability of the county to the risk of future hazard events. Through the risk assessment process, emergency management personnel will be able to more effectively evaluate potential hazard mitigation measures and develop useful strategies to address the risks associated with the identified hazards.

HAZARD IDENTIFICATION

Although Brown County could potentially be at risk from several distinct hazards, this plan narrows the scope of the hazards to those that pose the greatest risk to residents and facilities of the county. Identification of the hazards was based on a priority ranking of the many different natural and man-made/technological hazards identified in the *Resource Guide to All Hazards Mitigation Planning in Wisconsin* that was prepared by the Association of Wisconsin Regional Planning Commissions through funding provided by the State of Wisconsin Department of Military Affairs, Wisconsin Emergency Management, and the Federal Emergency Management Agency.

Hazards Risk Assessment Survey

Members of Brown County's previous 2007 All Hazards Mitigation Plan Steering Committee created a *Natural Hazard Identification and Risk Assessment Matrix* (Table 1, Page 10 of the *Resource Guide to All Hazards Mitigation Planning in Wisconsin*). Each Steering Committee member was asked to assign a risk rating (1 = low, 2 = moderate, and 3 = high) to the various risk assessment criteria for each natural hazard. The total number of points for each of the identified natural hazards was then calculated. Members of the 2012 Committee reviewed the results for updates but did not propose significant changes.

The Steering Committee members did not rate the following natural hazards:

- Earthquake (deemed to be not applicable to Brown County);
- Agricultural (deemed to be not applicable to the human population in Brown County);
- Landslide flooding (deemed to be not applicable to Brown County); and
- Subsidence (deemed to be not applicable to Brown County).

The Steering Committee members combined the following natural hazards:

- Lightning Storms and Thunderstorms as "Lightning Storms/Thunderstorms" (exclusive occurrence was deemed to be rare in Brown County);
- Tornado and High Winds as "Tornado/High Winds" (deemed that their assessment and mitigation actions would be the same in Brown County);

- Flash Flooding, Riverine Flooding, and Lake Flooding as “Flooding (Flash, Riverine, and Lake)” (deemed that their assessment and mitigation actions would be the same in Brown County).

Table 3.1: Risk Assessment Ranking for Natural Hazards, Brown County, Wisconsin

Rank	Natural Hazard	Risk Assessment Ranking
		Total
1	Lightning Storms/Thunderstorms	16
1	Heavy Snow Storms	16
1	Ice Storms	16
2	Tornadoes/High Winds	14
3	Blizzards	13
3	Stormwater Flooding	13
4	Flooding (Flash, Riverine, and Lake)	12
5	Extreme Cold	11
5	Extreme Heat	11
5	Fog	11
6	Hail Storms	10
7	Dam Failure Flooding	9
7	Forest Fires	9
7	Wildland Fires	9
7	Coastal Hazards	9
7	Agricultural	9
7	Drought	9
n/a	Earthquake	n/a
n/a	Landslide	n/a
n/a	Subsidence	n/a

Source: Brown County Hazards Mitigation Plan Steering Committee, 2006, Updated in 2012.

Natural Hazards - Historical Summary

Past hazards statistics assisted the Steering Committee in determining the natural hazards to be evaluated in the plan. The National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) publishes National Weather Service (NWS) data describing past weather events and the resulting deaths, injuries and damages associated with each hazard event. This data is available at the county level. While the data is advertised as being available from January, 1950, through March, 2012, a considerable portion of the data for several of the hazard events is only available as early as the 1990's. This plan only utilized the data from January 1, 1990 through March 31, 2012. Descriptions of individual natural hazard events are located in the risk and vulnerability assessment in the portion of this chapter.

Frequency

The data from the NCDC shows that of the 205 discernible events recorded from January 1, 1990 through March 31, 2012, thunderstorms and associated high winds are

the most frequently occurring natural hazard event with 55 events recorded (21 percent). This was followed by hail (35 events, 14 percent), winter storms (including blizzards, blowing snow, and ice storms (32 events, 12 percent), high wind (23 events, 9 percent), heavy snow (22 events, 9 percent), extreme heat (15 events, 6 percent), fog (12 events, 5 percent), flood (12 events, 5 percent), lightning (11 events, 4 percent), and extreme cold (11 events, 4 percent). Table 3.2 shows the frequency of each of the above mentioned natural hazards occurring in Brown County between January 1, 1990 and March 31, 2012.

Table 3.2: Natural Hazard Occurrences 1990-2012, Brown County, Wisconsin

Natural Hazard	Total	Percentage
Thunderstorm Wind	55	21%
Hail	35	14%
Winter Storm	32	12%
High Wind	23	9%
Heavy Snow	22	9%
Extreme Heat	15	6%
Fog	12	5%
Flood	12	5%
Lightning	11	4%
Extreme Cold	11	4%
Tornado	7	3%
Record Rainfall	6	2%
Glaze	5	2%
Funnel Cloud	5	2%
Drought	3	1%
Freezing Rain	3	1%
TOTAL	257	100%

Source: NOAA National Climatic Data Center, 2012.

Deaths

From January 1, 1990 through March 31, 2012, deaths caused by natural hazard events occurred mostly from extreme heat (57 deaths statewide) due to a mid-July 1995 heat wave that was recorded as one of the worst natural disasters to affect Wisconsin. In addition, one death occurred in Green Bay (Brown County) on February 1, 1996 from an extreme cold event.

Injuries

Three injuries occurred in Brown County from January 1, 1990 through March 31, 2012. One injury resulted from high winds, one from an ice storm, and the third from a thunderstorm. The high wind injury occurred near Green Bay on November 18, 1994 when the wind blew a semi-trailer off Interstate 43. The ice storm injury occurred when an ice-laden tree limb fell and struck two vehicles in Green Bay on February 26, 1996. The thunderstorm injury occurred in the Suamico area from strong winds that blew a shed over, took a back porch off a home, and downed trees.

Property Damage

The most damaging event from January 1, 1990 through March 31, 2012, in terms of property damage, has by far been floods. Other event categories that have caused significant property damage in Brown County have been high winds as well as thunderstorms. Lightning storms and tornadoes have led to moderate property damage in the county and extreme cold and blizzards have caused small amounts of property damage.

Crop Damage

The most damaging event from January 1, 1990 through December 31, 2005, in terms of crop damage, has again been floods. Another event category that has caused moderate crop damage in Brown County has been thunderstorms.

Natural Hazards Prioritization

The purpose of rating the potential risks associated with each natural hazard and reviewing past hazard event data is to address those natural hazards posing the greatest threat to residents and to property. Based on the assessment of past data, the Steering Committee identified the following updated natural hazards to be the focus of the plan assessment, goals, objectives and strategies:

- Lightning Storms and Thunderstorms
- Winter Storms (including heavy snow, ice, and blizzards involving high winds)
- Tornadoes/High Winds
- Stormwater Flooding
- Flooding (including flash, riverine, and lake)
- Extreme Cold
- Extreme Heat
- Fog
- Hailstorms
- Dam Failure Flooding
- Fires (Forest and Wildland)
- Coastal Hazards
- Drought

Other Natural Hazards Posing No Significant Risk

The following natural hazards were determined by the Steering Committee to have a minimal chance of occurring, to pose minimal risk to the safety of residents or property, or to offer very limited mitigation options. These natural hazards are excluded from the full assessment, but they are briefly discussed here to meet the comprehensive requirements for developing a hazards mitigation plan under Federal law.

Earthquakes

According to the U.S. Geological Survey (USGS), there have been 20 earthquake events in Wisconsin. The closest of these to Brown County occurred in Clintonville in March 20, 2012, being a magnitude of 1.5 on the Richter Scale. Other notable earthquakes included northern Ozaukee County (Lake Church) in 1956, as well as in Fond du Lac County in 1922. Where readings were available, these events were relatively small, most being 3.0 to 4.2 on the Richter Scale in intensity with the largest being an intensity of 5.3 (Beloit, 1909), which may be strong enough to crack some plaster but typically does not cause serious damage. Due to the lack of recent events, some geologists question whether many of these events were true earthquakes or rather were quarry collapses, blasts, etc.

The nearest active earthquake fault outside of Wisconsin is the New Madrid Fault, which stretches from northeast Arkansas to southern Illinois. Brown County falls within the lowest earthquake hazard shaking area. This represents the levels of horizontal shaking which have a 1-in-50 chance of being exceeded in a 50-year period. Similarly, Brown County falls within a 0%g-force to 1%g-force peak ground acceleration (PGA) zone as shown on the USGS PGA values map with a 10 percent chance of being exceeded over 50 years. Therefore, Brown County is considered unlikely to be substantially affected by earthquakes in the long-term future. The earthquake threat to Brown County is considered very low.

If a tremor or earthquake was to occur anywhere in the county, damage to structures and infrastructure could be substantial due to the fact design standards do not include earthquake construction requirements or guidelines. Obviously, the more urbanized and densely populated areas within the Green Bay Metro Area, containing 75 percent of the county's population and structures, would experience much greater costs, injuries and even deaths if an earthquake were to occur. According to the Wisconsin Department of Revenue, the 2011 Equalized Value of Brown County is \$18,157,652,100. The cities of Green Bay and De Pere account for \$7,673,933,900, the six villages contribute another \$7,609,428,300, and the 13 towns are credited with the remaining \$2,874,289,900.

The area's economy could also be significantly impacted for extended periods of time given the area's dependence on a multi-modal transportation system-water Port of Green Bay, rail, air (Austin Straubel International Airport), roads, and infrastructure (primarily bridges connecting the east and west side of the county). The costs for rebuilding infrastructure could reach the tens of millions of dollars, and loss of company revenues and employee wages may also be in the millions of dollars. County and local municipal officials would need to seek financial assistance and equipment and manpower needs from the state and federal levels to deal with a substantial earthquake or another major natural hazard event in Brown County, especially in the Green Bay Metro Area.

Landslides

The term "landslide" includes a wide range of ground movement, including rock falls, deep failure of slopes and shallow debris flows. Although gravity acting on an overly steep slope is the primary reason for a landslide, there can be other contributing factors such as erosion by rivers, excess weight from the accumulation of rain or snow, or man-

made and other structures stressing weak slopes to the point of failure. In addition, slope material that becomes saturated with water may develop a debris flow or mudflow.

The U.S. Geological Survey *Landslide Overview Map of the Coterminous United States* identifies moderate landslide susceptibility risks for the northwestern two-thirds of Brown County and the remainder of the county is considered at low risk. The majority of the land within Brown County does not involve significantly steep slopes and does not pose a landslide risk. While there are steeper portions of the county, the soils involved pose more of a gradual erosion risk as opposed to the sudden, large-scale movement of ground associated with landslide hazards. Areas with the steepest slopes tend to be zoned as conservancy districts by the various local jurisdictions in the planning area and are protected from unsuitable development, further minimizing any related hazard risks. Hillside erosion (minor landslides) within the county is very uncommon and results from man-made impacts such as the removal of vegetation. Hillside erosion has not posed substantial risk to life or property and has been largely mitigated through subdivision law, site plan review, and erosion control plans for construction sites.

There are no records of substantial damage or injury from large landslides within Brown County and these hazard threats are considered low.

Subsidence

Land subsidence is an event in which a portion of the land surface collapses or settles. Common causes of subsidence are located in an area with karst topography or location in an area where large amounts of groundwater have been withdrawn. Brown County is not an area of excessively karst topography but certain karst features and groundwater usage for purposes of providing potable drinking water, industrial usage or agricultural production should be monitored since this could lead to land subsidence, particularly in the southeastern areas of Brown County where contamination has already occurred.

The more densely populated areas of Brown County do not rely on groundwater for a water supply. The City of Green Bay obtains its water supply from a pipe connected to Lake Michigan. Many of the surrounding communities in central Brown County obtain their water supply from a second pipe also connected to Lake Michigan.

There are no records of substantial damage or injury from large land subsidence within Brown County and these hazard threats are considered low.

Agricultural Hazards

Although agricultural hazards such as livestock and crop diseases pose a significant threat to agriculture production, the human threat does not seem to be very significant in Brown County.

HAZARD PROFILES

Hazard profiles are intended to describe the frequency, severity, and probability of future natural and man-made/technological hazards that could have an impact on Brown County. These hazard profiles attempt to historically describe the cause and characteristics of each natural and man-made/technological hazard and how they have impacted the population, infrastructure, and environment of the county. These potential risks are evaluated to determine their likelihood of reoccurrence and to gauge the

negative impacts to the existing (or planned) population and property that could occur as a result of these hazards.

Although this assessment will attempt to focus on the risk potential to the overall planning area, critical facilities are of particular concern. These entities provide essential products and services to the public that are necessary to preserve health, welfare, and quality of life of residents of Brown County, plus fulfill important public safety, emergency response, and/or disaster recovery functions.

A profile of each natural hazard assessed in this plan is provided in each individual hazard section. For the purposes of this plan, some hazards have been grouped into logically related hazard topics in order to better organize and describe the extent of the potential risk and vulnerability. The assessment for natural hazards follows in this order: flooding (including flash, riverine, and lake); tornadoes/high winds; lightning and thunderstorms, winter storms (including heavy snow storms, ice storms, and blizzards); storm water flooding; extreme cold; extreme heat; fog, hailstorms, dam failure flooding, forest fires, wildland fires, coastal hazards, and drought.

NATURAL HAZARDS

Flooding

A flood is a natural event for rivers and streams that occurs when excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands, adjacent to rivers, and lakes that are subject to recurring floods. Most flood-related injuries and deaths occur when people are swept away by flood currents, and the majority of property damage is caused from sediment-laden floodwaters.

The severity of flooding is determined by rainfall intensity (or other water source) and duration. A large amount of rainfall over a short time span can result in flash flood conditions. However, several factors beyond intensity and duration also come into play. For instance, a small amount of rain can cause flooding in areas where the soil is saturated or in areas of impermeable surfaces such as large parking lots, paved roadways, or other impervious developed areas. Topography and ground cover are also contributing factors for floods. Water runoff is greater in areas with steep slopes and little or no vegetative ground cover.

History

Twelve flood events have been reported by the National Climatic Data Center as having occurred in the planning area since January 1, 1990.

June 16, 1996

Heavy rainfall fell across most of central and east central Wisconsin, as well as parts of northeast Wisconsin from June 16 through 18, 1996. Amounts over the three-day period ranged from two to seven inches in most locales. Runoff from the heavy rainfall caused rivers to rise substantially, with several peaking well above flood stage. Several streets, parks, campgrounds and county roads were flooded, and a few roads were washed out. Crop damage estimates amounted to at least 56 million dollars over the entire 15-county area.

March 31, 1998

Thunderstorms with locally heavy rain caused the Duck Creek to rise above flood stage late on March 31. The flooding continued into early April. Flooding was confined to areas adjacent to the creek, but no damage was reported.

April 1, 1998

The flooding that occurred in early April was a carryover from the excessive precipitation that fell in late March. Duck Creek in Howard reached 17.85 feet, just above flood stage, on April 1, 1998.

September 26, 1998

Numerous thunderstorms with large hail, heavy rain, and strong winds rumbled across northern and east central Wisconsin during the early morning of September 26, 1998. Local flooding in Howard occurred after 3 inches of rain fell in only 2 hours, accompanied by large hail and strong winds resulting in 5,000 dollars in property damage.

July 8, 2000

A nearly stationary front covering Wisconsin combined with upper air support and abundant moisture produced a prolonged period of thunderstorms. A few of the storms contained high winds and hail but flooding from heavy rainfall caused the majority of the problems. Flooding of roads and/or basements was reported in Green Bay and De Pere. Small streams and creeks overflowed their banks and rural areas suffered some crop damage. Green Bay received 4.12 inches of rain on July 8, 2000 and 4.65 inches of rain in a 24-hour period spanning July 7 - 8. These totals set a new rainfall records for July 8, 2000 and for the month of July 2000. The previous record 24-hour total was 4.39 inches set on July 23, 1912. At least 25,000 customers lost electrical power.

July 30, 2003

Flash flooding occurred ahead of a cold front that moved southeast into a warm and unstable air mass. Early storms produced large hail and some wind damage before an east to west boundary formed in the Appleton area, providing the focus for training on thunderstorms and flooding. Heavy rain resulted in flash flooding that left 2 to 3 feet of water over many roads. Manhole covers popped off on streets in the Green Bay area. The downtown mall in Green Bay had to be evacuated as water started to flow into the lower levels from the street.

March 5, 2004

A late winter storm moved across southern Wisconsin and produced a large area of heavy precipitation across northeast and north central Wisconsin. Heavy snow fell across the north and rain fell across much of the east central part of the state. Significant snowmelt due to warm temperatures earlier in the week combined with over an inch of rain from the storm system in east central Wisconsin to produce flooding. Widespread lowland flooding was observed along the East River from De Pere to Allouez and a few intersections became flooded and had to be closed.

March 28, 2005

Well above normal temperatures during the last week of the month resulted in

considerable snowmelt. Rainfall combined with runoff from melted snow, causing minor flooding on several rivers.

July 15, 2010

Heavy rainfall caused Apple Creek to rise about 2.5 feet above flood stage at the Apple Creek Campground. Brown County officials had to evacuate 28 people from the campground where water was up to 5 feet deep.

August 20, 2010

Thunderstorms produced torrential rains in Green Bay. Lombardi Avenue was closed between Oneida Street and Holmgren Way due to three feet of water and stalled cars on the road. Storm and isolated sanitary sewer backups occurred in this area, causing some damage to basements. In just ten minutes 0.88 inch of rain fell at Austin Straubel Airport, 0.54 inch of that fell in just four minutes.

September 26, 2010

Heavy rain fell over extreme northwest Brown County, causing flash flooding in Pulaski where a storm total of 3.97 inches of rain fell. Some roads in the area flooded, including State Highway 32, and a small creek that is normally about 1 foot deep was flowing at a depth of eight or nine feet.

Vulnerability

Past floods are indicative of what can happen in the future, and flood studies and mitigation plans are based on the risk of future flooding. Flood studies extrapolate from historical records to determine the statistical potential that storms and floods of a certain magnitude will recur.

The probability of reoccurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year. The most widely adopted design and regulatory standard for floods in the United States is the 1-percent annual chance flood and this is the standard formally adopted by FEMA.

The 1-percent annual flood, also known as the base flood, has a 1 percent chance of occurring in any particular year. It is also often referred to as the “100-year flood” since its probability of occurrence suggests it should only reoccur once every 100 years. This expression is, however, merely a simple and general way to express the statistical likelihood of a flood with actual recurrences varying from place to place.

These terms are often misunderstood. Frequently, people interpret the 50-year flood definition to mean occurring “once every 50 years,” which is incorrect. From a probability standpoint, a 50-year flood has a one in 50 (two percent) chance of occurring in any given year. In reality, a 50-year flood could occur two times in the same year, two years in a row, or four times over the course of 50 years. On the other hand, it is possible for 100 years to pass without having a 50-year flood event. The term “50-year flood” has caused much confusion for people not familiar with statistics. Another way of looking at it is in the context that a base flood will happen during the life of a 30-year mortgage, a 26 percent chance.

Brown County has completed several flood studies in the past. The official floodplain

study for insurance and regulatory purposes is the *Flood Insurance Study* by the Federal Emergency Management Agency (FEMA). Flood Insurance Studies have been prepared for Brown County (for unincorporated areas); for the cities of Green Bay and De Pere, the villages of Ashwaubenon, Allouez, Bellevue, and Howard. Flood Insurance Rate Maps (FIRMs) were updated for the unincorporated areas of Brown County and for the City of Green Bay in 2009.

FEMA uses the “base” flood as the basis for its regulatory requirements and flood insurance rate setting. This Hazards Mitigation Plan also uses the base flood for planning purposes. The base flood is the one percent chance flood, or the 100-year flood.

Even these numbers do not convey the true flood risk because they focus on the larger, less frequent floods. If a house is low enough, it may be subject to the 10- or 25-year flood. During a typical 30-year mortgage, a house may have a 26 percent chance of being hit by the 100-year flood, but the odds are 96 percent (nearly guaranteed) that a 10-year flood will occur during the 30-year mortgage period. Compare those odds to the only five percent chance that the house will catch on fire during the same 30-year mortgage period.

Another term used is the “500-year flood,” which has a 0.2 percent chance of occurring in any given year. While the odds of it occurring are more remote, the “500-year flood” is the national standard used for protecting critical facilities, such as hospitals and power plants.

Within the long-range future (20 to 30 years), Brown County is considered to have a **medium** probability of sustaining a 100-year flood. This probability is based on observation of past flooding events (and the extent of those events) by the Hazards Mitigation Plan Steering Committee, and is consistent with the odds that a “base” flood will happen during the life of a 30-year mortgage.

Impacts

The following describes the various impacts that flooding has on the county.

Critical Facilities

Each community was provided a map with critical facilities located within their municipality. Officials were asked, in 2006, to confirm the type and location of those local critical facilities as defined by the Steering Committee. The facilities were then updated in 2012. The number of critical facilities that could be impacted by flooding was determined by using these updated maps overlaid on the GIS floodplain layer. Using this method, **197 critical facilities** were found in the 100-year floodplain. However, the 500-year flood is considered the most appropriate protection level for critical facilities.

Public Health

While health problems associated with flooding are often not reported, three general types of health hazards accompany floods. The first hazard comes from the water itself. Floodwaters carry whatever was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm and industrial chemicals. Pastures and areas where livestock are kept can contribute polluted waters to the receiving streams. Floodwaters saturate the ground, which leads to infiltration into sanitary sewer lines.

When wastewater treatment plants are flooded, raw sewage can flow from the facility. Infiltration and lack of treatment lead to overloaded sewer lines, which back up into low-lying areas and some homes. Raw sewage can be a breeding ground for bacteria, such as E. coli and other disease causing agents.

The second type of health hazard is presented after floodwaters have receded. Stagnant pools become breeding grounds for mosquitoes, and wet areas of a building that have not been thoroughly cleaned, propagate mold and mildew. A building that is not cleaned properly is especially a health hazard for small children and the elderly. Health hazards occur when heating ducts in a forced-air system are not properly cleaned after inundation. When the furnace or air conditioner is turned on, the sediments left in the ducts are circulated throughout the building and are breathed in by the occupants. If the water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third health hazard occurs from the long-term psychological impact of having been through a flood and seeing one's home damaged and irreplaceable keepsakes destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and the uninsured. The resulting stress on those impacted takes its toll in the form of aggravated physical and mental health problems. In some cases, stress-induced hypertension, heart disease and certain cancers have been linked with traumatic events.

Safety

A frequent cause of flood fatalities occur from drowning, which can occur when a vehicle is swept into deep water and the occupants become trapped in the vehicle. Flood victims have frequently put themselves in harm's way by ignoring warnings about travel or by believing that a washed out bridge is still intact.

People often die of heart attacks, especially from exertion, during a flood fight. Electrocutation can cause flood deaths, claiming lives in flooded areas that carry a live current created when electrical components short out. Floods can damage gas lines, floors, and stairs, creating secondary hazards such as gas leaks, unsafe structures and fires. Fires are especially damaging in areas made inaccessible to firefighting equipment by high water or flood-related road or bridge damage.

Infrastructure

Infrastructure flooding impacts include damage to roads and bridges, and sewer, water, and electrical systems. Localized infrastructure impacts include street, road, and shoulder washouts; culvert damage; storm sewer and sanitary sewer failures; public utility damage; damage to emergency vehicles; and trail and road damage in parks. Much of this damage could lead to public service interruptions.

Transportation Route Interruptions

Loss of road access is a major flood ramification that affects all residents and businesses within the region, not just those who own property in the floodplain. Oftentimes, the inability to travel freely is only temporary, perhaps lasting several hours. The loss of transportation may last months after the disaster. When roads, bridges, or

railroads are washed out by a flood, it can be weeks or months before they are repaired and usable.

A key evacuation consideration is an evaluation of the roads that have the potential for flooding and remaining submerged for long periods. This will determine how emergency personnel will enter the area to begin rescue operations and to deliver vital goods and services to residents of the area affected.

A review of the Flood Insurance Rate Map and accompanying profiles identified 99 bridge or other stream crossing sites that could potentially become inundated during a base flood. A listing of the 99 bridge or other stream crossing sites that could potentially become submerged during a base flood is listed below.

A bridge does not have to be inundated to be damaged or to cut off an evacuation route. In some cases, the bridge is above water but the access road may be flooded. In other cases, the bridge or culvert can be washed out. This is especially dangerous for a person utilizing a flooded road assuming passage is possible because the bridge is still intact.

In addition to the bridges within the floodplain, there are bridges and culverts in areas that are not included in the Flood Insurance Rate Map 100-year flood zones. Most such areas are located along small tributary streams.

Table 3.3: Bridge Crossings in the 100-Year Floodplain, Brown County, Wisconsin

Municipality	Street	Water Body
Allouez	CTH O	East River
Allouez	Hastings ST	East River
Allouez	STH 172	East River
Allouez	STH 172/East River DR	n/a
Ashwaubenon	CTH AAA	Dutchman Creek
Ashwaubenon	CTH YY	Dutchman Creek
Ashwaubenon	Hansen RD	Dutchman Creek
Ashwaubenon	Holmgren WY	Ashwaubenon Creek
Ashwaubenon	Little Rapids RD	Ashwaubenon Creek
Ashwaubenon	US 41	Dutchman Creek
Ashwaubenon	US 41	Dutchman Creek
Ashwaubenon	US 41	Unnamed
Ashwaubenon	US 41/US B41	n/a
Ashwaubenon	STH 172	Dutchman Creek
Ashwaubenon	STH 172	Dutchman Creek
Ashwaubenon	STH 172	Fox River
Ashwaubenon	Ashland AV	Dutchman Creek

Table 3.3 (continued): Bridge Crossings in the 100-Year Floodplain, Brown County, Wisconsin

Municipality	Street	Water Body
Bellevue	Bower Creek RD	Bower Creek
Bellevue	CTH GV	Unnamed
Bellevue	CTH GV	Bower Creek
Bellevue	CTH O	Unnamed
Bellevue	CTH V	Bower Creek
Bellevue	CTH V	Unnamed
Bellevue	CTH XX	East River
Bellevue	Daly DR	Unnamed
Bellevue	I 43	Unnamed
Bellevue	Town hall RD	Unnamed
Bellevue	US 141	Unnamed
Bellevue	STH 172	East River
Bellevue	STH 172	Unnamed
Bellevue	STH 172/CTH XX	n/a
De Pere	CTH F	Ashwaubenon Creek
De Pere	CTH F/STH 172	n/a
De Pere	CTH H	Ashwaubenon Creek
De Pere	Southbridge RD	Ashwaubenon Creek
De Pere	STH 32	Ashwaubenon Creek
De Pere	STH 32	Ashwaubenon Creek
De Pere	STH 32	Fox River

Table 3.3 (continued): Bridge Crossings in the 100-Year Floodplain, Brown County, Wisconsin

Municipality	Street	Water Body
Green Bay	Seventh ST	Beaver Dam Creek
Green Bay	Atkinson RD	n/a
Green Bay	CTH EA	Baird Creek
Green Bay	Danz AV N	Baird Creek
Green Bay	Henry ST N	Baird Creek
Green Bay	I 43	Unnamed
Green Bay	I 43	Fox River
Green Bay	I 43/Danz AV N	n/a
Green Bay	I 43/Irwin AV N	n/a
Green Bay	Lake Largo DR	Unnamed
Green Bay	Mason ST E	East River
Green Bay	Morrow ST	Baird Creek
Green Bay	Taylor ST S	Beaver Dam Creek
Green Bay	US 141	East River
Green Bay	US 141	Fox River
Green Bay	US 41	Beaver Dam Creek
Green Bay	Webster AV N	East River
Green Bay	STH 29	Fox River
Green Bay	STH 32	Beaver Dam Creek
Green Bay	STH 54	East River
Green Bay	STH 54	Fox River
Hobart	CTH FF	Trout Creek
Hobart	STH 172	Duck Creek
Hobart	STH 29	Unnamed
Hobart	STH 29	Unnamed
Holland	CTH Z	East River
Holland	Lamers Clancy RD	East River
Holland	Lamers Clancy RD	Plum Creek
Holland	Mill RD	East River
Holland	STH 32	East River

Table 3.3 (continued): Bridge Crossings in the 100-Year Floodplain, Brown County, Wisconsin

Municipality	Street	Water Body
Howard	CTH EB	Duck Creek
Howard	CTH EB	Unnamed
Howard	CTH HS	Duck Creek
Howard	CTH HS	Unnamed
Howard	Old Shawano AV	Duck Creek
Howard	Riverview DR	Duck Creek
Howard	US 41	Beaver Dam Creek
Howard	US 41	Beaver Dam Creek
Howard	US 41	Duck Creek
Howard	US 41	Duck Creek
Howard	STH 29	Duck Creek
Lawrence	CTH S	S. Branch Ashwaubenon Creek
Lawrence	US 41	Ashwaubenon Creek
Lawrence	US 41	Ashwaubenon Creek
Lawrence	US 41	S. Branch Ashwaubenon Creek
Ledgeview	CTH MM	Bower Creek
Ledgeview	CTH X	East River
Ledgeview	Pine Grove RD	Bower Creek
Ledgeview	Swan RD	Unnamed
Morrison	CTH G	Branch River
Morrison	CTH G	Branch River
Morrison	Hill RD	Branch River
Morrison	River RD	Branch River
Morrison	Wayside RD	Branch River
Morrison	STH 96	Branch River
New Denmark	CTH KB	Neshota River
New Denmark	CTH T	Neshota River
New Denmark	Langes Corner RD	Neshota River

Table 3.3 (continued): Bridge Crossings in the 100-Year Floodplain, Brown County, Wisconsin

Municipality	Street	Water Body
Pittsfield	Brookside DR	Potter Creek
Pittsfield	CTH C	Suamico River
Pittsfield	CTH U	S. Branch Suamico River
Pittsfield	CTH U	S. Branch Suamico River
Pittsfield	Kunesh RD	W. Branch Suamico River
Pittsfield	Kunesh RD N	W. Branch Suamico River
Pittsfield	Norway CT	Potter Creek
Pittsfield	Old 29 DR	S. Branch Suamico River
Pittsfield	Old 29 DR	S. Branch Suamico River
Pittsfield	School DR	S. Branch Suamico River
Pittsfield	Town Hall DR	W. Branch Suamico River
Pittsfield	STH 29	W. Branch Suamico River
Pittsfield	STH 32	Unnamed
Rockland	CTH PP	East River
Rockland	Midway RD	Unnamed
Rockland	Ryan RD	East River
Rockland	STH 32	East River
Rockland	STH 32	Unnamed
Suamico	CTH HS	Suamico River
Suamico	CTH J	Suamico River
Suamico	CTH M	Suamico River
Suamico	Deerfield AV W	Suamico River
Suamico	Riverside DR	Suamico River
Suamico	Side RD	Suamico River
Suamico	St Pats RD	Suamico River
Suamico	Stream RD	Suamico River

Table 3.3: Bridge Crossings in the 100-Year Floodplain, Brown County, Wisconsin

Municipality	Street	Water Body
Wrightstown	Bunker Hill RD	Unnamed
Wrightstown	CTH D	Plum Creek
Wrightstown	CTH ZZ	Plum Creek
Wrightstown	Fair RD	Unnamed
Wrightstown	Fair RD	unnamed
Wrightstown	French RD	Apple Creek
Wrightstown	Mallard RD	East River
Wrightstown	Meadowlark RD	East River
Wrightstown	Outagamie RD	Unnamed
Wrightstown	Partridge RD	East River
Wrightstown	Rosin RD	Apple Creek
Wrightstown	US 41	Apple Creek
Wrightstown	US 41	Apple Creek
Wrightstown	STH 96	Fox River
Wrightstown	STH 96	Unnamed
Wrightstown	STH 96	Unnamed
Wrightstown	Wrightstown RD	East River

Source: Wisconsin Department of Transportation. Bay-Lake Regional Planning Commission. Brown County Planning Commission

Economic

Business and Industry Disruptions

Flooding damage to businesses and industry is not as easy to identify as critical facilities. Even minor damage may result in businesses or industry closures. Businesses or industry damages or disruptions may also include loss of inventories, inaccessibility to customers or employees, and often employees are busy protecting or cleaning up their flooded homes and are unable to come to work

Farming

According to the 2010 Brown County Land Use Inventory, approximately 49.5 percent of Brown County is agricultural use. Crop damage and loss often occurs due to flooding, which leads to large financial losses and loss of projected income to the agricultural community.

Tourism

Three tourism industries would likely be impacted by a significant flooding event. These industries include boating/charter fishing, golfing, and eco-tourism. Boating and charter fishing would be impacted because of the relatively unstable conditions on Lake Michigan and on area rivers making this activity unsafe. Golfing would be impacted because of anticipated erosion, flooding, and other damage on area golf courses. Eco-tourism visitors are seeking outdoor interaction with nature, which may be unwelcoming after flooding due to inaccessibility in many saturated areas. Transportation to tourist destinations in the area could also be impacted, and hotels and restaurants could sustain damage under severe flooding conditions.

Other

Public expenditures on flood fighting, sandbags, fire, and police calls, clean up, and on repairs to damaged public property affect all residents of the planning area, not just those in the floodplain. Federal assistance is not available for smaller, more localized floods, and it cannot be counted on in the future. In addition, public agencies are required to purchase insurance on flood prone buildings. The amount of insurance that should be carried is deducted from disaster assistance payments.

Areas at Greatest Risk

The area inundated by the base flood is the “base floodplain.” FEMA maps (called Flood Insurance Rate Maps, or FIRMs) also call this the Special Flood Hazard Area, or “A Zone.”

Areas affected by flood hazards in the planning area include areas adjacent to various rivers, creeks, lakes and other bodies of water in Brown County. These bodies of water include Green Bay; Fox River; Lily, Middle, and Third Lakes located adjacent to one another in the eastern portion of the County; and numerous smaller rivers and streams, the biggest of which include Duck Creek, the East River, and the Suamico River.

The central part of the floodplain is referred to as the “floodway.” The floodway is the channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood. Floodwaters generally are deepest and swiftest in the floodway, and anything in this area is in the greatest danger during a flood. The remainder of the floodplain is called the “fringe,” where water may be shallower and slower.

Floodplains (including floodways and flood fringes) are subject to special development regulations, as explained at the end of this section. Map Figure 3-3 shows the location of properties that would be potentially affected by the base flood, the “100-year flood.”

Impact to Existing and Future Buildings

The cities of Green Bay and De Pere; the villages of Ashwaubenon, Allouez, Bellevue, Suamico, Howard, Wrightstown, and Hobart; and the towns of Ledgeview and Scott each had buildings on over 300 parcels potentially impacted by the base flood. The town of Lawrence had between 200 and 299 such parcels, and the towns of Pittsfield, Pulaski, and Rockland each had between 100 and 199 such parcels. All other municipalities in Brown County had buildings on less than 100 parcels potentially impacted by the base flood. Numerous additional parcels currently without structures

have the potential for development that are located within the base floodplain are subject to floodplain zoning restrictions.

Brown County is the third fastest growing county in the State of Wisconsin in terms of population growth. According to Wisconsin Department of Administration calculations, the Brown County population is expected to grow by 80,273 residents between the years 2010 and 2030. Based on an average of 2.51 persons per household, these new residents will need an additional 31,981 housing units within the 20-year time period. The result will be a need for more than 15,991 acres for new residential development with an average lot size of one-half acre. The fastest growing communities within this planning period are the City of De Pere, villages of Bellevue, Suamico, and Wrightstown, and the towns of Ledgeview, Lawrence, and Scott. Future acreage calculations, based on residential land use projections, were also made for future commercial and industrial development in the county. By 2030, there will be a need for an additional 2,000 acres for commercial businesses and another 3,000 acres for industrial operations. In comparison, the county will continue to lose agriculture land at a consistent rate to accommodate these other land uses. Thirty-five thousand acres currently in agriculture will be converted to another use. With Brown County's rapid growth in residential, business, and public facilities (structures and recreational areas), some of the development will occur in areas susceptible to flooding. The flood-plain designation does not eliminate construction, but defines the risks of having a 26 percent chance of experiencing a flood during the life of a 30-year mortgage compared to a 9 percent chance of a fire.

New flood-risk maps for Brown County were reviewed by residents and local officials, and then approved by the Brown County Board of Directors in 2009. The maps are the result of five years of work by the Federal Emergency Management Agency and Wisconsin Department of Natural Resources, which were directed by the U.S. Department of Homeland Security to modernize flood-risk maps into a countywide format. The updated maps from 2009 were used as a tool to prepare this hazards mitigation plan. The maps reflect the best information available in identifying high-risk areas within each community. Any changes to the floodplain maps during the review process will impact critical facilities and flood-risk assessment for future development in the county. Map revisions will be noted and incorporated during the updating of this hazards mitigation plan.

A majority of the county's floodplains can be found along the southern rim on the bay of Green Bay of Lake Michigan (densely developed areas of the county) and along the East River and other smaller tributaries in the Village of Bellevue and the Town of Ledgeview where development is occurring at a fast pace. The new flood-risk maps may have a slowing down effect on future development in areas designated as floodplains with potentially new building restrictions and tighter requirements of lenders. Given all of these factors, it is estimated that there will still be significant growth in and adjacent to flood-prone areas. The improved value of structures located in designated floodplains was over \$1.5 billion in 2012. With an increase in residential, commercial, and industrial land uses in Brown County by 2030, the value of structures located within vulnerable areas could increase by \$500,000 during this time period. This figure includes a combination of redevelopment of existing buildings within existing floodplain

areas along the bay and new structures and facilities built in the fastest growing areas of the county with a majority of the county's floodplains-Bellevue, Suamico, Howard, and Ledgeview.

A review of FEMA flood insurance claims from 1978 through March 31, 2012, indicates that there were 225 claims submitted in Brown County. Of those claims, 127 claims were paid during this period with a total value of over \$665,700, while 98 claims were closed without payment (National Flood Insurance Program, W2RC1040).

Repetitive Loss Properties

Repetitive loss properties are those that have sustained flood damage on two or more separate occasions over a ten-year period and the cost of repairs from the flood damage meets or exceeds 25 percent of the market value of the property before the damage occurred.

Brown County has 6 repetitive loss properties; all residential properties. One is located in the Town of Wrightstown, one in the Village of Howard, one in the Village of Suamico, and three in the City of Green Bay. The losses totaled \$80,285.23.

Relationships to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Fire. Fire can occur due to infrastructure compromise of electrical and natural gas systems. In addition, fire trucks are unable to pump water if floodwaters are deep enough to reach the tailpipe of the truck.

Hazardous Materials. Hazardous material releases can occur due to improper storage of materials in floodplains.

Infectious Disease. Infectious disease outbreaks are possible during prolonged flood events in areas sensitive to disease vectors.

Wastewater Treatment Plant Failure. Wastewater treatment plant failure can occur if facilities are not adequately protected from flooding, excessive Clearwater inflow and infiltration into the system, or protection is weakened.

Transportation Disruption. Disruptions of transportation routes via roads, bridges, railroads, and water can be disrupted due to inundation and/or substantial flow velocities.

Power Outages. Power outages can occur if portions of the electrical grid are damaged by floodwaters.

Plans and Programs

Emergency Operations Plan. The *Brown County Emergency Operations Plan* outlines procedures for the County in response to a variety of hazards. During the course of a flood event in Brown County, the Emergency Management Director works with local officials to ensure public health and safety and maintain transportation routes.

National Flood Insurance Program (NFIP). In 1968, Congress created the National Flood Insurance Program in response to the rising costs of taxpayer funded disaster relief. The Federal Emergency Management Agency (FEMA), Mitigation Division

manages the NFIP, and oversees the floodplain management components of the program, with state coordination through the Wisconsin DNR.

National Weather Service. The National Weather Service in Green Bay provides weather, hydrologic, and climate forecasts and warnings for northeastern Wisconsin.

Sewer Service Area Review. Development in floodplains, wetlands, and other environmentally sensitive areas has been kept to a minimum in recent years through such mechanisms as the sewer service extension review process and floodplain overlay zoning.

Floodplain Ordinance. Brown County regulates development within the floodplain through its Floodplain Ordinance. The Floodplain Ordinance, which is Chapter 23 of the Brown County Code of Ordinances, can be found in Appendix B. This ordinance can be a useful tool in keeping inappropriate development out of many flood hazard zones in the planning area. Floodplain overlay zoning ordinances (where they exist in local jurisdictions within the planning area) can also help to deter development in flood hazard zones.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring weather radios.

Provisions of Plans and Policies that Regulate Development

Various local comprehensive plans produced for local communities in Brown County have addressed regulation of development in floodplains, watersheds, and natural resource areas in various ways. Most of these plans addressed this in their goals, objectives, and policies in the natural resources chapter (or equivalent) in the plan; and through the general plan design chapter of the plan.

Brown County addressed regulation of development in floodplains, watersheds, and natural resource areas in their 2004 County Comprehensive Plan. The following is a list of communities in Brown County with a comprehensive plan and the year of plan adoption:

• Town of Eaton	2003	• Town of Wrightstown	2005
• Town of Glenmore	2005	• Village of Allouez	2004
• Town of Green Bay	2006	• Village of Ashwaubenon	2004
• Town of Holland	2005	• Village of Bellevue	2006
• Town of Humboldt	2006	• Village of Hobart	2006
• Town of Lawrence	2006	• Village of Howard	2012
• Town of Ledgeview	2009	• Village of Suamico	2005
• Town of Morrison	2005	• Village of Pulaski	2007
• Town of New Denmark	2007	• Village of Denmark	2007
• Town of Pittsfield	2007	• Village of Wrightstown	2003
• Town of Rockland	2005	• City of De Pere	2010
• Town of Scott	2006	• City of Green Bay	2003

The Brown County Planning Commission (BCPC) has tools to keep development out of flood hazard zones in the planning area. BCPC develops sewer service area plans for Brown County Sewer Service Area and takes into account preservation of natural features and minimization of future development in flood hazard areas near bodies of water. BCPC reviews proposals for development in Brown County for consistency with the sewer service area plan.

Gaps and Deficiencies

As detailed above, some repetitive loss structures remain in the floodplain. As state and federal funds become available, Brown County should work with willing sellers to purchase floodplain structures.

Brown County addressed the obsolescence of the flood insurance rate maps and accompanying flood insurance studies with the Wisconsin DNR and the Federal Emergency Management Agency to modernize the flood insurance rate maps (FIRM) and flood insurance study (FIS) to a digital, countywide format. The digital flood insurance rate maps (DFIRMs), FIS, and accompanying internet-based floodplain analysis applications increased the efficiency and accuracy of floodplain programs countywide. The digital maps and updated Flood Insurance Study obtained final adoption in 2009.

Tornadoes/High Winds

The tornado is a rapidly rotating column of air spawned by a cumulonimbus cloud. When a tornado funnel drops to the ground, it can create significant damage and loss of life. A tornado is a relatively short-lived storm composed of an intense rotating column of air, extending from a thunderstorm cloud system. It is nearly always visible as a funnel, although its lower end does not necessarily touch the ground. Average winds in a tornado, although never accurately measured, are between 100 and 200 miles per hour, but some tornadoes may have winds in excess of 300 miles per hour.



A tornado path averages four miles, but may reach up to 300 miles in length. Widths average 300 to 400 yards, but severe tornadoes have cut swaths a mile or more in width, or have formed groups of two or three funnels traveling together. On average, tornadoes move between 25 and 45 miles per hour, but speeds over land of up to 70 miles per hour have been recorded. Tornadoes rarely last more than a couple of minutes in a single location or more than 15 to 20 minutes in a ten-mile area, but their short periods of existence do not limit their devastation of an area.

Table 3.4 shows the Enhanced F Scale, which has been recognized as the acceptable tornado magnitude measurement rating. In 2007 the Fujita scale was updated to the Enhanced F Scale (EF Scale) for operational use in the United States. The Enhanced F Scale accounts for different degrees of damage that occur with different types of structures, as well as damage to things other than structures. The scale was revised to reflect better examinations of tornado damage surveys to align wind speeds more

closely with associated storm damage. The new scale was released to the public at a conference by the American Meteorological Society in Atlanta on February 2, 2006.

The new scale has related to how most structures are designed. The wind speeds on the original scale were deemed by meteorologists as being too large and engineering studies have shown that slower winds can cause the same damage as that of winds of 300 mph. The new scale lists an EF-5 as a tornado with winds at or above 200 mph (324 km/h) – which corresponds to the wind speeds of F3 or F4 in the original Fujita scale. None of the tornadoes recorded before January 31, 2007 will be re-categorized. Essentially, there is no functional difference in how tornadoes are rated. The old ratings and new ratings are cleanly connected with a linear formula. The only differences are adjusted wind speeds, measurements of which were not used in previous ratings, and refined damage descriptors. Table 3.4 compares the Fujita Scale and the EF Scale.

The destructive power of the tornado results primarily from its high wind velocities and sudden changes in pressure. Wind and pressure differentials probably account for 90 percent of the damage caused by tornadoes. Since tornadoes are generally associated with severe storm systems, they are usually accompanied by hail, torrential rain, and intense lightning. Depending on their intensity, tornadoes can uproot trees, down power lines and destroy buildings. Flying debris can cause serious injury and death.

The Fujita Scale:

WIND SPEED	F0 DAMAGE	FREQUENCY
40-72	shingles pulled off, antennas knocked down, small limbs broken	29%
WIND SPEED	F1 DAMAGE	FREQUENCY
73-112	carports overturned, some trees uprooted, roof decking blown off	40%
WIND SPEED	F2 DAMAGE	FREQUENCY
113-157	unanchored mobile homes overturned, block walls collapsed	24%
WIND SPEED	F3 DAMAGE	FREQUENCY
158-206	severe damage: exterior roofs & walls destroyed, forests flattened, most block structures collapse	6%
WIND SPEED	F4 DAMAGE	FREQUENCY
207-260	devastating: few walls standing, large steel & concrete missiles thrown long distances	2%
WIND SPEED	F5 DAMAGE	FREQUENCY
261-318	incredible damage: homes leveled, schools, motels, etc. considerable damage	less than 1%

Source: National Weather Service

Based on 40 years of tornado history and more than 100 years of hurricane history, the United States has been divided into four zones that geographically reflect the number and strength of extreme windstorms. FEMA Wind Zone IV, which includes most of the

southern two-thirds of Wisconsin, has experienced the most and the strongest tornado activity that has affected the entire U.S., with wind speeds of up to 250 miles per hour being recorded at some point. This zone includes the entire county for this Multi-Hazards Mitigation Plan.

Table 3.4: Comparison of Fujita Scale and EF Scale, Brown County, Wisconsin

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	3 Second Gust (mph)
0	40-72	45-78	0	65-85	65-85
1	73-112	79-117	1	86-109	86-110
2	113-157	118-161	2	110-137	111-135
3	158-207	162-209	3	138-167	136-165
4	208-260	210-261	4	168-199	166-200
5	261-318	262-317	5	200-234	Over 200

Source: NOAA Storm Prediction Center

Wisconsin lies along the northern edge of the nation's maximum frequency belt for tornadoes (commonly known as "tornado alley"), which extends northeastward from Oklahoma into Iowa and then across to Michigan and Ohio. Generally, the southern and western portions of Wisconsin have a higher frequency of tornadoes; however, every county in Wisconsin has experienced tornadoes and is susceptible to future tornado damage. Tornadoes have occurred in Wisconsin in every month except February.

Wisconsin's tornado season runs from the beginning of April through September. The most severe tornadoes statewide typically occur during the months of April, May and June. Many tornadoes strike in late afternoon or early evening. However, tornadoes have occurred during other times of the day. Personal property damage, deaths and injuries have and will continue to occur due to tornado events in Wisconsin.

History

According to National Climatic Data Center, Brown County has experienced 6 tornadoes, 4 funnel clouds, and 24 high wind events since January 1, 1990.

Tornadoes

May 16, 1992

The F1 tornado was 1 mile long and 100 yards wide and caused 250,000 dollars in property damage.

June 17, 1992

The F0 tornado was 23 yards wide.

June 23, 2004

The F0 tornado was 10 yards wide and occurred in Green Bay.

August 18, 2005

The F1 tornado was 1 mile long and 100 yards wide and caused 10,000 dollars in property damage in Wrightstown.

September 13, 2005

The F0 tornado was 2 miles long and 50 yards wide and caused 5,000 dollars in property damage in De Pere.

April 10, 2011

A brief tornado touched down about a mile and a half south of Greenleaf. The tornado damaged the tops of two silos then ripped the roof off a barn. Average path width was 75 yards.

Funnel Clouds and Waterspouts***July 5, 1994***

A funnel cloud was reported in Denmark at 3:40pm on July 5, 1994.

July 29, 1996

Numerous cold-air funnels were observed around Green Bay, especially southeast of the city. A couple of the funnel clouds could be seen from the Green Bay National Weather Service office.

August 31, 1996

Weak thunderstorms developing along a lake breeze boundary spawned several funnel clouds in the Bellevue and Langes Corners areas. The funnel clouds prompted approximately 150 calls to the Brown county sheriff department.

July 7, 2010

A funnel cloud was spotted near Interstate 43 just north of Denmark.

High Winds***November 18, 1994***

An intense low-pressure generated wind gusts to 55 mph across west central, central, and northeast Wisconsin. A man was injured when the wind blew a semi-trailer off Interstate 43 near Green Bay. Many trees and tree limbs as well as numerous power lines were also downed causing 10,000 dollars in property damage over a 26-county area.

April 6, 1997

A strong cold front ushered in wind gusts over 50 mph across much of northeast Wisconsin. Winds were measured as high as 54 mph in Green Bay. Many trees were reported down, signs were blown over and power was lost in several locations across northeast Wisconsin. A few houses sustained damage from fallen trees. The high wind event caused 149,000 dollars over property damage over a 22-county area.

March 9, 1998

Strong winds developed as a winter storm, which brought snow to northeast and central Wisconsin, moved away from the state. Official wind gusts reached 45 mph in Green Bay. The strong winds knocked some power poles down and blew tree limbs onto power lines, causing power outages. The wind also whipped the new snow around, producing low visibilities. The high wind event caused 15,000 dollars in property damage over a 9-county area.

July 28, 1998

Strong winds, which developed from a strong pressure difference in the wake of a departing thunderstorm complex, produced damage across parts of central and east central Wisconsin. Trees and power lines were knocked down in many locations. Significant wind damage to structures appeared to be limited to Outagamie and Brown counties. In West De Pere, a storage building collapsed and the roof was taken off about half of another storage building. A tree fell onto a house in De Pere, crashing through a bedroom window. Other measured wind gusts included 55 mph in Green Bay. The high wind event caused 30,000 dollars in property damage across a 13-county area.

November 10, 1998

An intense area of low pressure moved across the Midwest on November 10, 1998, producing very high winds, rain, and snow across the region. The low, which tracked from central Iowa to western Lake Superior, resulted in record minimum pressures in Iowa and Minnesota and an unusually widespread high wind event across Wisconsin. The strong winds lasted for much of the day. Trees, street signs and power poles were damaged or destroyed by the strong winds across northeast, central and north central Wisconsin. Numerous semi-trailers were blown over on area highways, necessitating the closure of the Tower Bridge (Interstate 43) in Green Bay. Trees and power poles were blown down in many locations across the region. The wind was also responsible for numerous power outages across the region. Some areas were without power for nearly 3 days. A strong gust of 65 mph was recorded in Suamico, and one of 63 mph was recorded in Green Bay. The high wind event caused 1,000,000 dollars in property damage across a 22-county area.

March 17, 1999

Strong west to northwest winds developed across much of Wisconsin as an intense area of low pressure moved from southern Lake Superior to near Lake Huron. The strong winds began in the early afternoon of the March 17, 1999 and continued until very early on the 18th. Numerous gusts near 50 mph were recorded across central and east central Wisconsin including 48 mph in Green Bay. Strong winds in Green Bay knocked out electricity to 3,200 homes and downed a large tree limb along a busy street.

December 25, 1999

Strong winds developed behind a cold front as the front moved through Wisconsin. Numerous gusts in the 40 to 50 mph range were recorded across north central, northeast, central, and east central Wisconsin.

March 25, 2000

Strong winds blew as sinking air behind a cold front brought stronger winds from higher levels of the atmosphere down to the surface. Sustained winds were mainly 30 to 40 mph with gusts in the 40 to 50 mph range.

April 5, 2000

Strong winds blew across central and east central Wisconsin behind a strong cold front. Sustained winds were mainly in the 25 to 35 mph range.

April 20, 2000

A tight surface pressure gradient caused strong winds to blow across northeast and east central Wisconsin. Sustained winds were mainly in the 25 to 35 mph range with some gusts over 45 mph.

June 21, 2000

Strong winds behind a cold front caused broken tree limbs and branches to fall onto power lines. Between 2,000 and 3,000 customers lost electrical power in parts of central and east central Wisconsin. Strong winds downed five small trees at the Green Bay Botanical Garden. Peak gusts were in the 35 mph to 45 mph range across the 15-county area.

February 5, 2001

Strong winds developed across central and east central Wisconsin on the backside of an intense winter storm system that was moving away from the state. A 44 mph wind gust was recorded in Green Bay.

April 7, 2001

A strong low-pressure system dragged an occluded front through Wisconsin as the low moved northeast across Minnesota. High winds behind the front downed numerous trees, tree limbs and power poles across central, east central, and northeast Wisconsin.

October 25, 2001

An area of low pressure intensified as it moved toward the upper Great Lakes, producing strong winds across northeast. The strong winds began in northeast Wisconsin on the morning of the October 25, 2001 and continued throughout most of the morning of the 26th. Several tractor-trailers were overturned in the Fox River Valley as the strong winds blew. A 45 mph wind gust was recorded in Green Bay. Heavy, wet snow caused tree branches to break across north central Wisconsin.

December 5, 2001

A powerful cold front moved through central and eastern Wisconsin during the late afternoon and evening. Gusty winds accompanied showers and thunderstorms ahead of the front and continued as cold air moved into the region after the frontal passage. The strong winds behind the front downed trees and power lines across northeast and north central Wisconsin, knocking out power to about 4,000 customers.

February 11, 2002

An intense low-pressure system moved across southern Canada bringing colder air into Wisconsin. Gusts of 40 mph or higher were reported at several locations from the

evening of the February 11, 2002 into the morning hours of the 12th. Strong winds blew a light pole onto power lines in Green Bay, causing 2,600 customers to lose electrical service.

March 9, 2002

Strong winds developed across northeast Wisconsin in the wake of a departing low-pressure system. Wind gusts over 40 mph were common during the afternoon and evening of the March 9, 2002 into the early morning hours of the 10th. High winds knocked down tree limbs and power poles causing numerous power outages. Gusts to 54 mph were recorded in Green Bay.

May 9, 2002

A cold front passed through Wisconsin as low pressure over the northern part of the state strengthened and moved toward southern Ontario. Strong west winds developed as the low intensified. Gusts of 45 mph or higher were reported at several locations. A 46 mph wind gust was recorded in Green Bay. The strong winds downed trees that blocked roads and knocked down utility lines.

November 30, 2002

Very cold air, behind a strong cold front, traveling over the warmer waters of Lake Superior caused heavy lake effect snow showers. Winds behind the front were strong during the morning and early afternoon hours. A 44 mph wind gust was recorded in Green Bay.

October 11, 2003

Strong winds that accompanied a cold front downed a few trees and some power lines in parts of central and east central Wisconsin. The high wind event caused 9,000 dollars in property damage over a 3-county area.

November 13, 2005

Strong south to southwest winds developed as a deep low-pressure system moved across northwest Wisconsin and Lake Superior. The winds caused scattered power outages, broke tree branches and tore shingles from roofs. Wind speeds of 64 mph were recorded in Bellevue. The high wind event caused 2,500 dollars in property damage over a 3-county area.

May 11, 2006

An unusually strong low-pressure system for the month of May moved north across Michigan and produced heavy rain and high winds in northeast and north central Wisconsin. The high winds downed power lines, and knocked down and uprooted trees. In Brown County around 800 customers lost power and one house was damaged when a tree fell on it. The heavy rainfall that accompanied the high winds resulted in some lowland flooding in the town of Ledgeview. The high wind event caused 39,000 dollars in property damage over a 4-county area.

February 10, 2009

As an occluded front passed through Wisconsin, winds as high as 55 mph occurred at isolated locations in the east-central part of the state. The strong winds tore shingles from a house and a church in Brown County.

October 26, 2010

A number of trees were knocked down throughout the county, some falling on homes and cars. One tree fell through a home and severely damaged the building.

Vulnerability

Wisconsin lies along the northern edge of the nation's maximum frequency belt for tornados, an area better known as "tornado alley." According to the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center this area extends northeastward from Oklahoma into Iowa and then across to Michigan and Ohio. Generally, the southern and western portions of the state have been subject to a higher frequency of tornados; however, every county has experienced a tornado at some time and is susceptible to a tornado related disaster.

In considering other tornado-like occurrences, which includes waterspouts, funnel clouds, and high winds, on average. Brown County has had 24 verified tornadoes over the 55-year period from 1957 through 2012, or an average of about one tornado every two years based on past observations of tornadoes in the county.

Tornadoes have no defined hazard area within Brown County and events are relatively uniform throughout the county.

Impacts

The following describes the various impacts that tornadoes have on the county.

Critical Facilities

Hospitals can see increases in patient load following tornadoes. Schools can sustain damage, and if they do not sustain damage, they often function as temporary shelters in the aftermath of tornadoes. Police and fire departments often see an increased workload during and after tornadoes.

Any critical facility in the county is capable of being hit. However, schools are a main concern for two reasons: (1) they have large numbers of people present, either during school or as a storm shelter; and (2) they have large span areas, such as gyms and theaters.

Public Health

The major health hazard from tornadoes involves physical injury from flying debris or being in a collapsed building or mobile home. Based on national statistics from 1970 through 1980, for every person killed by a tornado, 25 people were injured and 1,000 people received some type of emergency care.

Within a building, flying debris is generally stopped by interior walls. However, if a building has no partitions any glass, brick, or other debris blown into the interior can be life threatening. Following a tornado, damaged buildings are a potential health hazard due to instability, electrical system damage, gas leaks, and hazardous materials. Sewage and water lines may also be damaged from tornadoes.

Safety

Although tornadoes in the county have not been the cause of any deaths in recent years, tornadoes are still deadly. There were approximately 29,022 tornadoes causing

4,326 fatalities in the United States from 1990 to 2012. Of these tornadoes 630 were considered killer tornadoes. The number of people who live in mobile homes is far smaller than the number of people who live in permanent homes. However, mobile home deaths and permanent home deaths are virtually equal. Therefore, residents in mobile homes are at the greatest risk.

RV Parks and Campgrounds

Brown County has four public and private parks open to RVs and/or campers; Apple Creek Campground, Bay Shore Park, Brown County Fairgrounds, and Shady Acres Campsites. Apple Creek Campground has 130 sites, Bay Shore Park has 115 sites (85 RV sites and 30 tent sites) the fairgrounds can accommodate 50 RV sites, and Shady Acres Campsites can accommodate 25 big rig and tent sites.

Although RVers and campers are encouraged to own a NOAA weather radio, in the event of severe weather, the county parks department will notify them of the situation.

Infrastructure

Similar to severe thunderstorms, street signs are frequently in disrepair after tornadoes, and debris often litter streets and highways following a tornado, requiring clean up. Downed trees and power lines caused by tornadoes can be problematic in terms of impacting infrastructure (transportation) as well as critical facilities.

Buildings

Although tornadoes strike at random making all buildings vulnerable, there are three types of structures that are most likely to suffer damage. These structure types include mobile homes, homes on crawlspaces (because they are more susceptible to lift), and buildings with large spans (such as airplane hangars, gymnasiums and factories).

Structures within the direct path of a tornado vortex are often reduced to rubble. However, structures adjacent to the path of the tornado are often severely damaged by high winds flowing into the tornado vortex (these winds are known as inflow winds). It is here, adjacent to the tornado's path, where the building type and construction techniques are critical to the structure's survival.

According to research conducted by FEMA following an unusually destructive tornado in May of 1999 in parts of Kansas and Oklahoma (*Midwest Tornadoes of May 3, 1999 Observations, Recommendations, and Technical Guidance*), failure for many residential structures occurred where residential framing was attached to the foundation or when nails were the primary connectors between the roofing and the walls. The study also found that roof geometry plays a significant role in a building's performance. The research further indicated that the failure of garage doors, commercial overhead doors, residential entry doors, or large windows caused a significant number of catastrophic building failures. Finally, this research found that manufactured homes built upon permanent foundations performed better than those that were not on solid foundations.

Economic

The major impact of a tornado on the local economy is damage to businesses and infrastructure. A heavily damaged business, especially one that was barely making a profit, often has to be closed.

Infrastructure damage is usually limited to above ground utilities, such as power lines. Damage to utility lines can usually be repaired or replaced relatively quickly. Damage to roads and to railroads is also localized; if these facilities cannot be repaired promptly, alternate transportation routes are usually available.

Public expenditures include police and fire department calls, search and rescue, shelters, and emergency protection measures. The largest public expenses are for repairs to public facilities and clean up and disposal of debris. Most public facilities are insured, so the economic impact on the local treasury is likely to be small. Clean up and disposal can be a larger problem, especially if there is limited landfill capacity near the damage site.

The agricultural sector can experience economic losses as winds in excess of 39 miles per hour can damage crops during the growing season.

Other

Clean up and disposal can be a larger problem, especially if there is limited landfill capacity near the damage site. Clean up may also include the disposal of hazardous wastes as much of the damaged structures and their contents are considered hazardous materials.

Areas at Greatest Risk

Tornadoes have no defined hazard area within Brown County and events are relatively uniform throughout the county. However, mobile homes are at greatest risk during tornadoes and high winds. An F1 tornado might cause minor damage to a site-built house; but could do significant damage to a manufactured home, especially an older model or one that is not properly secured.

RV Parks, campgrounds, and marinas are also at significant risk from tornadoes and high winds.

Potential Losses

The “worst case scenario” would involve the total destruction of all mobile homes in seven mobile home parks in the county. Mobile home parks are shown as land use code 180 on Brown County’s land use inventory completed in 2010.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Flooding. Heavy rain and thunderstorms can cause flooding that can disrupt emergency response, transportation, and communication before, during, or after a tornado. Flooding can further exacerbate the aftereffects of a tornado that has caused property damage, loss of life, and personal injury. Flooding can disrupted transportation, communication, and emergency services, and threaten public health and safety. Essential public infrastructure and services such as power, water supply systems and sanitary systems can be compromised as well.

Plans and Programs

Emergency Operations Plan. The *Brown County Emergency Operations Plan* outlines procedures for the County in response to a variety of hazards. During the course of a flood event in Brown County, the Emergency Management Director works with local officials to ensure public health and safety and maintain transportation routes.

Severe Storm Spotters Network. This program, sponsored by the National Weather Service (NWS), enlists the help of trained volunteers to identify, evaluate, and report severe weather events to the NWS. No tornado warning is given unless the storm has been spotted by someone or is confirmed by NWS radar reports. Brown County has 40 trained severe weather spotters, many of whom report directly to their respective public safety answering points when severe weather is observed.

Tornado Warning System. Most of the cities and villages in Brown County have emergency sirens to warn residents in the event of a tornado. There are a total of 55 tornado sirens in the county. The county Joint Dispatch Center is responsible for testing and activating the systems.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring weather radios.

Shelter Opening Plan. Annex E of the Brown County Disaster Plan addresses the procedures for opening shelters.

Gaps and Deficiencies

A significant number of homes in the county lack basements that would provide shelter in the event of a tornado or damaging winds from a severe thunderstorm. Moreover, in many of the nursing homes, residents are moved to an interior hall away from windows in the event of a violent storm.

Local radio and television stations do provide warnings but are effective only if tuned to one of the local stations.

A majority of the power lines in the county are above ground and subject to damage from wind and falling tree limbs. There are community requirements to manage trees near power lines.

Not all of the county's 54 tornado siren systems have a generator that will enable them to work during a power failure.

Lightning and Thunderstorms

Lightning

Lightning, which occurs during all thunderstorms, can strike anywhere. Generated by the buildup of charged ions in a thundercloud, the discharge of a lightning bolt interacts with the best conducting object or surface on the ground. The air in the channel of a lightning strike reaches temperatures higher than 50,000 degrees Fahrenheit. The rapid heating and cooling of the air near the channel causes a shock wave that produces



thunder. The death toll from lightning strikes is relatively low; however, a sizeable percentage of fires are the result of a lightning striking structures, woodlands, grassy areas, or even industrial sites containing highly combustible substances.

Thunderstorms

Thunderstorms are most likely to happen in the spring and summer months and during the afternoon and evening hours, but can occur throughout the year and at all hours. The biggest threats from thunderstorms are flash flooding and lightning. In most cases, flash flooding occurs in small drainage areas where water quickly accumulates before it drains to the floodplains. When taken together, these local drainage problems can be as great a problem as flooding in the mapped floodplains. Other threats from thunderstorms include downburst winds, high winds, hail, and tornadoes.

The National Weather Service classifies a thunderstorm as severe if its winds reach or exceed 58 miles per hour, produces a tornado, or drops surface hail at least 0.75 inch in diameter. Compared with other atmospheric hazards (such as tropical cyclones and winter low-pressure systems), individual thunderstorms affect relatively small geographic areas. The average thunderstorm system is approximately 15 miles in diameter, covers 75 square miles, and lasts less than 30 minutes at a single location. However, weather monitoring reports indicate that coherent thunderstorm systems can travel intact for distances in excess of 600 miles.

History

According to National Climatic Data Center, Brown County has experienced 12 significant lightning events and 62 significant thunderstorm wind events since January 1, 1990.

Lightning

Location	Date	Deaths	Injuries	Crop Damage	Property Damage
Green Bay	August 8, 1995	0	0	0	\$ 45,000
Green Bay	July 29, 1996	0	0	0	\$ 20,000
Green Bay	June 29, 1997	0	0	0	\$ 20,000
Green Bay	September 16, 1997	0	0	0	\$ 10,000
De Pere	June 25, 1998	0	0	0	\$ -
Holland	June 25, 1998	0	0	0	\$ -
Green Bay	June 6, 1999	0	0	0	\$ 100,000
Green Bay	July 31, 1999	0	0	0	\$ 40,000
Ashwaubenon	July 8, 2000	0	0	0	\$ -
Green Bay	September 14, 2004	0	0	0	\$ -
Denmark	May 30, 2006	0	0	0	\$ -
Green Bay	April 6, 2010	0	0	0	\$ 500
TOTAL		0	0	0	\$ 235,500

Source: NOAA National Climatic Data Center; March, 2012.

Thunderstorm Wind

Table 3.6: Thunderstorm Wind Events since January 1990, Brown County, Wisconsin

Location	Date	Magnitude (kts.)	Deaths	Injuries	Crop Damage	Property Damage
Brown County	September 9, 1990	0	0	0	0	\$ -
Brown County	June 17, 1992	0	0	0	0	\$ -
Green Bay	April 24, 1994	n/a	0	0	0	\$ 50,000
Green Bay	April 24, 1994	n/a	0	0	0	\$ 50,000
Allouez	July 23, 1995	n/a	0	0	0	\$ 5,000
Bellevue	July 23, 1994	n/a	0	0	0	\$ 500,000
Denmark	July 23, 1994	n/a	0	0	\$ 5,000	\$ 5,000
New Franken	July 31, 1995	n/a	0	0	0	\$ -
Green Bay	August 11, 1995	n/a	0	0	0	\$ -
Green Bay	August 11, 1995	n/a	0	0	0	\$ -
Green Bay	August 7, 1996	0	0	0	0	\$ -
Pulaski	August 25, 1996	0	0	1	0	\$ 2,000
Suamico	August 25, 1996	0	0	0	0	\$ 1,000
Suamico	June 25, 1998	0	0	0	0	\$ 10,000
Brown County	June 25, 1998	0	0	0	0	\$ 1,000
Suamico	June 25, 1998	0	0	0	0	\$ 3,000
Howard	June 25, 1998	0	0	0	0	\$ 10,000
Suamico	June 25, 1998	61	0	0	0	\$ -
Howard	September 26, 1998	50	0	0	0	\$ -
Ashwaubenon	June 6, 1999	50	0	0	0	\$ 1,000
Ashwaubenon	June 6, 1999	54	0	0	0	\$ -
De Pere	June 6, 1999	50	0	0	0	\$ -
Green Bay	June 6, 1999	50	0	0	0	\$ -
Brown County	June 6, 1999	50	0	0	0	\$ -
Green Bay	July 30, 1999	50	0	0	0	\$ -
Ashwaubenon	April 23, 2001	50	0	0	0	\$ -
Brown County	June 30, 2001	50	0	0	0	\$ -
Green Bay	September 7, 2001	50	0	0	0	\$ -
De Pere	September 7, 2001	50	0	0	0	\$ -
Brown County	July 30, 2002	50	0	0	0	\$ -
Green Bay	August 6, 2003	50	0	0	0	\$ -
Green Bay	August 21, 2003	50	0	0	0	\$ -
Green Bay	August 27, 2004	52	0	0	0	\$ -
Green Bay	October 23, 2004	52	0	0	0	\$ -
Allouez	June 7, 2005	55	0	0	0	\$ -
Bellevue	June 10, 2005	57	0	0	0	\$ -
Ashwaubenon	June 11, 2005	50	0	0	0	\$ -
Howard	September 13, 2005	55	0	0	0	\$ -
Wrightstown	September 13, 2005	56	0	0	0	\$ -
Ashwaubenon	September 13, 2005	70	0	0	0	\$ 50,000
De Pere	September 13, 2005	65	0	0	0	\$ 30,000
Green Bay	September 13, 2005	59	0	0	0	\$ 50,000
Suamico	June 28, 2006	50	0	0	0	\$ -
Ashwaubenon	July 5, 2007	52	0	0	0	\$ -
Suamico	July 18, 2007	52	0	0	0	\$ -
Green Bay	July 18, 2007	70	0	0	0	\$ 237,000
Green Bay	April 25, 2008	52	0	0	0	\$ -
De Pere	June 12, 2008	56	0	0	0	\$ -
Denmark	June 12, 2008	52	0	0	0	\$ -
Holland	July 12, 2008	52	0	0	0	\$ 100,000
Ashwaubenon	July 29, 2008	50	0	0	0	\$ -
Green Bay	July 14, 2010	52	0	0	0	\$ -
Bellevue	August 20, 2010	54	0	0	0	\$ -
Wrightstown	August 20, 2010	74	0	0	0	\$ -
Holland	April 10, 2011	61	0	0	0	\$ -
Green Bay	May 22, 2011	52	0	0	0	\$ -
Howard	May 22, 2011	52	0	0	0	\$ -
Green Bay	July 18, 2011	52	0	0	0	\$ -
Wrightstown	September 2, 2011	68	0	0	0	\$ -
Howard	September 2, 2011	50	0	0	0	\$ -
Pittsfield	September 2, 2011	50	0	0	0	\$ -
Suamico	September 2, 2011	50	0	0	0	\$ -
TOTAL			0	1	\$ 5,000	\$ 1,105,000

Source: NOAA National Climatic Data Center; March 2012

Vulnerability

Seventy-four lightning and/or thunderstorm events have occurred in Brown County between 1990 and 2012. This means that approximately 3.4 severe lightning and/or thunderstorm wind events occur in Brown County each year.

Impacts

The following describes the various impacts that lightning and thunderstorms have on the county.

Critical Facilities

Hospitals can see increases in patient load with sufficiently severe lightning and thunderstorms. Schools can sustain damage, and if they do not sustain damage, they often function as temporary shelters in the aftermath of severe thunderstorms. Police and fire departments often see an increased workload during and after lightning storms and/or severe thunderstorms. Emergency operations can be disrupted as lightning storms and thunderstorms affect radio communications, taking into consideration that antennas are a prime target for lightning.

Public Health

No special health problems are attributable to lightning and thunderstorms, other than the potential for tetanus and other diseases that arise from injuries and damaged property. In the case of lightning storms, when lightning strikes a person, serious burns or death are common outcomes. For every person killed by lightning, three persons are injured. For those who survive, their injuries can lead to permanent disabilities. About 70 percent of lightning strike survivors suffer serious, long-term effects, including memory loss, sleep disorders, depression and fatigue.

Safety

Lightning and thunderstorms rarely cause loss of life, but can cause injuries. From 1959 through 2012, lightning has killed 50 people and injured 239 people in Wisconsin. High winds can also kill and injure people in thunderstorms. For example, in 1998, thunderstorm winds were responsible for one death and 59 injuries in Wisconsin.

Most lightning and thunderstorm deaths can be prevented through safe practices. A considerable amount of information has been developed over the past two decades concerning lightning safety. Education efforts based on this information are leading to a reduction in the number of lightning-related deaths over time.

Infrastructure

Street signs often face disrepair after severe thunderstorms, and debris often litter streets and highways following a severe thunderstorm, requiring clean up. Downed trees caused by lightning and thunderstorms can be problematic for transportation.

Buildings

Mobile homes are at a high risk to damage from thunderstorms. Garages are also frequently damaged by thunderstorms. Wind and water damage can result when windows are broken by flying debris or hail. Lightning can cause direct damage to structures (especially those without lightning protection systems), and can set off fires

that may lead to further damage. Downed trees and limbs cause frequent damage to structures during lightning and thunderstorms.

Economic

Lightning and thunderstorms damage or destroy crops. In the agricultural sector, buildings and livestock can also be negatively impacted from lightning and thunderstorms.

Impacts to businesses from lightning and thunderstorms can include damage to signs, windows, and siding. In addition, billboards, or other advertising can be damaged from such storms.

Thunderstorms can affect utilities. Power lines, transformers, and the poles supporting power lines can be knocked out by lightning or knocked down by wind and debris. Telephone lines can be disabled in a similar manner. Radio communications can be disabled because of thunderstorms. Lightning can cause power surges that damage appliances, electronic equipment and computers.

Finally, thunderstorms can affect transportation. Airplanes have crashed when hit by downbursts of lightning. As stated previously, street signs often face disrepair after severe thunderstorms, and debris often litter streets and highways following a severe thunderstorm, requiring clean up.

Areas at Greatest Risk

Based on review of the historic patterns of lightning and thunderstorms, there are no specific jurisdictions that have unusual risks (meaning higher than average for the entire county). The events are relatively uniform throughout Brown County.

Estimation of Potential Losses

No estimation of potential losses can be derived as there is no defined hazard area. Lightning and thunderstorms can occur anywhere in Brown County.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Flooding. Thunderstorms can cause flooding that can disrupt emergency response, transportation and communication. Lightning and thunderstorms can cause property damage, loss of life, and personal injury, disrupt transportation, communication, and emergency services, and threaten public health and safety, as well as pose significant threat to essential public infrastructure and services such as power, water supply systems and sanitary systems.

Hailstorms. Lightning and thunderstorms are often accompanied by hailstorms.

Plans and Programs

Severe Storm Spotters Network. This program, sponsored by the National Weather Service (NWS), enlists the help of trained volunteers to identify, evaluate, and report severe weather events to the NWS. No tornado warning is given unless the storm has been spotted by someone or is confirmed by NWS radar reports. Brown County has 40

trained severe weather spotters, many of whom report directly to their respective public safety answering points when severe weather is observed.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring a weather radios.

Gaps and Deficiencies

Redundancy is needed on communications towers.

Local radio and television stations do provide warnings but are effective only if tuned to one of the local stations.

A majority of the power lines in the county are above ground and subject to damage from wind and falling tree limbs. There are community requirements to manage trees near power lines.

Winter Storms

Winter storms in Wisconsin are caused by Canadian and Arctic cold fronts that push snow and ice deep into the interior of the United States. These storms can vary in size and strength, and can include heavy snowstorms, blizzards, freezing rain, sleet, ice storms, and blowing and drifting snow conditions. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite, hypothermia, and death. Winter storms can occur as a single event or in combination, making an event more severe. For example, a moderate snowfall could create severe conditions if it were followed by a freezing rain and subsequent extremely cold temperatures. The aftermath of a winter storm can impact a community or region for weeks, and even months.



A variety of weather phenomena and conditions can occur during winter storms. For purposes of classification, the following are National Weather Service approved descriptions of winter storm elements:

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.

Winter Storm – the occurrence of heavy snowfall accompanied by significant blowing snow, low wind chills, sleet or freezing rain.

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.

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. This ice does not cling to surfaces.

Wind chill – an apparent temperature that describes the combined effect of wind and low air temperatures on exposed skin.

Much of the snowfall in Wisconsin occurs in small amounts of between one and three inches per occurrence. Heavy snowfalls (producing at least eight to ten inches of accumulation) happen on the average only five times per season. True blizzards are rare in Wisconsin, and are more likely to occur in northwestern Wisconsin than in northeastern portions of the state, even though heavy snowfalls are more frequent in southeastern Wisconsin. However, blizzard-like conditions often exist during heavy snowstorms when gusty winds cause the severe blowing and drifting of snow.

Both ice and sleet storms can occur at any time throughout the winter season from October into April. Early- and late-season ice and sleet storms are generally restricted to northern Wisconsin. Otherwise, the majority of these storms occur in southern Wisconsin. In a typical winter season, there are three to five freezing rain events, and a major ice storm occurs on a frequency of about once every other year. If a half inch of rain freezes on trees and utility wires, extensive damage can occur, especially if accompanied by high winds that compound the effects of the added weight of the ice. There are also between three and five instances of glazing (less than one quarter inch of ice) throughout Wisconsin during a normal winter.

Winter storms present a serious threat to the health and safety of affected citizens, and can result in significant damage to property. This can occur when the heavy snow or accumulated ice causes structural collapse of buildings, downs power lines, severely affects electrical power distribution, or cuts off people from assistance or services. Difficult and dangerous driving conditions caused by the adverse conditions associated with winter storms often result in large numbers of traffic injuries, deaths, and even high costs associated with damage to personal and public property. These winter storm deaths are not accounted for in the statistics maintained by the National Climatic Data Center.

History

According to National Climatic Data Center, Brown County has experienced 54 winter storm events between January 1, 1990 and March 31, 2012.

Vulnerability

On average, over the past 21 years (since 1990), Brown County has typically experienced about two to three significant winter storm events per year. Winter storms tend to be a regional phenomenon affecting much of the northeastern portion of Wisconsin including Brown County. The proximity of the county to Lake Michigan increases the likelihood of additional moisture enhanced snow during one of these events, if meteorological conditions are right.

Impacts

The following describes the various impacts that winter storms have on the county.

Critical Facilities

Town and county road crews have an increased burden of snow removal (and salting in the case of ice storms) during and after winter storms. In some cases, winter storms can be so severe that these crews have to be called off the roads for a while.

Hospitals and clinics can treat additional patients for frostbite, pedestrian, and vehicular accident injuries, and conditions resulting from the shoveling of heavy snow during and following winter storms. As is the case for any business, hospital and clinic employees may have difficulty getting to work because of the storm, which increases the workload for the staff who is already there (double shifts, etc.).

More accidents occur in which the Sheriff and Police departments must respond. Utility and telephone companies have to respond to downed electrical and telephone lines, especially in the case of ice storms. Rescue services can receive more calls because of accidents or health related circumstances. Schools may need to have early dismissal or cancel classes altogether.

Public Health

Most injuries caused by winter storms result from vehicle accidents. Frostbite and hypothermia occur frequently when these storms combine with extreme cold (these health concerns are discussed more under the extreme cold hazard). Heart attacks and back injuries from shoveling snow are also a public health concern.

Safety

Winter storms can produce weather related hazards, including hazardous driving and walking conditions and injuries from shoveling snow. In some winter storm events, extreme cold from low temperatures, wind chill, and loss of heat due to power outages can create safety concerns.

Infrastructure

The major impacts of winter storms on infrastructure are to utilities and roads. Power lines and tree limbs can be coated with heavy ice in some winter storms, resulting in disrupted power and telephone service, often for days. Cable and satellite television services can also be negatively impacted in certain winter storm events. In the case of transportation, even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

Buildings

Occasionally, heavy snow or accumulated ice will cause structural collapse of buildings (particularly roofs), but most buildings are now constructed with low temperatures, snow loads and ice storms in mind. In addition, with the modern focus on energy conservation, buildings are much better insulated than they were in the past. Therefore, for the most part, winter storms do not have a major impact on buildings in the county.

Economic

Loss of power often means that businesses and manufacturing concerns must close down. Loss of access due to snow or ice covered roads can have a similar effect, especially when trucks cannot travel on major thoroughfares to make “just in time”

deliveries to businesses and industries in the county. The effects are particularly difficult when the storm is widespread. Agriculture can be negatively impacted by these storms if they occur over a long period.

Areas at Greatest Risk

Winter storms have no defined hazard area within the county. The events are relatively uniform throughout Brown County.

Estimation of Potential Losses

No estimation of potential losses can be derived as there is no defined hazard area. Winter storms can occur anywhere in Brown County.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Extreme Cold. Extreme cold and wind chill effects can greatly exacerbate any winter storm event.

Flooding. Heavy snows and snowmelt can cause flooding that can disrupt emergency response, transportation, and communication.

Plans and Programs

Wind Chill Warnings. The local radio and TV media in concert with the National Weather Service issues a wind chill warning when temperatures are -40° F or lower for a period longer than three hours. Severe wind chill warnings are provided when conditions warrant and when severe risk and safety is a factor.

School Closings. The county's school districts have a policy of closing schools when the National Weather Service issues a wind chill warning or when snow accumulations become greater than 5" and travel conditions are determined to be unsafe. Local television and radio stations partner with the districts to make sure the announcements are out by 5:30 am. Some school districts have an automated phone system that contacts the homes of students by 6:00 am.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program is available to assist residents in acquiring a weather radio. However, with newer and better technology developed over the past several years, including advances with wireless devices, weather radios have become less desired.

Gaps and Deficiencies

Local radio and television stations do provide warnings but are effective only if tuned to one of the local stations.

A majority of the power lines in the county are above ground and subject to damage from ice, wind, and falling tree limbs. There are community requirements to manage trees near power lines.

Storm Water Flooding

The waterways and storm water drainage systems provide essential flood protection. Storm water drainage systems cope well with most storms. However, occasionally

storms, such as flash floods can occur of such intensity that not all the storm water can get into the drains at once and flooding occurs. Flash floods happen when a large amount of rain falls in a localized area over a very short period. These localized storms are generally beyond the capacity of any drain, and it would not be economically feasible to design drains to cater for these very large, but infrequent storms.

In addition, localized storm water flooding can occur if drains in the area are blocked. It is important to keep the drainage system clear of litter and debris to avoid blocked drains. This is also necessary to protect and improve the health of Brown County's waterways.

Today, new developments and redevelopments incorporate storm water management measures such as storm water detention and retention basins that provide greater flood protection. Detention basins slow the flow of storm water being carried in the drainage system by storing it for a time, while retention basins (i.e. ponds) hold water during most of the year. Detention basins often double as parks and playing fields.

Storm water flooding is relatively uncommon in Brown County and occurrences are localized.

History

One National Climatic Data Center record exists for "urban/small stream flooding" in the planning area since January 1, 1990. However, there are numerous occurrences of minimal storm water flooding events that occur in Brown County every year.

July 8, 2000

A nearly stationary front across Wisconsin combined with upper air support and abundant moisture to produce a prolonged period of thunderstorms. A few of the storms contained high winds and hail but flooding from heavy rainfall caused the majority of the problems. Flooding of roads and/or basements was reported in Green Bay and De Pere. Small streams and creeks overflowed their banks and rural areas suffered some crop damage. Green Bay received 4.12 inches of rain on July 8, 2000 and 4.65 inches of rain in a 24-hour period spanning July 7 - 8. These totals set a new rainfall records for July 8, 2000 and for the month of July 200. The previous record 24-hour total was 4.39 inches set on July 23, 1912. At least 25,000 customers lost electrical power.

Vulnerability

There are several areas throughout Brown County susceptible to recurrent storm water flooding. Many of these areas are noted by local public works and highway departments with signage to warn drivers of potential high water problems during heavy rain events. None of the Steering Committee members or community officials deemed storm water flooding to be a significant risk to residents or visitors. Street and ditch flooding after heavy rains have historically caused little damage or traffic disruption in the past.

Impacts

The following describes the various impacts that storm water flooding has on the county.

Critical Facilities

Interior water damage can occur to critical facilities, just as it does for any building when storm drains back up.

Public Health

There is not much of a public health risk as the situation is usually alleviated quickly and any cases prolonged standing water would be rare.

Safety

Electrocution could occur from a building experiencing storm drain backup flooding and electrical wires or appliances short out and carry current through standing water. Fire injuries could occur due to water damage to heating systems.

Infrastructure

Erosion damage to roads can occur from storm water flooding, especially if the storm water facilities in the area are defective.

Economic

Clean up and replacement of damaged items can be costly after a building has experience storm drain backup flooding.

Maintenance of roads and parking lots after storm water flooding damage can be costly.

Areas at Greatest Risk

The areas at greatest risk for storm water flooding are bridges and roads at the town level as they often do not have infrastructure to manage storm water.

Estimation of Potential Losses

No estimation of potential losses can be derived as the hazard area is vaguely defined.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Fire. Fire can occur due to infrastructure compromise of electrical and natural gas systems.

Transportation Disruption. Disruptions of transportation routes can be disrupted due to standing water in roadways.

Plans and Programs

Repair and Maintenance. Repair and maintenance is routinely performed by Brown County on areas with storm water flooding damage.

Storm Drain Cleaning Program. Many if not all of the communities in Brown County have some type of storm drain cleaning program that involves utilizing a vacuum to remove debris from storm drains in the fall of each year.

WisDOT Flood Mitigation Program. Wisconsin Department of Transportation assists local governments with replacing or improving roads and roadway structures that have had major damage caused by flooding, by providing help to defray the costs of repairing any public highway, street, alley, or bridge not located on the State Trunk Highway system.

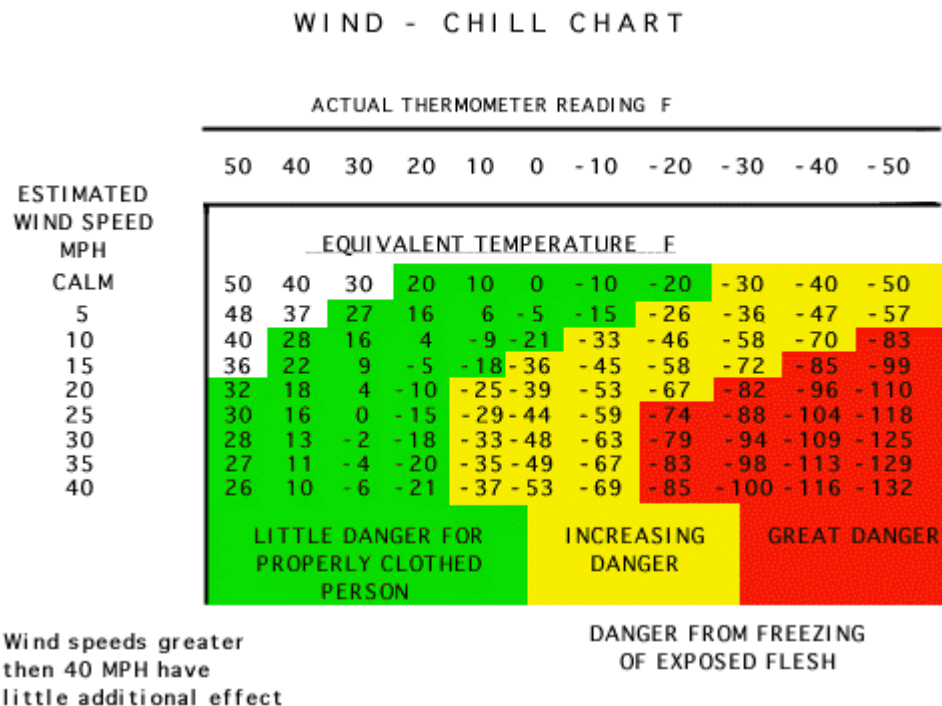
Gaps and Deficiencies

There is a need to correct defective storm water facilities to prevent infrastructure damage. Municipalities within the urbanized area have permits with the Wisconsin Department of Natural Resources to address municipal storm water with storm water permits. The permits include monitoring outfalls for contamination, setting up ordinances and procedures to address illicit discharges, and a program to clean clogged and damaged storm drains. Brown County and the City of Green Bay, for example, each checks each outfall under their jurisdiction at least once every five years.

Extreme Cold

Dangerously cold conditions can be the result of extremely cold temperatures, or the combination of cold temperatures and high winds. The combination of cold temperatures and wind creates a perceived temperature known as “wind chill.” Wind chill is the apparent temperature that describes the combined effect of wind and air temperatures on exposed skin. When wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, the faster the wind blows the greater the heat loss, which results in a colder feeling. As winds increase, heat is carried away from the body at a faster rate, driving down both the skin temperature and eventually the internal body temperature. Extreme cold events are most likely during the months of January and February.

Wind Chill Chart, Brown County, Wisconsin:



Note: Wind speeds above 40 mph have little additional chilling effect.
Source: USSARTF.org

History

According to National Climatic Data Center, Brown County has experienced nine extreme cold events since January 1, 1990.

February 10, 1995

An "arctic blast" brought the coldest weather of the winter to the northern half of the state. Brisk winds occasionally gusting to 30 to 40 mph combined with sub-zero temperatures created wind chill readings of 50 to 70 below zero. During the cold spell numerous schools were closed, numerous outdoor "fest" events were cancelled. Some frozen water pipes were reported. Snow blew and drifted, reducing visibility in open areas, and many roads iced over, resulting in numerous vehicle accidents.

December 5, 1995

Bitter cold arctic air swept into Wisconsin on northwest winds of 20 to 40 mph. Temperatures dropped as much as 15 degrees F in 15 minutes as the strong front moved through. Wind chill values ranged from 25 below to 50 below zero. Many schools canceled evening activities, and there were some frozen water pipes, which resulted in flooded rooms or basements.

January 30, 1996

Bitter cold arctic air settled in across central and northeast Wisconsin. Record low temperatures were set in a few locations.

February 1, 1996

At least 20 record low temperatures were set across central and northeast Wisconsin during the early part of February, as a frigid arctic air mass remained entrenched across the area. The cold weather resulted in a hypothermia-related death in Green Bay on the first day of the month. Temperatures dropped to colder than 40 degrees below zero in parts of north central Wisconsin. Temperatures remained below zero for 137 hours straight in Green Bay. The cold weather was responsible for numerous school closures, stalled vehicles, frozen pipes, and broken water lines. Electrical and telephone outages occurred due to snapped wires and lines. Extreme cold temperatures combined with west winds of 10 to 15 mph to produce wind chill readings in the 50 to 70 degree below zero range on February 2, 1996.

October 4, 1999

The low temperature at Austin Straubel International Airport in Green Bay was 25 degrees. This tied the record low that was set in 1989.

February 17, 2006

A bitter cold air mass settled over the Western Great Lakes region on the February 17 and 18, 2006. On the morning of the 18th, temperatures dropped into the 15 below to 20 below zero range across east central Wisconsin, 18 below to 24 below zero across central Wisconsin, and 22 below to 27 below zero across northern Wisconsin. The cold temperatures combined with west winds of 5 to 15 mph to produce extremely cold wind chill readings. Green Bay recorded a wind chill of -41.

January 30, 2008

After an arctic front passed through the area, air temperatures fell into the 10 below to 20 below zero range and west winds increased to speeds of 20 to near 40 mph. The combination of cold temperatures and strong winds produced wind chills of 40 below to near 50 below zero across most of the area. Some of the coldest official wind chills included 49 below zero at Rhinelander (Oneida Co.), 47 below zero at Wausau (Marathon Co.) and 40 below zero at Green Bay (Brown Co.).

February 10, 2008

Strong northwest winds behind a departing low pressure system brought cold air into Wisconsin. Temperatures fell into the 10 below zero to 20 below zero range at most locations overnight and combined with 15 to 30 mph winds, with gusts as high as 40 mph, to produce bitter cold wind chills. Some of the coldest wind chills included -47 at Antigo (Langlade Co.), -45 at Rhinelander (Oneida Co.), -43 at Wausau (Marathon Co.) and -40 at Appleton (Outagamie Co.), Eagle River (Vilas Co.) and Kewaunee (Kewaunee Co.).

January 24, 2009

Northwest winds between a departing cold front and an approaching high pressure system brought much colder air into the area. Low temperatures ranged from the single digits below zero from the Fox Valley east to Lake Michigan, to the teens below zero in north-central and parts of central Wisconsin. Wind chills across the area were mostly in the 20 below zero to 30 below zero range. There were two fatalities due to hypothermia during the morning of the 24th. One occurred in De Pere (Brown Co.), where a resident of an assisted living center was discovered around 7:30 a.m. on a sidewalk outside the center where he lived. The Brown County medical examiner said that the man was dressed appropriately for the weather but had other medical problems. It is estimated that he was outside for about 5 hours. The temperature at Green Bay was as cold as 6 degrees below zero before the man's body was discovered. Another fatality occurred in Florence County after a woman slipped on ice and injured her leg while walking home around 11:20 p.m. on the night of the 23rd. She then attempted to crawl the remaining distance to her home, more than 300 feet, but was overcome by the cold before she could reach the door. She was discovered around 9:30 a.m. on the 24th on the stairs next to the entrance to her home. Actual air temperatures in Florence County that morning were in the 9 below zero to 12 below zero range.

Vulnerability

Typically an extreme cold episode affects Brown County once every two to three years based on past observations. Extreme cold episodes tend to be a regional phenomenon in that the episode affects much of the northeastern region of Wisconsin on nearly all of the occasions in which the episodes affected Brown County.

Impacts

The following describes the various impacts that extreme cold events have on the county.

Critical Facilities

All buildings involving critical facilities will have greater heating expenses during an extreme cold event. Increased demand will also affect local natural gas energy utilities serving the planning area. Hospitals and clinics may be asked to treat patients exposed to the extreme cold conditions. Emergency shelters may take in additional individuals during the extreme cold event. Area schools may cancel classes or call for early dismissal in extreme cold events. Water utilities may need to repair damaged water mains caused by the extreme cold. Local fire departments and rescue services may also deal with direct or indirect consequences of the extreme cold event.

Public Health

Exposure to cold temperatures can cause serious or life threatening health problems. Prolonged exposure to the cold can cause frostbite or hypothermia and can become life threatening.

When exposed to cold temperatures or low wind chills, one's body begins to lose heat faster than it can be produced. The result is hypothermia, or abnormally low body temperature. Hypothermia is "clinically significant" when the body temperature is below 95 degrees. Severe hypothermia occurs when the body's temperature drops below 85 degrees, resulting in unconsciousness. When body temperatures drop too low, the brain may be affected, making the victim unable to think clearly or move well. This makes hypothermia particularly dangerous because a person may not know it is happening and will not be able to do anything about it. Hypothermia occurs most commonly at very cold temperatures, but can occur even at cool temperatures (above 40 degrees) if a person becomes chilled from rain, sweat or submersion in cold water. Victims of hypothermia are most often elderly people with inadequate food, clothing or heating; babies sleeping in cold bedrooms; children left unattended; adults under the influence of alcohol; mentally ill persons; and people who remain outdoors for long periods (such as the homeless). In cases of hypothermia, if help does not come, death follows. Great care is needed to properly re-warm victims with even mild cases of hypothermia.

Frostbite is an injury to the body that is caused by freezing; it is damage to tissue caused by the effects of ice crystals in frozen tissue. Frostbite causes a loss of feeling and color in affected areas. It most often affects the nose, ears, cheeks, chin, fingers or toes, all of which are extremities with more circulation difficulties. Frostbite can permanently damage the body, and severe cases can lead to amputation.

Safety

In addition to the health risks directly related to exposure to cold temperatures, residents are also susceptible to other risks associated with extremely cold temperatures. For example, many homes will become too cold either due to a power failure or because the heating system is not adequate for the weather. The risks of household fires and carbon monoxide poisoning increase when people begin to use space heaters and fireplaces to stay warm.

Infrastructure

Public domain water pipes can burst in extreme cold conditions, which can also ruin the street above the water pipes. In addition, damage to fiber optic cables can occur during extreme cold episodes, which can negatively affect commerce and hospitals in the planning area.

It is possible that extreme cold conditions combined with low lake levels might have led to the freezing of the water intake pipe in Lake Michigan in early 2004.

Buildings

Extreme cold conditions can result in burst water pipes. In addition, it is more expensive to heat homes and other buildings during extreme cold events. Sometimes, residents of the planning area might consider use of space heaters during an extreme cold event. However, use of space heaters comes with its own risks, including a higher probability of fire to a structure if used improperly.

Economic

Economic impacts of extreme cold events can include lack of motivation to participate in the local economy unless necessary during the event. Utility bills following the event will also be higher, which will give the consumer less ability to purchase discretionary goods about a month after the event (unless that consumer is on a monthly even payment plan with the local utility). If area school districts need to call off school early on extremely cold days, there may be expenses involved with early busing and with paying staff for a full day while only having the benefit of a partial day of instruction. Non-profit organizations will incur expenses in the provision of emergency shelters. The private sector incurs economic losses and production decreases during an extreme cold event.

Areas at Greatest Risk

Extreme cold events have no defined hazard area within the planning area. The events are relatively uniform throughout Brown County.

Estimation of Potential Losses

No estimation of potential losses can be derived as there is no defined hazard area. Extreme cold events can occur anywhere in Brown County.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Winter Storms. Winter storm events will exacerbate extreme cold conditions.

Plans and Programs

Heating Moratorium. A Wisconsin rule, adopted in 1984, prohibits utilities from disconnecting natural gas and electric service during the winter months, between November 1 and April 15.

School Closings. The county's school districts have a policy of closing schools when the National Weather Service issues a wind chill warning or when snow accumulations become greater than 5" and travel conditions are determined to be unsafe. Local television and radio stations partner with the districts to make sure the announcements are out by 5:30 am. Some school districts have an automated phone system that contacts the homes of students by 6:00 am.

Wind Chill Warnings. The local radio and TV media in concert with the National Weather Service issues a wind chill warning when temperatures are 30° F or lower. Severe wind chill warnings are provided when conditions warrant and when severe risk and safety is a factor.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring weather radios.

Gaps and Deficiencies

Not all school districts have a transportation manager providing information on current weather and road conditions.

Local radio and television stations do provide warnings but are effective only if tuned to one of the local stations.

A majority of the power lines in the county are above ground and subject to damage from ice, wind, and falling tree limbs. There are community requirements to manage trees near power lines.

Residents that have had their heat disconnected prior to the heating moratorium beginning on November 1 must make arrangements with their local utility to pay outstanding bills in order to have their service restored. If a consumer has not made arrangements to pay an outstanding bill, the utility is not required to provide heat until an agreed-upon payment schedule has been reached.

Residents could be without needed heating during any out-of-season cold spells that occur between April 16 and October 31.

Extreme Heat

Extreme heat and humidity associated with heat waves directly kill over 688 people a year in the US, making heat the number one weather killer in this country. This number is based on information from the Centers of Disease Control and Prevention (CDC) for the period of 1999 to 2003.

Extended periods of warm, humid weather can create significant risks for people, particularly the elderly who may lack air conditioning or proper insulation or ventilation in their homes. Animals are also at risk during extended periods of heat and humidity. The National Weather Service issues a Heat Advisory when the Heat Index ranges from 105 to 114 degrees during the day and remains at or above 80 degrees at night, during a

24-hour period. The following Heat Index Chart displays the National Weather Service Heat Index chart. The heat index combines the effects of heat and humidity to reflect the risk of warm weather to animals and people. When heat and humidity combine to reduce the amount of evaporation of sweat from the body, outdoor activity becomes dangerous even for those in good shape. The index measures the apparent temperature in the shade. People exposed to the sun would experience an even higher apparent temperature. A heat index of 105 is considered dangerous and prolonged exposure can result in heat stroke, heat exhaustion, and heat cramps. People are reminded to use extreme caution when the heat index is between 95 and 105. A heat index of 95 occurs when the temperature is 90 degrees and the relative humidity is 50 percent.

Heat Index Chart:

Temperature (F) versus Relative Humidity (%)						
°F	90%	80%	70%	60%	50%	40%
80	85	84	82	81	80	79
85	101	96	92	90	86	84
90	121	113	105	99	94	90
95		133	122	113	105	98
100			142	129	118	109
105				148	133	121
110						135

HI	Possible Heat Disorder:
80°F - 90°F	Fatigue possible with prolonged exposure and physical activity.
90°F - 105°F	Sunstroke, heat cramps and heat exhaustion possible.
105°F - 130°F	Sunstroke, heat cramps, and heat exhaustion likely, and heat stroke possible.
130°F or greater	Heat stroke highly likely with continued exposure.

Source: Accuracyproject.org, 2012

On average, at least five people die in Wisconsin each year due directly to heat (National Weather Service). In addition, evidence suggests that a similar number of people die each year in Wisconsin from heat as an indirect or secondary cause.

History

According to National Climatic Data Center, Brown County has experienced one extreme heat event since January 1, 1990.

July 23, 1999

Over one week of hot and very humid conditions across northeast Wisconsin resulted in numerous heat related illnesses and three deaths (none in Brown County) due to excessive heat. The heat caused concrete on many roads to buckle.

Vulnerability

Based on past observations, it is likely that one to two extreme heat episodes will affect Brown County in any given year. Extreme heat episodes tend to be a regional phenomenon in that they affect much of the northeastern part of Wisconsin on nearly all of the occasions in which they affected Brown County.

Impacts

The following describes the various impacts that extreme heat events have on the county.

Critical Facilities

Utilities may see peak demand for electricity during extreme heat episodes. There have been fears that an extreme heat episode could cause the power grid to collapse in a manner similar to what was experienced in the northeastern United States and in eastern Canada in the summer of 2003. Hospitals and clinics will likely experience increased demand due to heat related illnesses during an extreme heat episode. In some cases, rescue services will experience an increased demand due to these same heat related illnesses. If school is in session during the extreme heat episode, area school districts may dismiss classes early in the day, at least in older schools without air conditioning. Emergency shelters will experience higher demand during the extreme heat episode, with some emergency shelters being set up specifically in response to the episode. Finally, there is likely to be increased water demand during the episode, both for human consumption as well as for lawn watering in the event that the extreme heat episode includes a drought.

Public Health

Large numbers of persons can experience serious illnesses and ailments during an extreme heat episode. The most common of these illnesses include heat cramps, heat exhaustion and heat (sun) stroke. Sunburn can also occur during many extreme heat episodes. Symptoms of heat cramps include painful spasms usually occurring in the leg and abdominal muscles, along with heavy sweating. Symptoms of heat exhaustion include heavy sweating, weakness, having cold and pale skin, having a weak pulse, fainting and vomiting, although a normal body temperature is still possible. Symptoms of heat/sun stroke include high body temperatures (106 degrees Fahrenheit or higher), hot and dry skin, a rapid and strong pulse, possible unconsciousness, and no sweating. Heat stroke is a medical emergency, while heat exhaustion requires medical attention if persistent. Symptoms of sunburn include skin redness and pain, possible swelling, blisters, fever and headaches.

In addition to these typical extreme heat related illnesses, if meteorological conditions are right, Brown County may experience levels of ground-level ozone (smog) which exceed the federal standard. Ozone can irritate lung airways and cause inflammation much like sunburn. Other symptoms include wheezing, coughing, pain when taking a

deep breath, and breathing difficulties during exercise or outdoor activities. People with respiratory problems are most vulnerable, but even healthy people who are active outdoors can be affected when ozone levels are high. Repeated exposure to ozone pollution for several months may cause permanent lung damage. Anyone who spends time outdoors in the summer is at risk, particularly children and other people who are active outdoors. Even at very low levels, ground-level ozone triggers a variety of health problems, including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Safety

The safety impacts of extreme heat episodes are generally similar to the health impacts of those episodes. In some communities, extreme heat has led to shorter tempers, which can lead to violence that might normally not be seen under more typical weather conditions.

Infrastructure

There are few impacts of extreme heat on publicly owned infrastructure. One impact that extreme heat can have on publicly owned infrastructure involves the buckling of certain streets and highways, which need to be repaired immediately. There may be higher demand for water recreation in city parks as well, including beaches along Lake Michigan and other swimming venues (pools, inland lakes, etc.).

Buildings

While there are no direct impacts on buildings, periods of excessive heat can affect the ability of buildings to be comfortable and safe for human habitation. Periods of excessive heat usually result in high electrical consumption for air conditioning, which can cause power outages and black outs.

Economic

Economic impacts of an extreme heat episode which can affect private businesses and consumers include higher electrical consumption and increased demands for medical treatment. Local governments may need to incur expenses when repairing streets and highways in the planning area that have been damaged due to buckling. If area school districts need to call off school early on extreme heat days, there may be expenses involved with early busing and with paying staff for a full day while only having the benefit of a partial day of instruction. Non-profit organizations will incur expenses in the provision of emergency shelters. Water utilities will incur the expenses involved with additional demand for water during extreme heat episodes, and these expenses will be passed on to consumers.

One less tangible economic impact of extreme heat involves lower productivity from persons who must work outside or in less than ideal conditions. In addition, people will be less motivated to shop at local businesses and may defer non-essential activities until the heat episode is over, negatively impacting the local economy. Extreme heat can negatively impact agriculture in the surrounding area when combined with drought.

Areas at Greatest Risk

Extreme heat usually occurs throughout the entire planning area.

Estimation of Potential Losses

No estimation of potential losses can be derived as there is no defined hazard area. Extreme heat events can occur anywhere in Brown County.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Drought. Extended high temperature extremes can phase into drought.

Wildfire. Dry, hot condition can increase to risk of wildfires.

Plans and Programs

Heat Advisories. The local radio and TV media in concert with the National Weather Service issues a heat advisory when the combination of temperature and humidity create risks for people and animals. A heat index of 105 to 114 warrants a heat advisory. This occurs when air temperature reaches 95 and the relative humidity is 50 percent. An excessive heat warning is issued when the heat index reaches 115. This occurs with an air temperature of 95 degrees and relative humidity of 60 percent. An index of 115 or higher creates severe risk for both humans and animals.

School Closings. The county's school districts have a policy of closing summer schools when the National Weather Service issues a heat index warning. Local television and radio stations partner with the districts to make sure the announcements are out by 5:30 am.

Cooling Shelter. The County has a cool shelter that becomes active when the heat index exceeds 115 °F.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring a weather radios.

Gaps and Deficiencies

Not all school districts have a transportation manager providing information on current weather conditions.

Although Wisconsin requires utilities to provide residents heating between November 1 and April 15, there is no guarantee that residents will have access to cooling during times of extreme heat.

Cooling systems are lacking in many elderly housing developments.

Fog

Fog is a hazard mainly for one very important reason: reduced visibility. Airport delays, automobile accidents, shipwrecks, plane crashes, and many other problems are frequently caused by fog. When air pollution (such as smoke) combines with fog, visibility decreases even more. Acid fog, resulting from the combination of air pollutants (such as nitrogen and sulfur oxides) with water droplets can create health problems, especially for people who have respiratory conditions.

Fog is responsible for an average of over \$1,000,000 in property damage, dozens of injuries, and several deaths every year throughout the nation. The financial cost of transportation delays caused by fog has not been calculated, but is substantial.

Fog can occur almost anywhere and during any season. Certain seasons are more likely to have foggy days and nights in certain locations based on several factors, including topography and the process responsible for forming the fog.

Fog is classified based on how it forms, which is often related to where it forms. The following are the four most common types of fog:

- **Advection fog** occurs when warm, moist air is blown over a cold surface, and that surface can lower the temperature of the air to its dew point. Advection fog is common in harbors and bays in the summer. In the winter, warm and humid air from the subtropical oceans can also be blown over the cooler surface of the land, causing extensive fog.
- **Evaporation fog** is the result of water evaporating from streams, lakes and oceans. When cold air blows over warm water, the moisture that is evaporating from the surface will increase the amount of moisture in the air, possibly to the point that the air can no longer hold all of the water it contains. In this type of fog, the temperature of the air does not decrease to dew point. Instead, the moisture content of the air increases, resulting in the dew point being reached for this amount of moisture. Steam rising from lakes is a common type of evaporation fog.
- **Radiation (Ground) fog** is common on clear nights with little or no wind, and forms from the rapid cooling of the Earth's surface in the absence of clouds. Since the temperature of air near the surface is mostly influenced by the surface itself, the air temperature can easily drop to its dew point on calm, clear nights. This type of fog is common in valleys where cool air tends to accumulate. Often, radiation fog is called "valley fog" when it persists in valleys during the daytime hours and is fairly thick.
- **Upslope fog** can form from the cooling of rising air. If air is blown over high hills or mountains, it may cool enough to reach its dew point. This can result in extensive fog in mid-slope areas, such as the portion of the Great Plains adjacent to the Rocky Mountains.

The National Weather Service forecasts fog and issues dense fog advisories when visibility is decreased to less than one quarter of a mile. These advisories alert travelers to potentially dangerous conditions. Traveling in fog requires reduced speed and careful navigation. At night, traveling in fog is especially dangerous because darkness combines with fog to reduce visibility even more. In addition, light from automobile headlights and other navigational lights is scattered off the water droplets of the fog, limiting sight to only a short distance. In response to this problem, automobiles are often equipped with specially designed lights that illuminate a usually dry (and therefore clear) area just above the roadway surface.

History

According to National Climatic Data Center, Brown County has experienced 12 fog events since January 1, 1990.

March 18, 1996

Dense fog reduced visibilities to one-quarter mile or less across a large portion of northeast and east central Wisconsin.

May 9, 1996

Dense fog reduced visibilities to one-quarter mile or less across most of central and east central Wisconsin.

June 10, 1996

Dense fog affected parts of northeast and east central Wisconsin, especially near the Bay of Green Bay and Lake Michigan. The Fox Valley was also affected by the thick fog, which reduced visibilities to one-quarter mile or less at times.

September 6, 1996

Dense fog affected most of northeast and east central Wisconsin, reducing visibilities to one-quarter mile or less.

September 21, 1996

Dense fog dropped visibilities to one-quarter mile or less across east central Wisconsin.

October 16, 1996

Dense fog developed across most of central, northeast, and east central Wisconsin, reducing visibilities to one-quarter mile or less.

October 21, 1996

Dense fog reduced visibilities to one-quarter mile or less across most of northeast and east central Wisconsin.

January 2, 1997

Dense fog reduced visibilities to one-quarter mile or less across much of northeast, central, and east central Wisconsin. A warm air advection over the top of snow-covered ground led to the fog development.

March 1, 1997

Dense fog enshrouded much of central and northeast Wisconsin, reducing visibilities to one-quarter mile or less.

December 12, 1999

Dense fog reduced visibilities to near zero over much of north central, northeast, central, and east central Wisconsin. Moisture, trapped near the surface by weak high pressure, combined with cool temperatures and light winds to form widespread dense fog.

January 9, 2000

A warm front moving north through Wisconsin brought warm and moist air to central and east central Wisconsin. The snow-covered ground cooled the moist air, resulting in

widespread dense fog that first developed in the Fox Valley early in the morning of the January 9, 2000 and then overspread most of central and east central Wisconsin by evening. The fog began to dissipate a bit shortly after midnight on the 10th.

February 24, 2000

Moisture from rainfall and melting snow combined with light winds to produce widespread dense fog across most of northeast Wisconsin.

Vulnerability

Twelve fog events occurred between 1990 and 2012, which covers a 22-year period. This means that on average one fog event occurs in the county every other year.

It is probable that at least one fog episode will affect Brown County in any given year. The likelihood of fog is somewhat higher along Lake Michigan, in area river valleys and in other low-lying portions of the planning area under certain meteorological conditions, which increases this probability in parts of the planning area. Fog episodes often can be a regional phenomenon in that they affect much of the northeastern half of Wisconsin on many of the occasions in which they affect Brown County.

Impacts

The following describes the various impacts that fog events have on the county.

Critical Facilities

Law enforcement will be asked to respond to an increased number of accidents during many fog events. Hospitals and clinics may be asked to treat individuals injured in accidents that likely would have not occurred in the absence of the fog event. Rescue services may be called to respond to accidents that resulted from the fog event. The starting time for schools may be delayed by the fog event for the safety of students and all involved. Courtrooms may see increased adjudication of traffic law violations resulting from accidents occurring during fog events. Municipal public works and county highway departments may need to perform emergency repairs to streets and highways in worst-case scenario accidents resulting from the fog event.

In winter fog events, utility companies may need to repair their lines in circumstances where the fog combines with icing on electrical lines.

Austin Straubel International Airport and other area airports can experience flight delays and cancellations during certain fog events.

Public Health

Most injuries caused by fog events result from vehicle accidents. Few other public health impacts occur during fog events.

Safety

Fog events can produce weather related hazards, including hazardous driving conditions during most fog events, as well as hazardous walking conditions during winter fog events in which ice is produced on pavement surfaces. Although rare, ship wrecks and plane crashes could occur during a fog event.

Infrastructure

The main impact on infrastructure from a fog event is when accidents occur on the street and highway network. This can result in rescue services helping injured drivers and passengers; clean-up of the affected portions of the street and highway network; and temporary rerouting of motorists after some incidents. In addition, motorists often must travel at slower speeds when fog is in the area, which adds travel time and can lead to vehicular congestion in cases where it would normally not occur.

In fog events during the winter, icing can sometimes be a problem. Power lines and tree limbs can be coated with heavy ice in some winter fog events, resulting in disrupted power and telephone service. In addition, in fog events during the winter, even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.

Buildings

There are no direct impacts to buildings from a fog event, except under certain winter circumstances, when freezing of power lines can occasionally lead to disruptions in power to buildings.

Economic

There are economic costs in the accidents caused by fog events. Vehicular accidents usually involve property damage, and some vehicular accidents during fog events involve injuries and/or fatalities. All of these consequences to vehicular accidents have costs both to the individual involved and to society. Fog events can also cost businesses in lost time involving late workers and/or late shipments. If area school districts need to delay school during a fog event, there may be expenses involved with delayed busing and with paying staff for a full day while only having the benefit of a partial day of instruction. Airline delays due to fog have economic impacts for travelers as well as for commerce. There are additional economic impacts if the fog event occurs in conjunction with the icing of power lines in cases where the power lines are damaged and residents lose power.

Areas at Greatest Risk

Areas of Brown County situated along Green Bay and in river valleys and other low-lying areas, can be at greater risk for fog under certain meteorological conditions. However, no portion of the planning area is free of the possibility of experiencing fog at least occasionally.

Estimation of Potential Losses

No estimation of potential losses can be derived as there is no defined hazard area. Fog events can occur anywhere in Brown County.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Winter Storms. Winter storm conditions with freezing rain and icy roads can mix with fog to create deadly roadway conditions.

Plans and Programs

Fog Warning Signs. Flashing fog warning signs are in place in areas of known fog prone areas on major roads in Brown County.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring a weather radios.

Gaps and Deficiencies

Local radio and television stations provide warnings but are effective only if tuned to one of the local stations.

Fog warning signs may be ineffective if drivers are traveling at an unsafe speed for the weather conditions.

Hailstorms

Hailstorms are often produced by severe thunderstorms. Hailstones are ice crystals that form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until they develop sufficient weight and fall as precipitation. The size of hailstones is a direct function of the severity and size of the storm. Significant damage usually does not result until the hailstones reach 1.5 inches in diameter, which occurs in less than half of all hailstorms. Hail in Wisconsin ranges from pea-sized to golf ball-sized. Area coverage of individual hailstorms is highly variable and spotty because of the unstable nature of cumulonimbus clouds.

History

According to National Climatic Data Center, Brown County has experienced 41 hailstorm events since January 1, 1990.

Table 3.7: Hail Events since January 1990, Brown County, Wisconsin

Location	Date	Magnitude (in.)
Brown County	May 28, 1991	0.75
Brown County	May 28, 1991	2.38
Pulaski	September 21, 1996	0.75
Wrightstown	March 29, 1998	2.75
Wrightstown	March 29, 1998	2.75
Wrightstown	March 31, 1998	0.88
Bellevue	September 1, 1998	0.75
Ashwaubenon	September 26, 1998	1.75
Bellevue	September 26, 1998	1.50
Howard	September 26, 1998	1.00
Green Bay	September 26, 1998	0.88
Howard	September 26, 1998	1.75
Green Bay	July 13, 2000	1.25
New Franklin	June 16, 2001	0.75
Green Bay	July 13, 2000	0.88
Wrightstown	May 6, 2002	0.88
De Pere	May 30, 2002	1.50
Pulaski	April 15, 2003	0.88
Suamico	April 15, 2003	1.75
Green Bay	August 2, 2003	0.75
Pulaski	August 28, 2003	0.75
Suamico	August 28, 2003	2.25
Wrightstown	July 13, 2004	0.75
Ashwaubenon	October 23, 2004	0.88
Green Bay	October 23, 2004	0.75
Ashwaubenon	May 6, 2005	0.75
Green Bay	June 7, 2005	1.00
Suamico	June 20, 2007	1.00
Suamico	July 5, 2007	0.88
Howard	July 5, 2007	0.75
De Pere	October 5, 2007	0.88
Wrightstown	June 28, 2008	1.00
Ashwaubenon	July 29, 2008	0.75
De Pere	June 14, 2009	0.88
Allouez	August 20, 2010	1.50
Bellevue	August 20, 2010	1.00
Green Bay	August 20, 2010	1.00
Green Bay	August 20, 2010	1.00
Howard	May 22, 2011	1.50
Wrightstown	May 22, 2011	1.00
Allouez	May 22, 2011	0.88

Source: NOAA National Climatic Data Center; March, 2012

Vulnerability

Forty-one hail events occurred between 1990 and 2012. This means that on average approximately 1.9 hail events occurs in Brown County each year.

Impacts

The following describes the various impacts that hail events have on Brown County.

Critical Facilities

Hail can inflict severe damage to roofs, windows and siding, depending on hailstone size and winds.

Public Health

Hail is unlikely to cause any public health concerns.

Safety

Hail rarely causes loss of life, but can cause injuries.

Infrastructure

Buildings

Hail can inflict severe damage to roofs, windows and siding, depending on hailstone size and winds.

Economic

Hail can damage or destroy crops. Taller crops, such as corn are particularly vulnerable to hail.

Costly damage can occur to roofs, windows, and siding, as well as automobiles, RVs, and boats (including the body, paint and windshields and other windows).

Areas at Greatest Risk

Based on review of the historic hailstorm patterns, there are no specific areas with higher than average risks in Brown County. The events occur relatively uniformly throughout the county.

Estimation of Potential Losses

No estimation of potential losses can be derived as there is no defined hazard area. Hailstorms can occur anywhere in Brown County.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Lightning and Thunderstorms. Lightning and thunderstorms often accompany hailstorms, increasing the damage potential to the planning area.

Plans and Programs

Severe Storm Spotters Network. This program, sponsored by the National Weather Service (NWS), enlists the help of trained volunteers to identify, evaluate, and report severe weather events to the NWS. No tornado warning is given unless the storm has been spotted by someone or is confirmed by NWS radar reports. Brown County has 40

trained severe weather spotters, many of whom report directly to their respective public safety answering points when severe weather is observed.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring a weather radios.

Gaps and Deficiencies

Local radio and television stations do provide warnings but are effective only if tuned to one of the local stations.

A majority of the power lines in the county are above ground and subject to damage from ice, wind, and falling tree limbs. There are community requirements to manage trees near power lines.

Dam Failure Flooding

There are 37 dams of various sizes located throughout Brown County according to Wisconsin Department of Natural Resource (WDNR) records updated for 2012. The definition of a dam is a structure across a watercourse, along with appurtenant structures, that impounds or diverts water. There is no minimum size or storage volume. Of the county's dams, 15 were owned by the county or local municipality; one each was owned by the WDNR, Army Corp. of Engineers and Northwestern Wisconsin Technical College; and the remaining dams were owned by individuals or private entities. (Appendix G) The WDNR regulates the permitting of new dam construction, repairs, reconstruction, ownership transfers, water levels, and abandonment.

A dam with a structural height of over 6 feet and impounding 50 acre-feet or more, or having a structural height of 25 feet or more and impounding more than 15 acre-feet is classified as a large dam.

Dams are classified as Low, Significant, or High Hazard. A dam is assigned a rating of High Hazard when its failure would put lives at risk. The hazard rating is not based on the physical attributes, quality or strength of the dam itself, but rather the potential for loss of life or property damage should the dam fail.

History

There is no significant hazard history for any dams in Brown County.

Vulnerability

Of the 37 dams within the county, there is one large dam with a "high" hazard rating, and two large dams with a "significant" hazard rating, and the remaining are large and small dams with "low" hazard ratings. The Lamers Pond Dam in the Village of Ashwaubenon serving the Dutchman's Creek Tributary is the lone dam in Brown County with a "high" hazard rating. Please see Chapter 2 for more information on the *Emergency Action Plan* prepared for this dam.

The areas vulnerable to dam failure flooding include those locations within the hydraulic shadow of the dam. The hydraulic shadow of the dam is the area of land downstream from a dam that would be inundated by water upon failure of the dam during the regional flood.

Critical Facilities

There are no critical facilities vulnerable to flooding if the Lamers Pond Dam were to fail.

Public Health

Three types of health concerns could accompany dam failure flooding. The first hazard comes from the water itself in the form of illnesses resulting from contaminants carried in the water.

The second type of health hazard comes after the water is gone and stagnant pools creating habitat for vectors and damp areas produce mold spores.

The third health hazard is the long-term psychological impact of having experienced the destruction of a flood due to dam failure.

Safety

Cars floating in moving water can be swept downstream into deeper waters, which can lead to deaths for people trapped in vehicles. Electrocution can cause flood deaths, claiming lives in flooded areas that carry a live current created when electrical components short out. Floods can damage gas lines, floors and stairs, creating secondary hazards such as gas leaks, unsafe structures and fires.

Infrastructure

Infrastructure impacts of flooding include impacts to roads, bridges, and sewer, water, and electrical systems.

Economic

Floods cause problems for businesses and industry. Businesses disrupted by floods may have to be closed.

Other

Public expenditures on flood fighting, sandbags, fire department calls, clean up, and on repairs to damaged public property affect all residents of the planning area, not just those in the shadow of the dam.

Areas at Greatest Risk

The areas of greatest risk from dam failure are those areas within the hydraulic shadow of the dam of the large Lamers Pond Dam in the Village of Ashwaubenon, which has a “high” hazard rating.

The Little Kaukauna Dam in Little Rapids (Town of Lawrence) and the De Pere dam are both large dams with “significant” hazard ratings that present a noteworthy risk potential.

Estimation of Potential Losses

The hydraulic shadow for the Lamers Pond Dam in Ashwaubenon encompasses one residential structure with a total 2012 total assessed valuation of \$182,500.

For the Little Kaukauna Dam in Little Rapids (Town of Lawrence) and the De Pere dam, no estimation of potential losses can be derived without a defined hazard area as the hydraulic shadow of the dam delineations are confidential and unavailable.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Flood. Inundation of floodplain areas or a larger area would occur if the dam or levee structures are compromised.

Fire. Fire can occur due to infrastructure compromise of electrical and natural gas systems.

Hazardous Materials. Hazardous material releases can occur due to improper storage of materials in floodplains.

Infectious Disease. Infectious disease outbreaks are possible during prolonged flood events where floodwaters compromise areas sensitive to disease vectors.

Transportation Disruption. Disruptions of transportation routes along roads, bridges, railroads, and by river navigation can be disrupted due to inundation and/or substantial flow velocities.

Power Outages. Power outages can occur if portions of the electrical grid are compromised by floodwaters.

Plans and Programs

Regulation of Dams and Bridges. Chapter 31 of the Wisconsin Statutes, created in 1917 under the Water Power Law, was developed to ensure that dams are safely built, operated and maintained. NR 333 of the Administrative Code provides design and construction standards for large dams, and NR 335 (Wis. Admin. Code) covers the administration of the Municipal Dam Repair Grant Program (not currently funded) and the Dam Removal Grant Program. Wisconsin DNR is responsible for administration of these regulations. Chapter 31 covers dam construction, permitting, safety, operation and maintenance. It also covers alteration or repair of dams, dam transfer and removal, and water level and flow control.

Warning Center and Hotline. Wisconsin Warning Center has a toll free number (1-800-943-0003) for reporting dam failures and other emergencies.

Dam Removal Grant Program. The Wisconsin Department of Natural Resources provides some assistance in the form of grants to dam owners. Section 31.385 (Wis. Stats.) authorizes the dam removal program.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring a weather radios.

Gaps and Deficiencies

Many of the dams in Wisconsin were built in the late 1800s and early 1900s. Over time, water pressure and weathering will slowly break down a dam. Dams need constant maintenance and repairs. If dams are allowed to naturally degrade, they have a greater risk for problems such as sudden breaks during flood conditions.

Fires (Forest and Wildland)

A wildland fire is any instance of uncontrolled burning in brush, marshes, grasslands, or

field lands. Typical causes of these fires are lightning, human carelessness, or arson. Wildland fires can occur at any time of the year and during any time of the day. The primary factors that generally contribute to the start of a wildland fire are land use, vegetation, amount of combustible materials present, and weather conditions such as wind, low humidity, and lack of precipitation. Generally, fires are more likely to occur when vegetation is dry from a winter with little snow or a spring and summer with sparse rainfall. In recent times, development of homes and other structures in areas of highly flammable vegetation have caused an increase in wildfire danger. This condition is known as the wildland-urban interface (WUI).

If not promptly controlled, wildland fires can develop into an emergency or even a disaster. Fires threaten lives, resources, and property. In addition, fires can affect livestock and other domesticated pets.

History

The Wisconsin Department of Natural Resources no longer maintains data on wildland fires. According to the Steering Committee members, wildland fires are a frequent occurrence throughout the county, primarily in the spring of the year when the snow has melted and the vegetation is dry and yet to begin growing. Other times of the year can show an increase in wildland fires due to drought conditions or through human actions such as the burning of refuse or yard waste. Fire departments serving the fringe of the Green Bay Metro Area and rural departments have been upgrading equipment to better combat these types of fires. The rural-urban interface will continually be an area of concern as more people build homes and businesses on the urban fringe. Over the past 10 years, there have been no major incidences of wildland fires in the county. Small fires have claimed some structures but primarily have impacted vegetation and wildlife habitat.

Vulnerability

Brown County is not extensively forested and does not contain the hazards and risks necessary to warrant intensive fire protection. Therefore, there are no Wisconsin DNR ranger stations and suppression resources located in the county.

According to the U.S. Forest Service Wildland Fire Assessment System, Brown County regularly falls within a low to moderate fire danger class. A low rating indicates that fuels do not ignite readily from small firebrands, while a moderate rating means that fires will likely start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low.

Overall, the probability of a naturally occurring wildland fire is low for the entire county. However, the probability that at least one wildland fire will occur in the county remains high because people continue to burn on their own property.

Impacts

The following describes the various impacts that wildland fires have on the county.

Critical Facilities

Police, fire, and emergency response departments are greatly affected by wildland fires suffering increased workloads during and after events. Hospitals can see increases in patient load resulting from burn related injuries and individuals suffering from the effects

of smoke inhalation. Schools, if not affected by a fire, could potentially be used as temporary shelter for individuals that cannot return to their homes. All critical facilities located in the path of a wildland fire can be affected structurally and functionally if evacuation is deemed necessary.

Public Health

Wildland fires can lead to various injuries and even fatalities. Most individuals affected by wildland fires suffer from injuries related to burns and smoke inhalation.

Safety

Wildland fires present a major threat to public safety. Residential areas and other locations that may be at risk of experiencing wildland fires are typically evacuated to ensure the safety of the public. It is important that individuals continue to be educated on how they can reduce the risk of fire in order to safeguard the community.

Infrastructure

Traffic lights, railroad crossings, and other street signage made from plastic or glass materials could face destruction from wildland fires. Telephone poles, carrying electrical wires, and power generating structures, such as transformers, could also be damaged causing electrical outages and further fire risk.

Fires also have a significant impact on the environmental health of areas where they occur. Exposed soils erode quickly and boost siltation of rivers and streams resulting in increased flood potential, potential loss or damage of aquatic life, and degradation of water quality. Lands stripped of vegetation are also subject to increased landslide hazards.

Buildings

Homes and other structures located in the WUI are at high risk to damage from wildland fires. This risk increases when buildings are surrounded by fuel sources such as unmowed grass, unraked leaves, flammable vegetation, and dead branches. Structures constructed from materials that may melt or ignite when exposed to a fire present a high risk. In general, the potential for property damage from wildland fires increases as more development occurs on wooded lands and usage of recreational properties increases.

Residential housing is typically the most dominant type of structure found within the WUI. Though many parts of a home can be affected by wildfire damage, the roof is the most exposed portion of the building and is more at risk from flying embers. Attics may also be affected by airborne embers that enter through open eaves and vents. Structures attached to homes, such as decks, garages, and fences, can carry a fire into a home.

Economic

Fires can have an extensive impact on the economy of an affected area by causing thousands of dollars in damages to citizens through loss of private property and damaged forest products. Major direct costs associated with forest fires or wildfires are incurred by the salvage and removal of downed timber and debris and restoration of the burned area. Wildland fires can also have a significant impact on local agriculture. Fires will strip the land of vegetation as well as harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life.

Areas at Greatest Risk

Brown County contains approximately 74,566 acres of natural areas, including forests, wetlands, and floodplains. Of these, few contain timbers that are very susceptible to burning. Therefore, lands covered in grass fuels pose the highest risk for the planning area. Furthermore, grasslands that abut heavy residential development present an even greater danger, especially when residents practice unapproved outdoor burning of leaves, garbage and other items of which they wish to dispose of by incineration. The likelihood that any wildland fire in Brown County would be catastrophic is low as most susceptible areas lack enough acreage to allow for continuous burning.

Estimation of Potential Losses

Although a “worst case scenario” would involve the total destruction of all 74,566 acres of natural areas in Brown County, this scenario is highly unlikely as most the forested areas are very small plots scattered throughout the county with very few large contiguous forested areas.

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Flooding and Erosion. Major wildfires can destroy ground cover, which can cause heavy erosion and loss of all vegetation. If heavy rains follow a major fire, flash floods, landslides and mudflows can occur, since vegetation is essential in deterring flooding during heavy rainfalls or spring runoff.

Hazardous Materials. Major wildfires that reach storage or transportation facilities can cause explosion or rupture of storage structures with hazmat releases.

Plans and Programs

Fire Districts/Departments. Brown County is served by 19 fire departments, including the Austin Straubel Airport Fire Department. Each department is responsible for wildfires within their department boundaries. However, they often work together on larger fires, including a wildfire if it were to occur.

Fire Department Wildland Training. Wisconsin DNR - Division of Forestry provides free wildland fire training to fire departments in cooperative fire protection areas of Wisconsin. Brown County is within a cooperative fire protection area.

Zoning. The zoning departments, which include building inspectors, regulate the development of new housing. The departments are in charge of enforcing safety restrictions including setbacks, lot coverage, depth, and structure height. In addition, the Unified Building Code sets standards for roofing. The building inspector is responsible for inspecting residential structures, while the fire marshal inspects commercial structures for potential fire hazards.

Fire Mutual Aid Agreements. There are formal mutual aid agreements between all fire departments in Brown County. The county has become a Mutual Aid Box Alarm System (MABAS) organization (Division 112). As a MABAS agency, Brown County fire departments will agree to standards of operation, incident command, minimal equipment staffing, safety, and on-scene terminology. MABAS agencies, regardless of

their geopolitical origin, are able to work together seamlessly on any emergency scene. All MABAS agencies operate on a common radio frequency, Interagency Fire Emergency Radio Network (IFERN) and are activated for response through protocols developed to meet local risk needs. MABAS also provides mutual aid station coverage to a stricken community when their Fire/EMS resources are committed to an incident for an extended period.

Coastal Hazards

Coastal hazards are natural hazards affecting the Wisconsin Great Lakes shoreline. Coastal areas in Brown County are those areas along Green Bay. According to the Wisconsin Coastal Management Program of the National Oceanic and Atmospheric Administration, the coastal hazards of concern include:

- Erosion of coastal bluffs, banks, beaches and near shore lake beds (including erosion from freezing and thawing of lake ice);
- Flooding from upland runoff, high lake levels and storm-induced surge (temporary water level changes); and
- Damage to shoreline structures from storm waves.

In addition, Brown County has experienced property damage from rising water levels in the Fox River due to heavy rain events and seiche effects – a kind of rocking back and forth of a water body that causes one side of the water body to rise and the other to lower for a period of time. The property damage from rising water levels occurs because storm water outflows to the Fox River are underwater in order to allow for the correct drainage pitch. When water forces are pushing up the Fox River, storm water may flow backwards into homes and businesses.

Effects of Fluctuating Lake Water Levels

Lake water-level fluctuations affect rates of wave-induced shoreline erosion. High water levels result in more rapid recession of the shoreline. When the water level is low, wave energy is expended as waves break along the beach. However, when water levels rise, waves can break directly at the foot of the bluff and erode the bluff material. The base of the slope is then undercut, creating unstable conditions in the slope above. This condition is eventually followed by slope failure and the movement of material down to the base of the bluff. As water levels decrease, the beach again widens and much of the wave energy is dissipated without directly impacting the bluff face.

There is often a time lag, however, between bluff recession rates and the decline in lake level because materials in the bluff take time to form a stable slope. Thus, even after water levels decline and wave erosion is decreased, bluff recession continues at a fairly high rate until the bluffs have reached a stable slope angle.

Coastal Ice Effects

The detrimental effects of lake ice on lake shores are usually due to the wind-driven, on-shore movement of floating ice fields broken away from larger fields by thawing or wave action. The drifting ice can damage shore structures and destroy vegetation, move sand or stones from beaches, or dump sand, rock, or other debris on beaches.

At high lake levels the ice sheets churned by wave action or driven ashore by storm winds may gouge out sand or other erodable materials from the base of high lake banks at considerable distances from the shoreline, causing steep banks to become unstable and subject to landslides when the ice disappears. This hastens the recession of shorelines.

The outlets of small streams may become blocked by ice jams so that the confined backwater builds up a hydrostatic head that may cause a breach in the stream bank or cut a new outlet through the lake bank, with possible damage to structures built near the stream or lake bank. Ice jams blocking stream outlets may cause backwater with resulting inundation of low-lying inland areas.

History

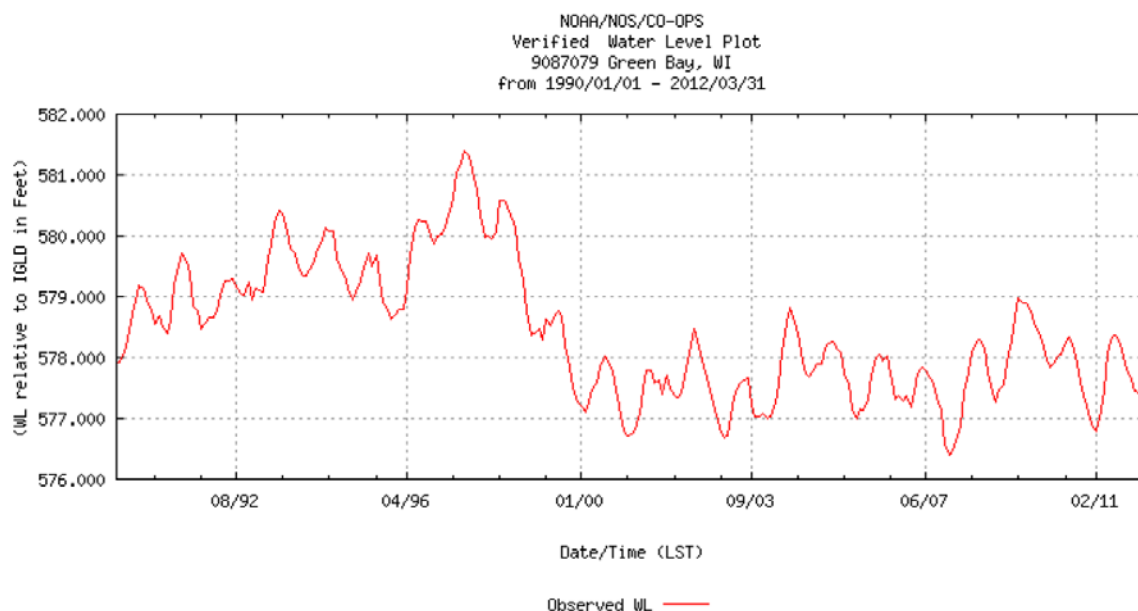
Lake Water Levels

The following chart details the annual mean water level for the Bay of Green Bay, recorded near Green Bay from January 1, 1990 to March 31, 2012. The average annual lake level elevation was 578 feet. During this 22 year span, the lowest annual mean bay water level of 576.39 feet occurred in 2007, and the highest annual mean lake level of 580.60 feet occurred in 1997. The low and high annual mean lake levels differ by 4.21 feet.

The high bay levels were caused by unusually large amounts of precipitation. There was a significant decline in the level of Lake Michigan since the record high levels that occurred in 1986. That decline continued through 1990, when the level of Lake Michigan dropped to below the long-term average level of the Lake. Subsequently, the Lake level rose again, approaching the long-term average lake level established in 1982.

It is important to note that even during periods of lower water levels; severe storms can result in flooding.

Mean Annual Water Levels in Bay of Green Bay from 1990-2011, in Brown County:



Source: NOAA Tides and Currents; March, 2012

Vulnerability

All coastal counties in Wisconsin are vulnerable to erosion, flooding, and damage to shoreline structures.

Impacts

The following describes the various impacts that coastal hazards have on the county.

Critical Facilities

Of the 1,420 critical facilities located in Brown County, 25 are adjacent to Green Bay of Lake Michigan and the Lower Fox River and could be impacted by coastal hazards.

Public Health

Coastal hazard events may cause contaminants such as raw sewage containing E. coli to be washed into Green Bay/Lake Michigan creating a public health concerns for swimmers or near-shore visitors.

Safety

Coastal hazards present a public safety concern for boaters, swimmers, and near-shore visitors or residents during severe weather, high water conditions, and eroding bluffs.

Infrastructure

Coastal hazards such as bluff erosion and coastal flooding can cause failure of roadways and other public infrastructure near the shoreline.

Economic

Bluff erosion and coastal flooding can cause significant financial losses to coastal homes, businesses, government, and public infrastructure.

Water level fluctuations in Green Bay/Lake Michigan significantly affect the revenues of the shipping industry. Commercial carriers' revenues decrease from low water levels because shipping is dependent on the amount of draft available in shipping channels. When the draft is reduced, the amount of revenue-generating cargo must also be reduced. Economic losses also arise from restricted marina and launch traffic for charter boats, pleasure boats, commercial fishing, and sport fishing when lake levels are low. Although dredging can improve access to the lakes, it is often damaging to the aquatic environment and very costly.

Areas at Greatest Risk

Bay of Green Bay coastal areas of Brown County and areas near the Fox River are at greatest risk for coastal hazards.

Estimation of Potential Losses

Coastal Flooding and Bluff Erosion. Coastal flooding and bluff erosion can cause significant financial losses to homes, business, government facilities, and public infrastructure.

Low Lake Levels. A 1,000-foot long vessel forfeits 270 tons of cargo for each one-inch reduction in draft. The loss of one foot of water means a typical 1,000-foot iron ore carrier would lose 3,240 tons of cargo. The ship would have to make 2.5 extra trips to make up the difference over the season, costing the shipping company an estimated \$121,000 per ship per season (Lake Carrier's Association/Army Corps of Engineers, 1999).

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Flooding. Flooding of tributaries to Green Bay/Lake Michigan could exacerbate flooding and coastal erosion in those areas.

Drought. Drought conditions over much of the Great Lakes area could lower lake levels.

Plans and Programs

Shoreland Management Program. The shoreland program is a partnership between state and local government that requires the adoption of county shoreland zoning ordinances to regulate development near navigable lakes and streams in compliance with statewide minimum standards.

Wisconsin Coastal Management Program (WCMP). WCMP oversees the management of the state's coastal resources and strives to maintain a balance between preservation and economic needs.

WCMP Grant Program. WCMP provides grants to encourage the management and protection of the state's coastal resources and increase public access to the Great Lakes.

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and assists residents in acquiring weather radios.

Gaps and Deficiencies

Development continues very near the Green Bay coastline putting additional homes, business, and infrastructure at risk to coastal hazards.

Historical information on coastal hazards is not complete or easily available to emergency management planners in coastal communities.

Riprap to manage bluff erosion shifts due to the eroding force of the water from the riprapped area to the coastal areas that lack bluff reinforcement.

Drought

A drought is an extended period of little measurable precipitation that results in serious hydrologic imbalance in groundwater and surface water. Droughts are associated with crop failure and wildfires.

Brown County has not experienced prolonged periods (lasting more than 2 months) without rainfall in the last 25 years. Brown County agriculture, the economy sector most susceptible to drought, has never experienced a total crop failure. Individual shallow wells have occasionally failed, requiring the affected parties to re-drill to reliable aquifers. To date, no other activities, areas, or infrastructure, including public water supply, have been affected by drought in the county.

History

According to National Climatic Data Center, Brown County has experienced three drought events since January 1, 1999. A fourth event was declared on July 9, 2012, by the Secretary of Agriculture and the Wisconsin Governor. The drought emergency declaration included 42 counties, including Brown County.

March 1, 1999

It was a very dry month across northeast Wisconsin with numerous small grass fires. Many locations received less than a quarter inch of precipitation for the month. Green Bay not only had its driest March on record with 0.15 inch, but it was also the 6th driest month of all time. No measurable precipitation was recorded in Green Bay during the last 22 days of the month.

July 19, 2005

Below normal rainfall and temperatures that averaged about 5 degrees above normal for the month of July combined with below normal precipitation during the first half of the year to result in the development of drought conditions. Precipitation for the month of July was 1.98 inches below normal in Green Bay. The January through July 2005 precipitation deficit was 3.25 inches in Green Bay. The U.S. Drought Monitor began categorizing parts of east central Wisconsin as being in moderate drought (D1) on June 28, 2005, and by July 12, 2005 northeast, central, east central, and most of northeast Wisconsin had reached the moderate drought category. Central, east central, and much of northeast Wisconsin were upgraded to severe drought (D2) on July 19, 2005. Severe drought conditions remained for the rest of the month for most of the area.

August 1, 2005

Below normal rainfall in most areas and slightly above normal temperatures for the month of August allowed drought conditions to persist through at least the first half of the month. Precipitation for the month of August was 0.46 inch above normal in Green Bay. The January through August 2005 precipitation deficit was 2.79 inches in Green Bay. The U.S. Drought Monitor continued to categorize much of northeast and most of east central Wisconsin as being in severe drought (D2) since July. By the end of August the entire area was either in the abnormally dry (D0), or moderate drought category.

Vulnerability

According to NCDC records, from 1999 to 2012 three significant periods of drought affected Brown County. However, based on historic occurrences, a drought event is likely to occur about once every two years. Drought tends to be a regional phenomenon in that they affect much of the northeastern part of Wisconsin for all of the occasions in which they affected Brown County.

Impacts

The following describes the various impacts that drought events have on the county.

Critical Facilities

There are few direct impacts on critical facilities because of drought conditions. However, droughts can trigger other natural and man-made hazards, such as wildfires and post-drought flooding, which can have an impact on these facilities.

Public Health

Drought conditions can lead to a decline in surface water quality. Surface water that is infested with various bacteria and contaminants pose a major threat to human health.

Safety

Negative impacts on safety are similar to those imposed on public health.

Infrastructure

Droughts have the most impact on municipal water supplies. Droughts will likely cause a shortage of water for human and industrial consumption, as wells and other water reserves may dry up. In addition, water quality is generally an issue before and after a drought event, which places an additional burden on wastewater treatment facilities.

Economic

The State of Wisconsin is susceptible to the economic impacts of agricultural drought. Even small droughts of limited duration can significantly reduce crop growth and yields, which adversely affects farm income. Substantial drought events can lead to complete crop decimation, resulting in total loss. During severe drought periods, farmers are often forced to seek financial assistance from the government to supplement lost income.

Livestock can also be adversely affected by droughts. Lack of water can lead to animal deaths. In addition, as drought conditions are often accompanied by periods of prolonged sunshine and high temperatures, animals are at risk to overexposure and heatstroke. Death of livestock can also lead to substantial loss of income for farmers.

Drought can also affect local commercial and industrial businesses. During times of severe drought, limitations are often placed on water usage. These limitations could have a negative impact on businesses such as car washes and landscapers as they will likely be unable to provide services to their customers. It is also likely that areas depending on tourism will see less people traveling to their area in times of drought. Industries that utilize large amounts of water in processing materials may also be subject to these limitations, which could potentially reduce their production capabilities.

Areas at Greatest Risk

Droughts have no defined hazard area within Brown County. The events are relatively uniform throughout the county. Drought tends to be a regional phenomenon in that it affects much of the eastern part of Wisconsin on nearly all of the occasions in which it affected Brown County. However, crop losses have the greatest drought impact because of the 169,661 acres of agricultural lands in Brown County in 2010.

Estimation of Potential Losses

Agricultural crops are most vulnerable to losses from drought events. A “worst case scenario” would involve the total destruction of all 169,661 acres of agricultural lands in the county. In this “worst case scenario,” the total destruction of all crops would cause a loss of \$581,692,190, which is the estimated market value for farmland in Brown County at \$3,429 per acre (based upon a sample of farms).

Relationship to Other Hazards - Cumulative Effects

Cumulative effects are the combinations of hazards that occur in relationship to another hazard.

Wildfires. Drought stressing woods, brush land and non-cultivated fields significantly increases the risks of wildfire.

Plans and Programs

NOAA Weather Radio Program. Brown County has a NOAA Weather Radio purchasing program in place that encourages and aids residents in acquiring a weather radios.

Gaps and Deficiencies

Water conservation provisions and use restrictions in times of drought are not included in county or city ordinances.

VULNERABILITIES

Vulnerable Critical Facilities by Municipality

The Brown County Hazard Mitigation Plan Steering Committee determined which critical facilities and infrastructure were to be addressed within this hazards mitigation plan. Based on this list, each community was provided a map with these critical facilities and community infrastructure noted on them. Community representatives were asked to verify those key critical components and to make any necessary corrections. Table 3.10 summarizes the critical facilities and infrastructure by municipality. A detailed list of critical facilities and infrastructure for each community is provided in Appendix H of this plan.

Table 3.8: Critical Facilities and Infrastructure, Brown County, Wisconsin

Location	Critical Facilities and Infrastructure	
Cities:		
Green Bay	436	
De Pere	76	
Villages:		
Allouez	54	
Ashwaubenon	123	
Bellevue	91	
Denmark	26	
Hobart	64	
Howard	114	
Pulaski (part)	29	
Suamico	59	
Wrightstown	22	
Towns:		
Eaton	6	
Glenmore	21	
Green Bay	16	
Holland	33	
Humboldt	6	
Lawrence	42	
Ledgeview	46	
Morrison	21	
New Denmark	37	
Pittsfield	32	
Rockland	16	
Scott	14	
Wrightstown	33	
TOTAL	1,417	

Source: Brown County Hazard Mitigation Plan Steering Committee. Brown County Planning Commission.

County Gaps and Deficiencies

- Few municipalities lack emergency plans as required by Homeland Security Presidential Directive 5 to achieve National Incident Management System (NIMS) compliance.
- Three repetitive loss structures remain in the floodplain, located in the Village of Howard, Village of Suamico, and the City of Green Bay. As state and federal funds become available, Brown County will work with willing sellers to purchase floodplain structures.
- A significant number of homes in the county lack basements that would provide

shelter in the event of a tornado or damaging winds from a severe thunderstorm. Moreover, in many of the nursing homes, residents are moved to an interior hall away from windows in the event of a violent storm.

- Local radio and television stations do provide warnings but are effective only if tuned to one of the local stations.
- A majority of the power lines in the county are above ground and subject to damage from wind and falling tree limbs. There are community requirements to manage trees near power lines.
- Redundancy is needed on communications towers.
- There may be a need to correct defective storm water facilities to prevent infrastructure damage.
- Some communities in Brown County may need to incorporate a storm drain cleaning program.
- Not all school districts have a transportation manager providing information on current weather and road conditions.
- Residents that have had their heat disconnected prior to the heating moratorium beginning on November 1 must make arrangements with their local utility to pay outstanding bills in order to have their service restored. If a consumer has not made arrangements to pay an outstanding bill, the utility is not required to provide heat until an agreed-upon payment schedule has been reached.
- Residents could be without needed heating during any out-of-season cold spells that occur between April 16 and October 31.
- Although Wisconsin requires utilities to provide residents heating between November 1 and April 15, there is no guarantee that residents will have access to cooling during times of extreme heat.
- Cooling systems are lacking in many elderly housing developments.
- Fog warning signs may be ineffective if drivers are traveling at an unsafe speed for the weather conditions.
- Many of the dams in Wisconsin were built in the late 1800s and early 1900s. Over time, water pressure and weathering will slowly break down a dam. Dams need constant maintenance and repairs. If dams are allowed to naturally degrade, they have a greater risk for problems such as sudden breaks during flood conditions.
- Development continues very near the Green Bay/Lake Michigan coastline putting additional homes, business, and infrastructure at risk to coastal hazards.
- Historical information on coastal hazards is not complete or easily available to emergency management planners in coastal communities.
- Riprap to manage bluff erosion shifts the eroding force of the water from the riprapped area to the coastal areas lacking the bluff reinforcement.

- Water conservation provisions and use restrictions in times of drought are not included in county or city ordinances for those water users that rely on groundwater.

Prioritized Hazards

Hazard vulnerability was then assessed on a countywide basis, along the following parameters:

Geographic Extent: How large an area would likely be affected?

- 1 = County-wide
- 2 = Community-wide
- 3 = Localized

Frequency of Occurrence: How often can the hazard be expected to occur?

- 4 = Highly Likely: 100 % probable in next year
- 3 = Likely: >10% but <100% probability in next year, at least one chance in 10 years
- 2 = Occasional: 1-10% probability of occurrence in next year, or at least one chance in next 100 years
- 1 = Unlikely: <1% probability of occurrence in the next 100 years

Warning Time: How much time will there be to alert people to hazard conditions?

- 4 = None to Minimal (0-3 hours)
- 3 = 3-6 hours
- 2 = 6-12 hours
- 1 = More than 12 hours

Likely Adverse Impact: Impacts on critical facilities, housing, businesses, the environment, casualties and injuries, etc.

- 4 = Catastrophic: More than 50 percent of the area affected
- 3 = Critical: 25 to 50 percent of the area affected
- 2 = Limited: 10 to 25 percent of the area affected
- 1 = Negligible: Less than 10 percent of the area affected

Table 3.11 lists a prioritized ranking derived from the results of the surveys. These results summarize hazards on a countywide basis and yield an overall priority ranking for mitigation efforts, through improvement of existing practices and development of new strategies.

Table 3.9: Prioritized Hazards		
Hazard Type		Total
Winter Storms		11
Lightning / Thunderstorms		10
Tornado / High Winds		10
Hailstorms		9
Extreme Cold		9
Fog		9
Extreme Heat		9
Storm Water Flooding		9
Drought		9
Dam Failure Flooding		8
Flooding		8
Wildland Fires		7
Coastal Hazards		7

Source: Brown County Hazard Mitigation Plan Steering Committee. Brown County Planning Commission.

SUPPORTING OPERATIONS PLANS AND DOCUMENTS

Plans

County Emergency Operations Plan
 County Disaster Plan
 County Hazard Analysis
 County Hazardous (Hazmat) Strategic Plan
 County Mass Casualty Plan
 Emergency Action Plan-Lamers Dam
 Emergency Operations Plans

 Emergency Operations Plans
 Emergency Operations Plan
 Emergency Operations Plan
 Emergency Operations Plan
 Emergency Operations Plan
 Emergency Operations Plan
 Emergency Operations Plan
 Emergency Operations Plan

Agency

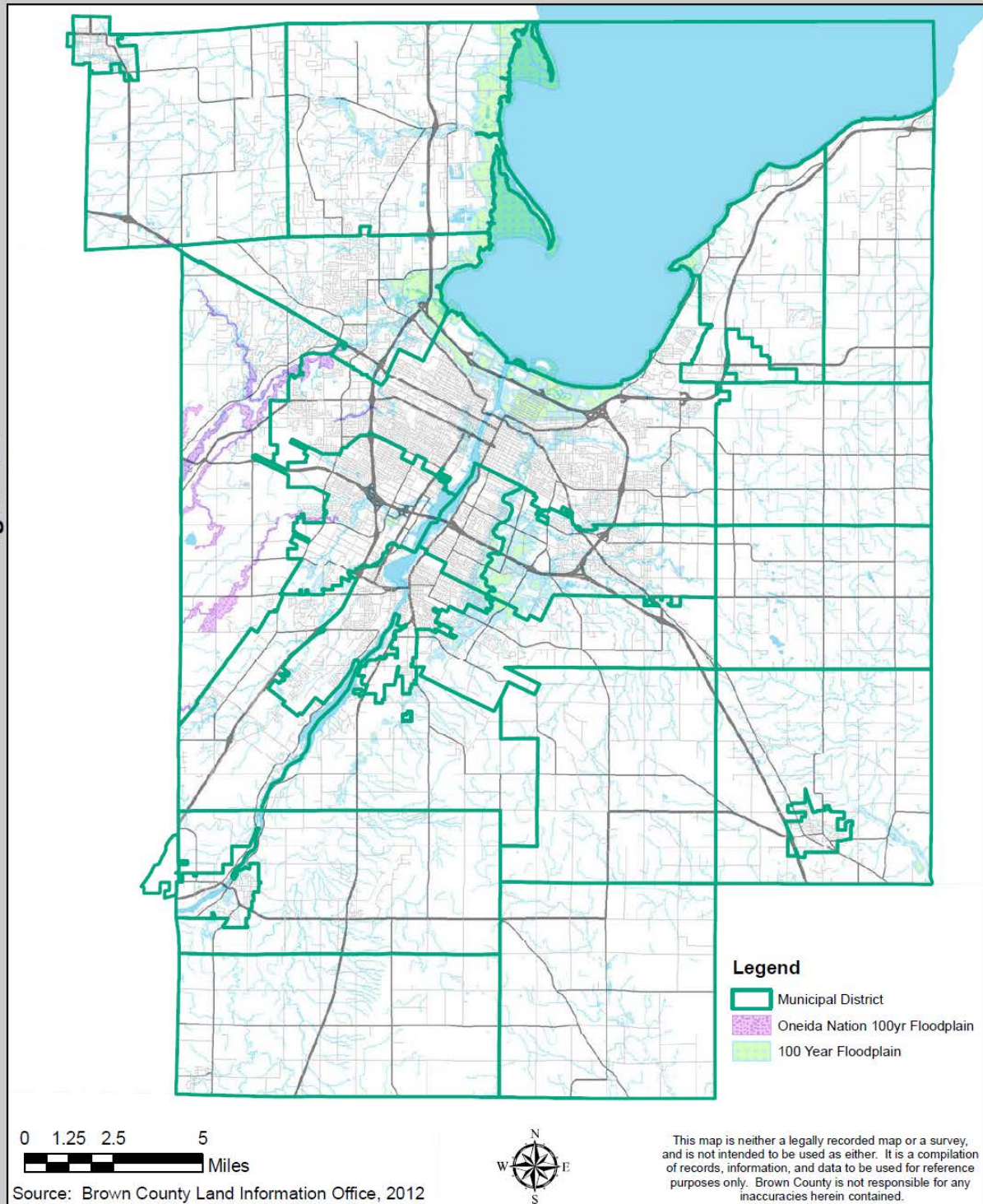
Brown County Emergency Management
 Brown County Emergency Management
 Brown County Emergency Management
 Brown County Emergency Management
 Brown County Emergency Management
 Village of Ashwaubenon
 City of Green Bay, City of De Pere, and
 Village of Ashwaubenon
 Brown County School Districts
 University of Wisconsin-Green Bay
 St. Norbert College
 Oneida Nation
 Bellin Health
 Aurora Baycare
 St. Vincent Hospital
 St. Mary's Hospital

Brown County 100 Year Floodplain

Brown County All Hazard Mitigation Plan

Brown County, WI

Figure 3-1



Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

Brown County Critical Facilities within 100 Year Floodplain

Brown County All Hazard Mitigation Plan

Brown County, WI

Figure 3-2

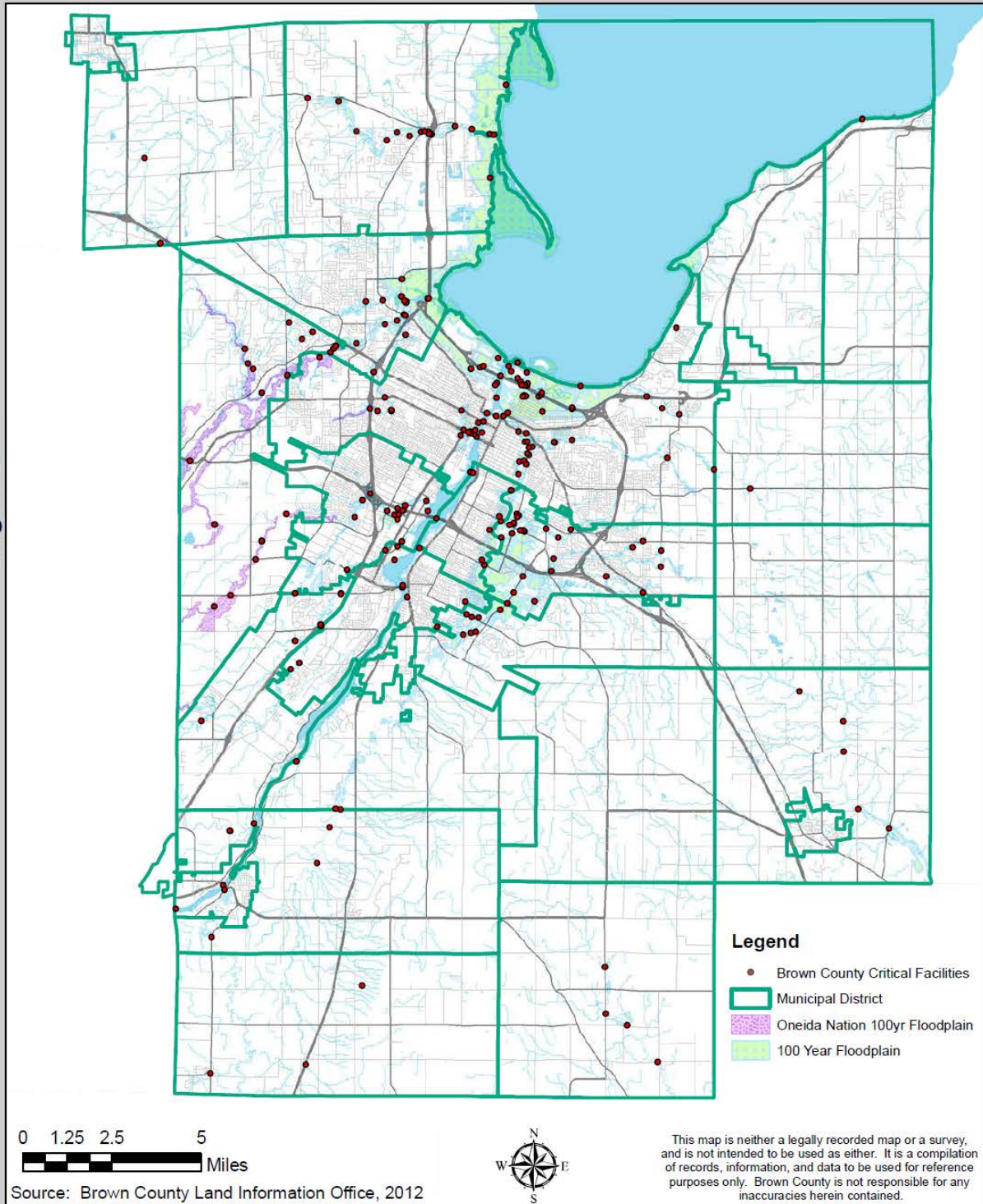
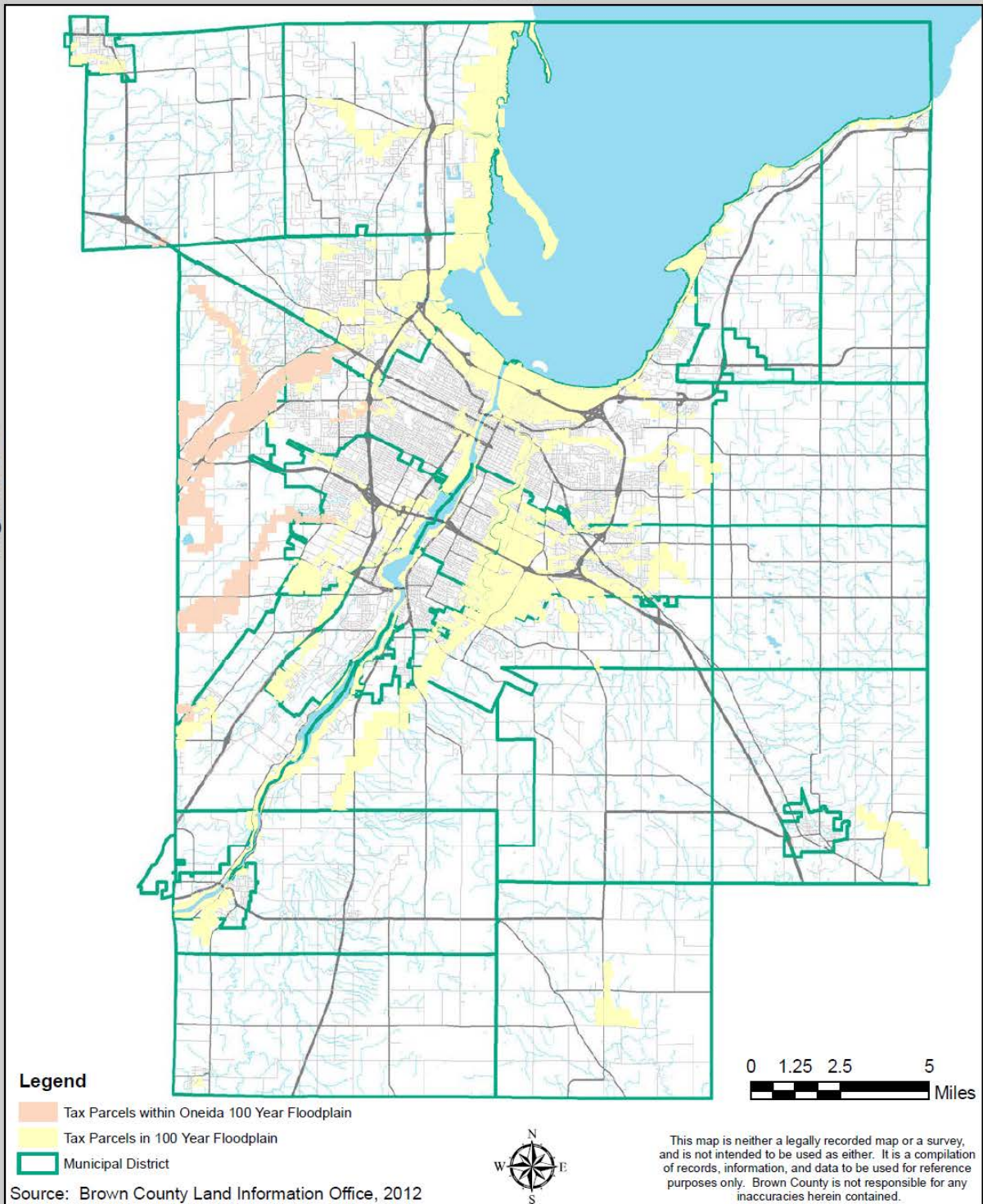


Figure 3-3

Parcels Located in the 100 Year Floodplain Brown County All Hazard Mitigation Plan

Brown County, WI



CHAPTER 4 MITIGATION STRATEGIES

INTRODUCTION

As defined by the Disaster Mitigation Act of 2000, mitigation is defined as "sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects." Mitigation planning is the systematic process of learning about the hazards that can affect the county, setting clear goals, identifying appropriate actions and following through with an effective mitigation strategy. Mitigation encourages long-term reduction of hazard vulnerability and can reduce the enormous cost of disasters to property owners and all levels of government. Mitigation can also protect critical community facilities, reduce exposure to liability, and minimize community disruption.

This chapter outlines the general goals to be achieved through the implementation of this all hazard mitigation plan. The natural hazards discussed in this chapter are listed in the order of priority as determined by the All Hazard Plan Steering Committee. For each natural hazard, there is list of mitigation strategies (actions and projects), noted with implementation status, along with potential stakeholders and a timetable for implementation. A summary of the recommended mitigation strategies can be found in Table 4.1 at the end of this chapter.

CURRENT MITIGATION EFFORTS

In the preparation of this all hazard mitigation plan for Brown County, it is important to understand the many mitigation activities are already underway or in place. Brown County, local communities, hospitals, and schools have been very proactive in attempting to mitigate the impacts of natural hazards by adopting and using their own individual emergency response plans. A list of those plans can be found in Chapter 3. The following list highlights some of the mitigation activities currently being undertaken throughout the county by these entities.

- Floodplain mapping and zoning completed and enforced
- Stormwater management and detention activities instituted
- Monitoring, warning, and evacuation procedures maintained and communicated
- Building codes established and enforced
- Land use controls adopted and enforced
- Capital improvement plans prepared and referenced
- Incident response exercises scheduled and assessed
- Intergovernmental cooperation partnerships established and maintained
- Education pieces prepared and distributed
- Disaster plans prepared, distributed, and followed

OVERARCHING MITIGATION GOALS

The following mitigation goals are intended to be used by public officials and emergency response personnel as general guidelines to address the needs identified during the natural hazard risk assessment process contained in Chapter 3. These goals are broad-based in order to apply to all of the natural hazards addressed in the plan.

- Goal #1 Implement policies and programs designed to reduce or eliminate the impacts of natural hazards on people and property.
- Goal #2 Collect and utilize data needed to improve policymaking and the identification of appropriate mitigation projects.
- Goal #3 Build and support local capacity and commitment to continuously lessen the impacts of natural hazards on people and property.
- Goal #4 Continue enforcement measures to reduce the impacts of natural hazards on people and property.
- Goal #5 Promote the use of natural resource protection measures as a means to reduce the impacts of natural hazards on people and property.
- Goal #6 Maximize available resources to reduce the impact of natural hazards on people and property.
- Goal #7 Enhance training, education and outreach efforts that describe potential effects of natural hazards and ways to reduce their impact.
- Goal #8 Promote intergovernmental coordination and cooperation in the planning for and implementation of hazard mitigation activities.
- Goal #9 Establish a fully operational interoperability communication system to connect emergency services, utility companies, hospitals, and state and federal departments (DNR, Emergency Management, DoT, and FEMA) during natural disaster events.

MITIGATION MEASURES

To establish a framework for the development of mitigation strategies to address the goals listed above, a clear understanding of what techniques should be considered during the planning process was necessary. The following six broad mitigation categories served as that basis in the formulation of mitigation strategies for each of the natural hazards addressed in this plan.

Prevention

Prevention activities are intended to keep hazard-related problems from getting worse. They are particularly effective in limiting Brown County's and each community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of prevention activities include:

- Planning and Zoning;

Suggest municipalities adopt Brown County All-Hazard Mitigation Plan into local municipality plans or ordinances when no local plan exists.

Ensure that there are adequate groundwater wellhead protection plans in place that are utilized.

- Hazard mapping;

Develop a mapping system with data that maps hazardous materials (open air and/or closed storage). These materials could have adverse impacts to the community and natural environment during a natural disaster or emergency. Develop a database and map to identify and track all hazardous material located within the region.

- Building codes;
- Studies / data collection and analysis;

Develop a mapping system with data that maps hazardous materials.

- Open space preservation;

Obtain and preserve open spaces within the floodplain. Develop an action plan to identify priority parcels and potential funding sources to purchase property.

- Floodplain regulations;
- Storm water management;

Several sections of the urbanized areas flood after heavy rain events causing damage to infrastructure and property. Develop a mapping system and database that identifies areas where flooding occurs on a more frequent basis. This process would help place drainage ways into a future Capital Improvement Plan (CIP.)

- Drainage system maintenance;

Address aging storm water infrastructure that needs maintenance to protect the natural waterways. Develop a plan to identify priority maintenance and replace areas.

Develop funding sources to purchase, maintain, and protect the natural drainage systems. When parcels near watercourse and navigable waterways are slated to be developed the municipalities should attempt to purchase and protect the public access to these natural amenities. Develop a plan that identifies priority parcels and potential funding sources.

- Capital improvements programming; and

Develop ability to manage grass and forest fires for municipalities that have vast woodlands. Acquire equipment to properly control forest fires and grass fires.

- Riverine setbacks.

Property Protection

Property protection measures are intended to enable structures to better withstand hazard events, remove structures from hazardous locations, or provide insurance to cover potential losses. Examples include:

- Acquisition;

Develop funding sources to purchase, relocate, elevate, or retrofit structures located within the floodplain. Develop a plan and/or asset map to help residents and businesses leverage any available public or private funding.

- Relocation;

Develop a plan to relocate residential areas outside of flood zones and limit future development in area for natural and recreational uses, particularly in areas where structures are repeatedly damaged during flood events.

Develop funding sources to purchase, relocate, elevate, or retrofit structures located within the floodplain. Develop a plan and/or asset map to help residents and businesses leverage any available public or private funding.

- Building elevation;

Develop funding sources to purchase, relocate, elevate, or retrofit structures located within the floodplain. Develop a plan and/or asset map to help residents and businesses leverage any available public or private funding.

- Critical facilities protection or “hardening”;

Develop funding sources to purchase, relocate, elevate, or retrofit structures located within the floodplain. Develop a plan and/or asset map to help residents and businesses leverage any available public or private funding.

- Retrofitting (i.e., wind proofing, flood proofing, seismic design standards, etc.);

Develop funding sources to purchase, relocate, elevate, or retrofit structures located within the floodplain. Develop a plan and/or asset map to help residents and businesses leverage any available public or private funding.

- Insurance; and

Develop funding sources to purchase, relocate, elevate, or retrofit structures located within the floodplain. Develop a plan and/or asset map to help residents and businesses leverage any available public or private funding.

- Safe room construction.

Develop funding sources to purchase, relocate, elevate, or retrofit structures located within the floodplain. Develop a plan and/or asset map to help residents and businesses leverage any available public or private funding.

Natural Resource Protection

Natural resource protection activities reduce the impact of hazards by preserving or restoring the function of environmental systems. In some cases, natural systems may include high hazard areas such as floodplains, steep sloped areas or barrier islands. Thus, natural resource protection measures can serve the dual purpose of protecting lives and property while enhancing environmental goals such as improved water quality or recreational opportunities. Parks, recreation or conservation agencies and organizations often implement natural resource protection measures. Examples include:

- Floodplain protection;

Many rivers, including Suamico River, north and west branches of Suamico River, and Potters Creek, have multiple tributaries with Flood Zone A that require protection.

- Riparian buffers;
- Fire resistant landscaping;

Encourage the use of landscaping that is fire proof and fire resistant for residential and commercial properties that develop in area to prevent fast spread of future fires.

- Best management practices;

Create and educational campaign to inform the public on best management practices on their private property.

- Fuel breaks;
- Erosion and sediment control;

Create a county-wide system where there is equal environmentally sensitive area protection for all natural resources at the municipality level in addition to the existing county level. Identify potential funding sources to enforce regional erosion and sediment control measures.

- Wetland preservation and restoration;
- Habitat preservation; and

Develop protections for woodlands that may be vulnerable to fire.

- Slope stabilization.

Development of structures near steep slope may lead to erosion and structural collapse. Strongly enforce required environmentally sensitive area setbacks and encourage use of vegetation that stabilizes soil and slopes.

Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by physically modifying the environment. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs;
- Levees / dikes / floodwalls;
- Diversions / Detention / Retention;
- Channel modification; and

Areas like CTH G, located east from CTH GV, in Ledgerview flood periodically due to undersized storm water pipes under the street. Propose the improvement of properly sized storm water pipes and crossings to allows sufficient water flow to prevent flooding during heavy rain and snow melt events.

- Storm sewer construction.

Emergency Services

Although not typically considered a “mitigation technique,” emergency services can significantly reduce injuries and loss of life associated with hazards. These actions are

typically taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems;

Improve safety during a severe weather event by continuing to install tornado siren systems on future new fire station structures.

- Search and rescue;
- Evacuation planning and management; and
- Flood “fighting” techniques.

Public Information and Awareness

Public Information and Awareness activities are used to advise residents, business owners, potential property buyers, visitors and government officials about hazards, hazardous areas and mitigation techniques they can use to protect themselves and their property. These public awareness measures should be available in languages spoken by residents of Brown County. Measures used to educate and inform the public include:

- Outreach and education;
- Speaker series, demonstration events;
- Informing the public of emergency situations using social media and text messages;
- Real estate disclosure; and
- Training.

MITIGATION STRATEGIES (ACTIONS AND PROJECTS)

Top hazard concerns were identified for each individual community from a broader range of possible incidents, including natural hazards. Nearly every participating community identified severe weather incidents as their top hazard concern. Vulnerability also was assessed on a countywide basis using the following parameters to determine an overall priority rating that was based on past events to include benefit-costs, frequency of occurrence, warning time, geographic extent, likely adverse impact, and future occurrences. The designation of high, medium, or low priority was determined based on whether or not that activity was already being done, the need to expand an activity, benefit-cost to implement, the time period to implement, whether or not the strategy is connected to another natural hazard, and the level of impact if implemented.

The natural hazards addressed in this plan are listed below in order of priority as further determined by the All Hazards Mitigation Plan Steering Committee. From highest to lowest priority, they are thunderstorms/lightning, winter storms (including heavy snow, ice, and blizzards), tornado/high winds, storm water flooding, flooding (flash, riverine, lake), extreme temperatures, fog, hail storms, dam failure flooding, forest/wildland fires, coastal hazards, and drought.

Storms: Thunderstorms and Lightning

Severe wind can be as destructive as tornadoes. Damage and life safety risk may not be entirely preventable, but it can be minimized.

High Priority

1. Continue to utilize public awareness methods such as the radio and television stations.
2. Continue to prepare and distribute educational materials and offer presentations to the public on severe weather safety procedures.
3. Promote the use of NOAA Weather Radios.
4. Continue to make severe weather radios available through local communities and the Brown County Emergency Management Office.
5. Informing the public of emergency situations using social media and text messages.

Medium Priority

6. Investigate the feasibility of providing safe shelters at county and local community owned parks and recreation areas.

Low Priority

7. Installation of lightning protection devices and methods such as lightning rods and grounding on each community's communications infrastructure and other critical facilities.
8. Encourage the use of fire and wind resistant materials when constructing buildings.

Winter Storms and Heavy Snow, Blizzards, Ice

Winter storms in Brown County can contain many individual characteristics. Heavy snow with an accumulation of six or more inches in a 12-hour period, or eight or more inches in a 24-hour period are not uncommon in late winter or early spring. The occurrence of heavy snowfall is often accompanied with significant blowing snow, low wind chills, and sleet or freezing rain. Proper preparation can decrease the risks of injury that can occur during cold weather and snowstorms in particular.

High Priority

1. Ensure plowing and sanding equipment is operational and available to handle potential emergencies.
2. Establish communication lines between governments, and police, fire, EMS, hospitals, and highway departments.
3. Provide for coordination of public safety, support agencies (such as the American Red Cross) and resource acquisition during emergencies through the implementation of the Brown County Emergency Operations Plan.
4. Continue to prepare and distribute winter safety information to the media and public through the Brown County Emergency Management Office.
5. Continue to disseminate emergency information via the Emergency Alert System and social media.

Medium Priority

6. Produce and distribute family and traveler emergency preparedness information relating to severe winter weather hazards.
7. Maintain community tree trimming programs.

Low Priority

8. Inclusion of driver safety strategies for severe weather events in driver education classes and materials.
9. Encourage utility companies and development firms to bury power lines in new developments or when upgrades are made to existing lines.
10. Work with communities to develop and/or enforce restrictions on planting large or rapidly growing trees near power lines.
11. Utilization of snow fences or "living snow fences" (rows of trees or other vegetation) to limit blowing and drifting of snow over critical roadway segments.

Storms: Tornadoes and High Winds

Tornadoes and storm events with dangerous high winds can strike anywhere and cause extensive damage. Damage and life safety risk may not be entirely preventable, but it can be minimized.

High Priority

1. Maintain and enhance an effective early warning system as the single most important source to alert the public to a tornado hazard.
2. Distribute media information packets to re-emphasize and alert the public to tornado warning procedures.
3. Promote tornado safety public information as well as other summer severe weather public awareness/educational efforts through continued partnerships with the National Weather Service and Brown County Severe Weather Spotters.
4. Investigate the feasibility of increasing the number of sirens located

throughout the county from the current 54 sirens, which reach only about 80% of the population.

5. Informing the public of emergency situations using social media and text messages.

Medium Priority

6. Assist personnel in schools and businesses, public facility managers, and individuals in determining “best available” tornado safety areas.
7. Develop and maintain a comprehensive safety plan for each publicly owned building.
8. Encourage all new residential structures (developments and redevelopments) without basements to have a safe shelter incorporated into the design of the home or provide for common shelters.
9. Continue efforts to improve mobile home safety in windstorms and tornadoes through public education efforts and assistance in locating safe shelter sites, the requirement of tie-downs in mobile home parks, and the installation of outdoor warning sirens.
10. Promote the use of weather radios in all schools and in all homes by making them available for sale at locations throughout the county.
11. Maintain intergovernmental cooperation agreements with neighboring communities and private vendors to acquire any necessary additional equipment needed for storm clean-up.
12. Establish agreements with surrounding municipalities and private entities on the collection and disposal of large volumes of solid waste such as building materials.

Low Priority

13. Encourage utility companies and development firms to bury power lines in new developments or when upgrades are made to existing lines.
14. Work with communities to develop and/or enforce restrictions on planting large or rapidly growing trees near power lines.
15. Maintain community tree trimming programs.
16. Installation and maintenance of high wind warning devices at key locations and bridges to help warn drivers to use precaution when driving in those areas.

Flooding: Riverine and Storm Water/Flash

Flooding (both riverine and storm water/flash) is the only natural hazard with definable hazard areas within Brown County. As described in Chapter 3, it is the only reoccurring hazard with a high loss potential.

High Priority

1. Dissemination of storm preparation measures and evacuation instructions to the public through conventional and social media.
2. Continue to monitor the National Weather Service flood forecasts.

Medium Priority

3. Maintain a process for the preparation of the opening and operation of congregate care facilities.
4. Prepare and maintain an evacuation plan for people and property.
5. Maintain protective measures such as sandbagging, protection of buildings and other structures, and emergency gas and electricity cut-off procedures.
6. Prepare, adopt, and maintain proper land use planning methods through the local floodplain zoning, comprehensive plans, and stated implementation tools such as land use regulations (codes and ordinances), and storm water management plans.
7. Enforce environmentally sensitive area regulations that preserve natural resources adjacent to and in defined floodplains.
8. Inventory and assess areas throughout both the rural and urban areas of the county that have repeated flash flooding problems and identify activities to remediate or rectify those locations.
9. Maintaining a storm water management plan that includes such remediation techniques as surface detention basins and in-street detention units.
10. Incorporate FEMA / WDNR approved changes to the floodplain maps to better determine areas and facilities susceptible to recurring flooding.

Low Priority

11. Implement a rural drainage improvement program that would include ditch, bridge, and culvert maintenance and improvements.
12. Promote the sale of flood insurance to residents with flood prone properties throughout the county.
13. Implement floodproofing techniques such as elevation, relocation, barrier construction, and wet floodproofing for residents, businesses, and critical facilities.

Extreme Temperatures

When temperatures reach the extremes, caution should be taken to limit exposure for long periods of time. Those most vulnerable are those individuals working outside, special needs and elderly populations, and animals.

High Priority

1. Encourage the county's social service entities and energy providers to continue to expand programs to assist at risk populations pay their utility bills and acquire appliances to mitigate extreme weather conditions.

Medium Priority

2. Identify and map locations where a large percentage of the population most susceptible to extreme temperature conditions reside in the county.
3. Establish centers with proper amenities with transportation availability

near those at risk population centers.

Low Priority

4. Work with the local community and social services such as the Brown County Aging & Disability Resource Center to establish and maintain a program (friendly visitor) designed to have volunteers call vulnerable individuals on a predetermined time each day.
5. Maintain agreements with such entities as the Resch Center, Bay Park Square, Brown County Library, and local libraries to serve as cooling centers.

Fog

Fog is a weather condition that can develop in moments and last for extended periods of time. Spring and fall seasons usually create the largest number of fog events due to the wide temperature differences in land and air temperatures.

High Priority

1. Encourage area news media to broadcast emergency information concerning fog that addresses safety precautions during a fog event, including the need to avoid certain corridors with heavy fog or to slow down while traveling during a fog event.

Medium Priority

2. Install fog warning devices where feasible at intersections in low-lying areas most susceptible to fog occurrences.
3. Work with WisDOT and Brown County Department of Public Works to install and maintain pavement reflectors and reflective stripping along heavily traveled roads most susceptible to fog.

Low Priority

4. Include driver safety strategies for severe weather events in driver education classes and materials.

Storms: Hail

Hail often accompanies thunderstorms where clashing weather fronts of defining temperatures create high winds and heavy rain. The size of the hail is determined by the strength of the storm that is fueled by weather fronts carried along by the jet stream.

Medium Priority

1. Continue distribution of information through the UW-Extension office on hail insurance options such as the Federal Crop Insurance Corporation (FCIC).
2. Documentation of hail damage will be the responsibility of the Brown County Emergency Board, comprised of county and federal agricultural agency representatives.

Low Priority

3. Continued delivery of federal emergency assistance in the form of low-

interest loans when a Presidential Disaster is declared or when FEMA declares a county eligible for aid.

Dam Failures

There are 37 dams of various sizes located throughout Brown County. Of the 37 dams, there is one large dam with a “high” hazard rating, two large dams with a “significant” hazard rating, and the remaining are large and small dams with “low” hazard ratings. The Lamers Pond Dam in the Village of Ashwaubenon serving the Dutchman’s Creek Tributary is the lone dam in Brown County with a “high” hazard rating.

High Priority

1. Ensure Lamers Packerland Drive Dam is maintained and functioning properly as stated in the Emergency Action Plan.

Medium Priority

2. Ensure the residents located within the flood zone have information on emergency procedures if the dam is compromised.

Low Priority

3. Continue to monitor water levels and communicate those conditions as necessary.

Fires: Forest and Wildland

A wildland fire is any instance of uncontrolled burning in brush, marshes, grasslands or field lands. Generally, fires are more likely to occur when vegetation is dry from a winter with little snow or a spring and summer with sparse rainfall.

High Priority

1. Coordinate with the Wisconsin Department of Natural Resources to disseminate information to the public on preventing fires.
2. Coordinate with the Wisconsin Department of Natural Resources on notifying media outlets on burning restrictions being issued.

Medium Priority

3. Adopt and enforce burning permit ordinances.
4. Ensure there are mutual aid fire protection agreements in place and they include provisions for wildfires.
5. Maintain power lines to help prevent or alleviate wildfires through proper maintenance and separation of power lines as well as efficient response to fallen power lines.
6. Work with local municipalities to upgrade and maintain roads and driveways to allow for access by emergency vehicles and fire equipment.

Low Priority

7. Identify and map areas in the county most susceptible to wildland fires.
8. Work with neighboring communities to minimize the amount of fuel in those areas prone to fires.
9. Continue participation in the Wisconsin Fire Control Program.

10. Continue participation in the Rural Community Fire Protection Program.
11. Utilization of zoning to promote cluster development to locate in defensible areas and keep development away from fire hazards such as steep slopes where fires are difficult to contain.

Coastal Hazards

Although not viewed as a recurring problem in Brown County, there is a possibility of a natural hazard occurring along Green Bay. Heavy rains, ice, and high winds could negatively impact homes, businesses, and critical facilities located along the bay and upper Fox River.

Medium Priority

1. Monitor natural features along Green Bay for deterioration that would allow for flooding or mudslides to impact properties along the shore.
2. Maintain maps indicating past incidences and areas most susceptible to future hazards.
3. Maintain a storm water management plan that accounts for the large amount of water flowing into the Fox River that could cause localized flooding or possible backup of storm water into homes and businesses.
4. Maintain current land use regulations that permit building of structures within vulnerable coastal locations.

Low Priority

5. Work with the Coast Guard to monitor conditions where drifting ice can damage shore structures and destroy vegetation, move sand or stones from beaches, or dump sand, rock, or other debris on beaches.
6. Construction of riprap to manage bluff erosion shifts due to the eroding force of the water where coastal areas lack bluff reinforcement.

Drought

A drought is an extended period of little measurable precipitation that results in serious hydrologic imbalance in groundwater and surface water. Droughts are associated with crop failure and wildfires.

High Priority

1. Implement and enforce water usage regulations/ordinances for both urban and rural water users.

Medium Priority

2. Utilize such entities as extension, land conservation, etc. to obtain information on irrigation methods and ground water movement.
3. Establish a process to obtain emergency food and water supplies for agriculture use.
4. Ensure there are adequate wellhead protections plans are in place and utilized.

Low Priority

5. Review existing groundwater monitoring and modeling programs to determine the need for any additional groundwater monitoring.

Table 4.1: Mitigation Strategies in Brown County, Wisconsin

Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Storms: Thunderstorms and lightning	Continue to utilize public awareness methods including television, radio , and cellphone technology.	2012-2017	High	Emergency Management	Effective Process already in place using area radio and television stations..
	Continue to prepare and distribute educational materials and offer presentations to the public on severe weather safety procedures.	2012-2017	High	Emergency Management, UW-Extension, Human Services, Health	New and updated materials are available each year from various sources.
	Promote use of cellphone based emergency information.	2012-2017	High	Emergency Management	Need to continually promote that emergency information is available and where it can be downloaded.
	Investigate the feasibility of providing safe shelters at county and local community owned parks and recreation areas.	2009 Complete	Medium	Executive, Parks, Emergency Management, planning, Public Safety, Municipalities	Capital improvement budgets outlined in Brown County's and local municipalities park and outdoor recreation plans.
	Make weather radios available through local communities and the Brown County emergency management Office.	2007-2012 Complete	Low	Emergency Management, Sheriff, Human Services, Health	Although no longer a high priority due to advanced technologies, weather radios were originally purchased by the county to be sold at cost to residents.
	Installation of lightning protection devices and methods such as lightning rods and grounding on each community's communications infrastructure and other critical facilities including outdoor warning sirens.	2010-2011 Complete	Low	Emergency Management, Facilities Management	On-going and annual capital improvement budgets.
	Encourage the use of fire and wind resistant materials when constructing buildings.	2010-2011 Complete	Low	Emergency Management, UW-Extension	On-going education through building association and use of resources through federal sources and LEED designs. Cost dependant on factors including type, amount, availability, and affordability.

For each municipality on pages

Storms: Winter Storms and heavy snow, blizzards, ice	Ensure plowing and sanding equipment is operational and available to handle potential emergencies.	2012-2017	High	DPW, Executive	Capital improvement plans.
	Provide for coordination of public safety, support agencies (such as the American Red Cross) and resource acquisition during emergencies through the implementation of the Brown County Emergency Operations Plan.	2012-2017	High	Executive, Emergency Management, Public Safety	Facilitated primarily by Emergency management with support of the County Executive.
	Continue to prepare and distribute winter safety information to the media and public through the Brown County Emergency Management Office.	2012-2017	High	Emergency Management, Human Services	Emergency Management leads this effort from other departments such as Human Services, along with the Red Cross.
	Continue to disseminate emergency information via the Emergency Alert System.	2012-2017	High	Emergency Management, Sheriff	
	Produce and distribute family and traveler emergency preparedness information relating to severe winter weather hazards.	2012-2017	Medium	Emergency Management, Sheriff	
	Maintain community tree trimming programs.	2012-2017	Medium	Parks, Facilities Management	Other than Brown County owned facilities, individual communities will be responsible for this action with assistance from utility companies. Cost absorbed by the utility company, municipality, and property owner.
	Inclusion of driver safety strategies for severe weather events in driver education classes and materials.	2012-2017	Low	Emergency Management, Sheriff	Cost of materials are a part of driver education course.

	Establish communications lines between governments and police, fire, EMS, hospitals, and DPW.	2007 Complete	High	Executive, Emergency management, Public Safety, Sheriff	Facilitated primarily by Emergency management with support of the County Executive.
	Work with communities to develop and/or enforce restrictions on planting large or rapidly growing trees near power lines.	2008 Complete	Low	Planning and Land Services	UW-Extension can be helpful in dissemination of these materials. Utility companies provide information to communities and residents regarding planning and power lines.

Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Storms: Tornadoes and high winds	maintain and enhance an effective early warning system as the single most important source to alert the public to a tornado hazard.	2012-2017	High	Emergency Management, Sheriff, Public Safety	Promote use of cellphone applications and NOAA radios through various media and activities.
	Distribute media information packets to reemphasize and alert the public to tornado warning procedures.	2012-2017	High	Emergency Management, Sheriff, UW-Extension, Human Services	Promotion of Tornado Awareness Week. Good information available to residents through sources such as National Weather Service.
	promote tornado safety public information as well as other summer severe weather public awareness/educational efforts through continued partnerships with the National weather service and Brown County Severe Weather Spotters.	2012-2017	High	Emergency Management, Sheriff, UW-Extension	Promotion of Tornado Awareness Week and continually recruit and train severe weather spotters.
	Assist personnel in schools and businesses, public facility managers, and individuals in determining "best available" tornado safety areas.	2012-2017	Medium	Emergency Management, Public safety	Currently being done by Emergency Management.
	Encourage utility companies and development firms to bury power lines in new developments or when upgrades are made to existing lines.	2012-2017	Low	Planning and Land Services, Emergency Management	Utilities are encouraged to continue working with planning and zoning departments on new and existing developments.

	Investigate the feasibility of increasing the number of sirens located throughout the county from 44 to 56 sirens which reaches about 80% of the population.	2009 Complete	High	Emergency Management	Work with planning to update map of existing siren locations to identify gaps. May wish to promote cellphone applications and radios as a more efficient warning method as opposed to erecting and maintaining more sirens.
	Promote the use of weather radios in all schools and in all homes by making them available for sale at locations throughout Brown County.	2007-2012	Medium	Emergency Management, Public Safety, UW-Extension	This promotion is being discontinued when supplies deplete due to lack of interest and the availability of alternative sources of information, including cellphone applications.
	Encourage all new residential structures (developments and redevelopments) without basements to have a safe shelter incorporated into the design of the home or provide for common shelters.	2010 Complete	Medium	Planning, Zoning, Emergency Management	Distribute information to developers on the importance of including safe shelters in new residential, commercial, and industrial shelters. Brown County Homebuilders association is a source to collect and distribute information.
	Continue efforts to improve mobile home safety in windstorms and tornadoes through public education efforts and assistance in locating safe shelter sites, the requirement for tie-downs in mobile home parks, and the installation of outdoor warning sirens.	2010 Complete	Medium	Planning and Land Services, Emergency Management	Any new parks should have these safety features included in their design. Inform existing mobile home parks of the importance of having safe shelters and tie downs available to the residents. The cost of shelters will most likely need to be absorbed by the owner of the parks.
	Develop and maintain a comprehensive safety plan for each publicly owned building.	2008 Complete	Medium	Emergency Management, Facilities Management, Executive	maintained by Brown County and municipalities.
	Maintain intergovernmental cooperation agreements with neighboring municipalities and private vendors to acquire any necessary additional equipment needed for storm clean-up.	2008 Complete	Medium	DPW, Public Safety, Emergency Management, Municipalities	Emergency Management, along with other departments.

	Establish agreements with surrounding municipalities and private entities on the collection and disposal of large volumes of solid waste such as building materials.	2008 Complete	Medium	Emergency Management, Solid Waste, Executive	Important to have in place just in case. New Orleans and around the city have no place to put structures totaled by the hurricane.
	Work with communities to develop and/or enforce restrictions on planting large or rapidly growing trees near power lines.	2010 Complete	Low	Parks, UW-Extension	Other than Brown County owned facilities, individual communities will be responsible for this action. Utilities will continue to work with each community on educational efforts.
	Installation and maintenance of high wind warning devices at key locations such as the Leo Frigo Bridge help warn drivers to use caution when driving in those areas	2010 Complete	Low	DPW, Public safety	Brown County through the DPW should be installing and maintaining such warning devices. Costs are paid for by eminent domain budgets.

Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Flooding: Riverine and stormwater or flash*	Dissemination of storm preparation measures and evacuation instructions to the public through the media.*	2012-2017	High	Emergency Management, Public Safety, UW-Extension	Brown County Evacuation Plan in Place. Cost part of Emergency management's annual operating budget.
	Continue to monitor the National weather service flood forecasts.*	2012-2017	High	Emergency Management, Public Safety, Sheriff	
	Maintain a process for the preparation of the opening and operation of congregate care facilities.*	2012-2017	Medium	Emergency Management	Outlined in the Brown County Evacuation Plan.
	Prepare and maintain an evacuation plan for people and property.*	2012-2017	Medium	Emergency Management	Brown County Evacuation Plan in Place.
	Maintain protective measures such as sandbagging, protection of buildings and other structures, and emergency gas and electricity cutoff procedures.*	2012-2017	Medium	Emergency Management, Executive	A copy of each utility company's emergency plan should be updated and on file with Emergency management.

	Enforce land use regulations that preserve natural resources adjacent to and in defined floodplains.*	2012-2017	Medium	Planning and Land Services, Land Conservation	Done by Brown County and municipalities.
	Maintaining a storm water management plan that includes such remediation techniques as surface detention basins and in-street detention units.*	2012-2017	Medium	Planning and Land Services, Land Conservation	Plan is updated and implemented by Land Conservation through ongoing communications with each community.
	Promote the sale of flood insurance to residents with flood prone properties throughout the county.*	2012-2017	Medium	Emergency Management, UW-Extension	Cost for insurance will be on an individual property owner basis.
	Implement flood proofing techniques such as elevation, relocation, barrier construction, and wet floodproofing for residents, businesses, and critical facilities.*	2012-2017	Low	Emergency Management, UW-Extension	This would be at the request of individual property owners. Financing could be obtained through WEM or FEMA. Brown County and municipality budgets likely would not have funding to address widespread problem areas or large structures.
	Prepare, adopt, and maintain proper land use planning methods through Brown County's comprehensive plan and stated implementation tools such as land use regulations (codes and ordinances) and storm water management plans.*	2010 Complete	Medium	Planning and Land Services, Land Conservation	Brown County and the local municipalities have comprehensive plans in place. Implementation tools should be consistent.
	Inventory and assess areas through both the rural and urban areas of Brown County that have repeated flash flooding problems and identify activities to remediate or rectify those locations.*	2009 Complete	Medium	Planning and Land Services, Land Conservation	Storm water management planning should include flash flooding problem areas.

	Utilize FEMA floodplain mapping with existing flood maps and data sources to better determine areas and facilities susceptible to recurring flooding.*	2008 Complete	Medium	Planning and Land Services, Land Conservation, Land Information Office	FEMA floodplain maps waiting to be adopted by Brown County. Cost absorbed by Brown County's annual budget.
	Implement a rural drainage improvement program that would include ditch, bridge, and culvert maintenance and improvements.*	2009 Complete	Medium	DPW, Planning and Land Services	Work with WisDOT to determine problematic areas in most need of funding. Cost will be determined by area and extent of the problem. WisDOT or Federal Highway funding may be available to rectify recurring problem areas.
Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Extreme temperatures	Encourage Brown County's social service entities and energy providers to continue to expand programs to assist at risk populations to pay their utility bills and acquire appliances to mitigate extreme weather conditions	2012-2017	Medium	Executive, Human Services, Aging and Disability	State and federal social services programs may be a likely source for funding to assist the most needy residents in Brown County.
	Establish centers with proper amenities with transportation availability near those risk population centers.	2010 Complete	Medium	Emergency Management, Human Services	Red Cross is a partner with Brown County in this effort.
	Identify and map locations where a large percentage of the population that has most susceptible to extreme temperature conditions resides in the county.	2009 Complete	Medium	Planning and Land Services, Human Services, Aging and Disability	This is a potential intern or class GIS project through UWGB with oversight provided by Planning and Land Services,

	Work with municipalities and social services such as the Brown County Aging Resource Center to establish and maintain a program (friendly visitor) designed to have volunteers call vulnerable individuals on a predetermined time each day.	2009 Complete	Medium	Human Services, Aging and Disability	Money was available through the Older Americans Act to establish programs for older adults. University students seeking community service projects could also be callers for this type of program.
	Maintain agreements with such entities as the Resch Center, bay Park Square, Brown County Library and local libraries to serve as cooling centers.	2008 Complete	Medium	Executive, Emergency Management	Important to have in place to include amenities through organizations such as the red Cross. Brown County Board and incorporated municipality approval is needed to establish such agreements.
Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Fog	Engourage area news media to broadcast emergency information concerning fog that addresses safety precautions during a fog event, including the need to avoid certain corridors with heavy fog or to slow down while traveling during a fog event.	2012-2017	High	Emergency Management	TV and radio stations do a good job informing the public of travel conditions.
	Work with WisDOT to install and maintain pavement reflectors and reflective striping along heavily traveled roads most susceptible to fog	2012-2017	Medium	Executive, DPW	Usually occurs during pavement surveys and the upgrading of existing streets. Federal, State, and some municipality dollars through street maintenance programs will pay for such upgrades.
	Include driver safety strategies for severe weather events in driver education classes and materials.	2012-2017	Medium	Emergency Management, Sheriff	Cost is part of the driver education coursework.
	Install fog warning devices where feasible at intersections in low-lying areas most susceptible to fog occurrences.	2009 Complete	Medium	Executive, DPW	There are some located in Brown County but does not cover all intersections. Part of DWP maintenance budget.

Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Storms: Hail	Continue distribution of information through the extension office on various hail insurance options such as the commercial stock and mutual companies, and Federal Crop Insurance Corporation (FCIC).	2012-2017	Medium	UW-Extension, Emergency Management	No cost for collecting and disseminating information to potential users of the program.
	Documenting hail damage will be the responsibility of the Brown County Emergency Board, comprised of Brown County and Federal agricultural agency representatives.	2012-2017	Medium	Emergency Management, Executive	Emergency Board operates through an annual Brown County budget.
	Continued delivery of Federal emergency assistance in the form of low interest loans when a Presidential Disaster is declared or when FEMA declares a county eligible for aid.	2012-2017	Medium	UW-Extension	Key will be to make sure property owners have access to information through local media, cellphones, and applicable Brown County departments.
Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Dam failures*	Ensure Lamers Packerland Drive dam is maintained and functioning properly.*	2012-2017	High	Village of Ashwaubenon	Ongoing maintenance cost is covered by the Village of Ashwaubenon through its operating budget.
	Ensure the residents located within the flood zone have information on emergency procedures if the dam is compromised.*	2012-2017	Low	Village of Ashwaubenon	One residence is located within the flood zone.
	Continue to monitor water levels and communicate those conditions as necessary.*	2012-2017	Low	Village of Ashwaubenon	Ongoing maintenance cost is covered by the Village of Ashwaubenon.

Fires: Forest and wildland	Coordinate with the Wisconsin department of Natural resources to disseminate information to the public on preventing fires.	2012-2017	High	Emergency Management, UW-Extension	
	Coordinate with the Wisconsin Department of natural resources on notifying media outlets on burning restrictions being issued.	2012-2017	High	Emergency Management	Radio, TV, and cellphone coverage from brown County does a good job informing residents of such conditions and restrictions.
	Adopt and enforce burning permit ordinances.	2012-2017	Medium	Municipalities	Adopted and enforces by each municipality.
	Maintain power lines to help prevent or alleviate wildfires through proper maintenance and separation of power lines as well as efficient response to fallen power lines.	2012-2017	Medium	Utility Companies	Utilities continue to provide prudent power line eminence program.
	Continue participation in the Wisconsin Fire Control program.	2012-2017	Low	Individual Fire Departments	
	work with neighboring municipalities to minimize the amount of fuel in those areas prone to fires.	2011 Complete	Low	Emergency Management, UW-Extension	Wisconsin Department of Natural Resources may have a grant program to address these areas.
	Identify and map areas in Brown County most susceptible to wildland fires.	2011 Complete	Low	Planning and Land Services	The mapping would be general but would highlight areas of concern due to vegetation or past occurrences. If the Wisconsin department of Natural resources deems Brown County to have high fire danger areas, they have funds to prepare wildland mitigation plans. Cost per plan is about \$20,000 and can be done by Planning and Land services.
	Work with local municipalities to upgrade and maintain streets and driveways to allow for access by emergency vehicles and fire equipment.	2010 Complete	Medium	DPW, Executive	Municipalities usually have driveway ordinances in place. Driveway costs are the responsibility of the property owner.

	Ensure there are mutual aid fire protection agreements in place and they include provisions for wildfires.	2009 Complete	Medium	Individual Fire Departments	Emergency Management can facilitate or encourage mutual aid agreements between municipalities.
	Investigate participation in the Mutual Aid Box Alarm System (MABAS) by Brown County and municipalities.	2009 Complete	Low	Executive, Municipalities	
	Utilize zoning to promote cluster development to locate defensible areas and keep development away from fire hazards such as steep slopes where fires are difficult to contain.	2009 Complete	Low	Planning and Land Services	This is part of each municipalities' comprehensive plan.

Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Coastal hazards*	Monitor natural features along the bay of Green bay for deterioration that would allow for flooding or mudslides to impact properties along the shore.*	2012-2017	Medium	Planning and Land Services, Land Conservation	The mapping would be general but would highlight areas of concern due to vegetation or past occurrences. This could be an intern.
	Maintain a storm water management plan that accounts for the large amount of water flowing into the Fox River that could cause localized flooding or possible backup of storm water into homes and businesses.*	2012-2017	Medium	Planning and Land Services, Land Conservation	Brown County maintains a storm water management plan but it does not completely cover this situation.
	Maintain current land use regulations that permit building of structures within vulnerable coastal locations.*	2012-2017	Medium	Planning and Land Services	Municipalities located along the upper Fox River and Green Bay need to be aware of these regulations.
	Maintain maps indicating past incidences and areas most susceptible to future hazards.*	2010 Complete	Medium	Planning and Land Services	Available GIS layers will be able to best illustrate these areas. This could be an intern.

	Construction of riprap to manage bluff erosion shifts due to the eroding force of the water where coastal areas lack bluff reinforcement.*	2011 Complete	Low	Planning and Land Services	work would need to be coordinated with the Wisconsin Department of Natural Resources and Army Corps of Engineers due to the potential high costs for construction of barriers.
	Work with the Coast Guard to monitor conditions where drifting ice can damage shore structures and destroy vegetation, move sand and stones from beaches, or dump sand, rock, or other debris on beaches.*	2010 Complete	Low	Port & Solid Waste	Coast Guard does do ice breaking but should monitor potential problems and make port officials aware of pending hazards they feel is imminent
Hazard Type	Mitigation Measure	Time / Completion	Priority	Lead Departments	Comments
Drought	Utilize such entities as UW-Extension, Land Conservation, etc. to obtain information on irrigation methods and ground water movement.	2012-2017	Medium	Land Conservation, UW-Extension	Good materials already available.
	Establish a process to obtain emergency food and water supplies for agricultural use.	2012-2017	Medium	Emergency Management, UW-Extension	UW-Extension is working with Wisconsin Department of Agriculture, Trade, and Consumer protection. Red Cross is a source of funding
	Implement and enforce water usage regulation/ordinances for both urban and water users.	2009 Complete	High	Municipalities	Individual municipalities typically have regulations in place. If not, they are encouraged to adopt water usage ordinances.
	Ensure that adequate wellhead protection plans are in place and utilized.	2010 Complete	Medium	Planning and Land Services	Implementation of municipality comprehensive plans.
	Review existing groundwater monitoring and modeling programs to determine the need for any additional groundwater monitoring.	2010 Complete	Low	Land Conservation, UW-Extension	Work coordinated with the Wisconsin department of Natural Resources. Some studies have been conducted already or will begin in the near future.
* NFIP Mitigation Measure					

Table 4.2: Local Jurisdiction Top Authorities, Policies, Programs & Resources, Brown County, Wisconsin					
Municipality	Top Authorities	Staff Involved	Policies & Ordinances	Programs	Resources
CITIES					
City of De Pere	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	City Budget, County Emergency Management
City of Green Bay	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	City Budget, County Emergency Management
VILLAGES					
Village of Allouez	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Ashwaubenon	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Bellevue	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Denmark	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Hobart*	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Howard	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Pulaski (part)	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Suamico	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Wrightstown	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management

Table 4.2: Local Jurisdiction Top Authorities, Policies, Programs & Resources, Brown County, Wisconsin					
Municipality	Top Authorities	Staff Involved	Policies & Ordinances	Programs	Resources
CITIES					
City of De Pere	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	City Budget, County Emergency Management
City of Green Bay	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	City Budget, County Emergency Management
VILLAGES					
Village of Allouez	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Ashwaubenon	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Bellevue	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Denmark	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Hobart*	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Howard	County Emergency Management, Local Fire, Police, DPW, Planning and Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Pulaski (part)	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Suamico	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management
Village of Wrightstown	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Village Budget, County Emergency Management

Table 4.2 (Cont.): Local Jurisdiction Top Authorities, Policies, Programs & Resources, Brown County, Wisconsin

TOWNS					
Town of Eaton	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Glenmore	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Green Bay	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Holland	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Humboldt	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Lawrence	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Ledgeview	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Morrison	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of New Denmark	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Pittsfield	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Rockland	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management

Table 4.2 (Cont.): Local Jurisdiction Top Authorities, Policies, Programs & Resources, Brown County, Wisconsin

TOWNS (Cont.)					
Town of Scott	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	Erosion Control, Storm Water Management, Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management
Town of Wrightstown	County Emergency Management, Local Fire, Police, DPW, Zoning	Emergency Management Coordinator, Chief, Directors	County Erosion Control, County Storm Water Management, County Shoreland / Floodplain Zoning	Comprehensive Plan, County & Local Hazard Mitigation Plan, Shoreland / Floodplain Zoning	Town Budget, County Emergency Management

Table 4.3: Incorporated Jurisdictions that are Participating in the NFIP, Brown County, Wisconsin			
Municipality	Participating in NFIP (Yes/No)	One Flood Protection Mitigation Action	Resources
CITIES			
		<i>(Others listed in Table 4.1)</i>	
City of De Pere	Yes	Maintain protective measures such as sandbagging, protection of buildings and other structures, and emergency gas and electricity cutoff procedures.*	City Budget, County Emergency Management
City of Green Bay	Yes	Utilize FEMA floodplain mapping with existing flood maps and data sources to better determine areas and facilities susceptible to recurring flooding.*	City Budget, County Emergency Management
VILLAGES			
Village of Allouez	Yes	Inventory and assess areas through both the rural and urban areas of Brown County that have repeated flash flooding problems and identify activities to remediate or rectify those locations.*	Village Budget, County Emergency Management
Village of Ashwaubenon	Yes	Ensure the residents located within the flood zone have information on emergency procedures if the Ashwaubenon dam is compromised.*	Village Budget, County Emergency Management
Village of Bellevue	Yes	Inventory and assess areas through both the rural and urban areas of Brown County that have repeated flash flooding problems and identify activities to remediate or rectify those locations.*	Village Budget, County Emergency Management
Village of Denmark	Yes	Utilize FEMA floodplain mapping with existing flood maps and data sources to better determine areas and facilities susceptible to recurring flooding.*	Village Budget, County Emergency Management
Village of Hobart*	Yes	Utilize FEMA floodplain mapping with existing flood maps and data sources to better determine areas and facilities susceptible to recurring flooding.*	Village Budget, County Emergency Management
Village of Howard	Yes	Continue to monitor the National weather service flood forecasts.*	Village Budget, County Emergency Management
Village of Pulaski (part)	Yes	Implement a rural drainage improvement program that would include ditch, bridge, and culvert maintenance and improvements.*	Village Budget, County Emergency Management
* NFIP Mitigation Measure			

Table 4.3 (Cont.): Incorporated Jurisdictions that are Participating in the NFIP, Brown County, Wisconsin

Municipality	Participating in NFIP (Yes/No)	One Flood Protection Mitigation Action	Resources
Village of Suamico	Yes	Inventory and assess areas through both the rural and urban areas of Brown County that have repeated flash flooding problems and identify activities to remediate or rectify those locations.*	Village Budget, County Emergency Management
Village of Wrightstown	Yes	Utilize FEMA floodplain mapping with existing flood maps and data sources to better determine areas and facilities susceptible to recurring flooding.*	Village Budget, County Emergency Management
* NFIP Mitigation Measure			

Table 4.4: Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin				
Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
CITIES				
City of De Pere	Severe weather Alert Siren	Kiwanis Park: 2362 Old Ivy Court	Erect severe weather alert notification siren for residents on the southern end of the community.	Provides emergency notification for city and township residents to take shelter due to imminent threat.
	Severe weather Alert Siren	St. Norbert College: 100 Grant Street	Erect severe weather alert notification siren for college campus.	Provides emergency notification for city and township residents to take shelter due to imminent threat.
	Trailer Park Severe Weather Shelter	De Pere Trailer Park: 1110 Terry Lane	Build an indoor gathering facility that can serve as a severe weather sheltering for trailer park residents.	Provides emergency sheltering for trailer park residents.
City of Green Bay	Storm Water BMP Educational Campaign in Flood Prone Neighborhoods and Regions	City of Green Bay Flood Prone Neighborhoods (Downtown, Olde North, Northwest Railway Gardens, East Shore Drive, Fort Howard, Seymour Park, Astor East River, Three Corners, South Broadway, Olde Norwood)	None. Bringing proper management techniques to the private land owners.	When implemented, this enables high water levels to infiltrate into the ground instead of exacerbating stormwater and flooding problems downstream
	Develop an Action Plan and Identify/Create a Fundraising Source to Leverage Available Public and Private Funding to Purchase, relocate, or Retrofit Structures Within the Floodplain	City of Green Bay Flood Prone Neighborhoods (Downtown, Olde North, Northwest Railway Gardens, East Shore Drive, Fort Howard, Seymour Park, Astor East River, Three Corners, South Broadway, Olde Norwood)	None.	A plan would identify resources and enable the City of Green Bay and local/regional partners to address flood prone properties prior to an emergency. This would also allow the City of Green Bay to preserve open space as part of the flood management plan.

Table 4.4 (Cont.): Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin

Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
VILLAGES				
Village of Allouez	Improve Ice Control Measures	Local Streets	None. Operations changes.	Improves safety for motor vehicles, pedestrians, and year-round bicyclists in icy conditions
	Optimize Snow Plowing Operations and Efficiency	Local Streets	None. Operations changes.	Improves safety for motor vehicles, pedestrians, and year-round bicyclists in snowy conditions
	Improve Downed Tree Emergency Response Procedures	Village of Allouez	None. Procedural changes.	Improves mobility for emergency vehicles, motor vehicles, pedestrians and bicycles.
	Implement Flood Information Provided to Residents with resource Person	Village Residents	None. Informational changes.	Educates the general public about flooding and dangers associated with areas prone to flooding.
Village of Ashwaubenon	Southwest Village Tornado Siren Installation	1050 Glory Road	Construction of a new tornado warning siren.	Emergency warning coverage to the southwest portion of the village.
	Southwest Village Tornado Siren Installation	Corner of Commodity Lane and Main Avenue	Construction of a new tornado warning siren.	Emergency warning coverage to the southwest portion of the village.
	Village Compost Site Expansion	Corner of STH 172 and Pine Tree Road	Expansion of material handling site.	Capacity for storm debris management and Emerald ash Borer staging site.

Table 4.4 (Cont.): Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin

Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
VILLAGES (Cont.)				
Village of Bellevue	New Deicing Equipment	DPW for Entire Local Street System	None. Modernized liquid salt system for plow fleet.	Provides safer driving conditions during heavy snow and ice events.
	New Chain Saws	Village Wide	None. Provide 12 chain saws to be used for tree debris removal.	Provides efficient removal of debris in the wake of adverse weather.
	Additional Barricades	Village Wide	None. Provide additional 50 barricades for traffic control and detours.	Provide better site control, protect travelers from damaging events.
	New Pump Station Generator	Well #4	None. Provide emergency backup power to run water system computer technology.	Allow interrupted water supply to village residents and emergency response.
	Pumps for Flooding	Village Wide	None. Pumps to assist in drawing floodwaters down.	Assist in property damage mitigation throughout the community.
	Rescue Boat	East River Area	None. Boat to assist with rescue of stranded residents.	Provide rescue of residents along flood prone areas of the East River.

Table 4.4 (Cont.): Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin

Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
VILLAGES (Cont.)				
Village of Denmark	New / Expanded Storm Warning Sirens	Roof of Municipal Garage in center of village	None. Includes standard AC siren with radio decoder, antenna and weather proof cabinet. Siren is omni directional with 8HP continuous duty DC motors, siren heaters, batteries, dual pro chargers, battery blankets and magnetic starter in a NEMA 3R enclosure plus electrical service. Cost: \$45,000-55,000.	Capacity for siren to be heard throughout village, including new residential developments, school buildings, the waste water treatment plant, and a business park on I-43. New sirens would meet FEMA recommended Alert Level for entire village.
	New / Expanded Storm Warning Sirens	Corner of Wisconsin Avenue and Grand Avenue on east side of village	None. Includes standard AC siren with radio decoder, antenna and weather proof cabinet. Siren is omni directional with 8HP continuous duty DC motors, siren heaters, batteries, dual pro chargers, battery blankets and magnetic starter in a NEMA 3R enclosure plus electrical service. Cost: \$45,000-55,000.	Capacity for siren to be heard throughout village, including new residential developments, school buildings, the waste water treatment plant, and a business park on I-43. New sirens would meet FEMA recommended Alert Level for entire village.
Village of Hobart	Storm Early warning System	Village Wide	Conduct engineering study identifying system parameters, develop plan for placement of sirens per a comprehensive plan.	Provides notification during natural emergency events.
	Improved Snow and Ice Control Measures	Village Wide	Evaluate, identify, and implement optimal methods for pretreatment of roads.	Improves safety for motor vehicles, pedestrians, and year-round bicyclists in snowy conditions

Table 4.4 (Cont.): Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin

Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
VILLAGES (Cont.)				
Village of Howard	Lakeview Lift Station Replacement and Floodproofing	Lakeview Drive and Woodale Avenue	Replace and construct existing critical sewage pumping lift station 2 feet above floodplain.	Provide reliable sewage pumping during a flood event preventing sewage backups that are hazardous to the public and would interrupt commercial activities and the associated economic losses and impacts.
	Moving Existing Emergency Siren	Cardinal Lane and Woodale Avenue	Includes relocation of existing siren.	Provide improved siren coverage in west part of village.
	Adding New Emergency Siren	Spring Green Park	Includes development of new siren.	Provide siren coverage in west part of village.
Village of Pulaski (part)	Ditch Cleaning	Middle Branch of Suamico River on North Avenue, Approximately 1,000 Feet Going East	None. Includes cleaning out ditch as it becomes built up with debris.	Increases water flow without flooding.
	Storm Sewer Installation	East Pulaski Street on Fourth Avenue, going South Approximately 800 feet	Installation of new storm sewer piping and laterals for sump pumps.	Prevents surface storm water from flooding the street.
Village of Suamico	Street Sign Updates	Local Streets	None. Updating to proper sign letter sizing and addressing.	Improves safety for siting natural hazard locations, as well as police and fire efficiency.
	Improved Snow and Ice Control Measures	Village Wide	Evaluate, identify, and implement optimal methods for pretreatment of roads.	Improves safety for motor vehicles, pedestrians, and year-round bicyclists in snowy conditions
	New Chain Saws	Village Wide	None. Provide 6 chain saws to be used for tree debris removal.	Provides efficient removal of debris in the wake of adverse weather.

Table 4.4 (Cont.): Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin				
Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
VILLAGES (Cont.)				
Village of Wrightstown	Flood Prevention	Lowlands on East Side of Fox River	Building a berm in specific areas to prevent flooding	Creates a form of protection against water damage and infiltration to occupied buildings.
	Emergency Response Plan	Village-Wide	None. Work in progress; requires participation by other entities such as local private and public schools.	Improvement in efforts to provide Public Safety aspects to residents and schools during possible incidents; hazardous spills, massive accidents, etc.
	Well #5	East Side of Fox River	A permanent well is being constructed with an open date for completion.	The village is presently served by Well #4 on the west side with a river crossing to serve east side residents and schools. Should the crossing fail, service would be interrupted for a substantial time.
	Water Tower Modifications	Tower "A" on East Side	Installation of mixing equipment to keep stored water circulating.	A means to protect water from becoming stale and frozen during long periods of frigid weather.
	water Tower Modifications	Tower "B" on West Side	Installation of mixing equipment to keep stored water circulating.	A means to protect water from becoming stale and frozen during long periods of frigid weather.
	Cross Control Prevention	Village-Wide	Inspection and upgrading all plumbing fixtures with proper anti-contamination devices.	Prevents contamination of village water supply under certain conditions.

Table 4.4 (Cont.): Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin

Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
TOWNS*				
Town of Eaton	None	None	None.	Contacted via e-mail and phone. No mitigation response.
Town of Glenmore	None	None	None.	Contacted via e-mail and phone. No mitigation response.
Town of Green Bay	Emergency Sirens	Three locations in north, south, and central part of town	None. Purchase of sirens and equipment required.	Provides notification during natural emergency events.
Town of Holland	Sewer Main Improvement to Accommodate Storm Water Overflow	Eastern Holland	Reconstructing or improving sewer main to accommodate storm water overflows.	Minimizes sewer backups due to storms.
	Increase Water Tower Capacity	Holland Water Tower	Increasing the water capacity of the water tower to meet expansion needs for next 20 years.	Prevents the existing water tower from being depleted during emergency fire or water need situations.
Town of Humboldt	Fire Number Installation	All Parcels	None. Recently completed. May include additional parcels.	Improves safety for siting natural hazard locations, as well as police and fire efficiency.
	Street Sign Updates	Local Streets	None. Updating to reflecting signs.	Improves safety for siting natural hazard locations, as well as police and fire efficiency.
Town of Lawrence	None	None	None.	Town response: We fall under the county for this because we are unincorporated.
Town of Ledgeview	None	None	None.	Contacted via e-mail and phone. No mitigation response.
Town of Morrison	None	None	None.	Contacted via e-mail and phone. No mitigation response.
Town of New Denmark	Reduction of Flood Vulnerability	Neshota River Branches and Tributaries	Identifying problem locations and developing plan and methods to minimize development damage in flood prone areas.	Minimize damages caused due to flooding of waterway.

* Inincorporated towns are not required to include mitigation actions. Not all towns submitted data.

Table 4.4 (Cont.): Jurisdictions with Site Specific Mitigation Actions, Brown County, Wisconsin

Municipality	Project Name	Project Location	Construction Type	Mitigation Benefits
TOWNS*				
Town of Pittsfield	Identify Flood Zone A	North and West Branches of Suamico River, and Tributaries	None. Includes floodway and floodplain identification.	Identifying flood zones help to prevent damages in the case of rain, flood, and melting snow events.
	Identify Flood Zone A	Potters Creek	None. Includes floodway and floodplain identification.	Identifying flood zones help to prevent damages in the case of rain, flood, and melting snow events.
	Fire Vulnerability Reduction	Wooded areas of Town	None. Identifying location of vulnerable woodlands.	Knowing location allows for establishing routes to access woodlands in case of emergency.
Town of Rockland	Tornado Sirens and/or Storm Emergency Systems	Town Wide	Installing tornado sirens and/or storm emergency systems.	County sirens outside of town not audible throughout the town, inhibiting early notification of tornadoes and storms.
Town of Scott	Adding New Emergency Sirens	Three locations: New Franken, Royal Scott, the Bay on north side by boat landing	Includes development of new siren.	Provide siren coverage in west part of village.
	Improvements to Existing Municipal Well	Northwest corner of Algoma Drive Jody	At north extent of city water supply needs to be improved. It is 30 years old and non compliant with WDNR standards.	Improved emergency back up water source and improves existing non-compliant well.
	Addind New Municipal Well	Northwest corner of Algoma Drive Jody	New well construction.	New well would allow existing supply to exceed a one day supply for daily use in the event of an emergency water need.
Town of Wrightstown	Flood Reduction Measures	Happy Hollow Campground	Establishing flood protection measures along Plum Creek.	Prevents the campground from having to be evacuated during a storm event.
	Develop a Flood Plan	Town Wide	Establish a flood evacuation plan for flood prone areas.	Allows for organized and efficient flood situation evacuation.

* Incorporated towns are not required to include mitigation actions. Not all towns submitted data.

CHAPTER 5 PLAN ADOPTION AND MAINTENANCE

PLAN ADOPTION PROCESS

The *2012 Brown County All Hazards Mitigation Plan* was prepared in response to the passage of Disaster Mitigation Act of 2000. The plan is divided into five chapters that address all of FEMA's local mitigation plan requirements. A Steering Committee comprised of local and county officials and emergency management personnel guided the plan development process over a nine-month timeframe with professional planning support from the Brown County Planning Commission.

Wisconsin Emergency Management (WEM) and FEMA each had a role in reviewing the county's draft All Hazards Mitigation Plan. The *2012 Brown County All Hazards Mitigation Plan* was sent to WEM on September 20, 2012 for their pre-review. WEM forwarded the plan on to the FEMA Regional Office for review and informal approval. Final comments were received from WEM and FEMA on May 16, 2013 and included in the plan as appropriate. When the plan met FEMA's guidelines, the *2012 Brown County All Hazards Mitigation Plan* was adopted by resolution by the Brown County Board of Supervisors on **July XX, 2013**. Incorporated communities were encouraged to adopt the plan as well but were not required to do so.

PUBLIC REVIEW PROCESS

The public was able to comment on several occasions during the drafting stage of the plan. All meetings of the Plan Steering Committee were posted to notify the public the all hazard mitigation plan was being prepared. A planning summary sheet was prepared and sent to each community within Brown County to inform the municipalities of the process. Final Plans were also provided to Executive and the Public Education and Information Committees of Brown County's Office of Emergency Management and the Planning, Development, and Transportation Committee of the Brown County Planning Commission to keep them abreast of the planning process and to encourage their input and comments. A series of e-mail requests were sent to each community to solicit their input on potential hazard problems within their municipality and possible mitigation strategies to address those conditions. A letter was sent to each of the county's eleven incorporated municipalities asking them to review the plan to ensure any issues specific to their community were included in the final plan. Any input received was incorporated into *Chapter 4: Mitigation Strategies* and as appropriate elsewhere in the document. The review did not include representation from adjacent counties.

While WEM and FEMA were reviewing the draft *Brown County All Hazards Mitigation Plan*, copies of the draft plan were provided to each member of the Steering Committee, a CD copy was provided to the communities, the plan could be viewed on the Brown County website and a hard copy located at three key locations throughout the county for review by the public.

Once the plan was reviewed by WEM and FEMA, their comments were integrated as appropriate into the plan as well as those received from the Steering Committee members and public. The public was allowed to provide comments, and ask questions regarding the development of the all hazard mitigation plan throughout the entire development process. All comments received during the plan review process and open houses were considered for inclusion in this plan.

PLAN IMPLEMENTATION

Brown County's Office of Emergency Management will oversee the implementation, evaluation, and maintenance of the *2012 Brown County All Hazards Mitigation Plan*. This plan incorporates many of the emergency operations plans already in place; therefore the mitigation strategies

and procedures overlap and are to act in conjunction with one another. The implementation of this all hazard plan will also satisfy the conditions and actions in the other plans to include the county's comprehensive plan, capital improvements budget, and applicable ordinances.

Table 4.1 in Chapter 4: *Mitigation Strategies* lists the strategies by natural hazard, along with priority, timeline for implementation, lead county department(s), and cost if known. Through the guidance and direction of the Office of Emergency Management, a committee will be created or an existing committee will be directed to oversee the implementation and maintenance of the hazard mitigation plan. This committee will communicate with the identified departments on their role in the implementation of the plan. A work plan will be created based on the mitigation strategies with those of highest priority receiving preference. Local communities will be asked to participate in the implementation and monitoring of the plan due to the fact that the broad scope of many of the strategies requires local participation. Assignment of roles and responsibilities will be handled under the direction of the committee set to implement the plan. Work will commence according to priority status of each mitigation strategy and available funding.

PLAN INTEGRATION MECHANISMS

Since the last Plan there have been many many methods that have been used to integrate components of the *2012 Brown County All Hazards Mitigation Plan*. The following summarizes some of the methods in place since the last plan, or that have been developed since the last plan:

Comprehensive Planning – Brown County municipalities facilitated the development, or update of 15 additional comprehensive plans since the last All Hazard Mitigation Plan was written. Each comprehensive plan included a section that identified environmentally sensitive areas, natural features, flood plains, and floodways to help create a better understanding of areas subject to flooding.

Capital Improvement Planning – Brown County municipalities facilitated the development capital improvement plans to provide improved emergency management services. Some of the improvements related to fire, tornado warning, storm water control, etc.

Environmentally Sensitive Area Education – Brown County residents are offered education and information on a daily basis regarding environmentally sensitive areas, including floodways, and floodplains. In 2012, a new informational flyer and booklet, explaining the hazards of developing near certain hazard areas was published to further enhance public awareness.

Storm Water Management Planning – Brown County municipalities facilitated the development of 4 additional storm water management plan ordinances since the last All Hazard Mitigation Plan was written, for a total of 11 municipalities. Storm water management plan reviews for all other municipalities are reviewed by Brown County at the time land is subdivided by way of a plat or certified survey map. The brown County review was in place prior to the last All Hazard Mitigation Plan being written.

PLAN EVALUATION

Each mitigation strategy includes a matrix for monitoring implementation progress. In addition, more detailed steps will be developed, as needed, for more complex initiatives. On at least an annual basis, Brown County's Office of Emergency Management designated committee will meet with municipalities and implementation partners to evaluate progress for each mitigation strategy, compile summary progress report, and promote findings through the media, County Board of Supervisors, county committees, and local communities. This collaborative implementation approach will also provide a forum for identifying additional mitigation needs.

PLAN MAINTENANCE

The Brown County Emergency Management Office will review the plan annually with an update completed every five years. Brown County Emergency Management staff will maintain progress reports on all mitigation projects and include this information in plan updates. Newly identified mitigation needs will be addressed through the development of additional goals, objectives, or strategies, as applicable. If changes in implementation priority are deemed necessary, the rationale will be documented. Revisions and updates will be sent to adjacent counties for comment, if necessary, revisions and updates will be distributed to the oversight committee appointed by the Brown County Emergency Management Office, municipalities, and implementation partners such as local hospitals and the Red Cross for review and approval.

As was done with the plan update, revisions and updates will be published on the Brown County website and all meetings will be open to the public. The agendas will be posted by the Brown County Board office and will serve as public notice of the meetings.

Plan revisions will be made available through the Brown County Emergency Management website for general public review and comment during the plan updating process. Public comment on revisions and updates also will be solicited through a comprehensive public outreach strategy (new releases, open houses, posters, brochures, partnerships). Public outreach efforts for the plan updates will further use these opportunities to provide ongoing public education on hazard preparedness. The reviewed and updated plan will be submitted to the Brown County Board of Supervisors, WEM, and FEMA for approval every five years.

INCORPORATED AND RELATED PLANS, STUDIES, REPORTS, AND TECHNICAL DATA

Many plans, reports and technical data were referenced and incorporated into *Brown County All Hazards Mitigation Plan*. The following is a comprehensive list of resources and reports utilized during the development of the plan:

- U.S. Census Bureau (1990 through 2010) population, housing and employment data;
- Wisconsin Department of Administration 2008 Population Estimates;
- Wisconsin Department of Transportation local road information;
- Wisconsin Emergency Management past natural hazard information;
- *State of Wisconsin Hazard Mitigation Plan* (October 2004);
- Hazard Analysis for the State of Wisconsin (Wisconsin Emergency Management, 2002);
- *Resource Guide to All Hazards Mitigation Planning in Wisconsin* (AWRPC, 2003);
- National Oceanic and Atmospheric Administration (NOAA) – National Climatic Data Center – severe weather event data (1950 – June 2004);
- U.S. Geological Survey maps on landslides, land subsidence and earthquakes;
- FEMA Flood Insurance Studies (for Brown County, 1991);
- FEMA: *Understanding Your Risks* guide (2003);
- FEMA: *Mitigation Planning Ideas* from Region 5 (2002);
- FEMA Flood Insurance Rate Maps (FIRMs);
- Parcel data from Brown County;
- Assessed valuation data from Brown County;
- Brown County land use inventory data (2010);
- *Brown County Hazard Analysis* (March 2006);
- *Brown County Evacuation Plan* (2006);
- *Brown County Emergency Operations Plan (EOP)* (February 2012);
- *Brown County Disaster Plan* (February 2012);
- *Brown County Comprehensive Plan* (2004);
- *Emergency Action Plan-Lamers Packerland Drive Detention Basin Control Structure for the Village of Ashwaubenon, Brown County* (July 2002);
- *South Carolina Hazard Mitigation Plan* (2004) for reference and definitions;
- *City of Eau Claire Hazard Mitigation Plan* (2004) for reference and formatting; and
- All-Hazard Mitigation Plan: Dakota County, Minnesota (2005) for plan formatting purposes.

Implementation

The implementation of the *Brown County All Hazards Mitigation Plan* will be the responsibility of several Brown County departments with assistance provided by officials and emergency personnel from local communities, schools, and hospitals. The County Executive, with consultation and input from the Brown County Board of Supervisors, will oversee implementation of the plan through implementation of the individual strategies outlined in this chapter.

Brown County Departments include:

Emergency Management	Department of Public Works	Planning
Facility Management	Zoning	Parks
Land Information Office	Public Safety	Solid Waste
Human Services	Aging and Disability	Land Conservation
UW-Extension	Sheriff	Health

APPENDIX

APPENDIX A – STEERING COMMITTEE AGENDAS

The 2012 Brown County All Hazards Mitigation Plan Steering Committee held meetings on the following dates:

1. February 8, 2012
2. March 14, 2012
3. April 11, 2012
4. May 9, 2012
5. July 18, 2012
6. August 8, 2012

Although many Steering Committee members periodically attended, the following were regular attendees at most or all of the meetings:

- Bill Bosiacki
- Mark Thiry
- Paul Gadzik
- Judy Gregory
- Robert Kiser
- David Konrath
- Rochelle Bissing
- Brian Lamers
- Cullen Peltier
- Chris Pirlot
- Peter Schleinz

All meetings were published on the Brown County website and all meetings were open to the public. The agendas, posted by the Brown County Board office, served as public notice of all the meetings.

The following pages include copies of Agendas from the Steering Committee meetings and a list of invitees who were kept abreast of meetings and plan changes, regardless of attendance.

Mitigation Plan Steering Committee Invitees

Name	Name Last	Agency	Address	City, State, Zip	Phone	E-mail
Jim Arts	Arts	Green Bay PD	307 S. Adams	Green Bay, WI 54301	448-3200	jimar@ci.green-bay.wi.us
Bill Bosiacki	Bosiacki	Brown County Zoning	305 E. Walnut	Green Bay, WI 54301	448-4488	Bosiacki_BS@co.brown.wi.us
Tom Collins	Collins	LEPC Chair	501 Eastman Avenue	Green Bay, WI 54302	494-5233	thomas.collins@sodexo.com
Jeff DuMez	DuMez	Brown County LIO	305 E. Walnut	Green Bay, WI 54301	448-6295	DuMez_JD@co.brown.wi.us
Chief Mark Thery	Dunning	Ashwaubenon Public Safety	2155 Holmgren Way	Green Bay, WI 54304	492-2312	mthiry@ashwaubenon.com
\	Gazdik	Brown County EM	3030 Curry Lane	Green Bay, WI 54311	391-7431	gazdik_pr@co.brown.wi.us
Tom Ginter	Ginter	Aurora BayCare	2845 Greenbrier Rd	Green Bay, WI 54308	288-3038	tom.ginter@aurorabaycare.com
Chief Robert Goplin	Goplin	Green Bay Fire	501 S. Washington	Green Bay, WI 54301	448-3278	robertgo@ci.green-bay.wi.us
Judy Gregory	Gregory	American Red Cross	2131 Deckner	Green Bay, WI 54302	227-4281	lakelanddoor@arclakeland.org
Matt Heyroth	Heyroth	Brown County Zoning	305 E. Walnut	Green Bay, WI 54301	448-4489	Heyroth_MR@co.brown.wi.us
Chief Robert Kiser	Kiser	DePere Fire and Rescue	400 Lewis Street	DePere, WI 54115	339-4086	rkiser@mail.de-pere.org
Captain David Konrath	Konrath	Brown County Sheriff	2684 Development Dr	Green Bay, WI 54311	448-4202	konrath_ds@co.brown.wi.us
Rochelle Bissing	Bissing	Wisconsin Public Service	700 N. Adams	Green Bay, WI 54307	617-5160	RMBissing@wisconsinpublicservice.com
Tom Kujawa	Kujawa	UWGB Public Safety	2420 Nicolet Drive	Green Bay, WI 54311	465-2300	kuiawat@uwgb.edu
Brian Lamers	Lamers	Brown County Highway	2198 Glendale	Green Bay, WI 54303	662-2163	lamers_bl@co.brown.wi.us
Chuck Lamine	Lamine	Brown County Planning	305 E. Walnut	Green Bay, WI 54301	448-3418	lamine_cf@co.brown.wi.us
Kurt Minten	Minten	Lawrence Fire Department	2595 French Rd	DePere, WI 54115	632-4103	kurt@townoflawrence.org
Michael Moore	Moore	Georgia Pacific	1919 S. Broadway	Green Bay, WI 54304	438-4081	michael.moore@qapac.com
John Paul	Paul	Brown County Public Health	610 S. Broadway	Green Bay, WI 54303	448-6404	Paul_JH@co.brown.wi.us
Cullen Peltier	Peltier	Brown County EM	3030 Curry Lane	Green Bay, WI 54311	448-4270	Peltier_CS@co.brown.wi.us
Chris Pirlot	Pirlot	Green Bay DPW	519 South Oneida Str	Green Bay, WI 54303	492-3736	chrispi@ci.green-bay.wi.us
Peter Schlein	Schlein	PALS	305 E. Walnut	Green Bay, WI 54301	448-6488	schlein_pj@co.brown.wi.us
Aaron Schuette	Schuette	PALS	305 E. Walnut	Green Bay, WI 54301	448-6486	schuette_am@co.brown.wi.us
Kent Taylor	Taylor	Green Bay Water Utility	631 S. Adams	Green Bay, WI 54301	448-3480	kentta@ci.green-bay.wi.us
Larry Ullmer	Ullmer	County Rescue Services	1765 Allouez Av.	Green Bay, WI 54311	469-9779	lullmer@countyrescue.com

AGENDA
BROWN COUNTY ALL-HAZARDS MITIGATION PLAN UPDATE
STEERING COMMITTEE
Wednesday, February 8, 2012
Brown County Emergency Management Office
(Brown County Jail)
3030 Curry Lane, 2nd Floor
Green Bay, WI
1:30 p.m.

ROLL CALL:

Jim Arts	_____	Lynn Kroll	_____
Bill Bosiacki	_____	Tom Kujawa	_____
Tom Collins	_____	Brian Lamers	_____
Jeff DuMez	_____	Chuck Lamine	_____
Chief Eric Dunning	_____	Kurt Minten	_____
Paul Gadzik	_____	Michael Moore	_____
Tom Ginter	_____	John Paul	_____
Chief Robert Goplin	_____	Cullen Peltier	_____
Judy Gregory	_____	Chris Pirlot	_____
Matt Heyroth	_____	Peter Schleinz	_____
Chief Robert Kiser	_____	Kent Tayler	_____
Captain David Konrath	_____	Larry Ullmer	_____

1. Introductions.
2. Discuss Project Timeline and Purpose for Steering Committee Performing Update.
3. Overview of the Plan and how the Plan is used.
4. Discuss Information and Maps in Chapters 1 and 2 of the Plan.
5. Establish Future Meeting Dates.
6. Other matters.
7. Adjourn.

ANY PERSON WISHING TO ATTEND WHO, BECAUSE OF A DISABILITY, REQUIRES SPECIAL ACCOMMODATION SHOULD CONTACT THE BROWN COUNTY HUMAN RESOURCES OFFICE AT 448-4065 BY THE DAY BEFORE THE MEETING SO ARRANGEMENTS CAN BE MADE.

AGENDA
BROWN COUNTY ALL-HAZARDS MITIGATION PLAN UPDATE
STEERING COMMITTEE
Wednesday, March 14, 2012
Brown County Emergency Management Office
(Brown County Jail)
3030 Curry Lane, 2nd Floor
Green Bay, WI
1:30 p.m.

ROLL CALL:

Jim Arts	_____	Rochelle Bissing	_____
Bill Bosiacki	_____	Tom Kujawa	_____
Tom Collins	_____	Brian Lamers	_____
Jeff DuMez	_____	Chuck Lamine	_____
Mark Theory	_____	Kurt Minten	_____
Paul Gadzik	_____	Michael Moore	_____
Tom Ginter	_____	John Paul	_____
Chief Robert Goplin	_____	Cullen Peltier	_____
Judy Gregory	_____	Chris Pirlot	_____
Matt Heyroth	_____	Peter Schleinz	_____
Chief Robert Kiser	_____	Kent Tayler	_____
Captain David Konrath	_____	Larry Ullmer	_____

1. Introductions.
2. Discuss the Committees review of Chapters 1 and 2 of the Plan.
3. Affirm list of natural hazards.
4. Generate list of man-made hazards and vulnerabilities.
5. Determine how hazards should be evaluated.
6. Confirm next meeting date: April 11, 2012.
7. Other matters.
8. Adjourn.

ANY PERSON WISHING TO ATTEND WHO, BECAUSE OF A DISABILITY, REQUIRES SPECIAL ACCOMMODATION SHOULD CONTACT THE BROWN COUNTY HUMAN RESOURCES OFFICE AT 448-4065 BY THE DAY BEFORE THE MEETING SO ARRANGEMENTS CAN BE MADE.

AGENDA
BROWN COUNTY ALL-HAZARDS MITIGATION PLAN UPDATE
STEERING COMMITTEE
Wednesday, April 11, 2012
Brown County Emergency Management Office
(Brown County Jail)
3030 Curry Lane, 2nd Floor
Green Bay, WI
1:30 p.m.

ROLL CALL:

Jim Arts	_____	Rochelle Bissing	_____
Bill Bosiacki	_____	Tom Kujawa	_____
Tom Collins	_____	Brian Lamers	_____
Jeff DuMez	_____	Chuck Lamine	_____
Mark Theory	_____	Kurt Minten	_____
Paul Gadzik	_____	Michael Moore	_____
Tom Ginter	_____	John Paul	_____
Chief Robert Goplin	_____	Cullen Peltier	_____
Judy Gregory	_____	Chris Pirlot	_____
Matt Heyroth	_____	Peter Schleinz	_____
Chief Robert Kiser	_____	Kent Tayler	_____
Captain David Konrath	_____	Larry Ullmer	_____

1. Introductions.
2. Discuss and Review Chapter 4 of the Plan.
3. Confirm next meeting date: May 9, 2012.
4. Other matters.
5. Adjourn.

ANY PERSON WISHING TO ATTEND WHO, BECAUSE OF A DISABILITY, REQUIRES SPECIAL ACCOMMODATION SHOULD CONTACT THE BROWN COUNTY HUMAN RESOURCES OFFICE AT 448-4065 BY THE DAY BEFORE THE MEETING SO ARRANGEMENTS CAN BE MADE.

AGENDA
BROWN COUNTY ALL-HAZARDS MITIGATION PLAN UPDATE
STEERING COMMITTEE
Wednesday, May 9, 2012
Brown County Emergency Management Office
(Brown County Jail)
3030 Curry Lane, 2nd Floor
Green Bay, WI
1:30 p.m.

ROLL CALL:

Jim Arts	_____	Rochelle Bissing	_____
Bill Bosiacki	_____	Tom Kujawa	_____
Tom Collins	_____	Brian Lamers	_____
Jeff DuMez	_____	Chuck Lamine	_____
Mark Theory	_____	Kurt Minten	_____
Paul Gadzik	_____	Michael Moore	_____
Tom Ginter	_____	John Paul	_____
Chief Robert Goplin	_____	Cullen Peltier	_____
Judy Gregory	_____	Chris Pirlot	_____
Matt Heyroth	_____	Peter Schleinz	_____
Chief Robert Kiser	_____	Kent Tayler	_____
Captain David Konrath	_____	Larry Ullmer	_____

1. Introductions.
2. Discuss and Review Chapter 5 of the Plan.
3. Confirm next meeting date: June 14, 2012.
4. Other matters.
5. Adjourn.

ANY PERSON WISHING TO ATTEND WHO, BECAUSE OF A DISABILITY, REQUIRES SPECIAL ACCOMMODATION SHOULD CONTACT THE BROWN COUNTY HUMAN RESOURCES OFFICE AT 448-4065 BY THE DAY BEFORE THE MEETING SO ARRANGEMENTS CAN BE MADE.

AGENDA
BROWN COUNTY ALL-HAZARDS MITIGATION PLAN UPDATE
STEERING COMMITTEE
Wednesday, July 18, 2012
Brown County Emergency Management Office
(Brown County Jail)
3030 Curry Lane, 2nd Floor
Green Bay, WI
1:30 p.m.

ROLL CALL:

Jim Arts	_____	Rochelle Bissing	_____
Bill Bosiacki	_____	Tom Kujawa	_____
Tom Collins	_____	Brian Lamers	_____
Jeff DuMez	_____	Chuck Lamine	_____
Mark Thiry	_____	Kurt Minten	_____
Paul Gadzik	_____	Michael Moore	_____
Tom Ginter	_____	John Paul	_____
Chief Robert Goplin	_____	Cullen Peltier	_____
Judy Gregory	_____	Chris Pirlot	_____
Matt Heyroth	_____	Peter Schleinz	_____
Chief Robert Kiser	_____	Kent Tayler	_____
Captain David Konrath	_____	Larry Ullmer	_____

1. Introductions.
2. Discuss and Review Five Chapters of the Plan assembled in draft format.
3. Confirm next meeting date: August 8, 2012.
4. Other matters.
5. Adjourn.

ANY PERSON WISHING TO ATTEND WHO, BECAUSE OF A DISABILITY, REQUIRES SPECIAL ACCOMMODATION SHOULD CONTACT THE BROWN COUNTY HUMAN RESOURCES OFFICE AT 448-4065 BY THE DAY BEFORE THE MEETING SO ARRANGEMENTS CAN BE MADE.

AGENDA
BROWN COUNTY ALL-HAZARDS MITIGATION PLAN UPDATE
STEERING COMMITTEE
Wednesday, August 8, 2012
Brown County Emergency Management Office
(Brown County Jail)
3030 Curry Lane, 2nd Floor
Green Bay, WI
1:30 p.m.

ROLL CALL:

Bill Bosiacki	_____	Tom Kujawa	_____
Tom Collins	_____	Brian Lamers	_____
Jeff DuMez	_____	Chuck Lamine	_____
Mark Thiry	_____	Kurt Minten	_____
Paul Gadzik	_____	Michael Moore	_____
Tom Ginter	_____	John Paul	_____
Chief Robert Goplin	_____	Cullen Peltier	_____
Judy Gregory	_____	Chris Pirlot	_____
Matt Heyroth	_____	Peter Schleinz	_____
Chief Robert Kiser	_____	Kent Tayler	_____
Captain David Konrath	_____	Larry Ullmer	_____
Rochelle Bissing	_____		

1. Introductions.
2. Discuss and Review the Plan assembled in draft format.
3. Confirm next meeting date: September 12, 2012.
4. Other matters.
5. Adjourn.

ANY PERSON WISHING TO ATTEND WHO, BECAUSE OF A DISABILITY, REQUIRES SPECIAL ACCOMMODATION SHOULD CONTACT THE BROWN COUNTY HUMAN RESOURCES OFFICE AT 448-4065 BY THE DAY BEFORE THE MEETING SO ARRANGEMENTS CAN BE MADE.

Summary of Steering Committee Minutes and Meeting Attendees

Steering Committee Minutes and Meeting of February 8, 2012

Attendees: Bill Bosiacki, Tom Collins, Mark Thiry, Paul Gadzik, Judy Gregory, Robert Kiser, David Konrath, Rochelle Bissing, Cullen Peltier, Chris Pirlot, Peter Schleinz

Others Present: None.

The meeting began at 1:35 p.m.

1. Mr. Schleinz introduced himself and also Emergency Management staff, Mr. Peltier and Mr. Gadzik, as being the facilitators and the primary contacts for the All-Hazard Mitigation Plan update project.

The group introduced themselves and then identified the role played in the community in order to better identify which members could focus on particular parts of the plan.

2. Mr. Schleinz discussed the project timeline, and the fact that it was rather short. The Final Draft plan needed to be complete and submitted to WEMS by September 20, 2012. Thus, the need for thorough review of information and sharing suggestions for changes was very important. The discussed the need to share information with the facilitators via e-mail prior to a meeting if attendance was not possible to stay on task. Mr. Gadzik noted the plan being posted on the website and an emergency management website for easy access when reviewing.

3. The group briefly discussed how the plan is used, obvious faults in the plan, the need for an update occurring every five years at minimum, and the need for changes to the plan to assist Emergency Management staff with grant and funding requests related to natural disasters.

4. The group discussed the information in the proposed Chapters 1 and 2 related to the Plan Introduction, the Planning Process, and the Brown County Profile. Being the first meeting and being unfamiliar with Committee duties, the groups did not take a significant amount of time to review materials. Thus, the meeting was used to make corrections to update names and plan references, and to verify clarity of charts and usability of maps. The group identified that the new chart format worked better and the new maps identified in Chapters 1 and 2 were sufficient for the needs of the plan.

5. The future meeting dates for all upcoming meetings from March through September were identified. It was determined that the majority of the group could meet on the second Wednesday of the Month at 1:30pm. It was agreed that meetings should last no longer than one to one and a half hours to ensure attendance. That being said, review of materials prior to meetings was crucial for efficient meetings. The next meeting is March 14, 2012.

6. The group discussed other matters related to having substitutes attend.

7. The meeting adjourned shortly before 2:30 p.m.

[end]

Steering Committee Minutes and Meeting of March 14, 2012

Attendees: Bill Bosiacki, Tom Collins, Mark Thiry, Paul Gadzik, Judy Gregory, Robert Kiser, David Konrath, Rochelle Bissing, Brian Lamers, Cullen Peltier, Chris Pirlot, Peter Schleinz

Others Present: None.

The meeting began at 1:35 p.m.

1. For the benefit of members that missed previous meetings, the group introduced themselves and then identified the role played in the community in order to better identify which members could focus on particular parts of the plan.

2. The group had an opportunity to review the text information included in Chapters 1 and 2 of the plan. For the most part, changes were not required with the exception of the following:

- Chart 1.3 is missing a reference to Denmark
- Page 2-17 is missing a reference for ITT Tech and Globe University
- Mavis should be added and referenced in the plan in the area of page 2-26
- Chapter 2 is missing radio communication operability, which is found later in the chapter
- All references to the Highway Department need to be updated to reference Brown County Public Works due to an upcoming department name change
- The emergency contact for Brown county Public Works is no longer Brian Lamers, a new director is being hired
- Back up the EOC for the airport reference on page 2-27
- The Marine Corp Military Reserve section is missing on page 2-25
- The title of highway 41 should be left red as an interstate on page 2-19 because the title may change, requiring an update
- The street department contact for Ashwaubenon should be Lee Vanded Elzen.

3. The group reviewed and made changes to a list of Natural and man-made hazards. The following summarizes the changes resulting in the Final Draft Plan:

- Regarding "agricultural", consult Bill Haefs about pests, ground water saturation, and drought wiping out crops
- Change "tornado and high winds" into two separate topics
- Discuss adding "Invasive species": Phragmites, emerald ash borer, and zebra mussel
- Add "winter ice storm"
- Clarify "winter storms" to be "winter snow storms"
- Clarify "costal hazard" to address damages on bayshore
- Clarify "drought" to address aquifer and water supply
- Remove man-made disasters from plan draft as the plan should reference natural disasters
 - o This includes removal of technical and terrorism related disasters.

4 & 5. The group decided to continue using the updated list created during the February 8, 2012, meeting.

6. The next meeting is April 11, 2012.

7. No other matters were discussed.

8. The meeting adjourned shortly before 2:25 p.m.

[end]

Steering Committee Minutes and Meeting of April 11, 2012

Attendees: Bill Bosiacki, Tom Collins, Mark Thiry, Paul Gadzik, Judy Gregory, Robert Kiser, David Konrath, Rochelle Bissing, Cullen Peltier, Chris Pirlot, Peter Schleinz

Others Present: None.

The meeting began at 1:35 p.m.

1. The group introduced themselves and then identified the role played in the community in order to better identify which members could focus on particular parts of the plan.
2. The group had an opportunity to review the text information included in Chapter 4 of the plan. Chapter 3 was not reviewed in sequence because the chapter held a lot of data that could not be adequately prepared in the short amount of time since the last meeting. Chapter 3 will be considered over the next two to three months, with most comments being submitted by e-mail by individual members outside of the meetings. This was done to make corrections quickly without slowing down the meetings due to a good amount of Chapter 3 being historic data related.

For the most part, changes to Chapter 4 were not required with the exception of the following:

- Add a mitigation strategy table to the end of Chapter 4 for easy access to information and projects related to the plan
 - Shorten the Introduction to two paragraphs and add the pertinent information to the charts at the end of the chapter
 - Discussion took place regarding whether or not to remove the topic of open space preservation on page 140 with the ultimate decision being made to leave the topic in the plan
 - The committee decided to add prescribed burns to the Prevention section on page 240
 - Discussion took place regarding relocating the topic of seismic design standards from property protection because of the low threat and existence of the topic elsewhere in the plan
 - Severe weather and tornadoes was added to safe room construction on page 141.
 - The group agreed to ask Brian Lamers about adding CTH ZZ to Structural Projects on page 143 when he returned to the next meeting
 - The following was added under Public Information and Awareness:
 - o Social Media
 - o Educating the public about cell phone and text message weather systems
 - An expanded Mitigation Strategies table was added to the end of Chapter 4 for the ease of identifying mitigation measures with a proposed timeline, and a listing of accomplished tasks. The list was not established to be community specific as many applied to multiple locations
6. The next meeting is May 9, 2012.
 7. No other matters were discussed.
 8. The meeting adjourned at 2:35 p.m.

[end]

Steering Committee Minutes and Meeting of May 9, 2012

Attendees: Bill Bosiacki, Mark Thiry, Paul Gadzik, Judy Gregory, Robert Kiser, David Konrath, Rochelle Bissing, Brian Lamers, Cullen Peltier, Chris Pirlot, Peter Schleinz

Others Present: None.

The meeting began at 1:35 p.m.

1. The group introduced themselves and then identified the role played in the community in order to better identify which members could focus on particular parts of the plan.
2. The group discussed Chapter 5, which was rather short. However, the information was important as it established the process for approval and future updates to the Plan. After reviewing the chapter and discussing the reason behind each component, it was determined that no changes were necessary, aside from a few obvious typos.
3. The next meeting is July 11, 2012.*
**NOTE: After the meeting date was established, the meeting was rescheduled to July 18, 2012, to better accommodate schedules.*
4. The group discussed skipping the June meeting date due to several meeting conflicts, the project being ahead of schedule, and the need for extra time to complete Chapter 3. The group decided that at the next meeting in July, the entire Plan could begin to be reviewed, rather than individual chapters. No other matters were discussed.
5. The meeting adjourned at 2:15 p.m.

[end]

Steering Committee Minutes and Meeting of July 18, 2012

Attendees: Bill Bosiacki, Mark Thiry, Paul Gadzik, Judy Gregory, Robert Kiser, David Konrath, Rochelle Bissing, Brian Lamers, Chris Pirlot, Cullen Peltier, Peter Schlein, Aaron Schuette.

Others Present: None.

The meeting began at 1:35 p.m.

1. The group introduced themselves and then identified the role played in the community in order to better identify which members could focus on particular parts of the plan.
2. Mr. Schlein identified that through the process copies of each draft chapter have been sent to all member of the subcommittee, including those requested to participate but neither accepted nor attended a meeting. By special request, all contacts were asked to review the entire preliminary draft plan and submit any and all comments. The received comments were already made before the near final draft was developed for this meeting review. This, significant changes may be less likely.

This was done to keep the project on track because the Final Draft must be submitted with all edits to WEM by September 20, 2012. It is anticipated that expenses related to plan development, map creation, and other billable elements will accommodate a grant that was received to complete this project.

The subcommittee reviewed the results of a survey that was sent out to all of the local municipalities requesting comments related to projects that could be referenced in the plan to better help with grants. There was a low response rate and the survey was sent out more than once. The subcommittee was also asked to develop their own recommendations for county wide project ideas, as well as local ideas specific to the community they live in or represent with the intent to discuss the results at the next meeting.

The Committee reviewed the maps created for Chapter 3 to ensure that they were functional for the Plan. It was realized that the scale of the maps were difficult when placed in printed format, but the Emergency Management staff would have access to the information in a larger format in GIS. Likewise there were tables of data that linked to information about points on certain maps. It was agreed that a general list of the data should be placed in the Appendix D of the Plan.

3. The next meeting is August
4. No other matters were discussed.
5. The meeting adjourned at 2:30 p.m.

[end]

Steering Committee Minutes and Meeting of August 8, 2012

Attendees: Bill Bosiacki, Mark Thiry, Paul Gadzik, Judy Gregory, Robert Kiser, David Konrath, Rochelle Bissing, Brian Lamers, Chris Pirlot, Craig Kratcha (substitute for John Paul), Peter Schleinz

Others Present: None.

The meeting began at 1:35 p.m.

1. The group introduced themselves and then identified the role played in the community in order to better identify which members could focus on particular parts of the plan.

2. Mr. Schleinz identified that through the process copies of each draft chapter have been sent to all member of the subcommittee, including those requested to participate but neither accepted nor attended a meeting. By special request, all contacts was again asked to review the entire preliminary draft plan and submit any and all comments. The received comments were again made before the near final draft was developed for this meeting review.

This was done to keep the project on track because the Final Draft must be submitted with all edits to WEM by September 20, 2012. It is anticipated that expenses related to plan development, map creation, and other billable elements will accommodate a grant that was received to complete this project.

Aside from a few minor wording changes, no edits of significance were made. Mr. Schleinz noted that the project would be reviewed by staff to proof the document for typos and proper grammar. This edit comments of this type were not necessary. Mr. Schleinz also noted that if any changes were identified, to notify him as soon as possible as the document is being formatted while it is being edited for typos. If a change in the document changes pages, it causes a delay in the editing and formatting process.

3. The Committee determined that the project was far enough along that an August Committee meeting was no longer required, unless staff could not make an executive decision on a plan change. The staff was given the directive to complete the plan before the September 20, 2012 timeline and consult the Committee via e-mail, or call a special meeting, only if necessary. Staff referenced that they would proceed with plan completion, and forward copies of the plan to individual municipalities in draft format after some form of approvals were obtained. It was determined that it would be inefficient to request approvals of the draft if significant changes were required.

4. No other matters were discussed.

5. The meeting adjourned at 2:30 p.m.

[end]

APPENDIX B – REQUEST TO MUNICIPALITIES FOR PLAN DETAILS

The document within Appendix B was emailed to all Brown County municipalities, either to the clerk or to the planning staff, in order to gather specific projects that may require being addressed in the 2012 Brown County All Hazards Mitigation Plan. The focus of the request was to identify issues that may be unique to a particular community, and to better link local communities and the Brown County All Hazards Mitigation Plan. The request did not include representation from adjacent counties.

The following list identifies the communities and the contact that the survey was sent to:

- City of De Pere – Ken Pabich, Planning Director
- City of Green Bay – Dan Lindstrom, Planner I
- Village of Allouez – Debbie Baenen, Clerk-Treasurer
- Village of Ashwaubenon – Dawn A. Collins, Clerk
- Village of Bellevue – Karen Simons, Clerk-Administrator
- Village of Denmark – MiLissa O. Stipe, Clerk-Treasurer
- Village of Hobart – Mary R. Smith, Clerk/Treasurer
- Village of Howard – Dave Wiese, Director of Community Development
- Village of Pulaski – Karen A. Ostrowski, Clerk
- Village of Suamico – Steve Dunks, Zoning Administrator/Assessor
- Village of Wrightstown – Jean Brandt, Clerk-Treasurer
- Town of Eaton – Ann Potts, Clerk
- Town of Glenmore – Lana Ossmann, Clerk
- Town of Green Bay – Debbie Mercier, Clerk
- Town of Holland -- William Clancy, Clerk
- Town of Humboldt – Judy Baierl, Clerk
- Town of Lawrence – Jennifer Messerschmidt, Clerk/Treasurer
- Town of Ledgeview – Sarah Burdette, Clerk/Administrator
- Town of Morrison – Colleen Magley, Clerk
- Town of New Denmark – Michelle Wallerius, Clerk
- Town of Pittsfield – Janet Bodart, Clerk
- Town of Rockland – Toni Carter, Clerk
- Town of Scott – John J. Roth, Clerk/Treasurer
- Town of Wrightstown – Donna Martzahl, Clerk

PLANNING COMMISSION

Brown County

305 E. WALNUT STREET, ROOM 320
P.O. BOX 23600
GREEN BAY, WISCONSIN 54305-3600

PHONE (920) 448-6480 FAX (920) 448-4487
WEB SITE www.co.brown.wi.us/planning



CHUCK LAMINE, AICP

PLANNING DIRECTOR

MEMORANDUM

DATE: June 25, 2012
TO: Brown County Clerks and Planners
FROM: Peter Schleinz, Senior Planner
RE: Brown County All Hazard Mitigation Plan Update

As you may or may not be aware, the Brown County Emergency Management and Brown County Planning and Land Services Departments are developing an update to the 2007 All Hazards Mitigation Plan. In the original plan, issues were addressed for natural disasters. An advisory committee is working with the departments to update the issues.

An element that the Emergency Management Department would like to expand within the plan is a component that calls out specific needs from area communities in order to further aid natural disasters. This is being done in hopes that if specific funding were to become available after a large natural disaster, some specific details could also be called out directly from the plan. Thus, we need your help.

Please review the following list of items. If there is a facility or item that your community is lacking that can tie to one of the topics (bulleted items), please have your staff VERY BRIEFLY identify it in one summary sentence, then briefly describe the item or action with two or three follow up sentences. An example or two has been included in the following list to help identify what we are looking for.

It is assumed that all communities will not have needs for all items on the list. Also, please know that having or not having an item on the list does not guarantee any special funding. It simply helps the Emergency Management Department when researching grant opportunities.

Please return your response to me via e-mail by **Monday, July 1, 2012**. Many thanks for your assistance!

PS:
Attachment

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

INTRODUCTION

Mitigation is defined as "sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects." Mitigation planning is the systematic process of learning about the hazards that can affect the county, setting clear goals, identifying appropriate actions and following through with an effective mitigation strategy. Mitigation encourages long-term reduction of hazard vulnerability and can reduce the enormous cost of disasters to property owners and all levels of government. Mitigation can also protect critical community facilities, reduce exposure to liability, and minimize community disruption. The following items with bullets are where information should be added by municipalities.

Prevention

Prevention activities are intended to keep hazard-related problems from getting worse. They are particularly effective in limiting Brown County's and each community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of prevention activities include:

- Planning and Zoning;

EXAMPLE: Community has no Hazard mitigation plan or lacks updated plan. Adopt Brown County All-Hazards Mitigation Plan into local municipality ordinances.

EXAMPLE: Ensure there are adequate wellhead protection plans are in place and utilized.

- Hazard mapping;
- Building codes;
- Studies / data collection and analysis;
- Open space preservation;
- Floodplain regulations;
- Stormwater management;
- Drainage system maintenance;
- Capital improvements programming; and

EXAMPLE: Community has vast wooded areas and no facility to manage grass and forest fires. Acquire machinery to properly control forest fires and grass fires. The machinery includes...

- Riverine setbacks.

Property Protection

Property protection measures are intended to enable structures to better withstand hazard events, remove structures from hazardous locations, or provide insurance to cover potential losses. Examples include:

- Acquisition;
- Relocation;

Example: Structures are damaged in a particular area of the village during flooding events. Develop plan to relocate residential areas outside of flood zones and limit future development in area for natural and recreational uses.

- Building elevation;
- Critical facilities protection or “hardening”;
- Retrofitting (i.e., wind proofing, flood proofing, seismic design standards, etc.);
- Insurance; and
- Safe room construction.

Natural Resource Protection

Natural resource protection activities reduce the impact of hazards by preserving or restoring the function of environmental systems. In some cases, natural systems may include high hazard areas such as floodplains, steep sloped areas or barrier islands. Thus, natural resource protection measures can serve the dual purpose of protecting lives and property while enhancing environmental goals such as improved water quality or recreational opportunities. Parks, recreation or conservation agencies and organizations often implement natural resource protection measures. Examples include:

- Floodplain protection;
- Riparian buffers;
- Fire resistant landscaping;

EXAMPLE: Grass fires occur in particular area of town. Encourage the use of landscaping that is fire proof and fire resistant for residential and commercial properties that develop in area to prevent fast spread of future fires.

- Best management practices;
- Fuel breaks;
- Erosion and sediment control;
- Wetland preservation and restoration;
- Habitat preservation; and
- Slope stabilization.

EXAMPLE: Development of structures near steep slope lead to erosion and structural collapse. Strongly enforce required environmentally sensitive area setbacks and encourage use of vegetation that stabilizes soil and slopes.

Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by physically modifying the environment. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs;
- Levees / dikes / floodwalls;
- Diversions / Detention / Retention;
- Channel modification; and

EXAMPLE: Ledgeview – CTH G floods periodically due to undersized storm water pipes under the street. Propose the improvement of properly sized storm water pipes and crossings to allows sufficient water flow to prevent flooding during heavy rain and snow melt events.

- Storm sewer construction.

Emergency Services

Although not typically considered a “mitigation technique,” emergency services can significantly reduce injuries and loss of life associated with hazards. These actions are typically taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems;

EXAMPLE: Community has no tornado siren system. Improve safety during a severe weather event by uninstalling tornado siren system on fire station structures.

- Search and rescue;
- Evacuation planning and management; and
- Flood “fighting” techniques.

Public Information and Awareness

Public Information and Awareness activities are used to advise residents, business owners, potential property buyers, visitors and government officials about hazards, hazardous areas and mitigation techniques they can use to protect themselves and their property. These public awareness measures should be available in languages spoken by residents of Brown County. Measures used to educate and inform the public include:

- Outreach and education;
- Speaker series, demonstration events;
- Real estate disclosure; and
- Training.

APPENDIX C – FINAL PLAN SHARED WITH MUNICIPALITIES LETTER

To be included after FEMA approval.

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

APPENDIX D -- LIST OF CRITICAL FACILITIES

The following is a list of critical facilities included on the critical facilities map in Chapter two of this plan:

ID	NAME	ADDRESS	MCD	TYPE	
0			Town of Wrightstown	Mobile Home Park	
0			City of De Pere	Sewage Sludge or Wa Chemical Disposals	Su
0			Town of Holland	Sewage Treatment Pla	
0			Town of Holland	Sewage Treatment Pla	
0			City of Green Bay	Sewage Treatment Pla	
0			City of Green Bay	Sewage Treatment Pla	
0			City of Green Bay	Sewage Treatment Pla	
0			City of Green Bay	Sewage Treatment Pla	
0			City of Green Bay	Sewage Treatment Pla	
0			City of Green Bay	Sewage Treatment Pla	
0			Village of Wrightstown	Sewage Treatment Pla	
0			Town of Wrightstown	Sewage Treatment Pla	
0			Village of Denmark	Sewage Treatment Pla	
0			City of De Pere	Sewage Treatment Pla	
0			City of Green Bay	Water Supply Storage Tanks/Reservoirs	
0			Town of Scott	Water Supply Storage Tanks/Reservoirs	
0			City of De Pere	Water Supply Storage Tanks/Reservoirs	
0			Town of Holland	Water Supply Storage Tanks/Reservoirs	

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			City of Green Bay	Water Supply Storage Tanks/Reservoirs	
0			Village of Howard	Water Supply Storage Tanks/Reservoirs	
0			City of Green Bay	Water Supply Storage Tanks/Reservoirs	
0			Village of Bellevue	Water Supply Storage Tanks/Reservoirs	
0			Village of Bellevue	Water Supply Storage Tanks/Reservoirs	
0			Village of Pulaski	Water Supply Storage Tanks/Reservoirs	
0			Village of Wrightstown	Water Supply Storage Tanks/Reservoirs	
0			Town of Ledgeview	Water Supply Storage Tanks/Reservoirs	
0			Village of Ashwaubenon	Water Supply Storage Tanks/Reservoirs	
0			Village of Ashwaubenon	Water Supply Storage Tanks/Reservoirs	
0			Village of Ashwaubenon	Water Supply Storage Tanks/Reservoirs	
0			Village of Ashwaubenon	Water Supply Storage Tanks/Reservoirs	
0			City of De Pere	Water Supply Storage Tanks/Reservoirs	
0			Town of Scott	Water Supply Booster/ Stations	np
0			City of De Pere	Sewage Sludge or Wa Chemical Disposals	Su

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			City of De Pere	Water Supply Booster/ Stations	np
0			Village of Allouez	Water Supply Wells	
0			Village of Allouez	Water Supply Wells	
0			Village of Allouez	Water Supply Wells	
0			Village of Allouez	Water Supply Wells	
0			Town of Wrightstown	Water Supply Booster/ Stations	np
0			City of Green Bay	Water Supply Booster/ Stations	np
0			Village of Denmark	Water Supply Booster/ Stations	np
0			City of Green Bay	Other Liquid Fuel Subs	ion
0			City of Green Bay	Other Liquid Fuel Subs	ion
0			City of Green Bay	Other Liquid Fuel Subs	ion
0			Village of Pulaski	Other Liquid Fuel Subs	ion
0			City of Green Bay	Other Liquid Fuel Subs	ion
0			Village of Howard	Natural Gas Substation	
0			Village of Ashwaubenon	Natural Gas Substation	
0			City of Green Bay	Radio/Television Trans Towers/Antennae	ssic
0			City of Green Bay	Radio/Television Trans Towers/Antennae	ssic
0			Town of Rockland	Radio/Television Trans Towers/Antennae	ssic
0			Town of Scott	Radio/Television Trans Towers/Antennae	ssic

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Town of Wrightstown	Radio/Television Trans Towers/Antennae	ssio
0			Town of Ledgeview	Radio/Television Trans Towers/Antennae	ssio
0			Town of Ledgeview	Radio/Television Trans Towers/Antennae	ssio
0			Town of Ledgeview	Radio/Television Trans Towers/Antennae	ssio
0			City of Green Bay	Radio/Television Trans Towers/Antennae	ssio
0			Town of Ledgeview	Radio/Television Trans Towers/Antennae	ssio
0			Town of Ledgeview	Radio/Television Trans Towers/Antennae	ssio
0			Town of Eaton	Radio/Television Trans Towers/Antennae	ssio
0			Town of Green Bay	Radio/Television Trans Towers/Antennae	ssio
0			Town of Green Bay	Radio/Television Trans Towers/Antennae	ssio
0			Town of Green Bay	Radio/Television Trans Towers/Antennae	ssio
0			Town of Green Bay	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio

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0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			Town of Glenmore	Radio/Television Trans Towers/Antennae	ssio
0			City of Green Bay	Electric Power Substat	s
0			City of Green Bay	Electric Power Substat	s
0			Village of Suamico	Electric Power Substat	s

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			City of Green Bay	Electric Power Substat	s
0			City of Green Bay	Electric Power Substat	s
0			City of Green Bay	Electric Power Substat	s
0			Village of Howard	Electric Power Substat	s
0			City of Green Bay	Electric Power Substat	s
0			Village of Bellevue	Electric Power Substat	s
0			Village of Howard	Electric Power Substat	s
0			Village of Howard	Electric Power Substat	s
0			Village of Pulaski	Electric Power Substat	s
0			Village of Howard	Electric Power Substat	s
0			Village of Bellevue	Electric Power Substat	s
0			Town of Lawrence	Electric Power Substat	s
0			Town of Ledgeview	Electric Power Substat	s
0			City of Green Bay	Electric Power Substat	s
0			City of Green Bay	Electric Power Substat	s
0			Village of Ashwaubenon	Electric Power Substat	s
0			Village of Ashwaubenon	Electric Power Substat	s
0			City of De Pere	Electric Power Substat	s
0			Town of Green Bay	Electric Power Substat	s
0			Town of Rockland	Electric Power Substat	s
0			City of De Pere	Electric Power Substat	s
0			Town of Glenmore	Electric Power Substat	s
0			City of Green Bay	Major Electric Power T	sm

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				Lines R/W	
0			Town of Rockland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			Town of Holland	Major Electric Power T Lines R/W	sm
0			City of Green Bay	Transmission of Communication/Utilitie	
0			City of Green Bay	Transmission of Communication/Utilitie	
0			Village of Allouez	Water Supply Wells	
0			City of Green Bay	Water Supply Wells	
0			Village of Bellevue	Water Supply Wells	
0			City of Green Bay	Water Supply Wells	
0			Village of Denmark	Water Supply Wells	
0			City of De Pere	Water Supply Wells	
0			Village of Suamico	Water Supply Filter Tre	ner

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

				Plants	
0			Town of Humboldt	Water Supply Filter Tre Plants	new
0			City of Green Bay	Other Liquid Fuel Term	il P
0			City of Green Bay	Other Liquid Fuel Term	il P
0			City of Green Bay	Other Liquid Fuel Term	il P
0			Village of Howard	Natural Gas Terminals	ants
0			Village of Hobart	Natural Gas Terminals	ants
0			Village of Ashwaubenon	Natural Gas Terminals	ants
0			City of Green Bay	Radio/Television Statio	
0			City of Green Bay	Radio/Television Statio	
0			City of Green Bay	Radio/Television Statio	
0			Village of Bellevue	Radio/Television Statio	
0			Village of Ashwaubenon	Radio/Television Statio	
0			Village of Ashwaubenon	Radio/Television Statio	
0			City of De Pere	Radio/Television Statio	
0			Village of Hobart	Telephone and Telegra Terminals/Dispatch Ce	rs
0			City of Green Bay	Telephone and Telegra Terminals/Dispatch Ce	rs
0			City of Green Bay	Telephone and Telegra Terminals/Dispatch Ce	rs
0			Village of Pulaski	Telephone and Telegra Terminals/Dispatch Ce	rs

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0			Village of Ashwaubenon	Telephone and Telegraph Terminals/Dispatch Centers	rs
0			Town of Green Bay	Telephone and Telegraph Terminals/Dispatch Centers	rs
0			Village of Denmark	Telephone and Telegraph Terminals/Dispatch Centers	rs
0			Town of Rockland	Administrative Building	
0			City of Green Bay	Electric Power Plants	
0			City of Green Bay	Electric Power Plants	
0			Village of Hobart	Generation/Processing Communication/Utilities	
0			Village of Hobart	Generation/Processing Communication/Utilities	
0			Town of Scott	Generation/Processing Communication/Utilities	
0			City of Green Bay	Generation/Processing Communication/Utilities	
0			Village of Howard	Generation/Processing Communication/Utilities	
0			City of Green Bay	Generation/Processing Communication/Utilities	
0			City of Green Bay	Generation/Processing Communication/Utilities	
0			City of Green Bay	Generation/Processing Communication/Utilities	
0			City of Green Bay	Generation/Processing Communication/Utilities	
0			Town of Lawrence	Generation/Processing Communication/Utilities	

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0			Village of Wrightstown	Generation/Processing Communication/Utilitie
0			Town of Morrison	Generation/Processing Communication/Utilitie
0			Town of Morrison	Generation/Processing Communication/Utilitie
0			Town of New Denmark	Generation/Processing Communication/Utilitie
0			Town of Holland	Primary Schools
0			City of Green Bay	Sports Stadium/ Arena
0			Village of Ashwaubenon	Sports Stadium/ Arena
0			Village of Ashwaubenon	Sports Stadium/ Arena
0			City of Green Bay	Long-term health care
0			City of Green Bay	Long-term health care
0			City of Green Bay	Long-term health care
0			Village of Allouez	Long-term health care
0			Village of Allouez	Long-term health care
0			City of Green Bay	Long-term health care
0			City of Green Bay	Long-term health care
0			Village of Allouez	Long-term health care
0			City of Green Bay	Long-term health care
0			City of Green Bay	Long-term health care
0			City of Green Bay	Long-term health care
0			City of Green Bay	Long-term health care

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0			City of Green Bay	Long-term health care
0			Village of Pulaski	Clinics
0			Village of Bellevue	Long-term health care
0			Village of Bellevue	Long-term health care
0			Village of Pulaski	Long-term health care
0			Village of Pulaski	Long-term health care
0			Town of Lawrence	Long-term health care
0			Village of Bellevue	Long-term health care
0			Village of Bellevue	Long-term health care
0			Town of Lawrence	Long-term health care
0			Town of Lawrence	Long-term health care
0			Village of Wrightstown	Long-term health care
0			Town of Ledgeview	Long-term health care
0			Town of Ledgeview	Long-term health care
0			Town of Ledgeview	Long-term health care
0			City of Green Bay	Long-term health care
0			Village of Ashwaubenon	Long-term health care
0			City of Green Bay	Long-term health care
0			Village of Ashwaubenon	Long-term health care
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics

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0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
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0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			Village of Hobart	Clinics
0			Village of Hobart	Clinics
0			City of De Pere	Clinics
0			City of De Pere	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of De Pere	Clinics

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0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			Village of Allouez	Clinics
0			Village of Allouez	Clinics
0			Village of Allouez	Clinics
0			City of Green Bay	Clinics
0			Village of Allouez	Clinics
0			Village of Allouez	Clinics
0			City of Green Bay	Clinics
0			Village of Bellevue	Clinics
0			Village of Bellevue	Clinics
0			Village of Bellevue	Clinics
0			Village of Howard	Clinics
0			Village of Pulaski	Clinics
0			City of De Pere	Clinics
0			Village of Pulaski	Clinics
0			Village of Bellevue	Clinics
0			Village of Howard	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics

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0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			Village of Pulaski	Clinics
0			City of Green Bay	Clinics
0			Village of Bellevue	Clinics
0			Village of Bellevue	Clinics
0			Town of Ledgeview	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			Village of Ashwaubenon	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics

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0			City of Green Bay	Clinics	
0			Village of Ashwaubenon	Clinics	
0			City of De Pere	Clinics	
0			City of De Pere	Clinics	
0			City of De Pere	Clinics	
0			City of Green Bay	Clinics	
0			Village of Denmark	Clinics	
0			City of Green Bay	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			Village of Hobart	Police/Fire Stations/Of	s
0			Village of Hobart	Police/Fire Stations/Of	s
0			Village of Hobart	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			Town of Scott	Police/Fire Stations/Of	s
0			Village of Suamico	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			Village of Allouez	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			Village of Howard	Police/Fire Stations/Of	s
0			Village of Bellevue	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s

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0			Village of Pulaski	Police/Fire Stations/Of	s
0			Village of Wrightstown	Police/Fire Stations/Of	s
0			Town of Wrightstown	Police/Fire Stations/Of	s
0			Village of Ashwaubenon	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			City of De Pere	Police/Fire Stations/Of	s
0			Village of Denmark	Police/Fire Stations/Of	s
0			City of Green Bay	Police/Fire Stations/Of	s
0			City of Green Bay	Prisons or Jails	
0			City of Green Bay	Prisons or Jails	
0			City of Green Bay	Prisons or Jails	
0			Village of Allouez	Prisons or Jails	
0			City of Green Bay	Hospitals	
0			City of Green Bay	Hospitals	
0			City of Green Bay	Hospitals	
0			City of Green Bay	Hospitals	
0			City of Green Bay	Hospitals	
0			City of Green Bay	Hospitals	
0			City of Green Bay	Hospitals	
0			Village of Allouez	Health Institutions/Gov Facilities	me
0			Village of Ashwaubenon	Health Institutions/Gov Facilities	me
0			Village of Ashwaubenon	Health Institutions/Gov Facilities	me

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0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			Village of Ashwaubenon	Clinic
0			Village of Ashwaubenon	School
0			Village of Ashwaubenon	Health Institutions/Gov Facilities
0			City of De Pere	Health Institutions/Gov Facilities
0			City of Green Bay	Health Institutions/Gov Facilities
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Hobart	Pre-School/Day Care

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0			City of De Pere	Pre-School/Day Care
0			City of De Pere	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Hobart	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Suamico	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Suamico	County Rescue
0			Village of Howard	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Allouez	Pre-School/Day Care
0	Big Apple Daycare/Preschool		Village of Howard	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Bellevue	Pre-School/Day Care
0			Village of Howard	Pre-School/Day Care
0			Village of Pulaski	Pre-School/Day Care
0			Village of Bellevue	Pre-School/Day Care
0			Village of Bellevue	Pre-School/Day Care
0			Village of Bellevue	Pre-School/Day Care
0			Village of Wrightstown	Pre-School/Day Care

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0			City of Green Bay	Pre-School/Day Care
0			Village of Wrightstown	Pre-School/Day Care
0			Town of Ledgeview	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Ashwaubenon	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Village of Ashwaubenon	Pre-School/Day Care
0			Village of Ashwaubenon	Pre-School/Day Care
0			Village of Ashwaubenon	Pre-School/Day Care
0			City of Green Bay	Pre-School/Day Care
0			Town of Green Bay	Pre-School/Day Care
0			Town of Green Bay	Pre-School/Day Care
0			Village of Denmark	Pre-School/Day Care
0			Village of Denmark	Pre-School/Day Care
0			Village of Denmark	Pre-School/Day Care
0			City of De Pere	Pre-School/Day Care
0			City of De Pere	Pre-School/Day Care
0			Village of Ashwaubenon	Military Installations
0			Village of	Military Installations

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			Ashwaubenon	
0			Village of Ashwaubenon	Military Installations
0			City of Green Bay	Military Installations
0			City of Green Bay	Post Offices
0			Village of Suamico	Post Offices
0			City of Green Bay	Post Offices
0			Village of Pulaski	Post Offices
0			Town of Wrightstown	Post Offices
0			Village of Wrightstown	Post Offices
0			City of Green Bay	Post Offices
0			City of De Pere	Post Offices
0			Town of Green Bay	Post Offices
0			Village of Denmark	Post Offices
0			City of Green Bay	Post Offices
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building

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0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
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0			City of Green Bay	Administrative Building
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0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			Village of Hobart	Administrative Building
0			City of Green Bay	Administrative Building
0			Village of Hobart	Administrative Building
0			City of Green Bay	Administrative Building
0			Village of Hobart	Administrative Building
0			Village of Hobart	Administrative Building
0			Village of Hobart	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			Village of Allouez	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building

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0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
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0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			Town of Pittsfield	Administrative Building
0			Village of Pulaski	Administrative Building
0			Village of Bellevue	Administrative Building
0			Village of Bellevue	Administrative Building
0			Town of Wrightstown	Administrative Building
0			Town of Ledgeview	Police/Fire Stations/Of
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			Town of Morrison	Administrative Building
0			Town of Morrison	Administrative Building
0			Village of Ashwaubenon	Administrative Building

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0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			Town of Eaton	Administrative Building
0			Village of Ashwaubenon	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
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0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			Town of Green Bay	Administrative Building
0			Village of Denmark	Administrative Building
0			Town of Morrison	Bridges

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0			Town of Morrison	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Town of Lawrence	Bridges
0			Town of Lawrence	Bridges
0			Town of Lawrence	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges

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0			Village of Allouez	Bridges
0			Town of Green Bay	Bridges
0			Town of Morrison	Bridges
0			Town of Lawrence	Bridges
0			Village of Suamico	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Town of Lawrence	Bridges
0			Town of Lawrence	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges

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0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Town of Rockland	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Village of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Town of Holland	Bridges
0			Town of Wrightstown	Bridges
0			Town of Holland	Bridges
0			Town of Holland	Bridges
0			Town of Holland	Bridges
0			Town of Holland	Bridges
0			Town of Holland	Bridges
0			Town of Morrison	Bridges
0			Town of Morrison	Bridges
0			Town of Morrison	Bridges
0			Town of Morrison	Bridges
0			Town of Morrison	Bridges
0			Town of Morrison	Bridges
0			Town of Glenmore	Bridges

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0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of Humboldt	Bridges
0			Town of Green Bay	Bridges
0			Town of Green Bay	Bridges
0			Town of Scott	Bridges
0			Town of Scott	Bridges
0	City of Green Bay		City of Green Bay	Bridges
0	City of Green Bay		City of Green Bay	Bridges
0			City of Green Bay	Bridges
0	City of Green Bay		City of Green Bay	Bridges
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0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Hobart	Bridges
0			Village of Howard	Bridges
0			Village of	Bridges

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			Ashwaubenon	
0			Town of Pittsfield	Bridges
0			Village of Howard	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Town of Pittsfield	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Town of Pittsfield	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Town of Pittsfield	Bridges
0			Village of Suamico	Bridges
0			Town of Pittsfield	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Village of Howard	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Town of Pittsfield	Bridges
0			Village of Howard	Bridges

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0			Village of Howard	Bridges
0			Town of Pittsfield	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			City of Green Bay	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
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0			City of Green Bay	Bridges
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0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Hobart	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Hobart	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges

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0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Allouez	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges

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0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
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0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges

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0			Village of Ashwaubenon	Bridges
0			City of De Pere	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Bellevue	Bridges
0			City of De Pere	Bridges
0			Village of Bellevue	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
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0			Village of Ashwaubenon	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Bridges

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0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			City of Green Bay	Bridges
0			City of De Pere	Bridges
0			Town of Lawrence	Bridges
0			Village of Bellevue	Bridges
0			Village of Hobart	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Town of Ledgeview	Bridges
0			Village of Bellevue	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
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0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges

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0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Town of Ledgeview	Bridges
0			City of Green Bay	Bridges
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0			City of Green Bay	Bridges
0			Town of Wrightstown	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Bellevue	Bridges
0			City of Green Bay	Bridges
0			Town of Humboldt	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges

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0			Town of New Denmark	Bridges
0			Town of Wrightstown	Bridges
0			Town of Ledgeview	Bridges
0			Village of Denmark	Bridges
0			Town of Ledgeview	Bridges
0			Village of Denmark	Bridges
0			Town of Ledgeview	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			Town of New Denmark	Bridges
0			Town of Lawrence	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Town of Morrison	Bridges
0			Town of Morrison	Bridges
0			Town of Glenmore	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of Morrison	Bridges

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Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of Glenmore	Bridges
0			Village of Hobart	Bridges
0			Town of Lawrence	Bridges
0			Town of New Denmark	Bridges
0			Village of Howard	Bridges
0			Village of Suamico	Bridges
0			Village of Howard	Bridges

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0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Bellevue	Bridges
0			Town of Lawrence	Bridges
0			City of De Pere	Bridges
0			Town of Lawrence	Bridges
0			Village of Denmark	Bridges
0			Town of New Denmark	Dams
0			Town of Rockland	Dams
0			City of De Pere	Dams
0			Town of Rockland	Dams
0			Village of Howard	Dams
0			Village of Howard	Dams

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			City of Green Bay	Dams
0			Village of Hobart	Dams
0			Village of Hobart	Dams
0			Town of Holland	Dams
0			Town of Lawrence	Dams
0			Town of Ledgeview	Dams
0			Town of Holland	Dams
0			Town of New Denmark	Dams
0			City of Green Bay	Dams
0			Town of Holland	Dams
0			Village of Hobart	Dams
0			Village of Hobart	Dams
0			Town of Lawrence	Dams
0			City of De Pere	Dams
0			City of De Pere	Dams
0			Town of Ledgeview	Dams
0			City of Green Bay	Dams
0			Village of Suamico	Dams
0			Village of Wrightstown	Dams
0			City of Green Bay	Dams
0			Village of Ashwaubenon	Dams
0			Town of Wrightstown	Dams
0			City of Green Bay	Dams

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Village of Hobart	Dams
0			City of De Pere	Dams
0			City of Green Bay	Dams
0			City of Green Bay	Dams
0			Town of Eaton	Dams
0	BELLIN PSYCHIATRIC CENTER	301 EAST ST JOSEPH STREET	Village of Allouez	Health Institutions/Gov Facilities
0	BELLIN MEMORIAL HOSPITAL	744 SOUTH WEBSTER AVENUE	City of Green Bay	Health Institutions/Gov Facilities
0	ST MARY'S HOSP MEDICAL CENTER	1726 SHAWANO AVENUE	City of Green Bay	Health Institutions/Gov Facilities
0	ST VINCENT HOSPITAL	835 SOUTH VAN BUREN STREET	City of Green Bay	Health Institutions/Gov Facilities
0	BROWN CNTY COMMUNITY TREATMENT CENTER	3150 GERSHWIN DRIVE	City of Green Bay	Health Institutions/Gov Facilities
0	HOLY CROSS ELEMENTARY SCHOOL	3002 BAY SETTLEMENT RD	Town of Scott	School
0	ST JUDE SCHOOL	1420 DIVISION ST	City of Green Bay	School
0	ST. THOMAS MORE SCHOOL	650 S IRWIN AVENUE	City of Green Bay	School
0	ST MATTHEW ELEMENTARY SCHOOL	2575 S WEBSTER AVENUE	Village of Allouez	School

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0	ST PHILIP THE APOSTLE SCHOOL	312 VICTORIA STREET	City of Green Bay	School
0	ST MARYS ELEMENTARY SCHOOL	2218 DAY STREET	Town of Wrightstown	School
0	ST JOSEPH ELEMENTARY SCHOOL	1224 12TH AVENUE	City of Green Bay	School
0	ST JOHN THE BAPTIST	2561 GLENDALE	Village of Howard	School
0	ST BERNARD ELEMENTARY SCHOOL	2020 HILLSIDE LANE	City of Green Bay	School
0	HOLY FAMILY SCHOOL	1204 S FISK STREET	City of Green Bay	School
0	RESURRECTION CATHOLIC SCHOOL	333 HILLTOP DRIVE	Village of Allouez	School
0	HOLY MARTYRS OF GORCUM SCHOOL	3542 FINGER ROAD	City of Green Bay	School
0	ANNUNCIATION ELEMENTARY SCHOOL	1087 KELLOGG STREET	City of Green Bay	School
0	OUR LADY OF LOURDES SCHOOL	1305 LOURDES AVENUE	City of De Pere	School
0	ASSUMPTION BVM	109 E PULASKI ST	Village of Pulaski	Primary Schools
0	ZION LUTHERAN SCH OF WAYSIDE	8374 HWY W	Town of Morrison	School
0	REDEEMER LUTHERAN SCHOOL	205 HUDSON STREET	City of Green Bay	School

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0	N E WISCONSIN LUTHERAN HIGH SC	1311 SOUTH ROBINSON AVENUE	City of Green Bay	School
0	ST PAUL LUTHERAN SCHOOL	514 SOUTH CLAY	City of Green Bay	School
0	FIRST EV LUTHERAN SCHOOL	743 S MONROE AVE	City of Green Bay	School
0	BAY CITY BAPTIST SCHOOL	1840 BOND STREET	City of Green Bay	School
0	MORRISON ZION LUTHERAN SCHOOL	7373 HWY W	Town of Morrison	School
0	PILGRIM LUTHERAN SCHOOL	1731 ST AGNES DRIVE	Village of Ashwaubenon	School
0	ST MARK LUTHERAN SCHOOL	1167 KENWOOD STREET	City of Green Bay	School
0	ST JAMES LUTHERAN SCHOOL	901 SHAWANO AVENUE	City of Green Bay	School
0	GREEN BAY CHRISTIAN SCHOOLS	1420 HARVEY ST	City of Green Bay	School
0	ST JOHN EVANG LUTHERAN SCHOOL	261 CLAY STREET	Village of Wrightstown	School
0	GR BAY MONT CHILDRENS WORLD	411 ST JOHN ST PO BOX 11964	City of Green Bay	School
0	NOTRE DAME DE LA BAIE ACADEMY	610 MARYHILL DR	City of Green Bay	School
0	PROVIDENCE ACADEMY	1707 S ONEIDA	City of Green Bay	School

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0	GREEN BAY ADVENTISTS JUNIOR AC	1422 SHAWANO	City of Green Bay	School
0	CRAYON CLUB INC	680 CORMIER RD	Village of Ashwaubenon	School
0	ENCOMPASS CAROL BUSH CENTER	500 PINE ST	City of Green Bay	School
0	MARIAN MONTESSORI CENTER	1130 ELIZA ST	City of Green Bay	School
0	MONTESSORI PEACE SCHOOL	2321 SOUTH ONEIDA SUITE 204	Village of Ashwaubenon	School
0	BETH HAVEN ACADEMY	2023 S RIDGE RD	Village of Ashwaubenon	School
0	OUR SAVIOR LUTHERAN PRE- SCHOOL	120 S HENRY	City of Green Bay	School
0	HOPP EL/SEC	755 SCHEURING RD	City of De Pere	School
0	ASHWAUBENON HI	2391 S RIDGE RD	Village of Ashwaubenon	School
0	PARKVIEW MID	955 WILLARD DR	Village of Ashwaubenon	School
0	PIONEER EL	1360 PONDEROSA AVE	Village of Ashwaubenon	School
0	VALLEY VIEW EL	2200 TRUE LN	Village of Ashwaubenon	School
0	DENMARK MID	450 N WALL ST	Village of Denmark	School

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0	CORMIER EARLY CHILDHOOD CENTER	2280 S BROADWAY	Village of Ashwaubenon	School
0			Town of Ledgeview	Lift Station
0	DE PERE MID	700 SWAN RD	Town of Ledgeview	School
0	DICKINSON EL	435 S WASHINGTON ST	City of De Pere	School
0	HERITAGE EL	1250 SWAN RD	Town of Ledgeview	School
0	KING EL	1601 DANCING DUNES DR	City of Green Bay	School
0	LINCOLN EL	105 S BUCHANAN ST	City of Green Bay	School
0	BAIRD EL	539 LAVERNE DR	City of Green Bay	School
0	BEAUMONT EL	1505 GATEWOOD ST	City of Green Bay	School
0	CHAPPELL EL	205 N FISK ST	City of Green Bay	School
0	DANZ EL	2130 BASTEN ST	City of Green Bay	School
0	DOTY EL	525 LONGVIEW AVE	Village of Allouez	School
0	EAST HI	1415 E WALNUT ST	City of Green Bay	School
0	EDISON MID	442 ALPINE DR	City of Green Bay	School

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0	BAY PORT HI	1217 CARDINAL LN	Village of Howard	School
0	MEADOWBROOK EL	720 HILLCREST HTS	Village of Howard	School
0	HOWARD EL	631 W IDLEWILD CT	Village of Howard	School
0	SUAMICO CENTRAL EL	2153 SCHOOL LN	Village of Suamico	School
0	FOREST GLEN EL	1935 CARDINAL LN	Village of Howard	School
0	EISENHOWER EL	1770 AMY ST	City of Green Bay	School
0	ELMORE EL	615 ETHEL AVE	City of Green Bay	School
0	FRANKLIN MID	1234 W MASON ST	City of Green Bay	School
0	HOWE EL	525 S MADISON ST	City of Green Bay	School
0	JACKSON EL	1306 S RIDGE RD	City of Green Bay	School
0	JEFFERSON EL	800 PHOEBE ST	City of Green Bay	School
0	KELLER EL	1806 BOND ST	City of Green Bay	School
0	KENNEDY EL	1754 9TH ST	City of Green Bay	School
0	LANGLADE EL	400 BROADVIEW DR	Village of Allouez	School
0	LOMBARDI MID	1520 S POINT RD	City of Green Bay	School

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0	MACARTHUR EL	1331 HOBART DR	City of Green Bay	School
0	MARTIN EL	626 PINEHURST AVE	City of Green Bay	School
0	NICOLET EL	1309 ELM ST	City of Green Bay	School
0	PREBLE HI	2222 DECKNER AVE	City of Green Bay	School
0	SOUTHWEST HI	1331 PACKERLAND DR	City of Green Bay	School
0	SULLIVAN EL	1567 DECKNER AVE	City of Green Bay	School
0	TANK EL	814 S OAKLAND AVE	City of Green Bay	School
0	WASHINGTON MID	314 S BAIRD ST	City of Green Bay	School
0	WEBSTER EL	2101 S WEBSTER AVE	Village of Allouez	School
0	WEQUIOCK EL	3994 WEQUIOCK RD	Town of Scott	School
0	WEST HI	966 SHAWANO AVE	City of Green Bay	School
0	RED SMITH EL	2765 SUSSEX ST	Town of Humboldt	School
0	WILDER EL	2590	City of Green Bay	School

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		ROBINSON AVE			
0	MCAULIFFE EL	2071 HOLL DR	Village of Bellevue	School	
0	WEST DE PERE MID	1177 S 9TH ST	City of De Pere	School	
0	LINCOLN EL	670 MAIN AVE	City of De Pere	School	
0	WEST DE PERE HI	665 GRANT ST	City of De Pere	School	
0	WESTWOOD EL	1155 WESTWOOD DR	City of De Pere	School	
0	WRIGHTSTOWN EL	351 HIGH ST	Village of Wrightstown	School	
0	ST PAUL ELEMENTARY SCHOOL	425 MAIN STREET	Village of Wrightstown	School	
0	FORT HOWARD EL	520 DOUSMAN ST	City of Green Bay	School	
0			City of Green Bay	Four-year and Graduate Colleges/Universities	
0			City of Green Bay	Four-year and Graduate Colleges/Universities	
0			City of Green Bay	Four-year and Graduate Colleges/Universities	
0			City of Green Bay	Four-year and Graduate Colleges/Universities	
0			City of Green Bay	Four-year and Graduate Colleges/Universities	
0			City of Green Bay	Two-Year Colleges/Universities	
0			City of Green Bay	Two-Year Colleges/Universities	

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0			City of Green Bay	Two-Year Colleges/Un
0			City of Green Bay	Two-Year Colleges/Un
0			City of Green Bay	Two-Year Colleges/Un
0			Village of Ashwaubenon	Two-Year Colleges/Un
0			Village of Howard	Vocational Schools
0			City of Green Bay	Secondary Schools
0			City of De Pere	Secondary Schools
0			City of De Pere	Secondary Schools
0			City of Green Bay	Secondary Schools
0			City of Green Bay	Secondary Schools
0			Village of Suamico	Secondary Schools
0			Village of Howard	Secondary Schools
0			Village of Howard	Municipal Garage
0			Village of Pulaski	Secondary Schools
0			Village of Wrightstown	Secondary Schools
0			Village of Denmark	Secondary Schools
0			City of De Pere	Middle Schools
0			Village of Pulaski	Middle Schools
0			Village of Wrightstown	Middle Schools
0			Village of Ashwaubenon	Middle Schools
0			Village of Denmark	Middle Schools
0			City of Green Bay	Primary Schools
0			City of Green Bay	Primary Schools

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0			Village of Hobart	Primary Schools	
0			City of Green Bay	Primary Schools	
0			City of Green Bay	Primary Schools	
0			City of Green Bay	Primary Schools	
0			Town of Holland	Primary Schools	
0			City of Green Bay	Primary Schools	
0			Town of Pittsfield	Primary Schools	
0			Village of Howard	Primary Schools	
0			City of Green Bay	Primary Schools	
0			Village of Pulaski	Primary Schools	
0			City of Green Bay	Primary Schools	
0			City of Green Bay	Primary Schools	
0	St Norberts College		City of De Pere	Four-year and Graduate Colleges/Universities	
0			City of De Pere	Electric Power Substation	s
0			City of Green Bay	Electric Power Substation	s
0			City of De Pere	Electric Power Substation	s
0			City of De Pere	Electric Power Substation	s
0			Village of Ashwaubenon	Electric Power Substation	s
0			City of Green Bay	Electric Power Plants	
0			Village of Ashwaubenon	Electric Power Substation	s
0			City of Green Bay	Electric Power Substation	s
0			City of Green Bay	Sanitary Lift Station	

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0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			Village of Ashwaubenon	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Sanitary Lift Station
0			City of Green Bay	Storm Lift Station
0			City of Green Bay	Storm Lift Station
0			City of Green Bay	Storm Lift Station
0			City of Green Bay	Storm Lift Station
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0			City of Green Bay	Storm Lift Station
0			City of Green Bay	Storm Lift Station

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0			City of Green Bay	Storm Lift Station
0			City of Green Bay	Storm Lift Station
0			City of Green Bay	Storm Lift Station
0			City of Green Bay	Storm Lift Station
0			Village of Ashwaubenon	Airport
0			Town of Holland	Administrative Building
0			Town of Holland	Other Liquid Fuel Subst
0			Town of Holland	Natural Gas Pipeline
0			Town of Holland	Police/Fire Stations/Of
0			Town of Holland	Sanitary Lift Station
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of New Denmark	Bridges
0			Town of Ledgeview	Water Metering Station
0			Town of Ledgeview	Water Metering Station
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Bridges
0			Town of Ledgeview	Clinics
0			Town of Ledgeview	Clinics

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Town of Ledgeview	Public Well
0			Town of Ledgeview	Police/Fire Stations/Of
0			Village of Wrightstown	Bridges
0			Village of Wrightstown	Water Supply Storage Tanks/Reservoirs
0			Village of Wrightstown	Police/Fire Stations/Of
0			Village of Wrightstown	Long-term health care
0			Village of Wrightstown	Administrative Building
0			Village of Wrightstown	Clinics
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Communication Tower
0			Town of New Denmark	Communication Tower
0			Town of Lawrence	Bridges
0			Town of Lawrence	Bridges
0			Town of Lawrence	Bridges

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0	Hemlock Creek Elementary	Town of Lawrence	Primary Schools	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Municipal Building	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Sanitary Lift Station	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Water Supply Booster/ Stations	np
0		Town of Lawrence	Pre-School/Day Care	
0		Town of Lawrence	Long Term Health Care	aci
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Police/Fire Stations/Of	s
0		Town of Lawrence	Bridges	
0		Town of Lawrence	Long Term Health Care	aci
0		Town of Lawrence	Lift Station	
0		Town of Lawrence	Water Supply Booster/ Stations	np
0		Town of Pittsfield	Bridges	

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0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Radio/Television Trans Towers/Antennae
0			Town of Pittsfield	Communication Tower
0			Town of Pittsfield	Airport
0			Town of Pittsfield	Communication Tower
0			Town of Pittsfield	Communication Tower
0			Town of Pittsfield	Lift Station
0			Town of Pittsfield	Lift Station
0			Village of Pulaski	Mobile Home Park
0			Village of Pulaski	Clinics
0			Village of Pulaski	Electric Power Substat
0			Village of Pulaski	Other Liquid Fuel Subs
0			Village of Pulaski	Other Liquid Fuel Subs
0			Village of Pulaski	Water Supply Storage Tanks/Reservoirs
0			Village of Pulaski	Clinics
0			Village of Pulaski	Clinics
0	Apple Creek Campground		Town of Wrightstown	Campground
0			Town of Wrightstown	Communication Tower
0			Town of Wrightstown	Lift Station
0			Town of Wrightstown	Water Supply Storage Tanks/Reservoirs
0			Town of Wrightstown	Communication Tower

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0			Town of Rockland	Bridges
0			Town of Rockland	Flooding Site
0			Town of Rockland	Bridges
0			Town of Rockland	Bridges
0			Town of Rockland	Radio/Television Trans Towers/Antennae
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
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0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges

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0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Mobile Home Park
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Water Supply Storage Tanks/Reservoirs
0			Village of Bellevue	Mobile Home Park
0			Village of Denmark	Rescue Squad
0			Village of Denmark	Bridges
0			Village of Denmark	Clinics
0			Village of Denmark	Clinics
0			Village of Denmark	Natural Gas Pumping
0			Village of Denmark	Water Supply Storage Tanks/Reservoirs
0			Village of Suamico	Bridges
0			Village of Suamico	Bridges
0			Village of Suamico	Docking Facilities
0			Village of Suamico	Water Supply Storage

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				Tanks/Reservoirs
0			Village of Suamico	School
0			Village of Suamico	Administrative Building
0			Village of Suamico	School
0			Village of Suamico	Clinics
0			Village of Suamico	Police/Fire Stations/Of
0			Village of Suamico	Municipal Well
0			Village of Suamico	Docking Facilities
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Docking Facilities
0			Village of Suamico	Calavera Park Shelter
0			Village of Suamico	Idlewild Park Shelter
0			Village of Suamico	Public Works Yard
0			Village of Suamico	Municipal Well
0			Village of Suamico	Sanitary Lift Station
0			Village of Suamico	Sanitary Lift Station

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0			Village of Suamico	Sanitary Lift Station
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Water Supply Storage Tanks/Reservoirs
0			Village of Hobart	Sanitary Lift Station
0			Village of Hobart	Municipal Garage
0			Village of Hobart	Clinic
0			Village of Hobart	Sanitary Lift Station
0			Village of Hobart	Water Supply Wells
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Sanitary Lift Station
0			Village of Hobart	Water Metering Station
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Hobart	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Bridges
0			Village of Allouez	Communication Tower
0			Village of Allouez	Administrative Building
0			Village of Allouez	Sewer Lift Station
0			Village of Allouez	Water Supply Storage Tanks/Reservoirs
0			Village of Allouez	Sewer Lift Station
0			Village of Allouez	Water Supply Wells
0			Village of Allouez	Water Supply Wells
0			Village of Ashwaubenon	Casino/Arena
0			Village of Ashwaubenon	Police/Fire Stations/Of
0			Village of Ashwaubenon	Administrative Building
0			Village of Ashwaubenon	Docking Facilities
0			Village of Ashwaubenon	Shopping Center
0			Village of Ashwaubenon	School
0			Village of Ashwaubenon	Radio/Television Station
0			Village of Ashwaubenon	Prisons or Jails

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Village of Ashwaubenon	Arena Stadium
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Water Supply Storage Tanks/Reservoirs
0			Village of Howard	Water Valve Station
0			Village of Howard	Water Valve Station
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Administrative Building
0			Village of Howard	Water Valve Station
0			Village of Howard	Water Valve Station
0			Village of Howard	Water Supply Storage Tanks/Reservoirs
0			Village of Howard	Administrative Building
0			Village of Howard	Lift Station
0			Village of Howard	Lift Station
0			Village of Howard	Lift Station
0			Village of Howard	Lift Station
0			Village of Howard	Administrative Building
0			Village of Howard	Water Valve Station
0	Altmayer Elementary		City of De Pere	School
0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Water Supply Storage Tanks/Reservoirs
0			City of De Pere	Administrative Building
0			City of De Pere	Municipal Garage
0			City of De Pere	Water Supply Storage

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

				Tanks/Reservoirs
0			City of De Pere	Bridges
0			City of De Pere	Bridges
0			City of De Pere	Clinics
0			City of De Pere	Mobile Home Park
0			Village of Denmark	Mobile Home Park
0			City of Green Bay	Mobile Home Park
0			Village of Allouez	Shelter
0			City of Green Bay	Shelter
0			City of Green Bay	Shelter
0			City of Green Bay	Shelter
0			Village of Howard	Shelter
0			Town of Glenmore	Shelter
0			City of Green Bay	Shelter
0			City of Green Bay	Shelter
0			City of Green Bay	Shelter
0			City of Green Bay	Shelter
0			City of Green Bay	Shelter
0			Village of Hobart	Shelter
0			City of Green Bay	Shelter
0			Village of Suamico	Shelter
0			Village of Suamico	Shelter
0			Town of Eaton	Shelter
0			Town of Pittsfield	Shelter

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Village of Denmark	Shelter
0			Village of Ashwaubenon	Shelter
0				Senior Center
0				Civic Center
0				Police/Fire/Stations
0				Utility
0				Day Care
0				Administrative
0			Village of Pulaski	Long-term health care
0			Village of Pulaski	Bridges
0			Village of Pulaski	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0			Town of Pittsfield	Bridges
0	Good Shepherd Preschool	2736 Glendale Avenue	Village of Howard	School
0			Village of Howard	Long-term health care
0			Village of Howard	Long-term health care
0			Village of Howard	Long-term health care
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Suamico	Bridges
0	Teddy Bear Daycare/Preschool	1881 Pride Terrace	Village of Suamico	School

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0	Tiny Town Daycare/Preschool	2784 E Deerfield Avenue	Village of Suamico	School
0	Bay Harbor Elementary	1590 Harbor Lights Road	Village of Suamico	School
0			Village of Suamico	Bridges
0			Village of Howard	Bridges
0			Village of Hobart	Bridges
0			Town of Pittsfield	Radio/Television Trans Towers/Antennae
0			Town of Holland	Radio/Television/Telec Tower
0			Village of Hobart	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			City of Green Bay	Other Liquid Fuel Term
0			City of Green Bay	Other Liquid Fuel Term
0			City of Green Bay	Administrative Building
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Long-term health care
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Water Supply Booster/ Stations
0			City of Green Bay	Administrative Building
0			City of Green Bay	Administrative Building
0			City of Green Bay	Clinics
0			City of Green Bay	Clinics
0			Town of Scott	Bridges
0			Town of Green Bay	Bridges
0			Town of Green Bay	Bridges
0			Town of Green Bay	Docking Facilities

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			City of Green Bay	Docking Facilities
0			City of Green Bay	Docking Facilities
0	City of Green Bay		City of Green Bay	Bridges
0			Town of Humboldt	Bridges
0			Town of Green Bay	Bridges
0			Town of Humboldt	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges
0			Town of Eaton	Police/Fire Stations/Of
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0			Town of New Denmark	Bridges
0	All Saints School		Village of Denmark	School
0			Village of Denmark	Other liquid fuel subst

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Town of Morrison	Bridges
0			Town of Morrison	Long-term health care
0			Town of Morrison	Bridges
0			Town of Holland	Bridges
0			Town of Holland	Bridges
0			Town of Wrightstown	Bridges
0			Town of Wrightstown	Bridges
0			Village of Wrightstown	Communication Tower
0			Town of Rockland	Bridges
0			Town of Ledgeview	Bridges
0			Town of Rockland	Bridges
0			Town of Rockland	Bridges
0			Town of Ledgeview	Bridges
0			Village of Hobart	Bridges
0	Don Schneider Stadium		City of De Pere	Sports Stadium/ Arena
0			Town of Rockland	Bridges
0			City of De Pere	Docking facilities
0			City of De Pere	Docking facilities
0			City of De Pere	Docking facilities
0			Village of Ashwaubenon	Bridges
0			Village of Ashwaubenon	Bridges
0			Village of Bellevue	Bridges
0			Village of Bellevue	Bridges

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

0			Village of Bellevue	Administrative Office
0			City of Green Bay	Clinic
0	Bellin College of Nursing		Village of Bellevue	Four year and graduate colleges and universities
0			City of Green Bay	Bridges
0			City of Green Bay	Bridges
0			City of Green Bay	Mobile home park
0			City of Green Bay	Mobile home park
0	Joannes Field		City of Green Bay	Sports stadium / arena
0			City of Green Bay	Bridges
0			City of Green Bay	Docking Facilities
0			City of Green Bay	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges
0			Village of Howard	Bridges

Attachment: 2012 All Hazard Final DRAFT VI (1313 : Resolution #13-116, Adopting Brown County All Hazards Mitigation Plan.)

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013

DEPARTMENT: Administration

FROM: Lawrence Delo

SUBJECT: Discuss Status of Former Claude-Allouez Bridge Approach Site

The Administration has received information from WI DOT indicating they have experienced some personnel changes that may impact the sale schedule for the former bridge approach site. We are scheduled to meet with WI DOT on September 3rd to discuss the status of the former bridge approach property. We will provide a verbal update on the status of this site at the council meeting.

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013
DEPARTMENT: City Clerk-Treasurer
FROM: Shana Defnet
SUBJECT: Operator License Applications.

ATTACHMENTS:

- Operator License List 09-03-13 (PDF)

CITY OF DE PERE - SEPTEMBER 3, 2013

ITEM#	NAME	ADDRESS	CITY	ST	ZIP
TEMPORARY OPERATOR LICENSE APPLICATIONS					
1	HENDRICKSON, KENNETH P.	310 LANTERN LN.	DE PERE	WI	54115
2	HENDRICKSON, PATRICIA L.	310 LANTERN LN.	DE PERE	WI	54115
PREVIOUSLY TABLED OPERATOR LICENSE APPLICATIONS					
1	ELWELL, ALEXANDRA G.	610 N. 9TH ST.	DE PERE	WI	54115
OPERATOR LICENSE APPLICATIONS FOR THE 2012-2014 LICENSING PERIOD					
1	GIANNUNZIO, KELLY M.	1245 7TH ST.	GREEN BAY	WI	54304
2	LA CROSSE, BONNIE L.	1836 LENWOOD AVE.	GREEN BAY	WI	54303
3	LAMAL, ZACHARY M.	1773 BRIARWOOD CT.	DE PERE	WI	54115
4	NIMMER, KAITLIN M.	2820 LIMEKILN RD.	GREEN BAY	WI	54311
5	RADLOFF, ADAM J.	1758 BURGOYNE CT., APT. 46	DE PERE	WI	54115
6	ROSEMERGY, CHASE E.	822 CHRISTIANA ST.	GREEN BAY	WI	54303

City of De Pere, Wisconsin

**Request For Common Council Action**

MEETING DATE: September 3, 2013
DEPARTMENT: City Clerk-Treasurer
FROM: Shana Defnet
SUBJECT: Voucher Approval.

ATTACHMENTS:

- 20130829130130628 (PDF)

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DOR SET: 01

BANK : AP ASSOCIATED

VENDOR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
0001	A1 ELEVATOR CORP I-5285	A1 ELEVATOR CORP	R	9/03/2013		820.50CR	069074	820.50
0302	AIRGAS USA LLC I-9911813951	AIRGAS USA LLC	R	9/03/2013		159.48CR	069075	159.48
5604	AURORA BAYCARE MED CTR LLC I-KK104	AURORA BAYCARE MED CTR LLC	R	9/03/2013		148.24CR	069076	148.24
0023	BATTERIES PLUS LLC I-501-401854	BATTERIES PLUS LLC	R	9/03/2013		319.00CR	069077	319.00
0027	BAY TOWEL INC I-1678832	BAY TOWEL INC	R	9/03/2013		33.64CR	069078	33.64
0790	BROWN COUNTY CLERK I-201308232490	BROWN COUNTY CLERK	R	9/03/2013		20.00CR	069079	20.00
0042	BROWN COUNTY HIGHWAY DEPARTMENT I-201308262496	BROWN COUNTY HIGHWAY DEPARTMEN	R	9/03/2013		363.05CR	069080	363.05
2708	CLEANING SOLUTION SERVICES INC I-05-8396	CLEANING SOLUTION SERVICES INC	R	9/03/2013		1,950.00CR	069081	1,950.00
0069	DE PERE GREENHOUSE INC I-11278 I-11326	DE PERE GREENHOUSE INC DE PERE GREENHOUSE INC	R R	9/03/2013 9/03/2013		50.00CR 48.95CR	069082 069082	 98.95
0944	ELECTION SYSTEMS & SOFTWARE INC I-857364	ELECTION SYSTEMS & SOFTWARE IN	R	9/03/2013		1,435.48CR	069083	1,435.48
0093	FEDERAL EXPRESS CORP I-2-376-49078	FEDERAL EXPRESS CORP	R	9/03/2013		35.86CR	069084	35.86
0331	FERGUSON WATERWORKS #1476 INC I-135690 I-135691	FERGUSON WATERWORKS #1476 INC FERGUSON WATERWORKS #1476 INC	R R	9/03/2013 9/03/2013		598.88CR 135.00CR	069085 069085	 733.88
4611	FIRE-SAFETY CONSULTING & SERVICES I-12676	FIRE-SAFETY CONSULTING & SERVI	R	9/03/2013		174.35CR	069086	174.35
0200	FIRST SUPPLY GREEN BAY LLC I-2017726-00	FIRST SUPPLY GREEN BAY LLC	R	9/03/2013		224.04CR	069087	224.04

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ENDOR SET: 01

BANK : AP ASSOCIATED

VENDOR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
0105	FOX SPECIALITY COMPANY							
	I-25667	FOX SPECIALITY COMPANY	R	9/03/2013		164.71CR	069088	164.71
0562	GALL'S INC							
	I-796683	GALL'S INC	R	9/03/2013		183.20CR	069089	183.20
1891	GANNETT WI MEDIA							
	I-7366951	GANNETT WI MEDIA	R	9/03/2013		983.02CR	069090	983.02
6084	GANNETT WI MEDIA							
	I-201308262497	GANNETT WI MEDIA	R	9/03/2013		192.02CR	069091	192.02
0116	GRAINGER INC							
	C-1187847668	GRAINGER INC	R	9/03/2013		431.52	069092	
	I-9212819909	GRAINGER INC	R	9/03/2013		454.80CR	069092	23.28
0117	GRAYBAR ELECTRIC COMPANY INC							
	I-967990824	GRAYBAR ELECTRIC COMPANY INC	R	9/03/2013		8.00CR	069093	8.00
0124	GREEN BAY CITY TREASURER							
	I-85802	GREEN BAY CITY TREASURER	R	9/03/2013		7,248.40CR	069094	7,248.40
3521	HD SUPPLY WATERWORKS LTD							
	I-B356738	HD SUPPLY WATERWORKS LTD	R	9/03/2013		251.40CR	069095	
	I-B365250	HD SUPPLY WATERWORKS LTD	R	9/03/2013		104.52CR	069095	355.92
1399	INDOFF INC							
	I-2322560	INDOFF INC	R	9/03/2013		185.15CR	069096	
	I-2323886	INDOFF INC	R	9/03/2013		6.36CR	069096	
	I-2324524	INDOFF INC	R	9/03/2013		562.40CR	069096	
	I-2324643	INDOFF INC	R	9/03/2013		181.48CR	069096	935.39
6809	JACK'S MAINTENANCE SERVICE INC.							
	I-18605	JACK'S MAINTENANCE SERVICE INC	R	9/03/2013		320.00CR	069097	320.00
0141	JEFFERSON FIRE & SAFETY INC							
	I-198960	JEFFERSON FIRE & SAFETY INC	R	9/03/2013		220.56CR	069098	220.56
1276	JX ENTERPRISES INC							
	I-D-232260080	JX ENTERPRISES INC	R	9/03/2013		17.48CR	069099	
	I-D-232270051	JX ENTERPRISES INC	R	9/03/2013		11.24CR	069099	28.72

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VENDOR SET: 01

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VENDOR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
0154	LAMERS BUS LINES INC							
	I-433042	LAMERS BUS LINES INC	R	9/03/2013		117.46CR	069100	
	I-433043	LAMERS BUS LINES INC	R	9/03/2013		116.53CR	069100	
	I-433447	LAMERS BUS LINES INC	R	9/03/2013		112.00CR	069100	
	I-433448	LAMERS BUS LINES INC	R	9/03/2013		112.70CR	069100	458.69
6812	JULIE LUNDIN							
	I-201306262496	JULIE LUNDIN	R	9/03/2013		110.00CR	069101	110.00
4464	M E G							
	I-15199	M E G	R	9/03/2013		48.29CR	069102	48.29
0173	MENARDS INC							
	C-25184	MENARDS INC	R	9/03/2013		7.98	069103	
	C-25522	MENARDS INC	R	9/03/2013		34.99	069103	
	I-24645	MENARDS INC	R	9/03/2013		64.41CR	069103	
	I-25199	MENARDS INC	R	9/03/2013		87.45CR	069103	
	I-25344	MENARDS INC	R	9/03/2013		11.52CR	069103	
	I-25383	MENARDS INC	R	9/03/2013		21.98CR	069103	
	I-25521	MENARDS INC	R	9/03/2013		41.93CR	069103	
	I-25524	MENARDS INC	R	9/03/2013		49.99CR	069103	
	I-25801	MENARDS INC	R	9/03/2013		19.95CR	069103	
	I-25822	MENARDS INC	R	9/03/2013		65.06CR	069103	319.32
1630	BRIAN MITCHELL							
	I-156	BRIAN MITCHELL	R	9/03/2013		288.00CR	069104	
	I-157	BRIAN MITCHELL	R	9/03/2013		37.00CR	069104	325.00
0076	NASSCO INC							
	I-S1707601.001	NASSCO INC	R	9/03/2013		152.83CR	069105	
	I-S1707601.002	NASSCO INC	R	9/03/2013		57.00CR	069105	209.83
0190	NORTHEAST ASPHALT INC							
	I-13-07 (1)	NORTHEAST ASPHALT INC	R	9/03/2013		26,481.80CR	069106	26,481.80
0531	NORTHEAST AUTO PARTS INC							
	I-281838	NORTHEAST AUTO PARTS INC	R	9/03/2013		221.97CR	069107	
	I-281888	NORTHEAST AUTO PARTS INC	R	9/03/2013		212.88CR	069107	
	I-281921	NORTHEAST AUTO PARTS INC	R	9/03/2013		3.99CR	069107	438.84
5344	PABICH, KEN							
	I-201308232491	PABICH, KEN	R	9/03/2013		145.21CR	069108	145.21

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BANK : AP ASSOCIATED

VENDOR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
4476	PAUL CONWAY SHIELDS CORP							
	I-331102-IN	PAUL CONWAY SHIELDS CORP	R	9/03/2013		113.90CR	069109	113.90
0202	PEPSI COLA NEW INC							
	I-127323	PEPSI COLA NEW INC	R	9/03/2013		15.00CR	069110	15.00
3401	PETERS CONCRETE COMPANY INC							
	I-12-09 (3) FINAL	PETERS CONCRETE COMPANY INC	R	9/03/2013		15,336.15CR	069111	15,336.15
6126	PM SUPPLY - WRIGHT INDUSTRIAL							
	I-38225	PM SUPPLY - WRIGHT INDUSTRIAL	R	9/03/2013		320.34CR	069112	
	I-38315	PM SUPPLY - WRIGHT INDUSTRIAL	R	9/03/2013		132.94CR	069112	
	I-38349	PM SUPPLY - WRIGHT INDUSTRIAL	R	9/03/2013		47.64CR	069112	500.92
0209	POOL WORKS INC							
	I-62421-1	POOL WORKS INC	R	9/03/2013		95.93CR	069113	
	I-62759-1	POOL WORKS INC	R	9/03/2013		36.00CR	069113	
	I-62846-1	POOL WORKS INC	R	9/03/2013		24.00CR	069113	
	I-63645-1	POOL WORKS INC	R	9/03/2013		19.98CR	069113	175.91
3296	PREMIER SOUTHERN TICKET CO							
	I-73455	PREMIER SOUTHERN TICKET CO	R	9/03/2013		256.57CR	069114	256.57
3450	RASMUSSEN ELECTRIC LLC							
	I-12198	RASMUSSEN ELECTRIC LLC	R	9/03/2013		115.00CR	069115	
	I-12204	RASMUSSEN ELECTRIC LLC	R	9/03/2013		182.00CR	069115	297.00
0227	REINDERS INC							
	I-1429986-00	REINDERS INC	R	9/03/2013		22.92CR	069116	22.92
0158	ROBERT E LEE & ASSOCIATES INC							
	I-66758	ROBERT E LEE & ASSOCIATES INC	R	9/03/2013		1,690.19CR	069117	1,690.19
5632	RW MANAGEMENT GROUP INC							
	I-0813-617	RW MANAGEMENT GROUP INC	R	9/03/2013		9,000.00CR	069118	9,000.00
6813	SALMON'S MEAT PRODUCTS INC.							
	I-6752	SALMON'S MEAT PRODUCTS INC.	R	9/03/2013		107.70CR	069119	107.70
0239	JUDITH SCHMIDT LEHMAN							
	I-201308232493	JUDITH SCHMIDT LEHMAN	R	9/03/2013		169.50CR	069120	169.50

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VENDOR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
5315	SMILEMAKERS							
	I-6915667	SMILEMAKERS	R	9/03/2013		37.96CR	069121	37.96
1354	THOMPSON PUBLISHING GROUP INC							
	I-16830465 1	THOMPSON PUBLISHING GROUP INC	R	9/03/2013		405.00CR	069122	
	I-16830466 1	THOMPSON PUBLISHING GROUP INC	R	9/03/2013		405.00CR	069122	
	I-16830472 1	THOMPSON PUBLISHING GROUP INC	R	9/03/2013		405.00CR	069122	1,215.00
0267	TRAFFIC & PARKING CONTROL INC							
	I-1430197	TRAFFIC & PARKING CONTROL INC	R	9/03/2013		360.00CR	069123	360.00
5454	TRANSPORT REFRIGERATION INC							
	I-325248-100	TRANSPORT REFRIGERATION INC	R	9/03/2013		31.73CR	069124	31.73
0268	TRUCK EQUIPMENT INC							
	I-8877	TRUCK EQUIPMENT INC	R	9/03/2013		499.43CR	069125	499.43
0417	TWEET GAROT MECHANICAL INC							
	I-182953	TWEET GAROT MECHANICAL INC	R	9/03/2013		301.04CR	069126	
	I-182954	TWEET GAROT MECHANICAL INC	R	9/03/2013		584.81CR	069126	885.85
0277	VAN'S FIRE & SAFETY INC							
	I-4050748	VAN'S FIRE & SAFETY INC	R	9/03/2013		101.30CR	069127	
	I-4050887	VAN'S FIRE & SAFETY INC	R	9/03/2013		184.14CR	069127	
	I-4050892	VAN'S FIRE & SAFETY INC	R	9/03/2013		322.90CR	069127	608.34
3311	VINTON CONSTRUCTION CORP							
	I-13-02 (3)	VINTON CONSTRUCTION CORP	R	9/03/2013		92,962.62CR	069128	92,962.62
0962	VOS ELECTRIC INC							
	I-74467	VOS ELECTRIC INC	R	9/03/2013		1,933.63CR	069129	1,933.63
6810	WASP BARCODE TECHNOLOGIES							
	I-8870240	WASP BARCODE TECHNOLOGIES	R	9/03/2013		2,353.98CR	069130	2,353.98
0282	WESCO DISTRIBUTION INC							
	I-407772	WESCO DISTRIBUTION INC	R	9/03/2013		75.00CR	069131	75.00
1181	WI PARK AND RECREATION ASSOC							
	I-201308262499	WI PARK AND RECREATION ASSOC	R	9/03/2013		300.00CR	069132	
	I-201308262500	WI PARK AND RECREATION ASSOC	R	9/03/2013		300.00CR	069132	
	I-201308272505	WI PARK AND RECREATION ASSOC	R	9/03/2013		300.00CR	069132	
	I-201308272506	WI PARK AND RECREATION ASSOC	R	9/03/2013		300.00CR	069132	
	I-201308272507	WI PARK AND RECREATION ASSOC	R	9/03/2013		300.00CR	069132	1,500.00

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A / P CHECK REGISTER

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BT: 04089 SEP 2013 COUNCIL - 1 9-3-13

VENDOR SET: 01

BANK : AP ASSOCIATED

VENDOR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
6611	CHRYSTAL WOLLER							
	I-201308232494	CHRYSTAL WOLLER	R	9/03/2013		149.73CR	069133	149.73

* * T O T A L S * *	NO#	DISCOUNTS	CHECK AMT	TOTAL APPLIED
REGULAR CHECKS:	60	0.00	176,015.70	176,015.70
HANDWRITTEN CHECKS:	0	0.00	0.00	0.00
PRE-WRITE CHECKS:	0	0.00	0.00	0.00
DRAFTS:	0	0.00	0.00	0.00
VOID CHECKS:	0	0.00	0.00	0.00
NON CHECKS:	0	0.00	0.00	0.00
CORRECTIONS:	0	0.00	0.00	0.00
REGISTER TOTALS:	60	0.00	176,015.70	176,015.70

TOTAL ERRORS: 0

TOTAL WARNINGS: 0

27/2013 10:48 AM

A / P CHECK REGISTER

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T: 04089 SEP 2013 COUNCIL - 1 9-3-13

DOR SET: 01

BANK : AP ASSOCIATED

VENDOR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
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** POSTING PERIOD RECAP **

FUND	PERIOD	AMOUNT
100	9/2013	37,362.96CR
201	9/2013	317.84CR
405	9/2013	136,470.76CR
601	9/2013	1,475.18CR
650	9/2013	388.96CR
=====		
ALL		176,015.70CR