ATTACHMENTS

III

DIRECT REFERRAL TO PUBLIC WORKS COMMITTEE

Res. No. 134 - 20 - 21. By Alderpersons Dekker and Sorenson.
December 15, 2020.

A RESOLUTION authorizing the appropriate City officials to accept the quote from Ovivo USA, LLC for the purchase of the components required to maintain the west influent screens at the Wastewater Treatment Plant and to make other expenditures relating to the maintenance of the west influent screen and the control of the east and west influent screens.

WHEREAS, the influent screens are an important component of the Wastewater Treatment Plant; and

WHEREAS, the influent screens are connected by chains on each edge; and

WHEREAS, these chains have a limited lifespan, and their replacement is contemplated as a part of the maintenance of the influent screen system; and

WHEREAS, the chains which connect the west influent screens have reached the end of their life, and must be replaced (the "Chain Replacement"); and

WHEREAS, because the Chain Replacement does not constitute public construction as that term is used in the Wisconsin Statutes, neither state law nor the City's Procurement Policy require bidding for the materials necessary for the Chain Replacement; and

WHEREAS, it is in the best interest of the City to obtain a new chain and related components from Ovivo USA, LLC ("Ovivo"), who is the original equipment manufacturer of the influent screen system; and

WHEREAS, a purchase order from Ovivo for the necessary components for the Chain Replacement is attached to this Resolution; and

WHEREAS, City Staff are able to install the new chain to complete the Chain Replacement; and

WHEREAS, to avoid the appearance of serial contracting, another project related to the influent screens, but which is independent of the Chain Replacement, is upgrading the control system of the influent screens (the "Control Upgrade"); and

WHEREAS, the estimated cost of the materials for the Control Upgrade is $15,000; and

WHEREAS, City Staff are able to install the necessary materials to complete the Control Upgrade; and

Public Works

WHEREAS, the Control Upgrade constitutes public construction as that term is used in the Wisconsin Statutes, but because of the dollar amount of the project, public bidding is not required by either state law or the City's Procurement Policy.

NOW, THEREFORE, BE IT RESOLVED: That the appropriate City Officials are authorized to accept the quote from Ovivo to purchase the items identified in the quote for the Chain Replacement for $59,976.26.

BE IT FURTHER RESOLVED: That subject to the appropriation and availability of funds the appropriate City officials are authorized to draw funds, not to exceed $86,476.26 from Account No. 60138300-631100 to pay for the items from Ovivo for the Chain Replacement and to pay for the necessary materials to complete the Control Upgrade.

_____

_____

I HEREBY CERTIFY that the foregoing Resolution was duly passed by the Common Council of the City of Sheboygan, Wisconsin, on the _____ day of _____, 20____.

Dated _____ 20____. _____, City Clerk

Approved _____ 20____. _____, Mayor

Ovivo USA, LLC
4246 Riverboat Road, Suite 300
Salt Lake City, UT 84123
Phone: (801) 931-3000 Fax: (801)931-3080

Customer Quote

ATTENTION: **PHONE NO: (224)629-4060**

SOLD TO	SHIP TO
CUSTOMER NUMBER 6509 **DRYDON EQUIPMENT, INC.** **EM: accounting@drydon.com** **2445 WESTFIELD DRIVE, SUITE 100** **ELGIN IL 60124-7840** **USA**	**Sheboygan Regional Wastewater Treatment Facility** **3333 Lakeshore Drive** **Sheboygan WI 53081** **USA**

QUOTE #	DATE	TERMS	CUSTOMER RFQ	SALESPERSON	CURRENCY
QSSW104194	11/3/2020	Net 30 days	Sheboygan Chain	.NONE	USD

L#	Items	Quantity	U/M	Lead Time	Unit Price	Total Value

Ovivo can also provide you with installation labor services.
Please contact us for additional turn-key pricing.

1. Shipment: Approximately 10-11 WEEKS after receipt of purchase order and any required data. Lead times can vary depending on time of order placement and current inventory levels.

2. Quantities: The prices are based on the quantities shown and are subject to increase if a lesser quantity is required.

3. FCA: shipping point

4. Freight: ALLOWED, standard ground shipping only.

5. Packing: Made ready for standard transport.

6. Items quoted per customer provided part numbers.

7. This quote is valid for 30 Days. However, stainless steel parts pricing is valid for 10 days.

8. $100.00 Minimum Order

9. All sales are final.

DATE: 11/3/2020

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L#	Items	Quantity	U/M	Lead Time	Unit Price	Total Value
	Ovivo can also provide you with installation labor services. Please contact us for additional turn-key pricing.					
1	**PART # 696510C** ASSY,CHAIN OUTER LINK** Drawing: 696510 REV C	26	EA		956.70	24,874.20
2	**PART # 696510A** ASSY, CHAIN INNER LINK** Drawing: 696510 REV C	26	EA		956.70	24,874.20
3	**PART # F10466** CAPSCREW,HX HD,316SS, 3/8-16x2 Drawing: N/A REV _ +	58	EA		1.16	67.28
4	**PART # F10468** CAPSCREW,HX HD,316SS, 3/8-16x2-1/2 Drawing: N/A REV _ +	58	EA		1.54	89.32
5	**PART # F12750** NUT,HX,NYLOCK,316SS, 3/8-16 (620) Drawing: N/A	116	EA		0.39	45.24
6	**PART # F11207** WASHER PLN TYPE A-N 3/8 316SS Drawing: N/A	232	EA		0.24	55.68
7	**PART # 581584** WIPER BLADE NEOPRENE 60 DUR	2	EA		48.54	97.08

DATE: 11/3/2020

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	Ovivo can also provide you with installation labor services. Please contact us for additional turn-key pricing.					
	Drawing: 581584 REV A +					
8	**PART # 560297** MAINCHAIN SEALING PLATE UHMW BLACK Drawing: 560297 REV A +	52	EA		48.72	2,533.44
9	**PART # 550445** CHAIN SPACER UHMW Drawing: 550445 REV B	26	EA		25.65	666.90
10	**PART # 553653** BASKET PANEL SEAL NEOPRENE Drawing: 553653 REV A +	26	EA		20.21	525.46
11	**PART # 548550** MAIN CHAIN SEAL A NEOPRENE ^ Drawing: 548550 REV A +	2	EA		1,009.11	2,018.22
12	**PART # 548547** MAIN CHAIN SEAL B NEOPRENE	4	EA		1,032.31	4,129.24

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L#	Items	Quantity	U/M	Lead Time	Unit Price	Total Value

Ovivo can also provide you with installation labor services.
Please contact us for additional turn-key pricing.

Please submit purchase order to:

Your point of contact is:

Kyle Dansie

Aftermarket Parts Specialist
Inlet Works
Email: kyle.dansie@ovivowater.com
Phone: 801-931-3308
Fax: 801-931-3080

Drawing: 548547 REV A

Sale Amount: **59,976.26**
Total Amount: **59,976.26**
USD

DATE: 11/3/2020

A) The Ovivo USA, LLC Terms and Conditions of Sale are attached and made essential parts of the Ovivo USA, LLC proposal or purchase order confirmation. These terms and conditions replace and supersede any terms and conditions or warranty included in Buyer's or Owner's purchase order, requests for quotation or specifications and cannot be changed without written approval from an authorized representative of Ovivo USA, LLC.

B) GST and all other taxes are extra, if applicable.

C) Pricing valid for acceptance 30 days from date of the proposal document, and will be subject to change thereafter.

D) Shipping shall be (FCA) Free Carrier at point of manufacture unless otherwise stated above. Insurance is the responsibility of Buyer.

E) Payment terms are stated above.

F) Duty, freight and brokerage costs are for Buyer's account unless stated otherwise herein.

G) Minimum billing of $100 per order.

H) Notwithstanding any liabilities or responsibilities it has assumed hereunder, Ovivo USA, LLC shall in no event be responsible to Buyer or any third party in contract or in tort, or otherwise, for loss or damage sustained as a result of the operation of the equipment, loss of use, expenses involved in loss of capital claims or Buyer's or Owner's loss of profit or revenues, or any other indirect, incidental, special or consequential loss or damage, whether arising from defects, delay, or any other cause whatsoever.

I) Current Ovivo USA, LLC paint specifications shall apply unless otherwise specified.

J) Any and all stock or "off the shelf" parts returned to Ovivo USA, LLC are subject to a re-stocking fee equal to 25% of their respective invoice price. All other parts, including but not limited to customized and special manufactured parts, shall, at the sole discretion of Ovivo USA, LLC be (i) subject to a restocking fee of 45% of their respective invoice price or (ii) non-refundable.

PLEASE ADDRESS AND SUBMIT YOUR PURCHASE ORDER TO THE ADDRESS INDICATED ABOVE.

OVIVO®

Worldwide Experts in Water Treatment

Terms & Conditions of Sale

1. ACCEPTANCE. The proposal of **Ovivo USA, LLC** ("SELLER"), as well as these terms and conditions of sale (collectively the "Agreement"), constitutes SELLER's contractual offer of goods and associated services, and PURCHASER's acceptance of this offer is expressly limited to the terms of the Agreement. The scope and terms and conditions of this Agreement represent the entire offer by SELLER and supersede all other solicitations, discussions, agreements, understandings and representations between the parties. Any scope or terms and conditions included in PURCHASER's acceptance/purchase order that are in addition to or different from this Agreement are hereby rejected.

2. DELIVERY. Any statements relating to the date of shipment of the Products (as defined below) represent SELLER's best estimate, but is not guaranteed, and SELLER shall not be liable for any damages due to late delivery. The Products shall be delivered to the delivery point or points in accordance with the delivery terms stated in SELLER's proposal. If such delivery is prevented or postponed by reason of Force Majeure (as defined below), SELLER shall be entitled at its option to tender delivery to PURCHASER at the point or points of manufacture, and in default of PURCHASER's acceptance of delivery to cause the Products to be stored at such a point or points of manufacture at PURCHASER's expense. Such tender, if accepted, or such storage, shall constitute delivery for all purposes of this agreement. If shipment is postponed at request of PURCHASER, or due to delay in receipt of shipping instructions, payment of the purchase price shall be due on notice from SELLER that the Products are ready for shipment. Handling, moving, storage, insurance and other charges thereafter incurred by SELLER with respect to the Products shall be for the account of PURCHASER and shall be paid by PURCHASER when invoiced. Delivery by SELLER of the Products shall constitute acceptance of the Products by PURCHASER, unless written notice of defect or nonconformity is received by SELLER within thirty (30) days of SELLER's delivery of the Products.

3. TITLE AND RISK OF LOSS. SELLER shall retain the fullest right, title, and interest in the Products to the extent permitted by applicable law, including a security interest in the Products, until the full purchase price has been paid to SELLER. The giving and accepting of drafts, notes and/or trade acceptances to evidence the payments due shall not constitute or be construed as payment so as to pass SELLERs interests until said drafts, notes and/or trade acceptances are paid in full. Risk of loss shall pass to PURCHASER at the delivery point.

4. PAYMENT TERMS. SELLER reserves the right to ship the Products and be paid for such on a pro rata basis, as shipped. If payments are not made by the due date, interest at a rate of two percent (2%) per month, calculated daily, shall apply from the due date for payment. PURCHASER is liable to pay SELLER's legal fees and all other expenses in respect of enforcing or attempting to enforce any of SELLER's rights relating to a breach or threatened breach of the payment terms by PURCHASER. In the event of nonpayment SELLER reserves the further right to seek compensation from any third party in possession of the Products.

5. TAXES. Unless otherwise specifically provided in SELLER's quotation/proposal; PURCHASER shall pay and/or reimburse SELLER, in addition to the price, for all sales, use and other taxes, excises and charges which SELLER may pay or be required to pay to any government directly or indirectly in connection with the production, sale, transportation, and/or use by SELLER or PURCHASER, of any of the Products or services dealt with herein (whether the same may be regarded as personal or real property). PURCHASER agrees to pay all property and other taxes which may be levied, assessed or charged against or upon any of the Products on or after the date of actual shipment, or placing into storage for PURCHASER's account.

6. MECHANICAL WARRANTY. Solely for the benefit of PURCHASER, SELLER warrants that new equipment and parts manufactured by it and provided to PURCHASER (collectively, "Products") shall be free from defects in material and workmanship. The warranty period shall be twelve (12) months from startup of the equipment not to exceed eighteen (18) months from the earliest of the notice of readiness to ship or the actual shipment. If any of SELLER's Products fail to comply with the foregoing warranty, SELLER shall repair or replace free of charge to PURCHASER, EX WORKS SELLER's FACTORIES or other location that SELLER designates, any Product or parts thereof returned to SELLER, which examination shall show to have failed under normal use and service operation by PURCHASER within the Warranty Period; provided, that if it would be impracticable for the Product or part thereof to be returned to SELLER, SELLER will send a representative to PURCHASERs job site to inspect the Product. If it is determined after inspection that SELLER is liable under this warranty to repair or replace the Product or part thereof, SELLER shall bear the transportation costs of (a) returning the Product to SELLER for inspection or sending its representative to the job site and (b) returning the repaired or replaced Products to PURCHASER; however, if it is determined after inspection that SELLER is not liable under this warranty, PURCHASER shall pay those costs. For SELLER to be liable with respect to this warranty, PURCHASER must make its claims to SELLER with respect to this warranty in writing no later than thirty (30) days after the date PURCHASER discovers the basis for its warranty claim and in no event more than thirty (30) days after the expiration of the Warranty Period. In addition to any other limitation or disclaimer with respect to this warranty, SELLER shall have no liability with respect to any of the following: (i) failure of the Products, or damages to them, due to PURCHASER's negligence or willful misconduct, abuse or improper storage, installation, application or maintenance (as specified in any manuals or written instructions that SELLER provides to the PURCHASER); (ii) any Products that have been altered or repaired in any way without SELLER's prior written authorization; (iii) The costs of dismantling and reinstallation of the Products; (iv) any Products damaged while in transit or otherwise by accident; (v) decomposition of Products by chemical action, erosion or corrosion or wear to Products or due to conditions of temperature, moisture and dirt; or (vi) claims with respect to parts that are consumable and normally replaced during maintenance such as filter media, filter drainage belts and the like, except where such parts are not performing to SELLERs estimate of normal service life, in which case, SELLER shall only be liable for the pro rata cost of replacement of those parts based on SELLER's estimate of what the remaining service life of those parts should have been, provided, that failure of those parts did not result from any of the matters listed in clauses (i) through (v) above. With regard to third-party parts, equipment, accessories or components not of SELLER's design, SELLER's liability shall be limited solely to the assignment of available third-party warranties. **THE PARTIES AGREE THAT ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, WHETHER WRITTEN, ORAL OR STATUTORY, ARE EXCLUDED TO THE FULLEST EXTENT PERMISSIBLE BY LAW.** All warranties and obligations of SELLER shall terminate if PURCHASER fails to perform its obligations under this Agreement including but not limited to any failure to pay any charges due to SELLER. SELLER's quoted price for the Products is based upon this warranty. Any increase in warranty obligation may be subject to an increase in price.

7. [redacted]

8. SURFACE COATING. Any Product coating provided by SELLER shall be in accordance with SELLERs standard practice, unless otherwise agreed in writing.

9. DRAWINGS AND TECHNICAL DOCUMENTATION. When PURCHASER requests to approve drawings before commencement of manufacture, shipment may be delayed if approved drawings are not returned to SELLER within fourteen (14) days of receipt by PURCHASER of such drawings for approval. SELLER will furnish only general arrangement, general assembly, and if required, wiring diagrams, erection drawings, installation and operation-maintenance manuals for SELLER's equipment (in English language). SELLER will supply six (6) complete sets of drawings and operating instructions. Additional sets will be paid for by PURCHASER. Electronic files, if requested from SELLER, will be provided in *pdf, jpg or tif* format only.

10. SET OFF. This Agreement shall be completely independent of all other contracts between the parties and all payments due to SELLER hereunder shall be paid when due and shall not be setoff or applied against any money due or claimed to be due from SELLER to PURCHASER on account of any other transaction or claim.

11. SOFTWARE. PURCHASER shall have a nonexclusive and nontransferable license to use any information processing program supplied by SELLER with the Products. PURCHASER acknowledges that such programs and the information contained therein is Confidential Information and agrees: a) not to copy or duplicate the program except for archival or security purposes; b) not to use the program on any computer other than the computer with which it is supplied; and c) to limit access to the program to those of its employees who are necessary to permit authorized use of the program. PURCHASER agrees to execute and be bound by the terms of any software license applicable to the Products supplied.

12. PATENT INDEMNITY. SELLER will defend at its own expense any suit instituted against PURCHASER based upon claims that SELLER's Product hereunder in and of itself constitutes an infringement of any valid apparatus claims of any United States patent issued and existing as of the date of this Agreement, if notified promptly in writing and given all information, assistance, and sole authority to defend and settle the same, and SELLER shall indemnify the PURCHASER against such claims of infringement. Furthermore, in case the use of the Products is enjoined in such suit or in case SELLER otherwise deems it advisable, SELLER shall, at its own expense and discretion, (a) procure for the PURCHASER the right to continue using the Products, (b) replace the same with non-infringing Products, (c) modify the Product so it becomes non-infringing, or (d) remove the Products and refund the purchase price less freight charges and depreciation. SELLER shall not be liable for, and PURCHASER shall indemnify SELLER for, any claim of infringement related to (a) the use of the Products for any purpose other than that for which it was furnished by SELLER, (b) compliance with equipment designs not furnished by SELLER or (c) use of the Products in combination with any other equipment. The foregoing states the sole liability of SELLER for patent infringement with respect to the Products.

13. GENERAL INDEMNITY. Subject to the limitations of liabilities of the parties set forth in this Agreement, each party shall protect and indemnify the other party, its parent and their respective officers, directors, employees and agents, from and against all claims, demands and causes of action asserted by, or in favor of, any entity to the extent of the indemnifying party's negligence or willful misconduct in connection with the performance of this agreement.

14. DEFAULT, TERMINATION. In the event that PURCHASER becomes insolvent, commits an act of bankruptcy or defaults in the performance of any term or condition of this Agreement, the entire unpaid portion of the purchase price shall, without notice or demand, become immediately due and payable. SELLER at its option, without notice or demand, shall be entitled to sue for said balance and for reasonable legal fees, plus out-of-pocket expenses and interest; and/or to enter any place where the Products are located and to take immediate possession of and remove the Products, with or without legal process; and/or retain all payments made as compensation for the use of the Products; and/or resell the Products, without notice or demand, for and on behalf of the PURCHASER, and to apply the net proceeds from such sale (after deduction from the sale price of all expenses of such sale and all expenses of retaking possession, repairs necessary to put the Products in saleable condition, storage charges, taxes, liens, collection and legal fees and all other expenses in connection therewith) to the balance then due to SELLER for the Products and to receive from the PURCHASER the deficiency between such net proceeds of sale and such balance. PURCHASER hereby waives all trespass, damage and claims resulting from any such entry, repossession, removal, retention, repair, alteration and sale. The remedies provided in this paragraph are in addition to and not limitations of any other rights of SELLER.

15. CANCELLATION. PURCHASER may terminate this Agreement for convenience upon giving SELLER thirty (30) days prior written notice of such fact and paying SELLER for all costs and expenses (including overhead) incurred by it in performing its work and closing out the same plus a reasonable profit thereon. All such costs and expenses shall be paid to SELLER within ten (10) days of the termination of the Agreement, or be subject to an additional late payment penalty of five percent (5%) of the total amount of costs and expenses owed.

16. REMEDIES. The rights and remedies of the PURCHASER in connection with the goods and services provided by SELLER hereunder are exclusive and limited to the rights and remedies expressly stated in this Agreement.

17. INSPECTION. PURCHASER is entitled to make reasonable inspection of Products at SELLERs facility. SELLER reserves the right to determine the reasonableness of the request and to select an appropriate time for such inspection. All costs of inspections not expressly included as an itemized part of the quoted price of the Products in this Agreement shall be paid by PURCHASER.

18. WAIVER. Any failure by SELLER to enforce PURCHASER's strict performance of any provision of this Agreement will not constitute a waiver of its right to subsequently enforce such provision or any other provision of this Agreement.

19. COMPLIANCE WITH LAWS. If applicable laws, ordinances, regulations or conditions require anything different from, or in addition to that called for by this Agreement, SELLER will satisfy such requirements at PURCHASER's written request and expense.

20. FORCE MAJEURE. If SELLER is rendered unable, wholly or in material part, directly or indirectly, by reason of Force Majeure, to carry out any of its obligations hereunder, then on SELLERs notice in writing to PURCHASER within a reasonable time after the occurrence of the cause relied upon, such obligations shall be suspended. "Force Majeure" shall include, but not be limited to, acts of God, epidemics and pandemics, acts of or delays caused by governmental authorities, changes in laws and regulations, strikes, civil disobedience or unrest, lightning, fire, flood, washout, storm, communication lines failure, delays of the PURCHASER or PURCHASER's subcontractors, breakage or accident to equipment or machinery, wars, police actions, terrorism, embargos, and any other causes that are not reasonably within the control of the SELLER. If the delay is the result of PURCHASER's action or inaction, then in addition to an adjustment in time, SELLER shall be entitled to reimbursement of costs incurred to maintain its schedule. For the avoidance of doubt, if the cause relied upon has commenced prior to the Parties entered into a contracting relationship, it shall not render the cause void and/or not capable of being included within the definitions of Force Majeure, as listed within this Article 20.

21. INDEPENDENT CONTRACTOR. It is expressly understood that SELLER is an independent contractor, and that neither SELLER nor its principals, partners, parents, subsidiaries, affiliates, employees or subcontractors are servants, agents, partners, joint ventures or employees of PURCHASER in any way whatsoever.

22. SEVERABILITY. Should any portion of this Agreement, be held to be invalid or unenforceable under applicable law then the validity of the remaining portions thereof shall not be affected by such invalidity or unenforceability and shall remain in full force and effect. Furthermore, any invalid or unenforceable provision shall be modified accordingly within the confines of applicable law, giving maximum permissible effect to the parties' intentions expressed herein.

23. CHOICE OF LAW, CHOICE OF VENUE. This Agreement shall be governed and construed in accordance with the laws of the State of Utah, without regard to its rules regarding conflicts or choice of law. The parties submit to the exclusive jurisdiction and venue of the state and federal courts located in Salt Lake City, Utah.

24. ASSIGNMENT. PURCHASER shall not assign or transfer this Agreement without the prior written consent of SELLER. Any attempt to make such an assignment or transfer shall be null and void. SELLER shall have the authority to assign, or otherwise transfer, its rights and obligations in connection with this Agreement, in whole or in part, upon prior written notice to PURCHASER.

25. LIMITATION ON LIABILITY. To the extent permissible by law, SELLER shall HAVE NO FURTHER LIABILITY IN CONNECTION WITH THIS AGREEMENT in excess of the amount paid by purchaser for the products giving rise to such liability. Notwithstanding any liabilities or responsibilities assumed by SELLER hereunder, SELLER shall in no event be responsible to PURCHASER or any third party, whether arising under contract, tort (including negligence), strict liability, or otherwise, for loss of anticipated profits, loss by reason of plant shutdown, non-operation or increased expense of operation, loss of data, service interruptions, cost of purchased or replacement power, cost of money, loss of use of capital or revenue or any other indirect, incidental, special, punitive, exemplary, or consequential loss or damage, whether arising from defects, delay, or from any other cause whatsoeVER.

26. PRIVACY AND DATA PROTECTION. Seller has put in place rigorous safeguards and procedures regarding privacy and data protection, notably the Ovivo Privacy Policy (ovivowater.com/privacy-policy), and requires that Purchaser adhere to its data protection principles to the extent applicable to Purchaser.

27. DATA COLLECTION. PURCHASER consents to the collection of the Products operational data and to the use of such data for the purpose of improving the Products and other purposes stated herein. PURCHASER further agrees that such data collection does not constitute a performance monitoring service or duty by SELLER.

28. INSURANCE. SELLER shall maintain that its current levels of insurance for the duration of the Project, as set forth in its standard certificate of insurance, available upon request.

29. BONDS. If PURCHASER deems it necessary, and within ten (10) days of PURCHASER's request, SELLER shall provide one or more Bonds in favor of PURCHASER, at PURCHASER's expense, by an institution, and in a form, approved in advance by SELLER.

30. PERMITS. PURCHASER shall be solely responsible to obtain and maintain in force all necessary permits with respect to any products to be provided by SELLER hereunder and any intended use by PURCHASER.

REVISED - March 2020

DATE: 11/3/2020

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Resolution authorizing the appropriate City officials to accept the quote from Ovivo USA, LLC for the purchase of the components required to maintain the west influent screens at the Wastewater Treatment Plant and to make other expenditures relating to the maintenance of the west influent screen and the control of the east and west influent screens.

REPORT PREPARED BY: Steve Jossart, Superintendent of Wastewater

REPORT DATE: December 10, 2020 **MEETING DATE:** December 15, 2020

FISCAL SUMMARY:

Budget Line Item:	60138300-631100
Budget Summary:	Improvements other than Buildings
Budget Expenditure:	$86,776.26
Budgeted Revenue:	N/A

STATUTORY REFERENCE:

Wisconsin Statues:	N/A
Municipal Code:	N/A

BACKGROUND / ANALYSIS: The influent fine screens are designed to remove large particles and debris from the incoming wastewater to protect the downstream equipment and processes. The screens are a series of screen panels connected together by chains on each edge, which are driven by two large sprockets at the top of the screen structure. As the screen panels rotate into the wastewater channel, the incoming wastewater flows through the submerged screen panels, which remove the larger particles and debris. As the screen panels rotate out of the channel, they are showered to remove the material collected before rotating back into the wastewater channel. The chains on both screens are worn to the point where they require replacement after being in continuous service for 14 years.

STAFF COMMENTS: Besides the worn chains, the screens are in good condition and will provide a number of additional years of service. In addition to the chains and associated components, the screen controls will also be replaced to provide better operational control, which will maximize chain life by reducing the screen operating hours.

The project scope includes the replacement of both chains and associated seals and components on the west screen. Control of the screening system will be changed from a stand-alone local control system to a program logic controller (PLC) with variable speed drives (VFD) to provide precise operational control, which will minimize chain wear by reducing the number of revolutions the screen makes over time. The new controls will be completed for both screens under this project, but the east screen chain will not be replaced at this time.

Cost Breakdown:

Component/Service	Supplier/Contractor	Cost
Purchase chain set with all associated seals and hardware	Ovivo (OEM)	$ 59,976.26
Install chains and seals	WWTP Staff	$ 7,500.00
Purchase new VFD's, motors, and level transmitters to convert the system to PLC control.	TBD	$ 15,000.00
Installation and Programming of new control system	WWTP Staff	$ 5,000.00
Misc. Hardware/Electrical Supplies	TBD	$ 2,500.00
Contingency (10%)		$ 9,000.00
TOTAL		**$ 98,976.26**

ACTION REQUESTED: Motion to recommend the Common Council adopt Res. No. 134-20-21 authorizing the appropriate City officials to accept the quote from Ovivo USA, LLC for the purchase of the components required to maintain the west influent screens at the Wastewater Treatment Plant and to make other expenditures relating to the maintenance of the west influent screen and the control of the east and west influent screens.

ATTACHMENTS:

I. Res. No. 134-20-21
II. Ovivo quote for screen chain

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Report of Committee to whom was referred R. O. No. 97-20-21 by City Clerk submitting a communication from Michael Thomas, President of Black-American Community Outreach, regarding Juneteenth Day celebration; recommends the Common Council instruct staff to prepare the appropriate document to waive the park rental fee for the Juneteenth Day Celebration.

REPORT PREPARED BY: Joseph L. Kerlin, Superintendent of Parks and Forestry

REPORT DATE: December 9, 2020 **MEETING DATE:** December 15, 2020

FISCAL SUMMARY:

Budget Line Item:	N/A
Budget Summary:	N/A
Budget Expenditure:	N/A
Budgeted Revenue:	N/A

STATUTORY REFERENCE:

Wisconsin Statues:	N/A
Municipal Code:	N/A

BACKGROUND / ANALYSIS: Michael Thomas, President of Black-American Community Outreach, (BACO) is requesting that the City would cover the cost or wave the fee required for securing the Kiwanis Fieldhouse and Kiwanis Green Space for a Juneteenth Day celebration on June 19, 2021. The cost for using these two areas in Kiwanis Park for one day is $550 before tax. After discussing the event in more detail with Mr. Thomas, it was determined that with the intention of using a larger tent for the celebration, there would need to be two extra days for set-up and take-down. The total rental cost would then be $1,650 before tax.

This request came before the Public Works Committee for consideration on November 10, 2020. The Committee recommended the Common Council instruct staff to prepare the appropriate document to waive the park rental fee for the Juneteenth Day Celebration.

The Common Council has referred back R. O. No. 97-20-21to Public Works to gather more information on the rental from Michael Thomas.

STAFF COMMENTS: Mr. Thomas stated that that waving the fee for 2021 would be a one time request to that would aid the new non-profit organization in starting a new celebration. Mr. Thomas also stated that they intend to pay for any equipment rental that they may request from the city for the event.

ACTION REQUESTED: Motion to recommend the Common Council adopt R. C. No. 187-20-21 submitting a communication from Michael Thomas, President of Black-American Community Outreach, regarding Juneteenth Day celebration; recommends the Common Council instruct staff to prepare the appropriate document to waive the park rental fee for the Juneteenth Day Celebration.

ATTACHMENTS:

I. R.C. No. 187-20-21
II. R.O. No. 97-20-21
III. Communication from Michael Thomas to the Mayor Mike Vandersteen and Common Council.
IV. Special Event Permit Application

VI

5.1

R. C. No. 187 - 20 - 21. By PUBLIC WORKS COMMITTEE. November 16, 2020.

Your Committee to whom was referred R. O. No. 97-20-21 by City Clerk submitting a communication from Michael Thomas, President of Black-American Community Outreach, regarding Juneteenth Day celebration; recommends the Common Council instruct staff to prepare the appropriate document to waive the park rental fee for the Juneteenth Day Celebration.

Refer back to PW

Dean Dekker _____

_____ _____

_____ _____

_____ _____

Committee

I HEREBY CERTIFY that the foregoing Committee Report was duly accepted and adopted by the Common Council of the City of Sheboygan, Wisconsin, on the _____ day of _____, 20____.

Dated_____ 20____. _____, City Clerk

Approved_____ 20____. _____, Mayor

II

3.6.

R. O. No. 97 - 20 - 21. By CITY CLERK. November 2, 2020.

Submitting a communication from Michael Thomas, President of Black-American Community Outreach, regarding Juneteenth Day celebration.

CITY CLERK

DeBruin, Meredith

From: Mayor Vandersteen
Sent: Wednesday, October 28, 2020 1:08 PM
To: DeBruin, Meredith
Subject: FW: Juneteenth Day

Meredith,

Please place this communication on the agenda at the November 2, 2020 meeting of the City Council fro referral to the Public Works Committee.

Thank you,

Mike

Mike Vandersteen, Mayor
City of Sheboygan
Office: 920-459-3317
Cell: 920-207-2410

Read the latest issue of the City of Sheboygan Newsletter, the Sheboygan Insider:
http://www.sheboyganwi.gov/residents/sheboygan-insider/

From: Michael Thomas [mailto:ministerandcoach@yahoo.com]
Sent: Wednesday, October 28, 2020 12:32 PM
To: Mayor Vandersteen
Subject: Juneteenth Day

Hello Mayor and City Common Council. I'm writing this letter on behalf of the Black-American Community Outreach. On June 19,2021 the BACO would like to host and be the main organizers of the Juneteenth Day celebration. Our intentions are to secure Kiwannis Park for these festivities. In the short time our organization has been established, we've partnered with the City of Sheboygan, Sheboygan Police Department, and many others to lead positive events throughout the community. We ask that the City of Sheboygan would place there trust in us again, as we look to put on another positive event in our community. With the Juntheeth Proclamation given to myself last year, I thought it would be only right to have the city show its support for this holiday again. Im asking that the city would cover the cost or wave the fee required for securing the Kiwannis Park. BACO is an official 501c3 non-profit but as of yet, we haven't recieved much monetary donations. The funds we do have must be used to help put the event on. We look to make this event exciting and more grand then the celebration put on this year. We need support from our community to do so. I hope that the City of Sheboygan would be the first to show their support for this event and heart for the black community. I thank you for considering us and this opportunity.

Sincerely,

Michael Thomas
President of Black-American Community Outreach

5.5

Res. No. 132 - 20 - 21. By Alderpersons Sorenson and Dekker.
December 7, 2020.

A RESOLUTION adopting the Sheboygan County, Wisconsin Hazard Mitigation Plan 2020-2025.

WHEREAS, the City of Sheboygan recognizes the threat that 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 hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the City of Sheboygan participated jointly in the planning process with the other local units of government within the County to prepare the Sheboygan County, Wisconsin Hazard Mitigation Plan 2020-2025 ("Hazard Mitigation Plan Update"); and

WHEREAS, a substantially finalized version of the Hazard Mitigation Plan Update is attached to this Resolution; and

WHEREAS, the attached Hazard Mitigation Plan Update still requires the inclusion of a few items marked in red, which will be done as the Hazard Mitigation Plan Update goes through the process of being approved by Sheboygan County, but the substance of the mitigation plan is complete.

NOW, THEREFORE, BE IT RESOLVED: That the City of Sheboygan Common Council hereby adopts the Sheboygan County, Wisconsin Hazard Mitigation Plan 2020-2025 as an official plan.

BE IT FURTHER RESOLVED: That, for the avoidance of doubt, the appropriate City officials may submit the attached Hazard Mitigation Plan Update to the State of Wisconsin as part of any grant application which requires a Hazard Mitigation Plan.

PW

BE IT FURTHER RESOLVED: That the Sheboygan County Emergency Management Department will submit, on behalf of the participating municipalities, the final version of the adopted Hazard Mitigation Plan Update to Wisconsin Emergency Management and Federal Emergency Management Agency officials for final review and approval.

_____

_____

I HEREBY CERTIFY that the foregoing Resolution was duly passed by the Common Council of the City of Sheboygan, Wisconsin, on the _____ day of _____, 20____.

Dated _____ 20____. _____, City Clerk

Approved _____ 20____. _____, Mayor

Sheboygan County, Wisconsin Hazard Mitigation Plan 2020 - 2025

DRAFT

October, 2019

Prepared by:
Sheboygan County
Hazard Mitigation Plan Steering Committee

With Assistance by:
Bay-Lake Regional Planning Commission
Contract # 18034-08

BAY LAKE
Regional Planning Commission | Since 1972

Sheboygan County Emergency Management Contact

Steve Steinhardt
Emergency Management Coordinator
525 North 6th Street, Sheboygan, WI 53081
(920) 459-3360
Steve.Steinhardt@sheboygancounty.com

Hazard Mitigation Plan Steering Committee

Name	Organization
Aaron Brault	Sheboygan County Planning & Conservation
Andrew Bartell	City of Sheboygan GIS
Bill Blashka	Town of Sheboygan DPW
Bob Kroeplien	Sheboygan County Fire Chiefs
Brett Edgerle	Kohler DPW
Brian Hoffmann	Sheboygan County Board
Carol Tsagarakis	NEMAK
Chad Pelishek	City of Sheboygan Planning
Chasong Yang	Hmong Mutual Assistance Association
Chris St. Pierre	Sheboygan County HazMat
Chuck Butler	City of Sheboygan EM
Dave Albright	Sheboygan School District
Dean Dolence	American Red Cross
Diane Liebenthal	Sheboygan County H&HS
DiAnna DuPuis	Sheboygan County Sheriff's Dept
Emily Stewart	Sheboygan County Highway
Jackie Veldman	Town of Mitchell
James Schwinn	Town of Sheboygan
Janet Duellman	City of Sheboygan Planning
Jason Blasiola	City of Sheboygan DPW
Jason Dwyer	US Coast Guard
Jason Liermann	Sheboygan County Sheriff's Dept
Jennifer Vorpagel	Sheboygan County H&HS
Jessica Reilly	Village of Elkhart Lake
Karen Pohl	Town of Lima
Laura Gumm	Alliant Energy
Mark Matthias	Sheboygan County HazMat
Peter Madden	Plastics Engineering
Ryan Sazama	City of Sheboygan DPW
Star Grossman	Sheboygan County H&HS
Steve Cobb	City of Sheboygan PD
Steve Steinhardt	Sheboygan County EM
Ted Vallis	Wisconsin Public Service
Tom Bahr	St. Nicholas Hospital
Tom Hass	Aurora Sheboygan Memorial EM
Jeff Agee-Aguayo	Bay-Lake RPC (Project Staff)

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County Resolution of Adoption

FEMA/WEM Approval Letters

2020 COUNTY PLAN UPDATE SUMMARY

The Sheboygan County Hazard Mitigation Plan Update (2020) is an update to the Sheboygan County All Hazard Mitigation Plan approved in 2013. To aid in identifying the changes made to the 2013 plan, Table 0.1 lists the plan updates and the changes made to the identified mitigation actions.

SIGNIFICANT HAZARD EVENTS OF NOTE

Since the approval of the previous plan in 2013, Sheboygan County has experienced several hazard events; however, none was significant enough to require a federal disaster declaration.

Table 0.1: Sheboygan County Hazard Mitigation Plan Update Summary

Plan Chapter	Overview of Plan Update
Chapter 1: Introduction	Updated planning process participants and public review information. Several updates were made to the original steering committee to reflect changes in positions since the last plan was approved. The steering committee updated the prioritized order of the hazards to be addressed and added cybersecurity.
Chapter 2: Planning Area	Updated demographic profile information and land use information.
Chapter 3: Risk Assessment	All hazard profiles, occurrences, and probabilities were updated. In addition, the risk assessments were updated. Natural hazard occurrences were updated to include all from 1995 to 2018 (previous plan covered 1995 to 2011), while man-made hazards were updated to include different ranges of years depending on the hazard. Hazard probabilities were updated based on updated occurrences. Updated critical facilities and changed some category names. A risk assessment was added for cybersecurity.
Chapter 4: Mitigation Strategy	Updated the mitigation action plan to account for completed projects, updated timetables and new project additions.
Chapter 5: Plan Maintenance and Adoption Process	Updated plan maintenance process and plan update schedule.
Strategy	**Changes[1]**
NATURAL HAZARDS	
Multiple Natural Hazards	
Collect "building footprints" for all structures in the County to allow for analysis of where facilities/structures are located	Deleted
Harden utility infrastructure to make more resistant to hail (i.e.: burying of telephone lines)	Moved to the lightning/thunderstorm hazard
Create a hardened emergency communication facility	Completed
Evaluate and quantify generator backup capacity and promote use where beneficial	Added
Acquire a mass notification system	Added
Develop a joint information plan	Added
Disseminate hazard information to the public via a mass notification system	Added
Tornado/Strong Wind	
Disseminate severe weather safety information to the public	Deleted
Anchor mobile homes and exterior attachments (such as carports and porches)	Deleted

Table 0.1: Sheboygan County Hazard Mitigation Plan Update Summary (Continued)

Strategy	Changes[1]
Winter Storms	
All projects	Minor wording changes
Flooding	
Complete a hydrology study of Sheboygan County	Deleted
Protection of existing buildings and other structures	Deleted
Study effects of current and future development in the approximate floodplain and any other areas that have not yet been studied	Deleted
Review and update evacuation procedures for persons located in the hydraulic shadow of a dam	Reworded to "Review dam plans and notification procedures"
Dense Fog	
Upkeep existing signage in areas of high fog event incidence	Reworded to "Install signage in areas of high fog event incidences"
Lightning/Thunderstorm	
Harden utility infrastructure to make more resistant to hail (i.e.: burying of telephone lines)	Moved from All Hazards
Coastal Hazards	
Map high hazard areas for coastal erosion/ landslides	Deleted
Continue monitoring of water quality on beaches (Lake Michigan and inland waters)	Added
Continue monitoring and warn the public of high waves and rip currents along Lake Michigan	Added
Excessive Heat and Extreme Cold	
Initiate an ozone awareness education effort prior to and during periods of excessive heat	Added
Drought	
All projects	No changes

Table 0.1: Sheboygan County Hazard Mitigation Plan Update Summary (Continued)

Strategy	Changes[1]
Wildland Fires	
Coordinate public outreach efforts to promote such things as non-combustible roof covering, fire safe construction, safe burning, and the importance of clearing brush and grass away from buildings	Reworded to "Coordinate public outreach efforts to promote fire safe construction and building materials, safe burning, and the importance of clearing brush and grass away from buildings"
Develop local ordinances to require burn permits and restriction of campfires and outdoor burning	Reworded to "Develop county ordinance to require burn permits and restriction of campfires and outdoor burning"
Continue to promote safe, controlled prescribed burns	Added
Provide education of prescribed burns	Added
Landslides	
Map high hazard areas for coastal erosion/ landslides	Deleted
Subsidence	
Provide management information to residents as needed	Deleted
Strategy	**Changes[1]**
MAN-MADE HAZARDS	
Hazardous Materials Incidents	
All projects	No changes
Water Supply Contamination	
Replace or repair equipment or accessories at municipal water supply systems if in poor condition or if inadequate, and monitor components periodically if they are in average condition (e.g., electrical pumps, auxiliary generators, and valves)	Reworded to "Replace or repair equipment or accessories at municipal water supply systems if in poor condition, if inadequate, or if lead hazards become an issue, and monitor components periodically to assure that they are in adequate condition (e.g., electrical pumps, auxiliary generators and valves)"
Provide water supply education and water supply test kits to residents	Added
Communicable Diseases	
Continue to review and update the Sheboygan County medical and mass casualty plan	Reworded to "Continue to review and update the Sheboygan County Medical and Mass Casualty and Emergency Medical Services Plans"
Continue to review and update the Sheboygan County Emergency Medical Services Plan	Deleted, and combined with the strategy noted immediately above
Institute an emergency vaccination program in cases of imminent epidemics in the county	Added

Table 0.1: Sheboygan County Hazard Mitigation Plan Update Summary (Continued)

Strategy	Changes[1]
Violence	
Assist in the development of bomb threat policies and procedures by each school, hospital, business, and management building located in Sheboygan County	"Bomb" changed to "active"
Cybersecurity (New Hazard Addressed in the 2020 Plan)	
Develop internal policies and training regarding cyberthreats that could potentially impact the County	Added
Develop a public awareness campaign	Added
[1]Due to financial or political support, a number of mitigation actions have had no changes from the 2013 plan and appear again in this plan update.	

CHAPTER 1 – INTRODUCTION AND PLANNING PROCESS

PURPOSE OF THE PLAN

The primary focus of the *Sheboygan County Hazard Mitigation Plan 2020 - 2025* is to reevaluate the planning area's potential exposure to hazards, and to identify appropriate mitigation strategies. Consistent with federal regulations (44 CFR Part 201.6), this plan conforms to mitigation planning requirements.

Completion of this plan will assist emergency management personnel in identifying areas of risk, assess the magnitude of the risk, and develop strategies for reducing risk throughout Sheboygan County. Through the process of developing this plan, the county identified mitigation strategies related to the protection of lives and property from hazards, the protection of critical facilities, and the reduction of community and taxpayer costs associated with disaster relief and rescue efforts. Completion and approval of the plan will maintain Sheboygan County's eligibility to apply for future FEMA disaster relief and mitigation project funds, enabling the county to implement mitigation strategies.

Disaster Mitigation Act of 2000

The development and update of the *Sheboygan County Hazard Mitigation Plan 2020 - 2025* is in response to passage of the Disaster Mitigation Act of 2000. This act was signed into law in October of 2000 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:

- Local governments are required to maintain a hazard mitigation plan in order to be eligible for funding from FEMA through the Pre-Disaster Mitigation Assistance Program and the Hazard Mitigation Grant Program.
- Natural hazards are required to be addressed in the risk assessment/vulnerability analysis part of a hazard mitigation plan. Addressing man-made/technological hazards is encouraged, but not required.
- Up to seven (7) percent of Hazard Mitigation Grant Program funds available to a state after a federal disaster are authorized to be used for development of state, local and tribal hazard mitigation plans.
- Without a current, FEMA-approved, locally-adopted hazard mitigation plan, local governments cannot utilize funding through the Pre-Disaster Mitigation Grant Program.

Funding to Update the County Hazard Mitigation Plan

In August 2018, Sheboygan County received a planning grant to develop an update to its hazard mitigation plan in the amount of $33,423 through the Pre-Disaster Mitigation (PDM) program. Through the grant, FEMA provided 75 percent of the funds ($24,937) and the remaining 25 percent ($8,486) is the required local match.

Sheboygan County entered into a contract (#18034-08) with the Bay-Lake Regional Planning Commission to prepare the update to the hazard mitigation plan. Development of the plan began in November 2018.

Five Parts of the Hazard Mitigation Plan

The *Sheboygan County Hazard Mitigation Plan 2020 - 2025* is divided into five chapters in order to address FEMA's local mitigation plan requirements. The five chapters are as follows:

- Chapter 1 – Introduction and Planning Process;
- Chapter 2 – Planning Area;
- Chapter 3 – Risk Assessment;
- Chapter 4 – Mitigation Strategy; and
- Chapter 5 – Plan Maintenance and Adoption Process.

PLANNING PROCESS

Development of the *Sheboygan County Hazard Mitigation Plan 2020 - 2025* was based on planning requirements and guidance provided by FEMA and Wisconsin Emergency Management (WEM) to meet the requirements of the Disaster Mitigation Act of 2000. The planning area for this plan encompasses all of Sheboygan County, including: the cities of Plymouth, Sheboygan and Sheboygan Falls; the villages of Adell, Cascade, Cedar Grove, Elkhart Lake, Glenbeulah, Howards Grove, Kohler, Oostburg, Random Lake and Waldo; and the towns of Greenbush, Herman, Holland, Lima, Lyndon, Mitchell, Mosel, Plymouth, Rhine, Russell, Scott, Sheboygan, Sheboygan Falls, Sherman and Wilson.

Plan development was guided by a steering committee comprised of county and local officials, emergency management personnel, and organizations, over a 14-month timeframe beginning in November 2018. Planning support was provided by the Bay-Lake Regional Planning Commission. Public review and input was encouraged through an open house to present the plan goals, mitigation strategy plan, and mapped hazard areas.

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

Phase I: Pre-planning and review of steering committee appointments;

Phase II: Reassessing risks;

Phase III: Updating the mitigation action plan;

Phase IV: Reviewing the policies and procedures for plan implementation; and

Phase V: Documenting the planning process and plan adoption.

Phase I involved initial conversations and meetings aimed at reviewing the previous steering committee appointments, reconvening the steering committee, and outlining the planning process and responsibilities of the steering committee.

Phase II was comprised of a meeting with the steering committee to reassess natural hazards and potential risks to the county.

Phase III involved updating the mitigation action plan to address identified risks, including removing completed tasks and adding new mitigation methods to address risks.

Phase IV involved reviewing the policies that affect plan implementation and the procedures that would be followed to implement the plan.

Phase V involved documenting the planning process, developing a complete draft of the plan, and plan adoption.

The maps in the Planning Area and Risk Assessment chapters of the plan were developed using the Bay-Lake Regional Planning Commission's Geographic Information System (GIS), allowing greater manipulation and analysis from the use of a consistent base map. Maps included in this plan are for general planning purposes only, and are not for legal or formal survey purposes.

Steering Committee

The steering committee (Table 1.1) reviewed and analyzed each section of the plan during the five (5) meetings held to develop the plan update. Copies of the sign-in sheets are included in Appendix A.

The steering committee identified the following natural hazards to be addressed in this plan update (hazards are listed by order of priority).

1. Flooding (includes flash, riverine, lake, stormwater, dam failure flooding, and urban/small stream flooding);
2. Tornadoes/High Winds (includes funnel cloud, waterspout, thunderstorm winds, strong winds, and high winds);
3. Winter Storms (includes winter weather, snow, heavy snow, ice storms, freezing drizzle, freezing rain, blowing snow, glaze, and blizzards);
4. Lightning Storms and Thunderstorms (including hail and heavy rain);
5. Fog;
6. Coastal Hazards;
7. Extreme Cold (includes cold, extreme wind chill, and wind chill);
8. Drought;
9. Wildland Fires;
10. Extreme Heat (includes record warmth and excessive heat) and Landslides (tied for 10th place); and
12. Subsidence.

The steering committee identified the following man-made hazards to be addressed in this plan update (hazards are listed by order of priority).

1. Cybersecurity;
2. Hazardous Materials;
3. Communicable Diseases;
4. Water Supply Contamination; and

5. Violence.

Table 1.1: Sheboygan County Hazard Mitigation Plan 2020-2025 Steering Committee

Name	Organization
Aaron Brault	Sheboygan County Planning & Conservation
Andrew Bartell	City of Sheboygan GIS
Bill Blashka	Town of Sheboygan DPW
Bob Kroeplien	Sheboygan County Fire Chiefs
Brett Edgerle	Kohler DPW
Brian Hoffmann	Sheboygan County Board
Carol Tsagarakis	NEMAK
Chad Pelishek	City of Sheboygan Planning
Chasong Yang	Hmong Mutual Assistance Association
Chris St. Pierre	Sheboygan County HazMat
Chuck Butler	City of Sheboygan EM
Dave Albright	Sheboygan School District
Dean Dolence	American Red Cross
Diane Liebenthal	Sheboygan County H&HS
DiAnna DuPuis	Sheboygan County Sheriff's Dept
Emily Stewart	Sheboygan County Highway
Jackie Veldman	Town of Mitchell
James Schwinn	Town of Sheboygan
Janet Duellman	City of Sheboygan Planning
Jason Blasiola	City of Sheboygan DPW
Jason Dwyer	US Coast Guard
Jason Liermann	Sheboygan County Sheriff's Dept
Jennifer Vorpagel	Sheboygan County H&HS
Jessica Reilly	Village of Elkhart Lake
Karen Pohl	Town of Lima
Laura Gumm	Alliant Energy
Mark Matthias	Sheboygan County HazMat
Peter Madden	Plastics Engineering
Ryan Sazama	City of Sheboygan DPW
Star Grossman	Sheboygan County H&HS
Steve Cobb	City of Sheboygan PD
Steve Steinhardt	Sheboygan County EM
Ted Vallis	Wisconsin Public Service
Tom Bahr	St. Nicholas Hospital
Tom Hass	Aurora Sheboygan Memorial EM
Jeff Agee-Aguayo	Bay-Lake RPC (Project Staff)

Participation by Incorporated Jurisdictions in Sheboygan County

Incorporated jurisdictions in Sheboygan County were encouraged to participate in the plan development process to ensure that the plan was as comprehensive as possible. Those incorporated jurisdictions involved in the planning process offered assistance in developing a county-wide critical facilities database as well as the risk assessment and mitigation strategy portions of the plan. By participating in the plan development process, incorporated communities are eligible to adopt the plan by resolution, thereby qualifying the community for funding through the FEMA Hazard Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation (PDM) Grant Program, and the Flood Mitigation Assistance (FMA) Program.

Through local review exercises or through participation on the Steering Committee, representatives from the cities of Plymouth, Sheboygan and Sheboygan Falls; and the villages of Adell, Cascade, Cedar Grove, Elkhart Lake, Glenbeulah, Howards Grove, Kohler, Oostburg, Random Lake and Waldo provided review and input throughout the planning process.

The plan goals, hazards addressed, the mitigation strategy, and critical facilities were reviewed by the local municipalities and feedback was provided. See Appendix C for additional information on the multi-jurisdictional cooperation process and participants.

Public Review Process

Opportunities for public comment during the drafting stage of the plan were held at all meetings of the steering committee, which were open to the public. No comments were provided by the public at these meetings.

An open house on the draft plan was held at _____ on _____, 2020. Copies of the draft plan were available at this meeting, along with key maps and the mitigation strategies. A copy of the public notice can be found in Appendix B. No comments or questions concerning the plan or open house were received.

Sheboygan County Board of Supervisors Meeting

On _____, 2020, the Sheboygan County Board of Supervisors considered and adopted the *Sheboygan County, Wisconsin, Hazard Mitigation Plan 2020 - 2025* at a public meeting. A copy of the resolution of adoption can be found at the front of this document.

Neighboring Jurisdictions

A draft of the *Sheboygan County, Wisconsin Hazard Mitigation Plan 2020 - 2025* was sent to the emergency management directors in Washington, Ozaukee, Fond du Lac, Calumet, and Manitowoc counties for their review and comment. No comments were received.

GENERAL GEOGRAPHY

The planning area for the *Sheboygan County, Wisconsin, Hazard Mitigation Plan 2020 - 2025* is shown in Map 2.1. The planning area includes all of Sheboygan County.

Table 2.1 indicates the geographical size of Sheboygan County, along with the geographical size of all cities, villages and towns within the county. Sheboygan County covers nearly 518 square miles of territory.

Table 2.1: Geographical Size by Jurisdiction (Sheboygan County)

Jurisdiction	Size of Jurisdiction (square miles)	Jurisdiction	Size of Jurisdiction (square miles)
CITIES		**TOWNS**	
City of Plymouth	5.4	Town of Greenbush	47.4
City of Sheboygan	15.9	Town of Herman	34.0
City of Sheboygan Falls	5.5	Town of Holland	40.8
		Town of Lima	35.8
VILLAGES		Town of Lyndon	34.2
Village of Adell	0.6	Town of Mitchell	36.1
Village of Cascade	0.8	Town of Mosel	21.1
Village of Cedar Grove	2.2	Town of Plymouth	30.4
Village of Elkhart Lake	1.3	Town of Rhine	34.6
Village of Glenbeulah	0.7	Town of Russell	24.1
Village of Howards Grove	2.2	Town of Scott	36.6
Village of Kohler	5.5	Town of Sheboygan	10.7
Village of Oostburg	2.0	Town of Sheboygan Falls	31.3
Village of Random Lake	1.8	Town of Sherman	34.1
Village of Waldo	1.0	Town of Wilson	21.7
TOTAL	**517.8 square miles**		

Source: Sheboygan County Planning and Conservation Department, 2018.

DEMOGRAPHIC AND ECONOMIC PROFILE

Population

Table 2.2 examines the population of jurisdictions in Sheboygan County between 2000 and 2010, and indicates that 19 of the 28 cities, villages and towns in Sheboygan County experienced a population gain from 2000 to 2010. Population decreases were experienced in the City of Sheboygan, two villages (Adell and Elkhart Lake), and six towns (Greenbush, Holland, Mosel, Rhine, Russell, and Sherman) from 2000 to 2010.

The likely reason for the significant population decrease in the Town of Greenbush, coupled with the significant population increase in the Town of Mitchell is due to the location of the Kettle Moraine Correctional Institute on the boundary between the two

towns and the institutionalized population being counted by the U.S. Census in one town or the other from one decennial census to the next.

Table 2.2: Population Change by Jurisdiction (Sheboygan County), 2000 and 2010

Jurisdiction	2000 Census	2010 Census	Percent Change 2000 - 2010
CITIES			
City of Plymouth	7,781	8,445	8.5%
City of Sheboygan	50,792	49,288	-3.0%
City of Sheboygan Falls	6,772	7,775	14.8%
VILLAGES			
Village of Adell	517	516	-0.2%
Village of Cascade	681	709	4.1%
Village of Cedar Grove	1,887	2,113	12.0%
Village of Elkhart Lake	1,021	967	-5.3%
Village of Glenbeulah	378	463	22.5%
Village of Howards Grove	2,792	3,188	14.2%
Village of Kohler	1,926	2,120	10.1%
Village of Oostburg	2,660	2,887	8.5%
Village of Random Lake	1,551	1,594	2.8%
Village of Waldo	450	503	11.8%
TOWNS			
Town of Greenbush	2,619	1,534	-41.4%
Town of Herman	2,044	2,151	5.2%
Town of Holland	2,360	2,239	-5.1%
Town of Lima	2,948	2,982	1.2%
Town of Lyndon	1,463	1,542	5.4%
Town of Mitchell	1,286	2,335	81.6%
Town of Mosel	839	790	-5.8%
Town of Plymouth	3,115	3,195	2.6%
Town of Rhine	2,244	2,134	-4.9%
Town of Russell	399	377	-5.5%
Town of Scott	1,804	1,836	1.8%
Town of Sheboygan	5,874	7,271	23.8%
Town of Sheboygan Falls	1,706	1,718	0.7%
Town of Sherman	1,520	1,505	-1.0%
Town of Wilson	3,227	3,330	3.2%
County Total	**112,656**	**115,507**	**2.5%**

Source: U.S. Bureau of the Census, 2000 and 2010; and Bay-Lake Regional Planning Commission, 2019.

The following jurisdictions had the largest (greater than ten percent) increases in population between 2000 and 2010:

1. Town of Mitchell (81.6%);
2. Town of Sheboygan (23.8%);
3. Village of Glenbeulah (22.5%);
4. City of Sheboygan Falls (14.8%);
5. Village of Howards Grove (14.2%);
6. Village of Cedar Grove (12.0%);
7. Village of Waldo (11.8%); and
8. Village of Kohler (10.1%).

Households

Table 2.3 indicates households and housing units by jurisdiction within Sheboygan County in 2000 and in 2010. Only the City of Sheboygan and the Town of Mosel saw a decrease in the number of households (-2.3 percent and -0.6 percent, respectively) from 2000 to 2010; all other local jurisdictions gained households and housing units over this decade. Overall, Sheboygan County had a 6.5 percent increase in households from 2000 to 2010. The following jurisdictions had the largest (greater than ten percent) increases in households between 2000 and 2010:

1. Town of Sheboygan (39.6%);
2. Village of Glenbeulah (26.8%);
3. City of Sheboygan Falls (26.8%);
4. Village of Howards Grove (23.6%);
5. Village of Cedar Grove (20.5%);
6. Village of Waldo (16.6%);
7. City of Plymouth (13.7%);
8. Village of Oostburg (11.3%); and
9. Town of Mitchell (10.7%).

It should be noted that the number of persons per household in Sheboygan County decreased from 2.59 to 2.49 between 2000 and 2010. This is part of a trend that has been observed in the area since the mid-1990s, and is a trend that is expected to continue for many years to come.

Housing Units

Table 2.3 indicates that no municipalities saw decreases in the number of housing units from 2000 to 2010. Overall, Sheboygan County had a 10.5 percent increase in housing units over this decade. The following jurisdictions had the largest (greater than ten percent) increases in housing units between 2000 and 2010:

1. Town of Sheboygan (41.4%);
2. City of Sheboygan Falls (30.3%);
3. Village of Glenbeulah (27.5%);
4. Village of Howards Grove (24.9%);

5. Village of Cedar Grove (21.7%);
6. Village of Waldo (20.1%);
7. City of Plymouth (19.0%);
8. Village of Elkhart Lake (17.9%);
9. Village of Oostburg (15.9%);
10. Town of Lima (12.1%);
11. Town of Mitchell (11.9%);
12. Town of Rhine (10.8%);
13. Town of Lyndon (10.0%); and
14. Village of Kohler (10.0%).

The housing vacancy rate for Sheboygan County (percentage of housing units not occupied by households) was 5.2 percent in 2000, and increased to 8.6 percent in 2010.

Table 2.3: Household and Housing Unit Data by Jurisdiction (Sheboygan County)

Jurisdiction	Households		Housing Units	
	2000	2010	2000	2010
CITIES				
City of Plymouth	3,262	3,710	3,395	4,039
City of Sheboygan	20,779	20,308	21,762	22,339
City of Sheboygan Falls	2,745	3,480	2,826	3,681
VILLAGES				
Village of Adell	207	210	216	224
Village of Cascade	259	274	274	291
Village of Cedar Grove	699	842	724	881
Village of Elkhart Lake	436	457	599	706
Village of Glenbeulah	153	194	160	204
Village of Howards Grove	1,007	1,245	1,022	1,276
Village of Kohler	737	784	792	871
Village of Oostburg	980	1,091	996	1,154
Village of Random Lake	613	659	656	720
Village of Waldo	169	197	174	209
TOWNS				
Town of Greenbush	526	568	551	594
Town of Herman	574	611	592	646
Town of Holland	828	856	1,019	1,117
Town of Lima	1,008	1,089	1,029	1,153
Town of Lyndon	545	589	629	692
Town of Mitchell	419	464	437	489
Town of Mosel	310	308	323	328
Town of Plymouth	1,092	1,152	1,178	1,229
Town of Rhine	829	871	961	1,065
Town of Russell	140	149	149	156
Town of Scott	658	697	700	749
Town of Sheboygan	2,148	2,999	2,245	3,175
Town of Sheboygan Falls	657	706	675	736
Town of Sherman	533	566	544	597
Town of Wilson	1,235	1,314	1,323	1,445
County Total	**43,548**	**46,390**	**45,951**	**50,766**

2000 Persons per Household	2.59	**2000 Housing Vacancy Rate**	5.2%
2010 Persons per Household	2.49	**2010 Housing Vacancy Rate**	8.6%

Source: U.S. Bureau of the Census, 2000 and 2010; and Bay-Lake Regional Planning Commission, 2019.

Employment

Table 2.4 indicates employment in Sheboygan County (industry by occupation) in 2000 and in 2010.

Table 2.4: Employment (Sheboygan County), 2000 and 2010

Employment Category	Number Employed in 2000	Percent Employed in 2000	Number Employed in 2010	Percent Employed in 2010	Percent Change 2000 - 2010
Agriculture, forestry, fishing and hunting, and mining	1,158	1.9%	1,035	1.8%	-10.6%
Construction	3,290	5.5%	3,529	6.1%	7.3%
Manufacturing	22,760	38.3%	19,205	33.3%	-15.6%
Wholesale trade	1,479	2.5%	846	1.5%	-42.8%
Retail trade	5,717	9.6%	5,813	10.1%	1.7%
Transportation and warehousing, and utilities	1,690	2.8%	1,901	3.3%	12.5%
Information	810	1.4%	372	0.6%	-54.1%
Finance and insurance, and real estate and rental and leasing	2,490	4.2%	3,160	5.5%	26.9%
Professional, scientific, and management, and administrative and waste management services	2,879	4.8%	3,264	5.7%	13.4%
Educational services, and health care and social assistance	10,228	17.2%	10,584	18.4%	3.5%
Arts, entertainment, and recreation, and accommodation and food services	3,844	6.5%	5,034	8.7%	31.0%
Other services, except public administration	1,918	3.2%	2,112	3.7%	10.1%
Public administration	1,191	2.0%	820	1.4%	-31.2%
TOTAL	**59,454**	**100.0%**	**57,675**	**100.0%**	**-3.0%**

Source: U.S. Bureau of the Census, 2000 and 2010; and Bay-Lake Regional Planning Commission, 2019.

The most important employment sectors in 2000 and 2010 were manufacturing; educational services, health care and social assistance; and retail trade.

There were significant decreases in employment (move than 30 percent) from 2000 to 2010 in information; wholesale trade; and public administration. There were increases in employment (more than 25 percent) from 2000 to 2010 in arts, entertainment, and recreation, and accommodation and food services; and finance and insurance, and real estate, and rental and leasing. The county saw an overall employment decrease of 3.0 percent (across all sectors) between 2000 and 2010, largely due to the significant recession that started around 2008 and lasted for several months.

GENERAL DEVELOPMENT PATTERN

A detailed field inventory of land uses in Sheboygan County was conducted in 2002 by the Bay-Lake Regional Planning Commission. Updates was made in the two cities, two villages and six towns that constitute the Sheboygan metropolitan planning area in 2015. The updated land use information was then compiled into generalized land use categories, and is presented in Table 2.5 and in Map 2.2.

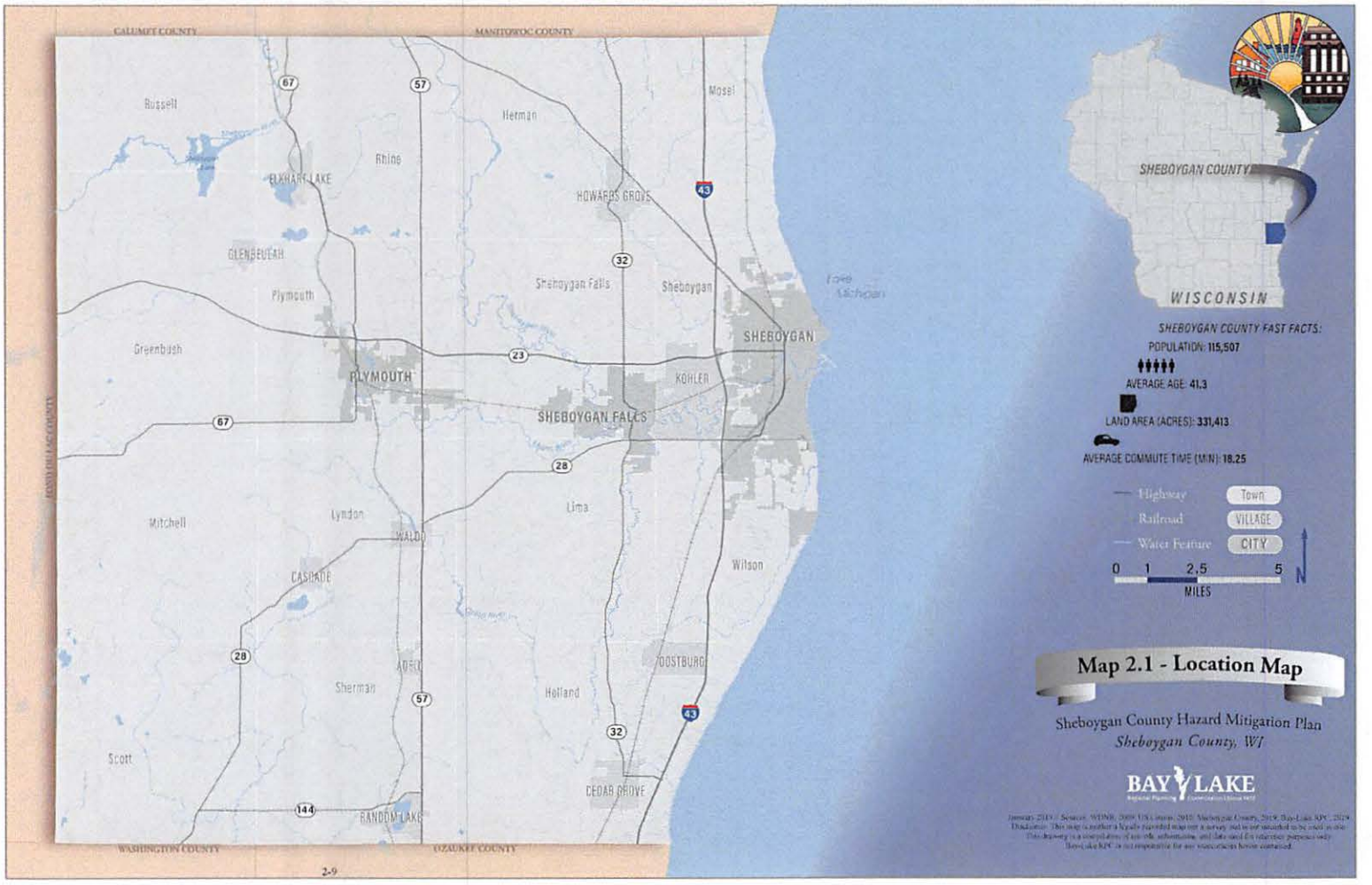
The total area of Sheboygan County is nearly 331,384 acres (Table 2.5). The vast majority of the county is comprised of agricultural land (crops and pasture, 177,132 acres or 53.5 percent); and woodland/natural areas (nearly 112,799 acres or 34.0 percent). Residential land comprises nearly 13,614 acres or 4.1 percent. Nearly 37,110 acres or about 11.2 percent of Sheboygan County is developed. Developed land is comprised of residential, commercial, industrial, transportation, communications/ utilities, governmental/institutional, and parks and recreation related land uses.

Table 2.5: Land Use (Sheboygan County)

Land Use Type	Total Acres	% of Total Land	% of Developed Land
DEVELOPED			
Residential	13,613.8	4.1%	36.7%
Transportation	10,865.4	3.3%	29.3%
Parks and Recreation	5,158.6	1.6%	13.9%
Industrial	2,914.7	0.9%	7.9%
Commercial	1,964.7	0.6%	5.3%
Governmental/Institutional	1,716.1	0.5%	4.6%
Communications/Utilities	876.4	0.3%	2.4%
Total Developed Acres	37,109.7	11.2%	100.0%

Land Use Type	Total Acres	% of Total Land	% of Developed Land
UNDEVELOPED			
Agricultural	177,132.0	53.5%	60.2%
Woodlands/Natural Areas	112,798.8	34.0%	38.3%
Wetlands/Water Features	4,343.1	1.3%	1.5%
Total Undeveloped Acres	294,273.9	88.8%	100.0%
Total Land Area (Acres)	**331,383.6**	100.0%	NA

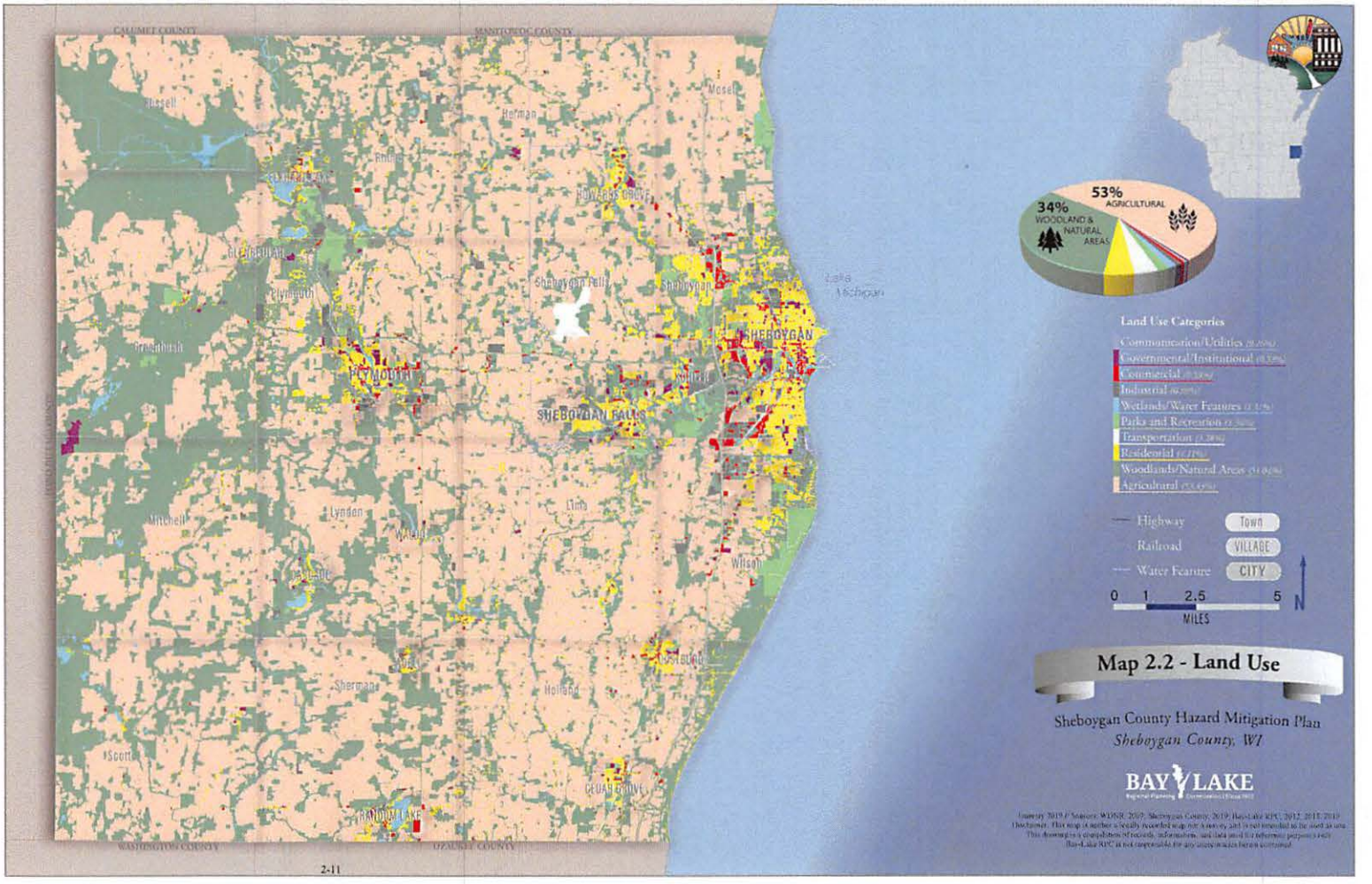
Source: Bay-Lake Regional Planning Commission, 2002, 2009 and 2015.



Map 2.1 - Location Map

Sheboygan County Hazard Mitigation Plan
Sheboygan County, WI

BAY LAKE



Map 2.2 - Land Use

Sheboygan County Hazard Mitigation Plan

Sheboygan County, WI

BAY LAKE

Regional Planning Commission (Since 1970)

In order to more effectively evaluate potential hazard mitigation measures and develop useful strategies to address the risks associated with the identified hazards, a risk assessment has been prepared for Sheboygan County. The risk assessment identifies the hazards thought to pose the greatest risk to residents of the county, to profile the extent and severity of past hazard events that have affected the county, and to assess the vulnerability of the county to the risk of future hazard events.

HAZARD IDENTIFICATION

Although the county could potentially be at risk from several distinct hazards, this plan focuses on addressing the hazards that pose the greatest risk to people and property in the county. Identification of the hazards to be addressed was based on a priority rank ordering of the many different natural and man-made hazards identified in the *Resource Guide to All Hazards Mitigation Planning in Wisconsin* (prepared by the Association of Wisconsin Regional Planning Commissions through funding provided by WEM and FEMA).

Hazard Risk Assessment Survey

Members of the plan steering committee completed an update to the *Risk Assessment Matrix* worksheet in late April and early May of 2019. The worksheet with the average scores from the steering committee members is included in Appendix E.

Each plan 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 identified hazard. The total number of points for each of the hazards was then calculated. An averaged summary of the risk rating for each hazard that was rated is as follows:

Table 3.1: Natural Hazards Risk Assessment Ranking

Rank	Natural Hazard	Risk Assessment Rating Total
1	Flooding	18
2	Tornadoes/High Winds*	17
3	Winter Storms	16
4	Lightning Storms/Thunderstorms	14
5	Fog	13
6	Coastal Hazards	12
7	Extreme Cold	12
8	Drought	11
9	Wildland Fires**	11
10 (tie)	Extreme Heat	11
10 (tie)	Landslide	11
12	Subsidence	10

*Emphasis was on high winds.
**Emphasis on wildland fires caused by man.

Source: Sheboygan County Hazard Mitigation Plan Steering Committee, 2019; and Bay-Lake Regional Planning Commission, 2019.

Table 3.2: Man-Made Hazards Risk Assessment Ranking

Rank	Man-Made Hazard	Risk Assessment Rating Total
1	Cybersecurity	14
2	Hazardous Materials*	13
3	Communicable Diseases	12
4	Water Supply Contamination	11
5	Violence	10

*Includes hazardous materials at a fixed facility, or transported via railway, roadway, waterway, pipeline or aircraft.

Source: Sheboygan County Hazard Mitigation Plan Steering Committee, 2019; and Bay-Lake Regional Planning Commission, 2019.

Table 3.3: Natural Hazard Occurrences Data (Sheboygan County), 1995-2018

Natural Hazard	# of Events[1]	Average #/Year	Risk[2]	Deaths	Injuries	Reported Crop Damage	Reported Property Damage[3]
Tornado/Strong Wind	64	3	High	0	0	$76,200	$1,701,000
Winter Weather/Storms	139	6	Very High	0	0	$0	$75,000
Flooding	22	0.9	Low	0	0	$31,254,000	$42,078,000
Dense Fog	80	3	High	10	40	$0	ND
Lightning/Thunderstorms	99	4	High	0	3	$166,000	$4,182,500
Coastal Hazards	48	9	Very High	ND	ND	ND	ND
Excessive Heat	30	1	Moderate	0	3	$0	$0
Extreme Cold	28	1	Moderate	1	3	$0	$8,000
Drought	15	0.6	Low	0	0	$150,000	$0
Wildland Fires	ND	0	Low	ND	ND	ND	ND
Total Events	**461**	--	--	**11**	**49**	**$31,570,000**	**$46,343,500**

ND = No data/Not determined

1. January 1, 1995, to December 31, 2018 (24 years), with the exception of coastal hazards, which was June 1, 2014 - September 24, 2018.
2. Risk based on occurrences per year: Very High >5; High 3-4; Moderate 1-2; and Low <1
3. Does not factor in private losses for most occurrences.

Source: NOAA NCDC Storms Database, 1995 - 2018; and Bay-Lake Regional Planning Commission, 2019.

Natural Hazards Prioritization

The plan steering committee identified the following ranked natural hazards to be the focus of the plan assessment and mitigation action strategies. Ranking the potential risks associated with each natural hazard helped the steering committee prioritize the mitigation action strategies that are addressed later in the plan. The following natural hazards combined more than one listing from the NCDC data for consistency (the additional listings are provided in parentheses). The hazards are listed in order of their prioritized ranking.

1. Flooding (includes flash, riverine, lake, stormwater, dam failure flooding, and urban/small stream flooding);
2. Tornadoes/High Winds (includes funnel cloud, waterspout, thunderstorm winds, strong winds, and high winds);
3. Winter Storms (includes winter weather, snow, heavy snow, ice storms, freezing drizzle, freezing rain, blowing snow, glaze, and blizzards);
4. Lightning Storms and Thunderstorms (includes hail and heavy rain);
5. Fog;
6. Coastal Hazards;
7. Extreme Cold (includes cold, extreme wind chill, and wind chill);
8. Drought;
9. Wildland Fires;
10. Extreme Heat (includes record warmth and excessive heat) and Landslides (tied for 10th place); and

12. Subsidence.

Natural Hazard Events Historical Summary

Statistics on past hazard occurrences assisted the steering committee in ranking 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 of these events. Event occurrence information is available at a local, county, or regional level – depending on the area covered by the hazard event. Historical hazard events were generally evaluated from January 1, 1995, through December 31, 2018, but coastal hazards were evaluated for the shorter time period of June 1, 2014, through September 24, 2018. The query for that time period resulted in 461 events recorded (Table 3.3).

The data from the NCDC shows that of the 461 events, the most prominent natural hazard events in Sheboygan County (for the last 24 years) have been winter weather and storms (139 events), lightning and thunderstorms (99 events),dense fog (80 events), and tornadoes and strong winds (64 events). Other events occurring fewer than 40 times in the county in the last 24 years include: excessive heat (30 events), extreme cold (28 events), flooding (22 events), and drought (15 events). Some of these hazard events were recorded for a larger regional area, or statewide. In addition, some of the common hazard events, such as lightning and thunderstorms, may only get recorded by the NCDC if they are extreme events that cause property damage, injury, or death. It is also estimated that there have been 48 coastal hazards over a more recent period (June 1, 2014, through September 24, 2018), while the number of wildland fire events has not been determined.

Some 11 deaths and 49 injuries were reported in Sheboygan County from natural hazard events in the last 24 years. Ten of those deaths and 40 of the injuries resulted from a dense fog event in October 2002 that caused a large multi-vehicle crash on Interstate Highway 43 in the Town of Holland. One other death and three injuries were due to extreme cold events, with three additional injuries due to lightning and thunderstorms, and with three other injuries due to excessive heat.

The most costly natural hazard in terms of property damage since 1995 has been flooding, which has resulted in over $73 million in property damage (including crop damages). Other natural hazards in which over $1 million in property and crop damage have occurred include tornadoes and strong wind, as well as lightning and thunderstorms. Hazards that had smaller amounts of property and crop damage include winter weather and storms, extreme cold, and drought.

Federal Disaster Declaration History

There have been 25 major (federal) disaster or emergency declarations issued for Wisconsin since 2000. Sheboygan County was included in four of the declarations.

On August 12, 1998, Sheboygan County was included in a major disaster declaration that was issued because of severe storms and flooding that occurred from August 5 – 7, 1998, and affected mostly five counties in Wisconsin (DR-1238).

On January 24, 2001, Sheboygan County was included in a "state of emergency" declaration "based on emergency measures performed to save lives and protect public health and safety resulting from record or near record snow from December 11 – 30, 2000." Some 14 Wisconsin counties were included in this declaration (EM-3163).

On June 18, 2004, Sheboygan County was included in a major disaster declaration that was issued as a result of severe storms and flooding that began on May 19, 2004. Sheboygan County qualified for individual assistance, but did not qualify for public assistance under this declaration. Some 44 Wisconsin counties were included in this declaration (DR-1526).

On June 14, 2008, Sheboygan County was included in a major disaster declaration that was issued because of property damage resulting from severe storms, tornadoes and flooding that occurred in June 2008, and affected 31 counties across the southern half of Wisconsin (DR-1768).

State Disaster Declaration History

There have been a total of 26 "state of emergency" (disaster) declarations issued wholly or partially for Sheboygan County (including statewide declarations) from January 1, 1995, through July 3, 2019. In Wisconsin, these declarations are made by the Governor via Executive Orders. Of these declarations, seven involved winter storms, seven involved drought (most of these were statewide declarations), five involved severe weather leading to flooding, four involved wildfires (all of these were statewide declarations), and one involved thunderstorms and high winds. In addition, two declarations were for man-made hazards, with one of these taking place in the aftermath of September 11, 2001, and with the other taking place due to an H1N1 influenza outbreak. It should be noted that several declarations involved subsequent Executive Orders that were used to respond to the original declared disaster, and sometimes, the disaster area was subsequently expanded from a smaller area to cover additional counties or the entire state.

Other Natural Hazards Determined Not to Pose a Significant Risk

The following natural hazards were determined to have a minimal chance of occurring or pose minimal risk to the safety of residents or property in Sheboygan County. These natural hazards are excluded from the full assessment, but are briefly discussed here to meet the comprehensive requirements for developing a natural hazards mitigation plan under Federal law.

Earthquakes

According to the U.S. Geological Survey (USGS), there have been 19 earthquake events in Wisconsin. The closest of these to Sheboygan County occurred in 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, and 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, but 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. Sheboygan County falls within the second lowest earthquake hazard shaking area, which represents the levels of horizontal shaking which have a 1-in-50 chance of being exceeded in a 50 year period. Similarly, Sheboygan County falls within a 1%g to 2%g 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, Sheboygan County is considered unlikely to be substantially affected by earthquakes in the long-term future. The earthquake threat to Sheboygan County is considered very low.

Landslides and Subsidence

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, groundwater flow, 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 low landslide risks for Sheboygan County. The majority of the land within Sheboygan County does not involve steep slopes and does not pose a landslide risk. The landslide risks associated with Lake Michigan are addressed as coastal bluff erosion under the previous "Coastal Hazards" section of this chapter.

Land subsidence is an event in which a portion of the land surface collapses or settles. Subsidence in Wisconsin typically occurs in areas of karst terrain (dolomite and limestone bedrock areas). Subsidence in karst terrains occurs where dissolution of bedrock by groundwater flow causes the creation of voids (i.e. caves). The land above these underground voids often appears normal until a critical amount below has been washed away and the soil surface can no longer support the weight and collapses, causing subsidence at the surface (i.e. sinkholes).

Sheboygan County lies within the area of risk in Wisconsin that has been identified by the Wisconsin Geologic and Natural History Survey. This area is delineated as a V-shaped swath across Wisconsin that extends southeast from St. Croix County along the Mississippi River, across the bottom two tiers of counties, and northeast along Lake Michigan up to Marinette County (Figure 1). However, being in an area of deeper karst potential (instead of the shallow karst areas) reduces the risk of subsidence in the county.

Man-Made Hazard Events Historical Summary

Statistics on past man-made hazard occurrences were acquired from the National Response Center, Oil and Chemical Spill Data Public Reports for hazardous materials data, and from the Sheboygan County Health and Human Services Department for communicable diseases. No information on water supply contamination or on violence was available. Hazardous materials occurrences were evaluated for the last 24 years from January 1, 1995, through December 31, 2018, while communicable disease incidences were evaluated for a 9 year period in which data were available from

January 1, 2010, through December 31, 2018. During the two periods in which data were collected, 1,458 man-made hazard events were recorded (Table 3.4).

The man-made hazard events data shows that of the 1,458 events, the most prominent man-made hazard in Sheboygan County has been communicable diseases (approximately 1,334 occurrences). Approximately 148 communicable disease occurrences are reported each year. Additionally, two deaths and 33 injuries were reported for 124 hazardous materials incidents (approximately five incidents per year). In the case of communicable diseases, 184 deaths were reported over the period between 2005 and 2015, or an average of nearly 17 deaths per year; the number of injuries from communicable diseases is likely higher, but has not been documented.

Table 3.4: Man-Made Hazard Occurrence Data, Sheboygan County

Man-Made Hazard	# of Events	Avg #/Year	Deaths	Injuries
Cybersecurity	0	0	0	0
Hazardous Materials[1]	124	5	2	33
Water Supply Contamination	0	0	0	0
Communicable Diseases[2]	1,334	148	184	ND
Violence	0	0	0	0
Total	1,458	–	186	33

[1]January 1, 1995, to December 31, 2018 (24 years)

[2]January 1, 2010, to December 31, 2018 (9 years) for number of events and average number per year, and January 1, 2005, to December 31, 2015 (11 years) for number of deaths.

Source: National Response Center, Oil and Chemical Spill Data Public Reports, 1995 – 2018; Wisconsin Department of Health Services, 2005 – 2015; Sheboygan County Department of Health and Human Services, 2010 – 2018; and Bay-Lake Regional Planning Commission, 2019.

Man-Made Hazards Prioritization

The plan steering committee identified the following ranked man-made hazards to be the focus of the plan assessment and mitigation action strategies. Ranking the potential risks associated with each man-made hazard helped the steering committee prioritize the mitigation action strategies that are addressed later in the plan. The following man-made hazards are listed in order of their prioritized ranking:

1. Cybersecurity;
2. Hazardous Materials;
3. Communicable Diseases;
4. Water Supply Contamination; and
5. Violence.

Other Man-Made Hazards Determined Not to Pose a Significant Risk

The following man-made hazards were determined to have a minimal chance of occurring or pose minimal risk to the safety of residents or property in Sheboygan County. These man-made hazards are excluded from the full assessment, but are briefly discussed here.

Transportation (Including Railway, Roadway, Waterway, and Airway) Incident

Transportation incidents include accidental and intentional crashes or collisions involving any means of transportation. Serious transportation incidents generally involve large commercial vehicles. These incidents can be the result of a number of causes,

including human error, mechanical failure, poor weather conditions, hijacking and sabotage.

Nuclear Power Plant Incident

A nuclear power plant incident can be defined as one that involves the uncontrolled release of potentially dangerous radioactive materials into the environment from a commercial nuclear power plant. A portion of the State of Wisconsin's total energy is provided by one nuclear power plant with two reactors; this plant is located within 50 miles of Sheboygan County. Another plant with one reactor (that was also within 50 miles of Sheboygan County) recently closed. To date, no nuclear power plant incidents have occurred that have affected Sheboygan County.

RISK AND VULNERABILITY ASSESSMENT

The risk and vulnerability assessment is intended to describe the frequency, severity and probability of future occurrences of hazards that could impact the planning area. The following hazard profiles attempt to historically describe the characteristics of each hazard and how they have affected the population, infrastructure and environment of the planning area, and the potential risk to the population and property that could occur because of each of these hazards.

Critical Facilities

Although the risk assessment focuses on the risk potential to the overall planning area, critical facilities are of particular concern. Critical facilities are necessary to preserve health, welfare and quality of life in the county, and fulfill important public safety, emergency response, and/or disaster recovery functions, or they house vulnerable populations (such as schools, childcare facilities and mobile home parks).

Critical facilities in the planning area have been identified and mapped, and are illustrated in Map 3.1. Table 3.5 lists the types of critical facilities in the planning area. There are 846 critical facilities in the county. The largest number of critical facilities (254) involves bridges.

Table 3.5: Critical Facilities by Type, Sheboygan County

Type	Total
Bridges	254
Hazardous Materials/Chemical/EPCRA	111
Communications Facility	99
Schools	57
Water Supply Facility	56
Assisted Living Facilities	35
Electric Power Plants and Substations	34
Government	33
Wastewater/Sewage Treatment Facility	28
Fire/Rescue	27
Natural Gas Facility	21
Dams	20
Hospitals/Clinics	15
Fuel Storage	14
Public Works	14
Manufactured Housing Community	12
Law Enforcement	10
Military Installations	3
Disaster Response	2
Airports	1
Total	**846**

Source: Bay-Lake Regional Planning Commission, 2019.

HAZARD PROFILES: NATURAL HAZARDS

Hazard profiles are intended to describe the frequency, severity, and probability of future natural hazards that could have an impact on Sheboygan County. These hazard profiles attempt to historically describe the cause and characteristics of each natural hazard and how they have impacted the population, infrastructure, and environment of the county. These potential risks are evaluated to determine their likelihood of recurrence and to gauge the impacts to the existing (or planned) population and property that could occur as a result of these hazards.

Natural hazard probabilities are represented as very high, high, medium, and low. Very high probability hazards are defined as hazards that occur an average of five or more times per year; high probability hazards are defined as hazards that occur an average of three to five times per year; medium probability hazards are those that occur an average of more than once per year but less than three times per year; and low probability hazards occur an average of less than once per year.

Tornado and High Wind

Description of Hazard

A tornado is a relatively short-lived storm comprised 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 3.6 shows the Fujita Scale, which is recognized as the acceptable tornado magnitude measurement rating.

Table 3.6: Tornado Magnitude Measurement, Fujita Scale

EF Rating	Wind Speeds	Expected Damage		
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.		
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.		
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.		
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.		
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.		
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.		

Source: NOAA National Weather Service, 2011.

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.

On the basis of 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 wind storms. The zone which includes most of the southern two-thirds of Wisconsin (known as Zone IV) 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 Hazard Mitigation Plan.

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 had tornadoes and is considered to be susceptible to a tornado disaster. 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.

Previous Significant Hazard Occurrences

According to National Climatic Data Center (NCDC), Sheboygan County has experienced 64 significant tornado/high wind events in the last 24 years from January 1, 1995, to December 31, 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences approximately three significant tornado/high wind event each year. The majority of these events are high wind events.

Probability of Hazard Occurring in the Future

Based on the hazard frequency, Sheboygan County is considered to have a **high** probability of experiencing a tornado or high wind event in any given year.

Areas at Greatest Risk

Tornadoes/high winds have no defined hazard area within the county. Past events have been relatively uniform across the planning area; however, mobile home residents are often most vulnerable to death, injury, and property damage from tornadoes. Therefore, mobile home parks in the planning area are the areas of greatest risk from this hazard.

Impacts from Hazard

Death and Injury

No deaths and no injuries were reported from tornado/high wind events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Structures at Risk

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, warehouses 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.

Similar to severe thunderstorms, street signs often face disrepair after tornadoes, and debris often litters streets and highways following a tornado, requiring clean-up. Downed trees caused by tornadoes can be problematic in terms of impacting infrastructure (transportation, sewer, water, etc.) as well as critical facilities.

Critical Facilities

Hospitals can see increases in patient loads 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 planning area 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.

Economic Impacts

A tornado can have a significant economic impact to a local economy due to irrecoverable businesses and infrastructure damages. A heavily damaged business (especially one that was struggling to make a profit) often never reopens after the hazard event.

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 search and rescue, shelters, and emergency protection measures. The greatest public expenditures for a community result from 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.

Property Damage

Reported property damage (including crop damage) from significant tornado/high wind events for Sheboygan County has totaled approximately $1,777,200 over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Estimate of Potential Dollar Losses

Since mobile homes are especially vulnerable to tornadoes, a "worst case scenario" for this hazard would involve the total destruction of all mobile homes in the county. In such a "worst case scenario," the total destruction of all buildings and facilities in the 12 mobile home parks in the county would result in estimated dollar losses of approximately $9.44 million, along with an additional estimated value of building contents of $4.72 million (calculated as 50 percent of the building value), for a total estimate of potential dollar losses of $14.16 million.

Winter Storm

Description of Hazard

Winter storms can vary in size and strength, and can include heavy snow storms, 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 and death. Winter storms can occur as a single event or they can occur in combination, which can make 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 southern portions of the state, even though heavy snowfalls are more frequent in southeastern Wisconsin. However, blizzard-like conditions often exist during heavy snow storms 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.

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.

Previous Significant Hazard Occurrences

According to National Climatic Data Center (NCDC), Sheboygan County has experienced 139 significant winter storm events in the last 24 years from January 1, 1995, to December 31, 2018. Many of these hazard events may not have been specific to Sheboygan County, and may have been recorded for a larger regional area.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences approximately six significant winter storm events per year.

Probability of Hazards Occurring in the Future

Based on the hazard frequency, Sheboygan County is considered to have a **very high** probability of experiencing a significant winter storm event in any given year.

Winter storms tend to be a regional phenomenon in that they affect much of eastern Wisconsin on nearly all of the occasions in which they affect Sheboygan County.

Areas at Greatest Risk

Winter storms have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area or the larger regional area.

Impacts from Hazard

Death and Injury

No deaths or injuries have been reported from significant winter storm events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Structures at Risk

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 planning area.

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.

Critical Facilities

Street and 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 road for a period of time.

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. Sometimes, these very hospitals and clinics have difficulty getting their own staff to report to work because of the storm, which increases the work load for the staff that is already there (double shifts, etc.).

Police department staff needs to respond to additional accidents. Utility and telephone companies need 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. Shelters may take in additional homeless persons during winter storm events as well, although this has been less of an issue in Sheboygan than it has been in larger cities.

Economic Impacts

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 business and industry in the planning area. The effects are particularly difficult when the storm is widespread.

Property Damage

Reported property damage from significant winter storm events for Sheboygan County has totaled approximately $75,000 over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data. No crop damage was reported from these events.

Estimate of Potential Dollar Losses

An estimate of potential dollar losses cannot be calculated for winter storm events, since no vulnerable structures have been identified. Based on previous damages reported by the NCDC, property damage from winter storms has been minimal over the past 24 years.

Lightning Storm and Thunderstorm

Description of Hazard

Lightning storms and thunderstorms include hail, thunderstorm winds, strong winds and high winds. 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 lightning, high winds and hail.

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 which produces thunder.

Thunderstorms winds include downburst winds and high winds. Downburst winds are strong, concentrated, straight-line winds created by falling rain and sinking air that can reach speeds of 125 miles per hour. High winds are high speeds winds that can be as damaging as a tornado, but remaining nearly straight line and are not the rotating column of air that is characteristic of a tornado.

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, having developed sufficient weight, they fall as precipitation. The size of hailstones is a direct function of the severity and size of the storm. Significant damage does not result until the hailstones reach 1.5 inches in diameter, which occurs in less than half of all hailstorms.

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.

Previous Significant Hazard Occurrences

According to National Climatic Data Center (NCDC), Sheboygan County has experienced 99 significant lightning storm/thunderstorm events in the last 24 years from January 1, 1995, to December 31, 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences approximately four significant lightning storm/thunderstorm events per year.

Probability of Hazard Occurring in the Future

Based on the hazard frequency, Sheboygan County is considered to have a **high** probability of experiencing a significant lightning storm and/or thunderstorm event in any given year.

Areas at Greatest Risk

Based on review of the historic patterns of lightning storms and thunderstorms, there are no specific areas that are a higher than average risk. The events are relatively uniform throughout Sheboygan County. However, mobile home residents are often most vulnerable to death, injury and property damage from lightning storms and thunderstorms. Therefore, mobile home parks in the planning area are the areas of greatest risk from this hazard.

Impacts from Hazard

Death and Injury

No deaths, but three injuries from lightning storms/thunderstorms have been reported for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Structures at Risk

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 cause fires that damage trees and structures. In addition, hail can inflict severe damage to roofs, windows and siding, depending on hailstone size and winds. Downed trees and limbs cause frequent damage to structures during lightning storms and thunderstorms.

Critical Facilities

Hospitals can see increases in patient load with sufficiently severe lightning storms 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, since antennas are a prime target for lightning.

Economic Impacts

Reported property damage (including crop damage) from significant lightning storms and thunderstorms for Sheboygan County has totaled approximately $4,348,500 over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Estimate of Potential Dollar Losses

Since mobile homes are especially vulnerable to tornadoes, a "worst case scenario" for this hazard would involve the total destruction of all mobile homes in the county. In such a "worst case scenario," the total destruction of all buildings and facilities in the 12 mobile home parks in the county would result in estimated dollar losses of approximately $9.44 million, along with an additional estimated value of building contents of $4.72 million (calculated as 50 percent of the building value), for a total estimate of potential dollar losses of $14.16 million.

Flooding

Description of Hazard

Floods happen when the water draining from a watershed, whether from rainfall or melting snow, exceeds the capacity of the river or stream channel to hold it. Water overflows onto the nearby low-lying lands (floodplains). In hilly and mountainous areas, flooding is likely to be rapid, deep and dangerous. In relatively flat floodplains, land may stay covered with shallow, slow moving water for days or even weeks.

Dam failure flooding occurs when flood waters exceed the capacity of the dam and the water overtops the dam or during structural failure of the dam. In extreme cases, dam failure can occur with little warning, and can result in the loss of life and significant property damage in areas downstream of the dam.

Previous Significant Hazard Occurrences

According to National Climatic Data Center (NCDC), Sheboygan County has experienced 22 significant flooding events in the last 24 years from January 1, 1995, to December 31, 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences less than one significant flooding event each year.

Probability of Hazard Occurring in the Future

FEMA uses the "base" flood as the basis for its regulatory requirements and flood insurance ratings. The hazards mitigation plan also uses the base flood for planning purposes. The base flood is the one percent chance flood, or the flood that has a one percent (one out of 100) chance of occurring in any given year. The one percent chance flood is commonly referred to as the "100-year flood."

Based on the hazard frequency, Sheboygan County is considered to have a **low** probability of sustaining a 100-year flood in any given year.

Areas at Greatest Risk

The areas at greatest risk from flooding include the "100-year floodplain" areas of Sheboygan County. FEMA Flood Insurance Rate Maps also call this the Special Flood Hazard Area, or "A Zone." The base floodplains for the planning area are shown in Map

3.2. Properties that potentially lie within the floodplain and would be affected by the 100-year flood are shown in Map 3.4.

The areas of greatest risk from dam failure flooding are those areas within the hydraulic shadow of a dam or large dams. 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 (100-year flood).

As identified by the WDNR, there are a total of 35 dams in Sheboygan County. Of these, 10 are classified by the WDNR as large dams, meaning they have a structural height of over six feet and impound 50 acre-feet or more or they have a structural height of 25 feet or more and impound 15 acre-feet or more. Another 22 dams located in the county are classified as small dams, with three dams of unspecified size. The WDNR assigns hazard ratings to dams within the state based on existing land use and land use controls (zoning) downstream of the dam. A high hazard rating indicates that a failure would likely result in loss of life. A significant hazard rating indicates that a failure could result in significant property damage. A low hazard rating is given when a failure would result in only minimal property damage and loss of life is unlikely. In Sheboygan County, there are three large dams that have high hazard ratings, including: the Franklin Volunteer Fire Department dam over the Sheboygan River in the Town of Herman; the Hingham Sanitary District dam over the Onion River in the Town of Lima; and the dam over the Onion River in the Village of Waldo. No large dams had significant hazard ratings, and seven large dams had low hazard ratings. Map 3.6 displays the dams in the county and their respective hazard ratings.

Impacts from Hazard

Death and Injury

No death or injuries from flooding has been reported for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Structures at Risk

Analysis of the data used to produce Map 3.4 indicates that structures on 2,991 parcels (covering nearly 25,169 acres) could potentially be impacted by the base flood in the planning area. Any parcel touching the boundaries of the 100-year floodplain was considered for this analysis. Therefore, if a structure exists on a parcel that was included, it is possible that it may not be located within the boundaries of the 100-year floodplain. The number of parcels containing buildings that could potentially be impacted by the base flood in each town also includes the incorporated cities and villages within the territory of the corresponding township and range for the town. Numerous additional parcels currently without structures have the potential for development, and are located in the base floodplain.

A review of FEMA flood loss statistics from January 1, 1978, through March 31, 2019, indicates that there were 45 claims in Sheboygan County involving a total value of over $330,800. As of March 31, 2019, there were 168 policies in force in Sheboygan County for nearly $168,400 in total premiums providing $45,320,800 in total coverage. (FEMA National Flood Insurance Program, W2RC1040).

Repetitive Loss Properties

Repetitive loss structure is a term that is usually associated with the National Flood Insurance Program (NFIP) to describe a structure, covered by a contract of flood insurance under the NFIP, that has suffered flood damage on two or more occasions over a 10-year period ending on the date when a second claim is made, in which the cost to repair the flood damage, on average, equals or exceeds 25 percent of the market value of the structure at the time of each flood loss event. For the Community Rating System (CRS) of the NFIP, a repetitive loss property is any property on which the NFIP has paid two or more flood claims of $1,000 or more in any given 10-year period since 1978. A repetitive loss structure is important to the NFIP, since structures that flood frequently put a strain on the flood insurance fund. It should also be important to a community because residents' lives are disrupted and may be threatened by the continual flooding.

There is one repetitive loss property in Sheboygan County. This property is a non-residential property that has had two claims (in 1986 and 1987) for damages to contents for a total claim amount of $10,177. There have been no claims for this property since 1987, and no mitigation has been undertaken.

Critical Facilities

Analysis of the GIS data used to produce Map 3.5 indicates that there are 191 critical facilities located within 100-year floodplains in Sheboygan County. Table 3.7 lists the critical facility types of those facilities potentially within the 100-year floodplains. Of the 191 critical facilities potential in floodplains, 152 are bridges and 16 are dams.

Table 3.7: Critical Facility Types within the 100-Year Floodplains

Type	Total
Bridges	152
Dams	16
Wastewater/Sewage Treatment Facility	7
Public Works	3
Water Supply Facility	3
Communications Facility	2
Fuel Storage	2
Natural Gas Facility	2
Electric Power Plant	1
Fire/Rescue	1
Manufactured Housing Community	1
Schools	1
Grand Total	191

Source: Bay-Lake Regional Planning Commission; 2019.

Economic Impacts

Property Damage

Reported property damage (including crop damage) from flooding in Sheboygan County has totaled $73,332,000 over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Value of Structures at Risk

The value of all 2,991 at-risk structures in the floodplains of the county is estimated at $618,117,600. This information was obtained from Sheboygan County database on improved values of real property. The parcel map and the 100-year floodplains were merged to determine at-risk structures in the planning area.

Transportation Route Interruptions

Loss of road access is a major flood impact that affects all residents and businesses, not just those who own property in the floodplain. Sometimes, the loss is temporary, such as during a flood. However, on some occasions, the loss of transportation lasts well after the disaster. When a flood washes out roads, bridges, or railroads, it can be weeks or months before they are repaired and reusable. A key evacuation and safety concern is when roads and bridges go under water. Generally, the larger the road, the more likely it will not flood, but this is not always the case.

Analysis of GIS data indicates that there are 152 bridges that could potentially be underwater during a base flood. There may be several additional bridges in areas that are not included in the mapped 100-year flood zones, such as areas located along small tributary streams.

Estimate of Potential Dollar Losses

The following is an estimate of potential dollar losses to vulnerable structures. "Vulnerable structures" are those structures located in the 100-year flood hazard area, as identified in Map 3.4. Since there is no reliable building height data for buildings in these flood hazard areas, a "worst case scenario" of total structural damage for buildings in all of the flood zones of the planning area was assumed in estimating potential dollar losses to vulnerable structures. Building height and elevation data should be collected in the future in order to better assess the risks of damage to structures because of the flood hazard.

It is estimated that approximately $618,117,600 in losses would occur with the 100-year flood in zones projected to be impacted by the 100-year flood in a "worst case scenario" of total structural damage for buildings in all of the flood zones in the county.

This information was obtained from a Sheboygan County database on assessed values of real property. This only involves damage to structures themselves, and may not account for damage to personal property inside or adjacent to vulnerable structures.

In addition, there may be areas outside the 100-year flood zones that will flood during an event of that magnitude (or even of lesser magnitude); this planning process has no way of knowing the susceptibility of flooding outside of flood events that have been previously mapped by other governmental agencies.

Development in Areas Subject to Flooding

Sheboygan County regulates development within the floodplain through its comprehensive Floodplain Ordinance, which is Chapter 73 of the Sheboygan County Code of Ordinances. Sheboygan County also has a Shoreland Ordinance (Chapter 72, Sheboygan County Code of Ordinances). These ordinances can be useful tools in keeping inappropriate development out of many flood hazard zones in the planning area.

In addition to the county, some local jurisdictions have developed their own ordinances to deal with development in these areas. In 1992, the Village of Oostburg adopted a Shoreland-Wetland Zoning Ordinance (Ordinance 1-1992) under Chapter 6 of its Zoning Ordinances. In addition, in 1998, under Chapter 10, the village adopted a Floodplain Zoning Ordinance (Ordinance 1-1998). As part of its Municipal Code, the Village of Elkhart Lake has also adopted a Shoreland-Wetland Code and Shoreland Regulations, both of which help to direct development in these sensitive areas.

Comprehensive planning is another means by which communities address development in areas subject to flooding. Various comprehensive plans produced for Sheboygan County and local communities in the 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; through the natural resources chapter (or equivalent) in the plan; and through the future plan design (future land use) chapter of the plan. All communities (as well as the county) have a comprehensive plan that addresses regulation of development in floodplains, watersheds and natural resource areas in some manner.

The Bay-Lake Regional Planning Commission, the regional planning entity for northeastern Wisconsin (which includes Sheboygan County), also has tools to keep development out of flood hazard zones in the planning area. The Commission develops sewer service area plans for the Sheboygan urbanized area, which take into account preservation of natural features and minimization of future development in flood hazard areas near bodies of water. The Commission reviews proposals for development in the Sheboygan urbanized area for consistency with the sewer service area plan. The Commission also developed an environmental corridor definition and map of all of Sheboygan County, which is used to comment on development proposals.

NFIP Participation

Sheboygan County has participated in the FEMA National Floodplain Insurance Program (NFIP) since July 1978 by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters and business owners in the county.

In addition, the following incorporated communities are participating in the NFIP:

- City of Sheboygan (since June 1974);
- City of Sheboygan Falls (since November 1973);
- City of Plymouth (since November 1974);
- Village of Cascade (since May 1974);
- Village of Howards Grove (since April 2009);
- Village of Kohler (since February 1974);
- Village of Oostburg (since June 1974); and
- Village of Random Lake (since June 1974).

Non-Participation in the NFIP

The Villages of Adell and Elkhart Lake are not participating in NFIP as of May 2019. Since there are no special flood hazard areas (SFHAs) within their municipal boundaries, neither was provided a floodplain map after they were mapped in 2009. Neither the Village of Adell nor the Village of Elkhart Lake has been asked to participate in the NFIP, and therefore, neither is participating.

NFIP Suspension/Sanctions

The Village of Waldo began participating in the NFIP in December 1974, but was suspended in July 1987. In addition, the Villages of Cedar Grove and Glenbeulah began participating in the NFIP in April 2009, but were sanctioned in April 2010.

The National Flood Insurance Act of 1968 prohibits FEMA from providing flood insurance in a community unless the community adopts and enforces floodplain management regulations that meet or exceed minimum NFIP criteria. A community can be suspended from the NFIP for failure to adopt compliant floodplain management measures or if it repeals or amends previously compliant floodplain management measures. A community can also be suspended from the NFIP for failure to enforce its floodplain management regulations. New flood insurance coverage cannot be purchased and policies cannot be renewed in a suspended community.

Excessive Heat

Description of Hazard

Excessive heat (often referred to as a heat wave) is primarily a public health concern. During extended periods of very high temperatures or high temperatures with high humidity, individuals can suffer from several ailments, including heat exhaustion and heat stroke. Heat stroke is a particularly life-threatening condition that requires immediate medical attention. In addition to posing a public health hazard, periods of excessive heat usually result in high electrical consumption, which can cause power outages and brown outs. The elderly, disabled and other vulnerable populations are especially susceptible to extreme heat.

Previous Significant Hazard Occurrences

According to National Climatic Data Center (NCDC), Sheboygan County has experienced 30 significant excessive heat events in the last 24 years from January 1, 1995, to December 31, 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences approximately one significant excessive heat event each year.

Probability of Hazard Occurring in the Future

Based on the hazard frequency, Sheboygan County is considered to have a **moderate** probability of experiencing a significant excessive heat event in any given year.

Extreme heat episodes tend to be a regional phenomenon in that they affect much of eastern Wisconsin on nearly all of the occasions in which they affect the planning area.

Areas at Greatest Risk

Excessive heat events have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area. However, proximity to Lake Michigan can provide some degree of relief from the heat under the right meteorological conditions.

Impacts from Hazard

Death and Injury

No deaths and three injuries have been reported from significant excessive heat events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data. However, on a wider scale, 57 deaths occurred during one statewide event that occurred in July 1995 and impacted all of Wisconsin.

Structures at Risk

While there are no direct impacts on buildings, periods of excessive heat can impact 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 brown outs.

There are few impacts of extreme heat on publicly owned infrastructure. One exception involves the buckling of certain streets and highways, which need to be repaired immediately.

Critical Facilities

Utilities may see peak demand for electricity during excessive 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 an increased demand due to heat related illnesses during an excessive 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 excessive 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 excessive heat episode includes a drought.

Economic Impacts

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 excessive 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 (or possibly extending the school year if class is cancelled). Non-profit organizations will incur expenses in the provision of emergency shelters. The water utility will incur the expenses involved with additional

demand for water during excessive heat episodes, and these expenses will be passed on to area consumers.

One less tangible economic impact of excessive 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. Excessive heat can negatively impact agriculture in the surrounding area when combined with drought.

Property Damage

No property damage (including crop damage) has been reported from excessive heat events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Estimate of Potential Dollar Losses

An estimate of potential dollar losses cannot be calculated for extreme heat events, since no vulnerable structures have been identified. Based on previous damage reported by the NCDC, property damages from excessive heat has been minimal over the past 24 years.

Dense Fog

Description of Hazard

Fog is a collection of liquid water droplets or ice crystals suspended in the air at or near the ground. While fog is a type of stratus cloud, the term "fog" is typically distinguished from the more generic term "cloud" in that fog is low-lying, and the moisture in the fog is often generated locally (such as from a nearby body of water, like a lake or stream, or from nearby moist ground or marshes). Fog is distinguished from mist because it has greater density and lower visibility than mist.

Dense fog is a hazard mainly because of reduced visibility. Airport delays, automobile accidents, shipwrecks, plane crashes, and many other problems are frequently caused by fog. 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.

Previous Significant Hazard Occurrences

According to the National Climatic Data Center (NCDC), Sheboygan County has experienced 80 significant dense fog events in the last 24 years from January 1, 1995, to December 31, 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences approximately three significant dense fog events each year.

Probability of Hazard Occurring in the Future

Based on the hazard frequency, Sheboygan County is considered to have a **high** probability of experiencing a significant dense fog event in any given year.

Areas at Greatest Risk

Portions of the planning area along waterways, wetlands, and low lying areas can be at greater risk for dense fog under certain meteorological conditions. However, no portion of the planning area is free of the possibility of experiencing fog events. The likelihood of dense 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. Fog episodes often can be a regional phenomenon in that they affect much of the eastern half of Wisconsin on many of the occasions in which they affect Sheboygan County.

Impacts from Hazard

Death and Injury

10 deaths and 40 injuries have been reported from significant dense fog events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data. However, all of these deaths and injuries occurred during one significant dense fog event on October 11, 2002. The reported deaths and injuries occurred during a severe traffic incident on Interstate 43 where it nears Lake Michigan just south of Cedar Grove.

Structures at Risk

There are no direct impacts to buildings from a fog event. The main structures impacted are those associated with infrastructure during a fog event from vehicle accidents. 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 dense 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.

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 the fog event. 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. Airports can experience flight delays and cancellations during certain fog events.

Economic Impacts

There are economic costs in accidents caused by dense fog events. Vehicular accidents almost always 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. Dense 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 dense 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 (or possibly extending the school year if class is cancelled). 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.

Property Damage

No property damage has officially been reported from dense fog events for Sheboygan County over the last 24 years from January 1, 1995, to September 30, 2018, according to NCDC data. However, the data do not take into account private damage that occurred from vehicular crashes resulting from fog events.

Estimate of Potential Dollar Losses

An estimate of potential dollar losses cannot be calculated for dense fog events, since no vulnerable structures have been identified. Based on previous damage officially reported by the NCDC, property damages from fog have been minimal over the past 24 years.

Extreme Cold

Description of Hazard

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." Whenever temperatures drop well below normal and as wind speed increases, heat can leave the body more rapidly. 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. This weather related condition may lead to serious health problems. Extreme cold is a dangerous situation that can cause health emergencies for susceptible people, such as those without shelter, those who are stranded outdoors or in a disabled car, or those who live in a home that is poorly insulated or without heat.

Previous Significant Hazard Occurrences

According to the National Climatic Data Center (NCDC), Sheboygan County has experienced 28 significant extreme cold events in the last 24 years from January 1, 1995, to December 31, 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences approximately one significant extreme cold event per year.

Probability of Hazard Occurring in the Future

Based on the hazard frequency, Sheboygan County is considered to have a **moderate** probability of experiencing a significant extreme cold event in any given year.

Areas at Greatest Risk

Extreme cold events have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area.

Impacts from Hazard

Death and Injury

One death and three injuries have been reported from significant extreme cold events in Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Structures at Risk

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 the use of space heaters during an extreme cold event. However, the use of space heaters comes with its own risks, including a higher probability of fire to a structure if these devices are used improperly.

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.

Critical Facilities

All buildings involving critical facilities will have greater heating expenses during an extreme cold event. Increased demand will also affect Wisconsin Public Service, the local natural gas energy utility 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. The water utility 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.

Economic Impacts

Economic impacts of extreme cold events can include lack of motivation to participate in the local economy (unless absolutely 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 (or possibly extending the school year if class is cancelled). Non-profit organizations will incur expenses in the provision of emergency shelters. The private sector also incurs economic losses and production decreases during an extreme cold event.

Property Damage

Reported property damage from extreme cold events in Sheboygan County has totaled $8,000 over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data. All of this was regular property damage (no crop damage).

Estimate of Potential Dollar Losses

An estimate of potential dollar losses cannot be calculated for extreme cold events, since no vulnerable structures have been identified. Based on previous damages reported by the NCDC, property damage from extreme cold has been minimal over the past 24 years.

Drought

Description of Hazard

A drought is an extended period of unusually dry weather, which may be accompanied by extreme heat. There are basically two types of drought in Wisconsin: agricultural drought and hydrologic drought. Agricultural drought is a dry period of sufficient length and intensity that markedly reduces crop yields. Hydrologic drought is a dry period of sufficient length and intensity to affect lake and stream levels as well as the height of the groundwater table. These two types of drought may, but do not necessarily, occur at the same time. The severity of a drought depends on a number of factors, including duration, intensity, geographic extent, and regional water supply demands by humans and vegetation.

In general, droughts have the greatest impact on agriculture. Small droughts of limited duration can significantly reduce crop growth and yields. More substantial drought events can decimate croplands, and can result in a total loss. Droughts can also greatly increase the risk of forest fires and wildfires because of extreme dryness. In addition, the loss of vegetation in the absence of sufficient water can result in flooding, even from average rainfall, following drought conditions.

Previous Significant Hazard Occurrences

According to National Climatic Data Center (NCDC), Sheboygan County has experienced 15 significant drought events in the last 24 years from January 1, 1995, to December 31, 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the NCDC, Sheboygan County experiences an average of less than one significant drought event every year.

Probability of Hazards Occurring in the Future

The future incidence of drought is highly unpredictable, as its occurrence is based on weather patterns, making it difficult to determine probability with any accuracy. Droughts tend to be a regional phenomenon in that they affect much of eastern Wisconsin on nearly all of the occasions in which they affect Sheboygan County.

However, based strictly on the hazard frequency, Sheboygan County is considered to have a **low** probability of experiencing a significant drought event in any given year.

Areas at Greatest Risk

Droughts have no defined hazard area within the planning area. Past events have been relatively uniform across the planning area. However, agricultural croplands are most vulnerable to losses from drought events. Sheboygan County contains 177,324 acres of agricultural lands, or more than 53 percent of the county's land mass (based on land use data shown in Table 2.2).

Impacts from Hazard

Death and Injury

No deaths or injuries have been reported from significant drought events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data.

Structures at Risk

There are no direct impacts to structures from a drought event. In terms of infrastructure, droughts have the most impact on municipal water supplies. Droughts will likely cause a shortage of water for human, industrial, and agricultural consumption, as wells and other water reserves may dry up. Also, water quality is often an issue before and after a drought event, which may place an additional burden on wastewater treatment facilities.

Critical Facilities

In drought conditions, water shortages may occur and affect the amount of water available for human consumption. Hospitals may be called upon to treat individuals suffering from dehydration as a result. Parks that provide recreational water facilities are also likely to experience increased usage during times of drought.

There are few other direct impacts on critical facilities as a result 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.

Economic Impacts

Wisconsin is most susceptible to 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 fewer people traveling to their area in times of drought.

Industries which utilize large amounts of water in processing materials may also be subject to these limitations, which could potentially reduce their production capabilities.

Property Damage

Reported property damage from significant drought for Sheboygan County has totaled approximately $150,000 over the last 24 years from January 1, 1995, to December 31, 2018, according to NCDC data, all of which involved crop damage.

Estimate of Potential Dollar Losses

Agricultural croplands are most vulnerable to losses from drought events. A "worst case scenario" would involve the total destruction of all 177,324 acres of agricultural lands in the county (based on current land use data, as shown in Table 2.2). The USDA conducts a Census of Agriculture every five years based on a sample of farms to estimate the market value of agricultural land and buildings. Based on the 2017 Census of Agriculture (Table 1: County Summary Highlights), the average value per acre of agricultural land in Sheboygan County was $6,594. Therefore, it can be estimated that if this "worst case scenario" were to occur, the total destruction of all agricultural land in Sheboygan County would cause a loss of up to $1.169 billion. It should be noted that the loss would likely be less than this amount, since the USDA's per acre value includes land and buildings, and buildings are not likely to be impacted by a drought event.

Wildland Fires

Description of Hazard

A wildland fire is any instance of unplanned burning in brush, marshes, grasslands or field lands. Typical causes of these fires are lightning, human carelessness or arson. The county has large expanses of forested areas that could be susceptible to wildland fires. Wildland fires can occur at any time of the year and during any time of the day. The primary factors that can 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 when vegetation is dry from a winter with little snow or a spring and summer with sparse rainfall. As fires remain a possibility, fire stations in the county are prepared to respond in accordance with established response procedures, while local zoning setback controls and building codes provide additional mitigation measures.

Previous Significant Hazard Occurrences

There have been no significant wildland fires in Sheboygan County since 1995.

Hazard Frequency

No adequate records are available at this time in order to determine a hazard frequency.

Probability of Hazard Occurring in the Future

According to the U.S. Forest Service Wildland Fire Assessment System, Sheboygan 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 With the exception of lightning fires in some areas, the number of starts is generally low. In addition, because Sheboygan

County is not extensively forested and does not contain the hazards and risks necessary to warrant intensive or extensive fire protection, it is designated as a Cooperative Fire Protection Area. Therefore, there are no Wisconsin DNR ranger stations or suppression resources located in the county.

In addition, the Forestry Division of the Wisconsin DNR has determined that there are no "Communities at Risk" and no "Communities of Concern" within Sheboygan County (October 2007).

Overall, the probability of a naturally occurring wildland fire is **low** for the entire county.

Areas at Greatest Risk

Sheboygan County contains approximately 72,763 acres of woodlands (based on current land use, shown in Table 2.2). 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 which they wish to dispose of by incineration.

The likelihood that any wildland fire in Sheboygan County would be catastrophic is low, as most susceptible areas lack enough acreage to allow for continuous burning. Areas that were identified as containing enough land to allow for catastrophic burning include the Sheboygan County Marsh, portions of Kettle Moraine State Forest, and other publicly owned lands, which are scattered throughout the county.

Impacts from Hazard

Death and Injury

No data on deaths or injuries is available for significant wildland fire events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018.

Structures at Risk

Homes and other structures located within the Wildland Urban Interface (WUI) are at high risk to damage from wildland fires. The WUI refers to the zone of transition between forestland/wildland and human development. The wildland fire risk increases in the WUI because buildings are typically 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.

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 also carry a fire into a home.

Critical Facilities

Police, fire, and emergency response personnel 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.

Economic Impacts

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. Major direct costs associated with wildland fires are incurred by the salvage and removal of downed timber and debris, restoration of the burned area, and reconstruction. 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.

Property Damage

No property damage data are available for wildland fire events for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018.

Estimate of Potential Dollar Losses

An estimate of potential dollar losses is not needed for the wildland fire hazard, as no specific vulnerable structures or geographic areas have been identified.

Coastal Hazards

Description of Hazard

In eastern Wisconsin, coastal hazards can be described as natural hazards occurring along the shores of Lake Michigan. The coastal hazards of concern in Wisconsin 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, high waves, and storm-induced surge (temporary water level changes);
- Damage to shorelines and shoreline structures from storm waves, high waves, and ice shoves and dams; and
- Drownings from rip currents.

Previous Significant Hazard Occurrences

According to the National Weather Service's Milwaukee/Sullivan station, Sheboygan County has experienced an estimated 48 beach hazard statements over this period from June 1, 2014, through September 24, 2018. The National Weather Service began tabulating this information in June of 2014.

In addition to beach hazard statements, Sheboygan County has experienced a number of occurrences of erosion of coastal bluffs along Lake Michigan, particularly along Lakeshore Road (formerly County Highway LS) in the northeastern part of the county.

Hazard Frequency

According to the National Weather Service's Milwaukee/Sullivan station, Sheboygan County has experienced an average of nine beach hazard statements per year over the period from June 1, 2014, through September 24, 2018.

Probability of Hazard Occurring in the Future

According to the *Resource Guide for Great Lakes Coastal Hazards in Wisconsin* website (http://coastal.lic.wisc.edu/urpl999.htm), Sheboygan County is at risk for coastal erosion and coastal flooding. Sheboygan County is identified as an area at "greatest risk" for coastal erosion and at "medium risk" for coastal flooding. Based on this, as well as the beach hazard statement frequency, the probability of coastal hazards is **very high** for the planning area.

Areas at Greatest Risk

Portions of the county situated along Lake Michigan are at greatest risk for coastal hazards.

Impacts from Hazard

Death and Injury

No data on deaths or injuries is available for significant coastal hazard events for Sheboygan County over the period from June 1, 2014, to September 24, 2018.

Structures at Risk

Homes and other structures located along Lake Michigan are at risk to damage from coastal hazards. This risk increases where structures are closer to the shoreline, especially over high bluffs. There are 390 parcels involving improved privately-owned structures directly adjacent to Lake Michigan in Sheboygan County.

Critical Facilities

There are nine critical facilities contained within parcels located along Lake Michigan in which the parcels are at risk of damage from coastal hazards. All of these critical facilities are located in the City of Sheboygan.

Economic Impacts

Coastal hazards can have an extensive impact on the economy of an affected area by causing thousands of dollars in damages to public property and structures, as well as to private property and houses.

Estimate of Potential Dollar Losses

A "worst case scenario" for potential dollar losses from coastal hazards in Sheboygan County would involve the total destruction of all private structures along Lake Michigan, which would cause a loss of $96,284,800 in private damages. There are no assessed values available for public properties.

This information was obtained from the Sheboygan County database on assessed values of real property (structures and land). This only involves damage to structures themselves, and may not account for damage to personal property inside or adjacent to vulnerable structures.

HAZARD PROFILES: MAN-MADE HAZARDS

Hazard profiles are intended to describe the frequency, severity and probability of future man-made hazards that could have an impact on Sheboygan County. These hazard profiles attempt to historically describe the cause and characteristics of each man-made hazard and how they have impacted the population, infrastructure and environment of the county. These potential risks are evaluated to determine their likelihood of recurrence and to gauge the impacts to the existing (or planned) population and property that could occur as a result of these hazards.

Man-made hazard probabilities are represented as high, moderate or low. High probability hazards are defined as hazards that occur an average of more than six times per year; moderate probability hazards are those that occur an average of more than once per year, but less than six times per year; and low probability hazards are those hazards occur an average of less than once per year or in which occurrence data could not be found (unless substantiated by trends external to the county that point to a higher probability in the future).

Hazardous Materials

Description of Hazard

Hazardous materials are chemical substances, which, if released or misused, can pose a threat to the environment or health of a community. They can be found in solid, liquid or gas form, and may be released from fixed or mobile containers. Hazardous materials come in the form of explosives, flammable and combustible substances, corrosives, poisons, and radioactive materials. These chemicals are used in industry, agriculture, medicine, research, and consumer goods throughout Sheboygan County. Under the Emergency Planning and Community Right to Know Act (EPCRA), there is no specific list of hazardous materials. However, an extremely hazardous substance is defined as one of 356 substances listed by the U.S. Environmental Protection Agency (EPA) in 40 CFR Part 355: Emergency Planning and Notification.

Incidents which result in the release of hazardous materials generally fall into one of two categories:

- A *Fixed-Facility Hazardous Materials Incident* is the occurrence of uncontrolled releases from a facility housed within the community. They range from flammable liquids stored or used to fuel vehicles through exotic substances to radioactive materials and biological agents. Some materials are particularly lethal even in small amounts, while others require strong concentrations with prolonged exposure periods to cause harm.
- A Hazardous Materials Transportation Incident is any occurrence resulting in uncontrolled release of materials during transport that can pose risk to health, safety, and property. Hazardous materials can be transported via ground along highways and railways, through the air, or by water using boats and pipelines. Transported products include hazardous materials moving from producers to users, moving between storage and use facilities, and hazardous waste moving from generators to treatment and disposal facilities.

A hazardous material spill or release can pose a risk to life, health and property. An incident can force the evacuation of a few people, a section of a facility, or an entire neighborhood or community, resulting in significant economic impact and possible property damage. Spilled material can be costly to clean up, and may render the area of the spill unusable for an extended period of time. Overall, the specific hazards created by a release are dependent on the hazardous characteristics of the material, the amount released, the location where the release occurs, and the weather and topographic conditions in the area.

Previous Significant Hazard Occurrences

From the information provided in Table 3.8 below, it can be determined that between January 1, 1995, and December 30, 2018, 124 hazardous materials occurrences were reported to the county or to the National Response Center.

Table 3.8: Hazardous Materials Occurrences in Sheboygan County, 1995-2018

Date	Hazardous Material Involved	Impact on Human Welfare	Deaths	Injuries
March-95	Fuorosilic acid and hypochlorite solution	Two people treated for exposure	0	2
March-95	Unknown sheen: acid and hydrochloric	Building sealed off and at least one injury was reported	0	1
April-95	Trifluralin		0	0
May-95	Polychlorinated biphenyls		0	0
June-95	Ammonia	Facility evacuated	0	0
July-95	Zinc noyphthenate		0	0
July-95	Unknown sheen: unknown oil		0	0
August-95	Various chemicals	One person treated for exposure	0	1
August-95	Styrene monomer		0	0
August-95	Anhydrous ammonia		0	0
March-96	Unknown substance		0	0
June-96	Acid kleen		0	0
August-96	Natural gas	Approximately twenty-four homes evacuated	0	0
October-96	Diesel oil	Steel workboat sank in City of Sheboygan	0	0
February-97	Formaldehyde solution		0	0
August-97	Automotive gasoline	Charter boat sank in City of Sheboygan	0	0
January-98	Anhydrous ammonia		0	0
May-98	Sulfur monochloride		0	0
June-98	Unknown sheen: aluminum nitrate		0	0
June-98	Diesel oil		0	0
July-98	Unknown oil	Small private plane crashed into Lake Michigan	0	0
November-98	Unknown		0	0
February-99	Formaldehyde (50% or more)		0	0
April-99	Hydraulic oil		0	0
December-99	Polychlorinated biphenyls		0	0
February-00	Polychlorinated biphenyls		0	0
April-00	Miscellaneous lubricant		0	0
April-00	Unknown sheen: unknown oil		0	0
November-00	Oil		0	0
December-00	Phenol	One fatality and at least twelve exposures	1	12
November-01	Phenol formaldehyde	One person treated for exposure	0	1
September-04	Formaldehyde off-gassing	Approximately twelve people transported to local hospital for observation	0	12
October-04	Mixture of chlorine and nitric acid		0	0
June-05	Low levels of radiation detected		0	0
June-05	Clandestine drug lab	Decontamination of law enforcement personnel	0	0
July-05	Phenol	One person treated for exposure	0	1
July-05	Clandestine drug lab	Decontamination of law enforcement personnel	0	0
December-05	Clandestine drug lab	Decontamination of law enforcement personnel and suspect	0	0
December-00	Polychlorinated biphenyls		0	0
March-01	Polychlorinated biphenyls		0	0
March-01	Mineral oil and polychlorinated biphenyls		0	0
April-01	Mineral oil and polychlorinated biphenyls		0	0
June-01	Unknown sheen: unknown oil		0	0
August-01	Anhydrous Ammonia	Material released through a faulty relief valve, resulting in one injury and evacuation of the facility	0	1
August-01	Polychlorinated biphenyls		0	0
September-01	Unknown sheen: unknown oil		0	0
November-01	Formaldehyde (50% or more) and phenol		0	0
November-01	Sulfuric acid		0	0
February-02	Unknown material		0	0
March-02	Cutting fluid		0	0
April-02	Hydraulic oil		0	0
July-02	Polychlorinated biphenyls		0	0
September-02	Automotive gasoline		0	0

Table 3.8: Hazardous Materials Occurrences in Sheboygan County, 1995 – 2018 (Continued)

Date	Hazardous Material Involved	Impact on Human Welfare	Deaths	Injuries
September-02	Ethylene glycol		0	0
September-02	Polychlorinated biphenyls		0	0
October-02	Polychlorinated biphenyls		0	0
July-03	Unknown sheen: unknown oil		0	0
July-03	Diesel oil		0	0
August-03	Oil		0	0
November-03	Motor oil		0	0
December-03	Other oil		0	0
April-04	Corrosive liquid		0	0
June-04	Oil		0	0
July-04	Machine cutting fluid		0	0
November-04	Unknown sheen: unknown oil		0	0
June-05	Low levels of radiation detected		0	0
June-05	Clandestine drug lab	Decontamination of law enforcement personnel	0	0
July-05	Phenol	One person treated for exposure	0	1
July-05	Clandestine drug lab	Decontamination of law enforcement personnel	0	0
December-05	Clandestine drug lab	Decontamination of law enforcement personnel and suspect	0	0
March-06	Sulfuric Acid		0	0
August-06	Hydrogen Flouride		0	0
March-07	Ammonia, Anhydrous	Material released from valve, resulting in evacuation of manufacturing facility	0	0
April-07	Sodium Chromate Solution		0	0
May-07	Sulfuric Acid		0	0
June-07	Gasoline: Automotive (Unleaded)	Operator lost control of vessel resulting in one injury	0	1
June-07	Unknown Oil (Sheen)		0	0
July-07	Antifreeze		0	0
October-07	Paint, Gallon		0	0
January-08	Ammonia, Anhydrous		0	0
January-08	Unknown Oil (Sheen)		0	0
March-08	No Release	Railroad derailment resulting in one fatality	1	0
September-08	Oil, Fuel: No. 2		0	0
June-09	Propane		0	0
December-09	Gasoline: Automotive (Unleaded)		0	0
May-10	Oil: Diesel		0	0
June-10	Ethylene Glycol		0	0
October-10	Oil: Diesel		0	0
January-11	Hydraulic Oil		0	0
June-11	Mercury		0	0
September-11	Unknown Material		0	0
February-12	Formaldehyde Solution		0	0
April-12	Sulfuric Acid		0	0
November-12	Formaldehyde Solution		0	0
January-13	Hydraulic Oil		0	0
January-13	Anhydrous Ammonia	Evacuation of Employees and Surrounding Residents	0	0
February-13	Formaldehyde Solution		0	0
March-13	Oil, Miscellaneous Lubricating		0	0
April-13	Turbine Oil		0	0
May-13	Formalin		0	0
May-13	Hydraulic Oil		0	0
June-13	Drain Oil		0	0
July-13	Acrolein		0	0
October-13	Oil, Miscellaneous Motor		0	0
November-13	Formaldehyde Solution		0	0
March-14	Formalin		0	0
May-14	Anhydrous Ammonia		0	0

Table 3.8: Hazardous Materials Occurrences in Sheboygan County, 1995 – 2018 (Continued)

Date	Hazardous Material Involved	Impact on Human Welfare	Deaths	Injuries
June-14	Urea		0	0
June-14	Ethylene Glycol		0	0
June-14	Formaldehyde Solution		0	0
September-14	Unknown		0	0
December-14	Formalin		0	0
December-14	Coal		0	0
January-15	Formalin		0	0
May-15	Machining Coolant		0	0
September-15	Formamide		0	0
October-15	Unknown		0	0
October-15	Arsenic		0	0
October-15	Formaldehyde Solution		0	0
September-16	Nitric Acid		0	0
October-16	Formalin		0	0
August-17	Formalin		0	0
April-18	Coal and Water Mixture		0	0
July-18	Formalin		0	0
TOTAL	**124 Occurrences**		**2**	**33**

Source: National Response Center, Oil and Chemical Spill Data Public Reports, 1995 – 2018.

Hazard Frequency

Based on previous hazard occurrences as reported by the National Response Center, Sheboygan County experiences an average of five hazardous materials incidents each year.

Probability of Hazard Occurring in the Future

Based on the hazard frequency, Sheboygan County is considered to have a **moderate** probability of experiencing a hazardous materials incident in any given year.

Areas at Greatest Risk

The use of chemicals has increased in nearly every sector of the economy. Therefore, hazardous materials in quantities of concern can be found throughout the planning area, meaning there are no areas exempt from a possible hazardous materials incident. Despite extensive precautions taken to ensure careful handling when these materials are present, accidental releases are bound to occur.

Any facility that stores one or more of the 356 listed extremely hazardous substances in excess of the listed threshold planning quantity, is required to notify the county by completing a Section 302-Emergency Planning Notification Form. Due to the presence of these substances, these facilities should be considered to be at risk for a hazardous materials release. According to the *Sheboygan County Hazardous Materials Response Plan*, there are 58 such facilities located throughout the county. There is a plan that covers each of these facilities; these plans are kept in the Emergency Management Office at the Sheboygan County Law Enforcement Center.

In addition to these facilities, hazardous materials are also transported through the county via highway, rail, and pipelines. Some materials are being transported to facilities within the county, while others are brought through on their way to facilities located in other areas of the state or outside the state. Major highways (including major

and minor arterial roads and major collector roads), as well as active rail lines, are therefore at risk for a hazardous materials release.

Impacts from Hazard

Death and Injury

Two deaths and 33 injuries have been reported from hazardous materials incidents for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018, according to National Response Center data.

Public Health and Safety

The impacts of a hazardous materials incident on public health would vary depending on the type of substance involved, the concentration, and the period of exposure. Treatment may range from that which can be done on-site to possible hospitalization. Any number of symptoms may arise from exposure to a hazardous material, and death may even result if the exposure is serious enough.

In some cases of a hazardous material spill, evacuation could be necessary in order to protect human health and welfare. Evacuation may be isolated to the area in which the spill occurred, or may be widespread, necessitating the evacuation of a large area. The size of the area that would need to be evacuated would be based on the type of hazardous material involved in the spill as well as the amount. A large scale spill, or one involving an extremely dangerous material, could result in widespread panic as well.

In emergencies where hazardous materials may have been released into the atmosphere, local authorities may give instructions to shelter-in-place as a way to keep people safe. Shelter-in-place is a precaution that is aimed to keep individuals safe while remaining indoors by selecting a small, interior room, with no or few windows, in which to take refuge. Shelter-in-place does not require the sealing off of an entire home or building.

Structures at Risk

The involvement of flammable material(s) in a release could potentially cause damage to a building if the material were to be ignited. Ignition could cause a fire or even an explosion depending on the type of material involved.

The release of hazardous materials can also lead to contamination of the water supply. This could potentially affect the amount of water that would be available for public and private consumption.

Critical Facilities

If a spill were to occur in or near a critical facility, an evacuation of the building may be necessary in order to protect human health and welfare. Depending on the type of facility, evacuation could have several effects, including the disruption of public services.

Due to the threat that hazardous materials present to public health and safety, hospitals and other healthcare facilities would be most heavily impacted by an event. Patient loads would undoubtedly increase. Healthcare facilities located outside of the affected area would likely be called upon to take additional non-critical patients from local facilities, in order to make room for those needing immediate care. Hospital personnel would likely be asked to work long shifts in order to guarantee that care is given to all

people who were affected by the event. Healthcare facilities may also be used to serve as decontamination centers if proper equipment and space are available.

Emergency response teams (including fire, police and emergency medical personnel) would also be heavily impacted in the case of a hazardous materials release. Call centers would likely experience a dramatic increase in the number of calls received. During major events, communication lines can also become jammed due to heavy usage in the area. This could prevent appropriate response and slow down the clean-up process.

The possibility of water contamination would place an extra burden on wastewater treatment facilities and water utilities. After the release of a hazardous material, it would be imperative for these facilities to ensure the safety of the public drinking water supply.

Economic Impacts

Evacuation of a facility due to a hazardous material spill could result in shutdown of the facility. This could cause major losses for the owner of the facility as well as those who are employed there, especially if a shutdown were to last for several days.

If the spill is transportation-related, those who were receiving the material may be forced to change operations as the material would not arrive on time.

The cost of clean-up must also be considered. Containing and removing hazardous materials from a spill site can be very costly. Decontamination of staff and emergency responders may also be necessary, which is also very costly. These costs would likely be incurred by the owner of the facility or transportation vehicle where the spill took place. However, if a responsible party cannot be identified, or if they are unable to pay, the burden of these costs may be placed on the taxpayer.

Instances where an unknown substance is released or discovered may impact the county as well. In many of these situations, the county hazmat team will respond, and steps will be taken to identify the unknown substance. Response to such incidents can result in a variety of costs to the county.

Estimate of Potential Dollar Losses

Estimating losses as a result of a large-scale hazardous materials incident is difficult, as different factors would produce different costs. However, evaluating past occurrences of large-scale hazardous materials incidents can provide information regarding the costs associated with these events. From a regional standpoint, one of the most well-known incidents of this type occurred in Weyauwega, Wisconsin, on March 4, 1996. On this day, a large train derailment occurred due to a broken rail. Included in the derailment were seven cars containing liquefied petroleum gas (LPG), seven cars with propane and two more containing sodium hydroxide. The cars containing the LPG and propane began to leak and immediately ignited. The fire spread to a nearby feedmill and storage building. In addition, the tank containing sodium hydroxide began to leak. Soon after the fire began, the decision was made to evacuate the entire City of Weyauwega and some surrounding rural areas, displacing over 2,300 people. Residents were kept away from their homes for approximately two weeks. Overall, according to the Wisconsin Central Transportation Corporation

1998 Annual Report, estimated costs from the derailment, and the subsequent lawsuits that were filed, totaled $28 million (Burke, 1996: https://www.firehouse.com/home/news/10545436/on-the-job-wisconsin). This could be considered a "worst-case scenario" estimate of potential dollar losses for a hazard materials incident.

Communicable Diseases

Description of Hazard

Communicable diseases are defined as those that can be transferred from one individual to another by direct or indirect contact. Communicable diseases can affect and cause serious illness in healthy individuals of all ages; however, young children and elderly people are generally at an increased risk of being infected. Despite advances in medical technology, vaccine development, and treatment modalities, communicable diseases continue to pose an important public health problem globally and locally. The emergence of previously unknown communicable diseases, the spread of diseases beyond traditional geographic locations, the spread of diseases from animals to humans, and the re-emergence of diseases eliminated or significantly reduced are at the forefront of public health concern. Changes in demographics, travel, lifestyle, technology, land use practices, food production and distribution methods, and childcare practices contribute to the occurrence and spread of emerging infections. Bioterrorism, or the intentional spread of communicable diseases, poses an additional threat.

The Centers for Disease Control and Prevention (CDC) has categorized diseases and their causative agents into three groups, based on risk to national security:

Category A Diseases/Agents: These are considered high-priority agents, and include organisms that pose a risk to national security because they:

- can be easily disseminated or transmitted from person to person;
- result in high mortality rates and have the potential for major public health impact;
- might cause public panic and social disruption; and
- require special action for public health preparedness.

Category B Diseases/Agents: These are the second highest priority agents, and include those that:

- are moderately easy to disseminate;
- result in moderate morbidity rates and low mortality rates; and
- require specific enhancements of CDC's diagnostic capacity and enhanced disease surveillance.

Category C Diseases/Agents: The third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future because of:

- availability;

- ease of production and dissemination; and
- potential for high morbidity and mortality rates and major health impact.

The following list illustrates other disease or causative agents that could potentially affect the health and welfare of persons or animals in the county. Some of the agents listed below would not be considered a communicable disease; however, if any of these agents were to be released, their impact on human health could be significant.

BIOLOGICAL AGENTS:
- Cholera
- Glanders
- Tularemia
- Q Fever
- Venezuelan Equine Encephalitis
- Viral Hemorrhagic Fevers
- Botulism
- Staph Enterotoxin B
- Ricin
- T-2 Mycotoxins

NERVE AGENTS:
- Tabun
- Sarin
- Soman
- O-ethyl-S

ASPHYXIANTS:
- Cyanide
- Cyanogen Cl
- Arsine

CHOKING AGENTS:
- Chlorine gas
- Phosgene
- Tear gas
- Vomiting gas
- Capsaicin

VESICANTS:
- Mustard
- Lewisite
- Phosgene oxime
- Bis-2-chloro

Communicable diseases discussed in this plan include: Anthrax, food and water borne disease, Plague, Smallpox, Tuberculosis, Vector Borne illness, and the following vaccine preventable illnesses: Measles, Mumps, Pertussis and Hospitalized Influenza. The following text provides a short description of each disease.

Anthrax

Anthrax is an acute infectious disease caused *Bacillus anthracis* bacteria. There are three types of anthrax: skin (cutaneous), lungs (inhalation), and digestive (gastrointestinal), which are categorized by the type of symptoms that are associated with each. Humans can become infected with anthrax by handling infected animals or animal products, by inhaling anthrax spores, or by eating undercooked meat from infected animals. Anthrax is not known to spread from person-to-person. Anthrax is classified as a Category A agent, and can be used as a bioterrorism weapon.

Food and Waterborne Disease

Food-related disease is caused by consuming contaminated foods or beverages. Contamination may occur during growth, processing, preparation or serving. More than 250 different food-related diseases have been described. Most are infections, caused by a variety of bacteria, viruses and parasites. Others are poisonings, caused by harmful toxins or chemicals that have contaminated the food (for example, poisonous mushrooms). The various diseases have many different symptoms, so there is no one description of food-related illness. Since the disease-causing organisms or toxins enter the body through the gastrointestinal tract, nausea, vomiting, abdominal cramps and diarrhea are common symptoms of many of these diseases.

In the United States, the drinking water supply is normally safe. However, diseases that spread through water are still a very real problem. Private wells and community water supplies can become contaminated; usual sources of safe water may become unavailable in emergency situations; and lakes, streams, pools or water parks may be contaminated by humans or animals. Many of the food-related organisms can also be spread through water, although parasites cause the majority of problems. Since many of the food- and water-related organisms can be acquired through recreational or drinking water, from contact with animals or their environment, or through person-to-person contact, investigation into specific cases is necessary for identifying the cause and controlling the spread of the disease.

Influenza (Flu)

Influenza is a caused by viruses that attack the respiratory tract (nose, throat and lungs). It spreads via droplets produced by coughing and sneezing. It usually spreads from person-to-person, although occasionally, people become infected by touching something with the virus on it and then touching their mouth or nose. Influenza disease usually comes on suddenly, and may include: fever, headache, extreme tiredness, dry cough, sore throat, runny or stuffy nose, and muscle aches. It can cause mild to severe illness, and at times can lead to death.

There are three different types of influenza: seasonal (epidemic), pandemic and avian. Seasonal outbreaks are typically caused by subtypes of influenza viruses that are already in existence among populations. Pandemic outbreaks are caused by new

subtypes, those that have never circulated among humans or have not been around for a long time.

Each winter's flu vaccine is formulated to protect against the A and B strains that are expected to be circulating that season. It takes several months for manufacturers to produce the vaccine, which is prepared using hens' eggs. Some influenza strains can be treated with antiviral medications.

Measles

Measles is a highly contagious infectious disease that causes fever, cough, rash, sore eyes, and occasionally dangerous complications like swelling of the brain and death. Measles can spread very easily, especially among unimmunized and immuno-compromised community members. Measles spreads through the air when an infected person coughs or sneezes. It is so contagious that if one person has it, up to 9 out of 10 people around him or her will also become infected if they are not vaccinated. Measles vaccination is highly effective in protecting against transmission of the disease.

Mumps

Mumps is an acute viral illness caused by the mumps virus. The virus is spread from person to person through direct contact with respiratory secretions or saliva and through contact with contaminated objects that are capable of harboring the virus. The infection is known to cause swelling of the salivary glands along with low grade fever, headache, muscle pain, and general discomfort being other symptoms of the infection. Occasionally, mumps may cause encephalitis or be associated with the development of meningitis. Mumps can, but rarely does, cause deafness or death. Those who have been diagnosed with the disease previously or have been vaccinated are generally immune to infection. Mumps is a Category B agent.

Pertussis (Whooping Cough)

Pertussis, also known as whooping cough, is a highly contagious respiratory disease. It is caused by the bacterium Bordetella pertussis. Pertussis is known for uncontrollable, violent coughing which often makes it hard to breathe. After cough fits, someone with pertussis often needs to take deep breaths, which result in a "whooping" sound. Pertussis can affect people of all ages, but can be very serious, even deadly, for babies less than a year old. Pertussis spreads from person to person. People with pertussis usually spread the disease to another person by coughing or sneezing or when spending a lot of time near one another in which they share breathing space.

Plague

Plague is a bacterial disease of rodents that can be spread to humans and other animals by infected fleas. Plague has three forms: bubonic plague (infection of the lymph glands), septicemia plague (infection of the blood), and pneumonic plague (infection of the lungs). Humans can become infected with plague by the bites of infected fleas, direct contact with tissues or body fluids of a plague-infected animal, by inhaling airborne droplets from infected persons or animals, or by laboratory exposure to plague bacteria. Only pneumonic plague can spread from person to person. Plague is considered a Category A agent because infection can occur by inhaling aerosolized bacteria released in a bioterrorism attack.

Smallpox

Smallpox is caused by the variola virus, and is spread easily from person to person, generally by direct and fairly prolonged face-to-face contact. Smallpox can also be spread through direct contact with infected bodily fluids or contaminated objects or can be carried through the air in enclosed spaces. Humans are the only natural hosts, and smallpox is not known to be transmitted by insects or animals. Smallpox is known to have a significantly high mortality rate. There is no specific treatment for smallpox, and the only prevention is vaccination.

To date, the disease has been eradicated from the planet after a successful worldwide vaccination program. The last case of smallpox in the United States was in 1949, and the last naturally-occurring case in the world was in Somalia in 1977. However, smallpox is considered a Category A disease, and is considered a major threat to the health of U.S. residents, especially those who have not been vaccinated.

Tuberculosis (TB)

Tuberculosis is caused by the bacteria *Mycobacterium tuberculosis*, and is spread from person-to-person through the air. TB usually affects the lungs, but it can also affect other parts of the body, such as the brain, kidneys or spine. TB bacteria enter the air when a person with TB of the lungs or throat coughs or sneezes. Tuberculosis is considered a Category A agent.

When a person inhales air that contains TB bacteria, they may become infected but will not feel sick or have any symptoms and cannot spread the bacteria to others. This is often termed latent TB infection (LTBI). However, in some post-infection cases, the bacteria become active and cause TB disease. General symptoms of TB disease include feeling sick or weak, weight loss, fever and night sweats. The symptoms of TB of the lungs include coughing, chest pain, and coughing up blood. TB infection is usually treated with 9 months of one antibiotic, and TB disease is generally treated with multiple antibiotics for a period of 6 months or longer.

Vector Borne Illness

Over the last 60 years, Wisconsin's weather has generally been getting warmer and wetter. As our climate is projected to continue changing, there will be increased impact on the behaviors and distribution of vectors (mosquitoes and ticks). A vector is a pathogen's temporary home until it transmits disease between the original host and the end host (humans). Vectors can be especially sensitive to temperature changes.

Tickborne bacterial illnesses include Lyme disease, anaplasmosis, and ehrlichiosis. Lyme disease is the most common tickborne disease and is primarily found in the northwestern part of Wisconsin, but cases occur in all counties. Common symptoms of these tickborne diseases include fever, chills, muscle and joint aches, tiredness, headache, redness or rash at the bite location, and swollen lymph nodes.

Arboviruses are viruses transmitted by arthropods, such as mosquitoes and ticks. In Wisconsin, the most commonly reported arboviral diseases are West Nile virus and La Crosse encephalitis infections, and the less common reported arboviral illnesses are Jamestown Canyon and Powassan virus infections. Symptoms of arboviral diseases include fever, headache, body aches, joint pain, vomiting, diarrhea, rash, and lethargy. In the case of severe arboviral infections, symptoms can include encephalitis (swelling of the brain), seizures, coma, paralysis, and meningoencephalitis (swelling of the meninges).

Previous Significant Hazard Occurrences

The Wisconsin Department of Health Services publishes *Public Health Profiles* on an annual basis in order to provide concise health and demographic information about each county in Wisconsin.

Table 3.9 provides communicable disease counts for Sheboygan County on the illnesses noted above that were reported through the Wisconsin Electronic Disease Surveillance System (WEDSS) between 2010 and 2018.

Table 3.9: Communicable Diseases Occurrences (Sheboygan County), 2010-2018

	Disease				
Year	Food & Water Borne	Vector Borne	Tuberculosis	Hospitalized Influenza	Vaccine Preventable
2010	67	22	0	5	5
2011	58	15	1	10	6
2012	63	6	5	17	66
2013	57	2	8	38	13
2014	69	1	2	75	2
2015	68	3	1	44	6
2016	70	9	0	34	14
2017	114	9	0	112	16
2018	82	15	3	116	5
Total	**648**	**82**	**20**	**451**	**133**

Source: Wisconsin Electronic Disease Surveillance System (WEDSS, for all years listed).

Because minor cases of influenza are often self-diagnosed and self-treated, it is impossible to know the exact number of cases that occur in Sheboygan County in any given year. The same is true for food and water borne disease. However, the WEDSS data that are available do provide baseline information on those cases that are confirmed through laboratory or clinical evidence. The numbers in Table 3.9 are likely lower than the numbers that actually occur.

There were no reported cases of anthrax, plague, or smallpox infection in Sheboygan County between January 1, 1995, and December 31, 2018.

Hazard Frequency

Anthrax

In 2001, Anthrax was deliberately spread through the postal system by sending letters with powder containing anthrax. Three main incidents were reported by the national media in which anthrax spores, in the form of a white powder, were circulated in the mail system. The first incident involved a tabloid newspaper reporter in Boca Raton, Florida, who eventually passed away after exposure to the spores. A mailroom employee working in the same building as the reporter was also diagnosed with inhalation anthrax. Shortly thereafter, two additional letters containing anthrax spores were delivered to a media mogul in New York City and a high profile politician in Washington, D.C. Postal workers in facilities that had handled the letters began to test positive for anthrax as well. In total, 22 cases of anthrax were reported, with 11 being inhalation anthrax and 11 being cutaneous anthrax.

Outside of terrorist attacks, natural occurrences of anthrax in the United States are very rare. The CDC estimates that only one to two incidences of cutaneous anthrax occur naturally every year, while gastrointestinal and inhalation anthrax are extremely rare.

Food and Waterborne Disease

The CDC estimates that annual incidences of new Hepatitis A infections in the United States has been on the decline since 2001, when 93,000 new cases were reported, while the number of new cases has remained fairly stable. This is likely due to the more recent availability of a vaccination for Hepatitis A. When all reportable enteric illnesses are considered together, Sheboygan County has experienced a slight increase in rates of food and waterborne illness occurring at the local level. Between 2010 and 2018, there has been a total increase of approximately 20-30 more enteric cases identified per year, with a 3 percent increase in cases occurring between 2016 and 2017. Because minor cases of food and waterborne illness are often self-diagnosed and self-treated, it is impossible to know the exact number of cases that occur in Sheboygan County in any given year. However, the WEDSS data available does provide baseline information on those cases that are confirmed through laboratory or clinical evidence.

Influenza

Types A and B influenza viruses cause epidemics of disease almost every winter. In the United States, these epidemics cause illness in 10 to 20 percent of the population, and are associated with an average of 20,000 deaths and 114,000 hospitalizations per year. Annual influenza vaccination can prevent illness from A and B influenza. In 2017, Wisconsin had the highest number of flu cases on record, with 20,208 cases. Influenza vaccination data for the 2017-2018 flu season indicates that 55 percent of Sheboygan County residents were vaccinated against influenza. This is slightly above the national average, though it falls short of the Healthy People 2020 goal of a 70 percent vaccination rate.

Mumps

From 2015 to 2017, the U.S. saw a range of different mumps outbreaks in various settings and sizes. Cases started to increase in late 2015. From January 2016 to June 2017, health departments reported 150 outbreaks (9,200 cases), including households, schools,

universities, athletics teams and facilities, church groups, workplaces, and large parties and events.

Most Midwestern states (including Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri and Kansas) have reported infections among their residents. In Wisconsin, since November 2016, there have been 86 confirmed mumps cases, including 23 associated with UW Platteville, seven associated with Marquette University, and nine associated with UW La Crosse, affecting a total of 20 Wisconsin counties. In Sheboygan County, there were three cases of mumps reported between 2010 and 2018. These cases were associated with travel or as contacts to outbreaks occurring within universities.

Measles

The most recent report of measles in Sheboygan County occurred in 2008 in an unvaccinated child. Since then, there have been no other confirmed cases within the county. It is important to note that beginning in January of 2019, the United States has been experiencing an outbreak of measles, with more than 1,000 cases reported across the country. This outbreak is being experienced by many states in the Midwest, and may have an impact on communities in Wisconsin.

Plague

In the United States, human plague cases average about 10 to 15 per year. In North America, plague is found from the Pacific Coast eastward to the western Great Plains, and from the British Columbia and Alberta, Canada, southward to Mexico. Most of the human cases in the U.S. occur in two regions: (1) portions of northern New Mexico, northern Arizona and southern Colorado; and (2) California, southern Oregon, and far western Nevada.

Smallpox

There have been no recorded outbreaks of smallpox since 1980, when the disease was declared eradicated following worldwide vaccination programs.

Tuberculosis (TB)

The number of reported cases of TB in the United States has been on the decline since the early 1990s. A total of 9,105 TB cases (a rate of 2.8 cases per 100,000 persons) was reported in the United States in 2017. This is a decrease from the number of cases reported in 2016, and is the lowest case count on record in the United States. The case rate of 2.8 per 100,000 persons is a 2.3 percent decrease from 2016.

Sheboygan County is considered a low-risk community for active TB. However, it is important to note that in 2013, the county was home to an outbreak of multidrug resistant tuberculosis, which resulted in 13 cases of active TB disease, 40 cases of latent TB Infection (LTBI), and the need for TB screening within local schools and businesses, with over 700 community members tested for the disease after exposure.

Vector Borne Illness

The CDC reports that cases of vector-borne illness have tripled in the US from 2004 to 2016, with nine new pathogens spread by mosquitoes and ticks having been discovered or introduced during that same time period. In Wisconsin in 2016, there were over 3,000 reports of vector-borne illness occurring within the state. Most cases identified in Wisconsin are West Nile Virus and Lyme Disease. In Sheboygan County,

between 2010 and 2018, there was one case of West Nile Virus and 77 cases of Lyme Disease reported through the WEDSS. Based on previous hazard occurrences (as reported by the Wisconsin Department of Health and Family Services), Sheboygan County has experienced a significant increase in Lyme Disease incidents each year, with approximately nine cases occurring annually between 2010 and 2018 compared with five cases per year occurring between 2000 and 2009.

Probability of Hazard Occurring in the Future

As there have been no natural occurrences of anthrax, plague, or smallpox in the State of Wisconsin since 1990, the probability that an outbreak of any of these diseases will occur is low. However, the CDC has recognized all of these diseases as potential weapons that could be used in a terrorist attack. Although a terrorist attack has not occurred to date in Wisconsin, the nature of these acts make them very unpredictable. Sheboygan County's relatively low population density and the lack of a regularly used venue which attracts large crowds make it unlikely that a terrorist attack of this type will take place in the planning area.

The large-scale outbreak of measles in the United States in 2019 must be taken into consideration when determining the probability of a local outbreak. Attention must be brought to this disease, and the CDC and local health departments have begun a major campaign to educate people about the opportunity to get vaccinated in order to avoid infection. Therefore, the availability of a vaccination, and the effort of healthcare workers to promote it, also must be considerations in determining the probability of a local outbreak.

Because reports of communicable disease (CD) have continued to occur within Sheboygan County between 2010 and 2018, it is highly probable that future occurrences will be reported in the county. Sheboygan County WEDSS data shows that reports of CD within the county have generally continued to increase since 2014. This is likely due to changes in reporting requirements and increases in global mobility of residents.

Based on the hazard frequency, Sheboygan County is considered to have a **high** probability of experiencing a communicable disease occurrence in any given year.

Areas at Greatest Risk

In the case of a terrorist attack involving the release of a biological agent, it is likely that the event would take place in an area that attracts large crowds of people. The other communicable diseases discussed in this section have little geographic affiliation. Locations with dense populations will be at higher risk, as there are more people to spread the disease. Natural features (such as ponds, forests, and wetlands) are likely higher risk areas for insects that transmit diseases such as West Nile Virus and Lyme Disease. Hospitals and other facilities may also be more conducive to the transmission of infection. However, these diseases can occur anywhere, and therefore should be planned for accordingly.

Impacts from Hazard

Death and Injury

A number of deaths have occurred due to communicable diseases in Sheboygan County. Over the decade from 2005 to 2015, there was a total of 184 deaths associated

with infectious or parasitic diseases that occurred within the county, with an average of nearly 17 deaths occurring each year during that period. Several injuries occurred due to communicable diseases in Sheboygan County over that period as well, although it is difficult to obtain a good estimate of the number of such injuries.

Public Health and Safety

The major impacts of a communicable disease outbreak on public health have been discussed throughout this section of the plan. In addition to the information already provided, a number of other public health issues could be related to a communicable disease outbreak, especially in the event of a biological terrorist attack. Primarily, people may experience anxiety or high levels of stress during such an event, especially individuals and family members directly affected and personnel that are needed to respond to such an incident.

Structures at Risk

There would be little impact on buildings in the event of a communicable disease outbreak. The majority of communicable diseases discussed in this section would have little impact on structures in the planning area. However in the event that a Category A agent was released as part of a terrorist attack, some consequences may result. Primarily, transportation services would be heavily impacted. Mass transit vehicles (such as buses and airplanes) may be used to move people away from danger or to transport large quantities of people to healthcare facilities. In addition, roads, railways and airlines in the affected area may be closed down for security purposes.

Critical Facilities

Undoubtedly, the primary impact on critical facilities would be on hospitals and other healthcare facilities, including doctor's offices, clinics, and urgent care facilities. However, the impact will vary depending on the number of people affected by the outbreak and the severity of the disease in question. An outbreak of a Category A agent (such as anthrax) would certainly have a greater impact than an increase in the number of people that are already affected by the flu every year, regardless of the number of people that are infected.

In the case of a terrorist attack, in which a category A agent was released, other emergency responders would be impacted. Police and fire personnel would be called upon to provide security and maintain order during an event. Emergency medical personnel would be needed to treat people on site and to transport those who were severely affected to healthcare facilities. Schools may be used as shelters for people who must evacuate an affected area, or as treatment centers.

Economic Impacts

The economic impacts associated with a communicable disease outbreak will vary depending on the severity of the event. In a best case scenario, only a small number of people will be affected. In this situation, costs incurred will be primarily associated with the healthcare costs of the affected individuals. A worst case scenario would be a mass casualty event. An event such as this could result in costs for decontamination, security, transportation (including air and land transport to and from healthcare facilities), hazardous materials waste, and healthcare. In addition, some businesses may

be forced to shut down for security purposes, and people may be forced to evacuate an area if their health is in danger.

Locally, the 2013 multidrug resistant tuberculosis outbreak resulted in a petition and receipt of $4.6 million appropriated to Sheboygan County local government through the state biennial budget to assist in tuberculosis treatment, contact investigation and isolation/quarantine measures. Communicable disease outbreaks can be quite costly to communities.

Estimate of Potential Dollar Losses

This estimate is not needed, as no vulnerable structures or geographic areas have been identified.

Water Supply Contamination

Description of Hazard

Both water contamination threats and water contamination incidents can be used to interrupt the delivery of safe water to a population, interrupt fire protection, create public panic, or cause disease or death in a population. A water contamination threat occurs when the introduction of a contaminant into the water system is threatened, claimed or suggested by evidence. A water contamination incident occurs when a point or non-point source pollutant successfully enters the public groundwater supply and/or surface water supplies. Both threats and incidents of water contamination can have several consequences, including:

- Creating an adverse impact on public health;
- Disrupting system operations and interrupting the supply of safe drinking water;
- Causing physical damage to system infrastructure;
- Reducing public confidence in the water supply; and
- Long-term denial of water and the cost of remediation and replacement.

Only a few contaminants have the potential to produce widespread death or disease in a population, including pathogens, biotoxins, and a few highly toxic chemicals that may remain stable in water long enough to adversely impact public health. A larger group of contaminants could cause localized death or disease, while hundreds of other contaminants could potentially disrupt service or undermine consumer confidence, but would not result in death or disease.

Table 3.10 lists contaminant classes that would potentially have an adverse impact if introduced into the drinking water supply, and also includes specific examples and sources of these contaminants. Please note that this is not a complete list of possible contaminants; rather, it is intended to illustrate relevant contaminant classes. There may be many other substances that could be used to contaminate the water supply. The causes of water contamination are numerous, and range from failing septic systems, leaking underground storage tanks, intentional terrorist attacks, runoff of harmful pollutants, and the simple improper use of household chemicals. Natural hazards (such as flooding) may lead to contamination of ground and surface waters. Agricultural land uses may also pose a threat to the public water supply, as runoff may contain harmful pesticides, insecticides, fertilizers and manure.

Table 3.10: Classes of Potential Water Contaminants

Class	Examples	Sources	Limited Access
Microbiological Contaminants			
Bacteria	*E. Coli*, anthrax, brucellosis, Burkholderia bacteria, Campylobacter bacteria, *Salmonella typhi* (typhoid fever), *Francisella tularensis*	Naturally occurring, microbiological laboratories, state-sponsored programs	Yes (for select agents)
Viruses	Caliciviruses, Enterovirususe, Hepatitis A and E, Variola, VEE virus	Naturally occurring, microbiological laboratories, state-sponsored programs	Yes (for select agents)
Parasites	*Cryptosporidium parvum, Entamoeba histolytica, Toxoplasma gondii* (toxoplasmosis)	Naturally occurring, microbiological laboratories	No
Chemical Contaminants - Inorganic			
Corrosives and caustics	Toilet bowl cleaners, tree-root dissolver, drain cleaners	Retail, industry	No
Cyanide salts of cyanogenics	Sodium cyanide, potassium cyanide, amygdalin, cyanogen chloride, ferricyanide salts	Supplier, industry	Yes
Metals	Mercury (and mercury salts), lead (and lead salts), osmium, and complexes (including those of iron, cobalt, and copper)	Industry, supplier, laboratory	Yes
Nonmetal oxyanions, organo-nonmetals	Aresnate, arenite, selenite salts, organoarsenic, organoselenium compounds	Some retail, industry, supplier, laboratory	Yes
Chemical Contaminants - Organic			
Fluorinate organics	Sodium triflouroacetate (rat poison), fluoroalcohols, fluorinated surficants	Supplier, industry, laboratory	Yes
Hydrocarbons and ther oxygenated and/or halogenated derivatives	Paint thinners, gasoline, kerosene, alcohols, ethers, halohydrocarbons	Retail, industry, laboratory, supplier	No
Insecticides	Organophosphates, chlorinated organics, carbamates, some alkaloids	Retail, industry, supplier	Yes
Malodorous, noxious, foul-tasting chemicals	Thiols, amines, inorganic esters	Laboratory, supplier, police supply, military depot	Yes
Organics, water-miscible	Acetone, methanol, ethylene glycol (antifreeze), phenols, detergents	Retail, industry, supplier, laboratory	No
Pesticides (other than insecticides)	Herbicides, rodenticides	Retail, industry, agriculture, laboratory	Yes
Pharmaceuticals	Cardiac glycosides, some alkaloids, antineoplastic chemotherapies, anticoagulants, illicit drugs	Laboratory, supplier, pharmacy, natural stores	Yes
Chemical Warfare Agents			
Schedule 1 Chemical Weapons	Organophosphate nerve agents (sarin, tabun, VX), vesicants (nitrogen and sulfur mustards), lewisite	Suppliers, military depots, some laboratories	Yes
Biotoxins			
Biologically produced weapons	Biotoxins from bacteria, plants, fungi, protists, defensive poisons in some marine and terrestrial animals - this category would include ricin, saxitoxin, botulinum toxins, and microcystins	Laboratory, supplier, pharmacy, natural source, state-sponsored programs	Yes
Radiological Contaminants			
Radionuclides	These may come from medical devices and industrial irradiators including both the metals and salts - this category does not include nuclear, thermonuclear, or neutron bombs	Laboratory, state sources, waste facilities	Yes

Source: "Response Protocol Toolbox: Planning for and Responding to Drinking Water Contamination Threats and Incidents," USEPA, 2004; and Bay-Lake Regional Planning Commission, 2013.

Previous Significant Hazard Occurrences

Sheboygan County emergency management officials recognize that previous incidents of water contamination have occurred in the planning area; however, due to the sensitive nature of this information, these incidents are to remain confidential.

Hazard Frequency

There is no reportable record of water supply contamination for Sheboygan County in order to develop a hazard frequency.

Probability of Hazard Occurring in the Future

It is likely that there will be an occurrence of water supply contamination in Sheboygan County in the future. However, it is not possible to predict the nature and scale of these incidents. Sheboygan County is considered to have a **low** probability of experiencing a water supply contamination occurrence in any given year.

Areas at Greatest Risk

Areas at greatest risk for intentional contamination would be those areas served by public water supply systems. These systems provide water for human consumption to the public through piped or other constructed conveyances. Table 3.11 shows all of the municipal or community public water supply systems that serve areas in Sheboygan County, as well as the population size they serve.

Ground and surface water supplies and wells that are located near agricultural land uses and construction sites may also be at greater risk of contamination from nonpoint source pollution contained in runoff. In addition, water supplies located within floodplains are at greater risk of contamination during a flood event.

Table 3.11: Public Water Supply Systems in Sheboygan County

Facility	Location Served	2018 Population[1]
Adell Waterworks	Village of Adell	507
Cascade Waterworks	Village of Cascade	689
Cedar Grove Waterworks	Village of Cedar Grove	2,104
Elkhart Lake Waterworks	Village of Elkhart Lake	1,002
Glenbeulah Waterworks	Village of Glenbeulah	454
Kettle Moraine Correctional Institution[2]	Facility proper	1,178
Kohler Waterworks[3]	Village of Kohler	2,105
Oostburg Waterworks	Village of Oostburg	2,976
Plymouth Waterworks	City of Plymouth	8,686
Random Lake Waterworks	Village of Random Lake	1,567
Rocky Knoll Health Care Facility[2]	Facility proper	149
Sheboygan Falls Utilities[3]	City of Sheboygan Falls	7,951
Sheboygan Town Waterworks	Town of Sheboygan	7,706
Sheboygan Water Utilities	City of Sheboygan	48,846
Waldo Waterworks	Village of Waldo	494

[1]Unless otherwise noted, most population figures come from 2018 Wisconsin Department of Administration Demographic Services Center population estimates for the noted municipality. It should be noted that the entire population of a municipality may not be served by municipal water.

[2]Population in the two institutions cited came from websites from those respective institutions.

[3]Source water is from the City of Sheboygan Water Utilities.

Source: Wisconsin Department of Natural Resources, 2019; Wisconsin Department of Administration, Demographic Services Center, 2018; Wisconsin Department of Corrections, 2018; Sheboygan County, 2019; and Bay-Lake Regional Planning Commission, 2019.

Impacts from Hazard

Death and Injury

No data on deaths or injuries is available for water supply contamination occurrences for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018.

Structures at Risk

There would be little impact on buildings in the event of a water supply contamination occurrence. The primary impact of a water supply contamination would be on the public water supply systems. If the public water supply were to become contaminated, the amount of water available to the public would be limited.

Critical Facilities

The critical facility type that would be primarily impacted would be public water supply systems. The impact of a water contamination occurrence on the county's critical facilities would be dependent upon the geographic extent of the event, the time required to eliminate any risk, and the type and concentration of the contaminant involved. At best, the contamination could be dealt with quickly without shutting off the water supply, and therefore, the impact of the event would not be felt. However, if the contamination were severe, these facilities may be forced to operate without water. This would have the most impact on hospitals and other medical facilities, schools, and other emergency operations centers. In addition to the loss of water supply, hospitals, medical facilities, and other emergency response centers will likely experience increased workloads if contaminated water reaches the public.

Economic Impacts

In any water supply contamination occurrence, the largest economic costs would be associated with alleviating the threat posed to the public and the environment.

Estimate of Potential Dollar Losses

Costs to make affected water supplies safe for drinking after a contamination incident would vary greatly depending on how many facilities are affected, how much of the supply infrastructure is affected, and the type of contaminant.

Violence

Description of Hazard

Violence includes civil disturbances, workplace and school violence, and jail disturbances. Civil disorder in general can be described as incidents intended to disrupt a community to the degree that law enforcement intervention is required to maintain public safety. Most of these incidents are associated with controversial political, judicial or economic issues.

Previous Significant Hazard Occurrences

According to the *Sheboygan County Hazard Analysis*, the county has not experienced any major incidents of violence up to this point. Labor strikes have occurred in the past, but have been generally peaceful and lacking in hostile actions. There have also been several prank bomb threats that have been called in to schools and businesses. In each incident, no bombs were found, but objects that were explosive in nature were discovered in some cases. In addition, threats against management officials and others in high ranking positions have been made but never carried out.

Sheboygan County has a medium security prison located within its boundaries. Over the years, overcrowding of inmates and a shortage of trained, experienced guards has increased the potential for disturbances, riots and escapes.

Hazard Frequency

There have been no major incidents of violence (including civil disturbances, workplace and school violence, and jail disturbances) reported in Sheboygan County in the past 24 years. Several generally peaceful labor strikes have occurred in the past at locations such as the Kohler Company, Die Cast, Lawn Boy and Hayssen.

Probability of Hazard Occurring in the Future

The probability of a significant violence event occurring is **low** for Sheboygan County.

Areas at Greatest Risk

Civil disturbances, such as those resulting from labor strikes or protests, are more likely to occur in areas with larger populations or where large employers are located. School violence could potentially occur at any of the educational facilities located within the county. Jail disturbances could occur at the Sheboygan County Jail or the Kettle Moraine Correctional Institution.

Impacts from Hazard

Death and Injury

No data on deaths or injuries is available for significant violence occurrences for Sheboygan County over the last 24 years from January 1, 1995, to December 31, 2018.

Structures at Risk

In most cases, there would be little impact on buildings in the event of an outbreak of violence in the county. However, it is possible that a riot could result in fires being set, which could impact buildings located in the vicinity of the unrest. Furthermore, during periods of large-scale disorder, crime generally increases. One ramification of this could be break-ins and robberies at businesses and homes, causing structural damage such as damaged windows and doors.

The *Sheboygan County Hazard Analysis* does note that several fake bomb threats have been called in at various times in the past. If an actual bomb were to be used in an attack, the building in which it was located, as well as surrounding buildings, would be impacted upon detonation.

Critical Facilities

In most cases, there would be little impact to critical facilities in the event of an outbreak of violence, unless the act took place directly in or around the facility itself. Many critical facilities are places of business or provide services to the public, and therefore employ several people. As a result, it is possible that acts of workplace violence could impact the facility, causing disturbances in function, injuries to employees, and even structural damage, particularly if explosives or fires are involved. Other acts of violence (such as riots and protests) could have similar impacts on other critical facilities, such as schools, prisons and jails.

Economic Impacts

Businesses could potentially be impacted by acts of violence if they were forced to shut down for any period of time.

Estimate of Potential Dollar Losses

This estimate is not needed, as no specific vulnerable structures or geographic areas have been identified.

CYBERSECURITY

Description of Hazard

Cyberattacks can be described as "the hostile use of information technology by individuals or groups for the purpose of financial gain or as an action to further a social or political agenda." Cyberattacks include "the use of information technology to threaten, exchange information and/or organize and execute attacks against networks, computer systems and infrastructure." Common examples of cyberattacks "include, but are not limited to, unauthorized access to networks, infection of vulnerable systems by computer viruses, website defacing, and denial of service attacks." Cyberattacks are man-made hazards "which can affect demographically and geographically diverse populations."

Previous Significant Hazard Occurrences

There have been no known reported cyberattacks that have been isolated to Sheboygan County. However, there have been cyberattacks on public safety and government agencies, medical centers and educational institutions across Wisconsin in recent years, some of which took place near Sheboygan County.

In the past decade, "there has been an increase in cyberattacks directed at power generation and oil companies. These attacks have used a variety of techniques, none of which are very advanced or hard to develop and manage. Although evidence suggests the growing trend in these attacks appears to target individual entities instead of primary infrastructure, a mass coordinated attack cannot be discounted."

Hazard Frequency

The frequency of cyberattacks specific to Sheboygan County is currently unknown. Wisconsin Emergency Management (WEM) has reported out on statewide internet crime based on FBI reports; in 2015, there were over 3,400 victims of cybercrime who collectively lost over $10 million, some of whom presumably resided in Sheboygan County. The FBI data are classified by victim demographics, crime type, type of loss, subject count and subject location.

Probability of Hazard Occurring in the Future

While the history of this hazard has involved a minimal number of occurrences, the number of potential targets that could be attacked and number of ways that cyberattacks could occur are always increasing. Since information technology is used everywhere today, the probability of this hazard occurring in the future is **high.**

Areas at Greatest Risk

Common targets of cyberattacks can include public safety and government agencies, medical centers and educational institutions. Other targets can include power generation and oil companies. Financial institutions (such as banks and credit unions) can be attacked for financial gain. Cyberattacks can also be directed at business, research or industrial targets for purposes of industrial espionage. In addition, cyberattacks can be directed at the electoral infrastructure, particularly in the case of key nationwide elections. Vulnerable individual citizens can also be the victims of

various internet crimes. In other words, there are virtually no sectors of society that are immune to potential cyberattacks.

Impacts from Hazard

Death and Injury

Deaths and injuries are not expected to occur directly from cyberattacks. However, longer response times (or the ability to respond at all) to incidents could become problematic, making some injuries more critical than they might have been with more satisfactory response times, and leading to some fatalities in cases where a person could have been saved. Cyberattacks could impact a variety of assets that are needed to respond in a timely and adequate manner to individuals who are injured during a cyberattack. In addition, cyberattacks could indirectly lead to injuries and possible deaths in circumstances in which infrastructure that relies on electrical power (such as traffic signals) is unable to function, leading to unnecessary crashes.

Structures at Risk

Damage to structures is not expected to occur directly from cyberattacks. However, when structural damage does occur (due to fires and other hazards), longer response times (or the ability to respond at all) could become problematic, making structural damage more significant than it might have been with more satisfactory response times. Cyberattacks could impact certain assets that respond to threats to structures, including communications, water, fire and rescue, and disaster response.

Critical Facilities

A variety of critical facilities identified in this plan could be impacted by cyberattacks, including communications, water, electric, government, fire and rescue, hospitals and clinics, natural gas, law enforcement, military installations, the airport, and disaster response. Other critical facilities that could potentially be impacted by cyberattacks include schools and sewage treatment plants.

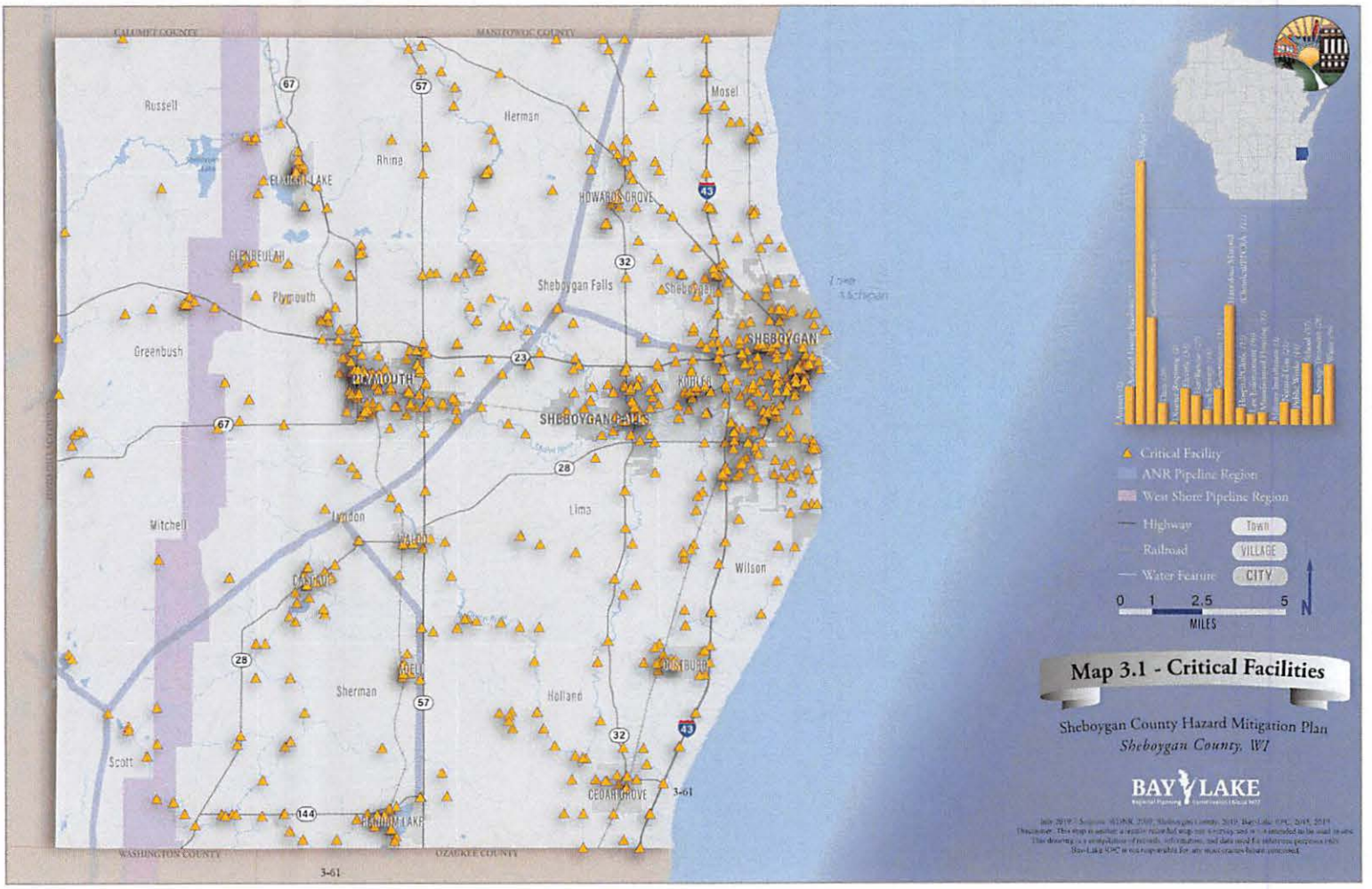
Economic Impacts

Losses due to deaths and injuries, damage to structures, and costs to critical facilities that were exacerbated by the cyberattack could be significant. This impacts could affect the larger economy in Sheboygan County, and could possibly extend to a broader region. Damage to several sectors of the economy could require state and/or federal government assistance. Individuals can also suffer economic damage from cyberattacks to their bank accounts or other financial assets.

Estimate of Potential Dollar Losses

This estimate is not needed, as no specific vulnerable structures or geographic areas have been identified.

(Note: Wisconsin Emergency Management's 2016 Threat and Hazard Identification Risk Assessment (THIRA) and State Preparedness Report (SPR) and its discussion regarding Cyber Incidents was used to prepare this section).

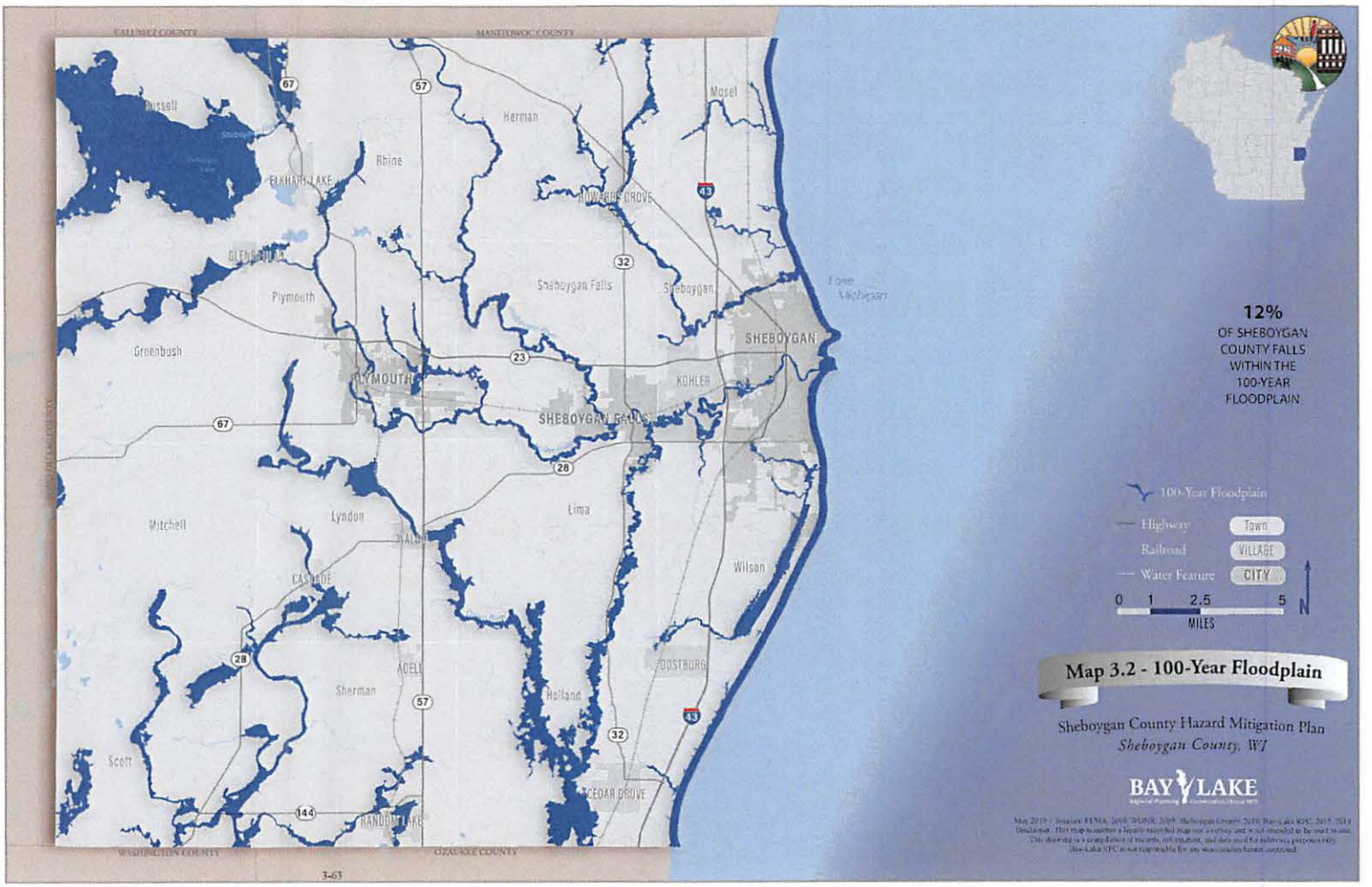


Map 3.1 - Critical Facilities

Sheboygan County Hazard Mitigation Plan

Sheboygan County, WI

BAY LAKE Regional Planning Commission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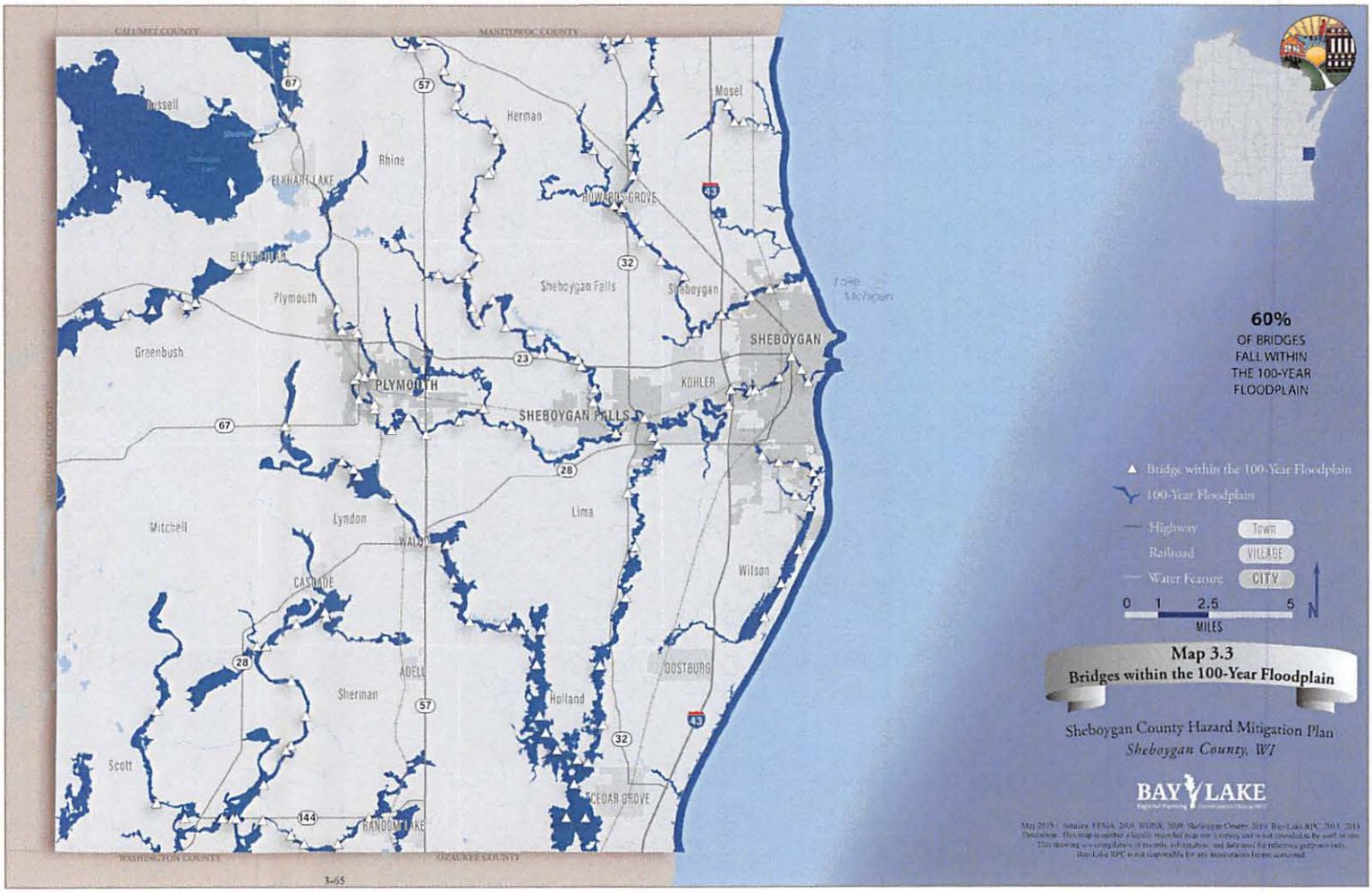
WASHINGTON COUNTY
OZAUKEE COUNTY
Russell
Herman
Mosel
Rhine
ELKHART LAKE
HOWARDS GROVE
GLENBEULAH
Plymouth
Sheboygan Falls
Sheboygan
Lake Michigan
Greenbush
SHEBOYGAN
PLYMOUTH
KOHLER
SHEBOYGAN FALLS
Mitchell
Lyndon
Lima
Wilson
CASCADE
ADELL
Sherman
Holland
OOSTBURG
Scott
CEDAR GROVE
RANDOM LAKE
67
57
43
32
23
28
144
12%
OF SHEBOYGAN COUNTY FALLS WITHIN THE 100-YEAR FLOODPLAIN
100-Year Floodplain
Highway
Railroad
Water Feature
Town
VILLAGE
CITY
0 1 2.5 5
MILES
N
Map 3.2 - 100-Year Floodplain
Sheboygan County Hazard Mitigation Plan
Sheboygan County, WI
BAY LAKE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Herman
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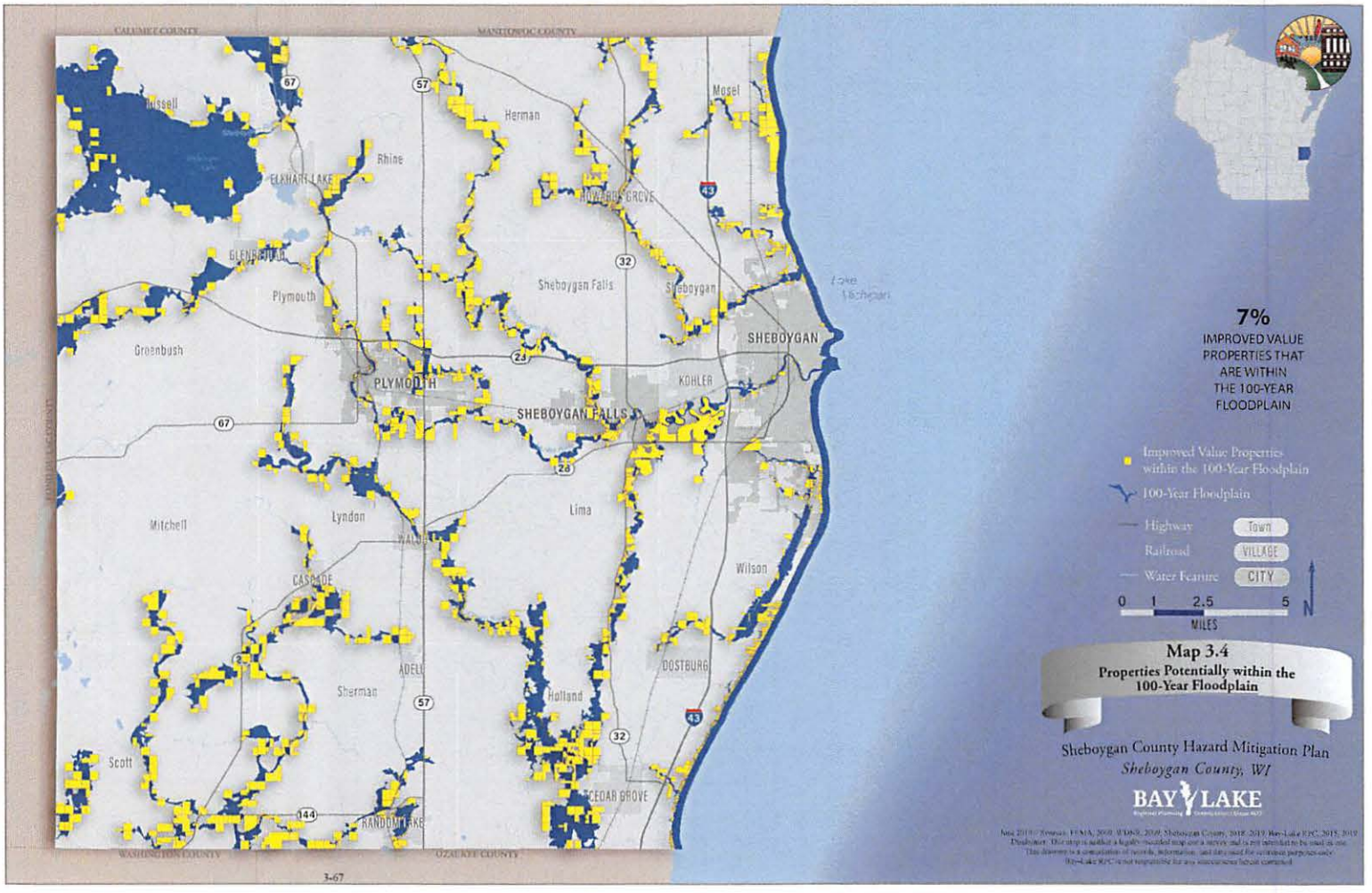
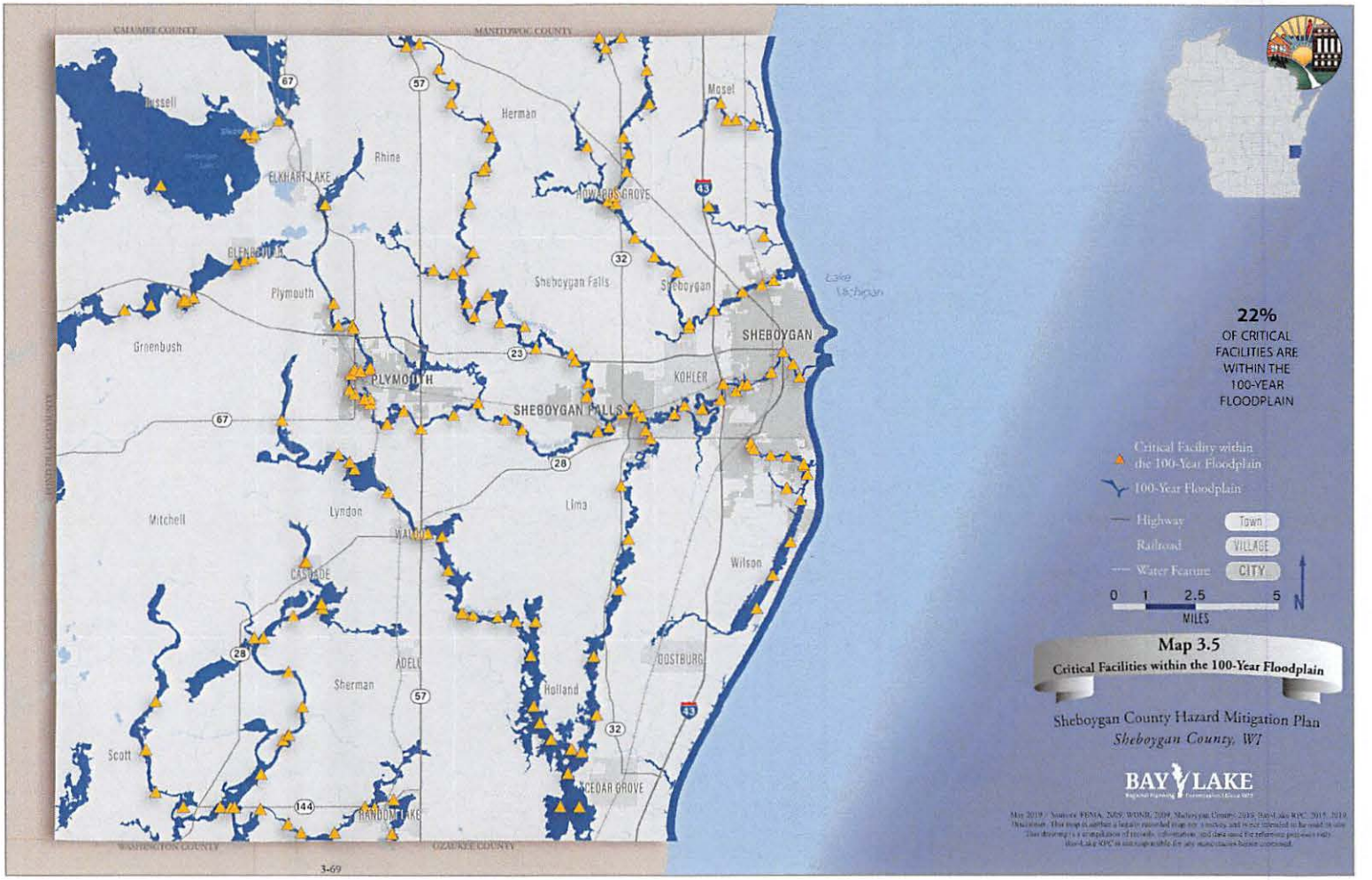
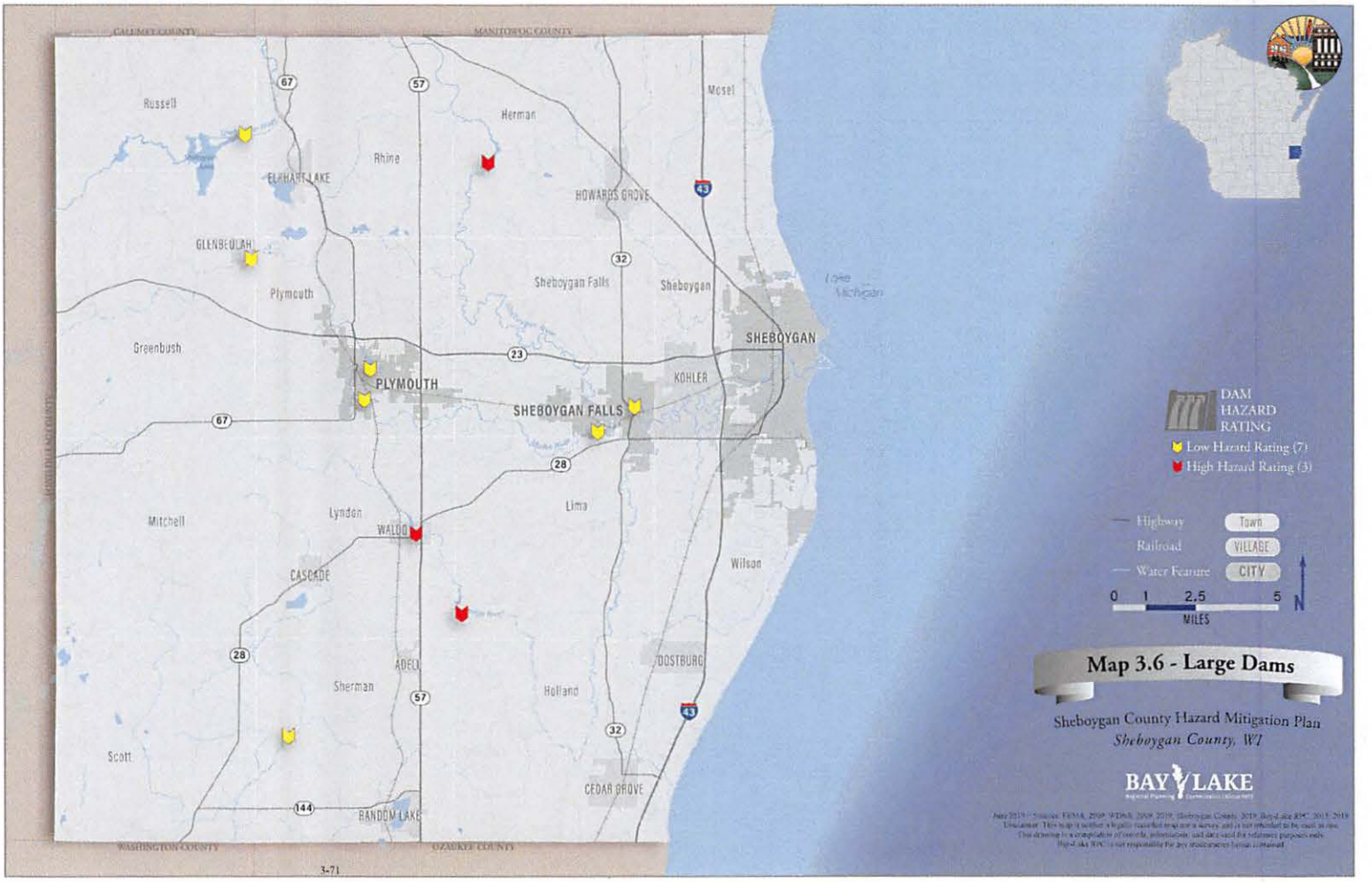
Rhine
ELKHART LAKE
HOWARDS GROVE
Sheboygan Falls
Sheboygan
Lake Michigan
Plymouth
Greenbush
SHEBOYGAN
PLYMOUTH
KOHLER
SHEBOYGAN FALLS
Lima
Mitchell
Lyndon
WALDO
Wilson
CASCADE
ADELL
Sherman
Holland
OOSTBURG
Scott
CEDAR GROVE
RANDOM LAKE
WASHINGTON COUNTY
OZAUKEE COUNTY
60%
OF BRIDGES
FALL WITHIN
THE 100-YEAR
FLOODPLAIN
Bridge within the 100-Year Floodplain
100-Year Floodplain
Highway
Railroad
Water Feature
Town
VILLAGE
CITY
0 1 2.5 5
MILES
N
Map 3.3
Bridges within the 100-Year Floodplain
Sheboygan County Hazard Mitigation Plan
Sheboygan County, WI
BAY LAKE


CALUMET COUNTY
MANITOWOC COUNTY
Russell
Herman
Mosel
Rhine
ELKHART LAKE
HOWARDS GROVE
GLENBEULAH
Plymouth
Sheboygan Falls
Sheboygan
Lake Michigan
Greenbush
PLYMOUTH
SHEBOYGAN
KOHLER
SHEBOYGAN FALLS
Mitchell
Lyndon
Lima
CASCADE
Wilson
ADELL
Sherman
Holland
OOSTBURG
Scott
CEDAR GROVE
RANDOM LAKE
WASHINGTON COUNTY
OZAUKEE COUNTY
7%
IMPROVED VALUE PROPERTIES THAT ARE WITHIN THE 100-YEAR FLOODPLAIN
Improved Value Properties within the 100-Year Floodplain
100-Year Floodplain
Highway
Railroad
Water Feature
Town
VILLAGE
CITY
0 1 2.5 5
MILES
N
Map 3.4
Properties Potentially within the 100-Year Floodplain
Sheboygan County Hazard Mitigation Plan
Sheboygan County, WI
BAY LAKE


CALUMET COUNTY
MANITOWOC COUNTY
WASHINGTON COUNTY
OZAUKEE COUNTY
Russell
Herman
Mosel
Rhine
ELKHART LAKE
HOWARDS GROVE
Sheboygan Falls
Sheboygan
Plymouth
Greenbush
SHEBOYGAN
PLYMOUTH
KOHLER
SHEBOYGAN FALLS
Mitchell
Lyndon
Lima
Wilson
CASCADE
ADELL
OOSTBURG
Sherman
Holland
Scott
CEDAR GROVE
RANDOM LAKE
Lake Michigan
22%
OF CRITICAL FACILITIES ARE WITHIN THE 100-YEAR FLOODPLAIN
Critical Facility within the 100-Year Floodplain
100-Year Floodplain
Highway
Railroad
Water Feature
Town
VILLAGE
CITY
0 1 2.5 5
MILES
N
Map 3.5
Critical Facilities within the 100-Year Floodplain
Sheboygan County Hazard Mitigation Plan
Sheboygan County, WI
BAY LAKE


CALUMET COUNTY
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Rhine
ELKHART LAKE
HOWARDS GROVE
GLENBEULAH
Plymouth
Sheboygan Falls
Sheboygan
Lake Michigan
Greenbush
SHEBOYGAN
PLYMOUTH
KOHLER
SHEBOYGAN FALLS
Mitchell
Lyndon
WALDO
Lima
Wilson
CASCADE
ADELL
OOSTBURG
Sherman
Holland
Scott
CEDAR GROVE
RANDOM LAKE
WASHINGTON COUNTY
OZAUKEE COUNTY
DAM HAZARD RATING
Low Hazard Rating (7)
High Hazard Rating (3)
Highway
Railroad
Water Feature
Town
VILLAGE
CITY
0 1 2.5 5
MILES
N
Map 3.6 - Large Dams
Sheboygan County Hazard Mitigation Plan
Sheboygan County, WI
BAY LAKE

CHAPTER 4 - MITIGATION STRATEGY

INTRODUCTION

As defined by the Disaster Mitigation Act of 2000, mitigation is a "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 planning area, 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 the government and property owners. Mitigation can also protect critical community facilities and infrastructure; reduce exposure to liability; and minimize community disruption.

The mitigation strategy outlines the general goals to be achieved through the implementation of the *Sheboygan County Hazard Mitigation Plan*. From the identified hazard mitigation goals, a mitigation strategy was developed to identify specific projects and activities that could help achieve the county's hazard mitigation goals in order to make the county and its communities safer and better prepared for disasters.

This chapter includes: a discussion of the mitigation efforts that are currently underway; the county's plan to implement the mitigation actions; an assessment of the county's pre- and post-disaster hazard management policies, programs and capability to mitigate hazards; and an evaluation of the current and potential sources of federal, state and private funding to implement mitigation activities.

MITIGATION GOALS

The following mitigation goals are intended to be used by public officials and emergency response personnel as general guidelines to mitigate the hazards identified in Chapter 3. These goals are broad in order to apply to all of the hazards addressed in the plan.

Goal #1: Implement policies and programs designed to reduce or eliminate the impacts of hazards on people and property.

Goal #2: Collect and utilize data needed to improve policy making and the identification of appropriate mitigation projects.

Goal #3: Build and support local capacity and commitment to continuously lessen the impacts of hazards on people and property.

Goal #4: Enhance enforcement measures to reduce the impacts of hazards on people and property.

Goal #5: Enhance the use of natural resource protection measures as a means to reduce the impacts of hazards on people and property.

Goal #6: Obtain and maximize additional resources necessary to reduce the impact of hazards on people and property.

Goal #7: Enhance training, education and outreach efforts that describe potential effects of hazards and ways to reduce their impact.

Goal #8: Promote intergovernmental coordination and cooperation in planning for and implementing hazard mitigation strategies.

MITIGATION TECHNIQUES

To establish a framework for the development of mitigation strategies, the following mitigation techniques were considered. The six mitigation categories described below served as the basis in formulating mitigation strategies for each of the hazards addressed in Chapter 3 of this plan.

Prevention

Prevention activities are intended to keep hazard-related problems from getting worse. They are particularly effective in limiting the 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;
- Hazard mapping;
- Building codes;
- Studies/data collection and analysis;
- Open space preservation;
- Floodplain regulations;
- Stormwater management;
- Drainage system maintenance;
- Capital improvements programming; and
- 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;
- 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, areas of steep slope 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. Examples include:

- Floodplain protection;
- Riparian buffers;
- Fire resistant landscaping;
- Best management practices;
- Fuel breaks;
- Erosion and sediment control;
- Wetland preservation and restoration;
- Habitat preservation; and
- Slope stabilization.

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
- 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;
- 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. Measures used to educate and inform the public include:

- Outreach and education;
- Speaker series and demonstration events;
- Real estate disclosure; and
- Training.

MITIGATION ACTION PLAN

Mitigation actions form the core of the mitigation plan. Table 4.1 lists the mitigation strategies developed for Sheboygan County, while Table 4.2 lists the mitigation strategies developed for the municipalities in the county. Each table lists the hazard type, associated mitigation actions, the estimated costs of each project (where known), responsible agencies, and the project timetable. Potential funding sources available for mitigation actions are listed in a separate section following the tables. The identified actions and projects aim to reduce the effects of hazards on the population, services, and existing and new buildings and infrastructure.

The county Emergency Management staff will track the implementation of mitigation actions over time. Information on completed or revised actions will be documented in future five-year updates of the county hazard mitigation plan.

Prioritization Process

In developing this mitigation strategy, members of the plan steering committee considered, from their perspective, the various proposed action items, and came to consensus as to whether each strategy would be ranked "high," "medium" or "low," based on need, funding, cost-benefit analysis, and anticipated political support.

Cost-Benefit Review

In developing this mitigation strategy, members of the plan steering committee considered, from their perspective, the costs and benefits of the various proposed action items. This cost-benefit review was a factor in the prioritization process. Full-blown cost-benefit calculations were not prepared for each action item included in the plan. The cost effectiveness of each action item will be addressed and completed through the project development process.

COMPLETED MITIGATION ACTIONS

Since the preparation of the 2012 hazard mitigation plan for Sheboygan County, some of mitigation actions identified in the action plan have been completed. The following lists those actions that have been completed in Sheboygan County.

- Creation of a hardened emergency communication facility.
- Collection of "building footprints" for all structures in Sheboygan County to allow for analysis of where facilities and structures are located (completed for towns, but is not being pursued for cities and villages).
- Mapping of high hazard areas for coastal erosion and landslides.
- Redirected County Highway LS due to the threat from coastal erosion.

Table 4.1: County Mitigation Strategies

NATURAL HAZARDS				
Multiple Natural Hazards				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Evaluate and quantify generator backup capacity and promote use where beneficial	High	Ongoing	Costs to be determined	County and City Emergency Management
Acquire a mass notification system	High	2020-2025	~$25,000/ annually	County Emergency Management
Acquire and promote use of NOAA weather radios, which continually broadcast National Weather Service forecasts, warnings, and other crucial weather information as well as warnings regarding natural, man-made, or technological hazards	High	2020-2025	$30,000 (for purchase of approximately 1,000 radios)	County Emergency Management and County Local Emergency Planning Committee
Develop a joint information plan	High	2020-2025	Covered by existing budgets	County and City Emergency Management, County Health and Human Services Dept., City Police Dept., hospitals, and local EMs
Disseminate hazard information to the public via a mass notification system	High	Ongoing	Covered by existing budgets	National Weather Service, County Sheriff's Dept., Sheboygan City Police Dept., and Sheboygan County Health and Human Services Dept.
Encourage residents to prepare themselves by stocking up with necessary items and planning for how family members should respond if any emergency or disaster events strike	Medium	Ongoing	Covered by existing budgets	County Emergency Management, American Red Cross, and County Health Dept.
Collect building height data for all structures in the County	Low	2020-2025	Costs to be determined	County Planning and Conservation Dept., County Health and Human Services Dept., and Wisconsin DNR
Work with County, State, and Federal agencies to maintain a consistent critical facility database	Low	Ongoing	Costs to be determined	County Emergency Management
Tornado/Strong Wind				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Extensive media coverage during Tornado Awareness Week to educate the public regarding this hazard	Medium	Ongoing	Covered by existing budgets	County Emergency Management
Assist National Weather Service in conducting tornado spotter training programs and organizing local tornado spotter networks	Medium	Ongoing	Covered by existing budgets	County Emergency Management and National Weather Service
Use of early warning system through pagers, NOAA weather radios, and sirens to first responders	Medium	Ongoing	Covered by existing budgets	County Emergency Management and County Sheriff's Dept.

Table 4.1: County Mitigation Strategies (Continued)

Tornado/Strong Wind (Continued)				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Consider construction of safe shelters for mobile home parks and other vulnerable public areas	Medium	Ongoing	Costs to be determined	County Emergency Management and local EMs
Assist personnel in schools and businesses, public facility managers, and citizens in determining the "best available" tornado safety areas	Medium	As needed	Covered by existing budgets	County Emergency Management
Review and update Comprehensive Safety Plan for all county buildings	Medium	As needed	Covered by existing budgets	County Emergency Management and County Safety Committee
Continue to hold tornado safety drills	High	Ongoing	Covered by existing budgets	County Emergency Management and National Weather Service
Continue to test and oversee outdoor warning systems	High	Ongoing	Covered by existing budgets	County Emergency Management, County Sheriff's Dept., and local jurisdictions
Educate public to secure loose items (such as yard and patio furniture) during tornado or high wind events	Low	Ongoing	Covered by existing budgets	National Weather Service
Winter Storm				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Ensure that plow and salting equipment is operational and available for all winter storm events	High	Ongoing	Covered by existing budgets	County Highway and local public works departments
Utilization of the media to disseminate emergency information during winter storm events	High	As needed	Covered by existing budgets	Local Law Enforcement and National Weather Service
Provide educational materials to the public regarding safety during winter storm events	Medium	Ongoing	Covered by existing budgets	Local highway/public works and local law enforcement authorities
Flooding				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Continue to issue early warnings through flood advisory bulletins to county residents as needed	High	Ongoing	Covered by existing budgets	National Weather Service
Dissemination of instructions to the public through the media on a timely basis as needed	High	As needed	Covered by existing budgets	National Weather Service
Maintain information regarding, and coordination of, congregate care facilities for potential evaluation purposes	High	Ongoing	Covered by existing budgets	American Red Cross
Maximize participation in the National Flood Insurance Program in the county and its municipalities*	High	Ongoing	Covered by existing budgets	County Planning and Conservation Dept.
Incorporation of Floodplain Management into Comprehensive Plan Updates*	Medium	Ongoing	Covered by existing budgets	County Planning and Conservation Dept. and local jurisdictions

Table 4.1: County Mitigation Strategies (Continued)

Flooding (Continued)				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Handle the evacuation of people and property in the case of a severe flood event	High	As needed	Covered by existing budgets	Local law enforcement, fire depts., and public works depts.
Provide sand and bags for volunteers to sandbag	Low	As needed	Covered by existing budgets	County Emergency Management (bags) and County Highway Dept. and Local Public Works Depts. (sand)
Review and update floodplain zoning ordinances as necessary	Medium	As needed	Covered by existing budgets	County Planning and Conservation Dept, and local jurisdictions
Land use/comprehensive planning review and updates	Medium	Ongoing	Covered by existing budgets	County Planning and Conservation Dept., and local jurisdictions
Promote the sale of flood insurance, particularly to county residents in areas determined to be at elevated risk for flooding	Low	Ongoing	Covered by existing budgets	Local Lenders, Insurance Agents, and FEMA
Review dam plans and notification procedures	Medium	As needed	Covered by existing budgets	County Emergency Management and Other Pertinent Parties
Dense Fog				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Dissemination of fog advisories to alert the public regarding conditions that may make travel difficult	High	As needed	Covered by existing budgets	National Weather Service
Install signage in areas of high fog event incidences	Medium	As needed	Covered by existing budgets and/or highway safety grants	WisDOT and County Traffic Safety Commission
Lightning/Thunderstorm				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Protection of structures through the use of fire resistant materials	Low	Ongoing	Costs to be determined	Local building inspectors
Continue to distribute awareness/educational materials to inform the public of safety procedures to follow in a lightning storm	Medium	Ongoing	Covered by existing budgets	County Emergency Management and American Red Cross
Disseminate severe weather safety information to the public in an effort to educate residents regarding the lightning/thunderstorm hazard	High	As needed	Covered by existing budgets	National Weather Service
Use of early warning system through pagers and NOAA weather radios to first responders	Medium	As needed	Covered by existing budgets	County Emergency Management, County Sheriff's Dept and Sheboygan City Police Dept.
Harden utility infrastructure to make it more resistant to hail (i.e., burying of telephone lines)	Low	Ongoing	Costs to be determined	County Emergency Management and local utility companies

Table 4.1: County Mitigation Strategies (Continued)

Coastal Hazards				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Continue monitoring of water quality on beaches (Lake Michigan and inland waters)	Medium	Ongoing	Covered by existing budgets	County Health and Human Services Department
Continue monitoring and warn the public of high waves and rip currents along Lake Michigan	Medium	Ongoing	Covered by existing budgets	National Weather Service and Sheboygan Water Safety Group
Excessive Heat and Extreme Cold				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Organize outreach to vulnerable populations during periods of extreme temperature, including the establishment and promotion of accessible heating or cooling centers	Medium	As needed	Covered by existing budgets	County Health and Human Services Department and Local Nonprofits
Continue to provide safety information to the public during periods of extreme temperatures	Medium	Ongoing	Covered by existing budgets	County Health and Human Services Department
Initiate an ozone awareness education effort prior to and during periods of excessive heat	Medium	Ongoing	Covered by existing budgets	Wisconsin DNR
Drought				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Development of water usage regulations during periods of drought by local communities	Low	As needed	Covered by existing budgets	All participating jurisdictions
Encourage citizens to take water-saving measures during periods of drought where regulations are not in place	Low	As needed	Covered by existing budgets	All participating jurisdictions
Wildland Fires				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Continue to promote safe, controlled prescribed burns	Medium	Ongoing	Covered by existing budgets	County Planning and Conservation Dept, County Emergency Management, local fire depts., and local jurisdictions
Provide education on prescribed burns	High	Ongoing	Covered by existing budgets	County Planning and Conservation Dept, County Emergency Management, local fire depts, and local jurisdictions
Encourage citizens to install and maintain smoke detectors and fire extinguishers on each floor of their home or other buildings	High	Ongoing	Covered by existing budgets	Local fire depts., all participating jurisdictions, local building inspectors, and the American Red Cross
Schedule regular training and exercise sessions for response personnel to keep them prepared for possible wildfires	High	Ongoing	Covered by existing budgets	All participating jurisdictions and the Wisconsin DNR

Table 4.1: County Mitigation Strategies (Continued)

Wildland Fires (Continued)				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Coordinate public outreach efforts to promote fire safe construction and building materials, safe burning, and the importance of clearing brush and grass away from buildings	Medium	As needed	Covered by existing budgets	Local fire depts., all participating jurisdictions, local building inspectors, and the American Red Cross
Develop county ordinance to require burn permits and restriction of campfires and outdoor burning	Medium	Ongoing	Costs to be determined	Fire Chiefs Assoc., County Corp. Council, and participating jurisdictions
MAN-MADE HAZARDS				
Hazardous Materials Incidents				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Support Local Emergency Planning Committee	Medium	Ongoing	Covered by existing budgets	County Emergency Management and County Local Emergency Planning Committee
Continue to review and update Countywide Hazardous Materials Response Plan	Medium	As needed	Covered by existing budgets	County Emergency Management
Support Countywide Hazardous Materials Response Team, including additional training and acquisition of necessary equipment	Medium	Ongoing	Covered by grants and state contract	County Emergency Management
Update EPCRA (Emergency Planning and Community Right-to-Know Act) plans for facilities which use or store extremely hazardous substances, and perform annual outreach activities to inform the public of chemical hazards in communities	Medium	Ongoing	~$30,000/ annually	County Emergency Management and County Local Emergency Planning Committee
Develop facility off-site plans for known/identified planning facilities	High	Ongoing/4 year update	Covered by grants	County Emergency Management and County Local Emergency Planning Committee
Improve road design, routing, and traffic control at problem roadways to reduce the risk of transportation-related accidents	High	Ongoing	Costs to be determined	Local jurisdictions and County Traffic Safety Commission
Water Supply Contamination				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Identify pathways of contamination to groundwater (e.g.: by soil type, fractures in bedrock, etc.) to ensure protection and increase public awareness	High	Ongoing	Costs to be determined	County Planning and Conservation Dept., County Health and Human Services Dept., and Wisconsin DNR
Replace or repair equipment or accessories at municipal water supply systems if in poor condition, if inadequate, or if lead hazards become an issue, and monitor components periodically to assure that they are in adequate condition (e.g., electrical pumps, auxiliary generators and valves)	High	Ongoing	Costs to be determined	Local water utilities

Table 4.1: County Mitigation Strategies (Continued)

Water Supply Contamination (Continued)				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Increase public awareness on water contamination and safety issues	Medium	Ongoing	Costs to be determined	County UW-Extension, County Health and Human Services Dept., local water utilities, and Wisconsin DNR
Provide water supply education and water supply test kits to residents.	Medium	Ongoing	Covered by existing budgets	County UW-Extension, and County Planning and Conservation Dept.
Communicable Diseases				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Continue to review and update the Sheboygan County Medical and Mass Casualty and Emergency Medical Services Plans	Medium	Annually	Covered by existing budgets	County Emergency Management, and Emergency Medical Services Council
Continue to plan and coordinate periodic disaster exercises in an effort to stay prepared	Medium	Ongoing	Covered by existing budgets	County Emergency Management
Campaigns to encourage immunization against communicable diseases among county residents	High	Ongoing	Covered by existing budgets	County Health and Human Services Department
Institute an emergency vaccination program in cases of imminent epidemics in the county	High	Annually	Covered by existing budgets	County Health and Human Services Department
Maintain public health systems with sufficient disease monitoring and surveillance as well as public awareness campaigns that emphasize the causes, symptoms, and protective actions for disease outbreaks or other potential public health emergencies	High	Ongoing	Covered by existing budgets	County Health and Human Services Department
Maintain livestock health systems with sufficient disease monitoring and surveillance as well as public awareness campaigns that emphasize the causes, symptoms, and protective actions for disease outbreaks or other potential public health emergencies	High	Ongoing	Covered by existing budgets	Wisconsin Department of Agriculture, Trade, and Consumer Protection

Table 4.1: County Mitigation Strategies (Continued)

Violence				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Assist in the development of active threat policies and procedures by each school, hospital, business, and management building located in Sheboygan County	High	Ongoing	Covered by existing budgets	Local law enforcement, County Emergency Management, local fire depts., and all school districts in the County
Provide law enforcement agencies with training, staffing, and resources to handle potential incidents involving violence	High	Ongoing	Covered by existing budgets	Local law enforcement and fire departments
Cybersecurity				
Project	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Develop internal policies and training regarding cyberthreats that could potentially impact the County	Medium	2020-2025	Covered by existing budgets	All local governmental bodies
Develop a public awareness campaign	Medium	2020-2025	Covered by existing budgets	County and local IT depts and Wisconsin Emergency Management
Note: The action items that address NFIP compliance are indicated with an asterisk (*).				

Source: Sheboygan County Hazard Mitigation Plan Steering Committee, 2019; and Bay-Lake Regional Planning Commission, 2019.

Table 4.2: Municipal Mitigation Strategies

NATURAL HAZARDS					
All Natural Hazards					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Implement public mass notification system (in conjunction with Sheboygan County)	High	2020 - 2025	Costs to be Determined	City of Sheboygan
City of Sheboygan	Complete, adopt, maintain and exercise updated City Emergency Operations Plan	High	2020 - 2025	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Maintain a municipal emergency management director role and cooperative relationship with Sheboygan County Emergency Management	High	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
Village of Cascade	Maintain updated list of critical facilities	Low	2020 - 2025	Covered under County Plan Update	Sheboygan County, Village of Cascade
Tornadoes/High Winds					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Maintain municipal warning sirens and promote the use of weather smart phone applications and weather radios	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Encourage Use of Tie-Downs with Ground Anchors for Manufactured Homes and Mobile Homes	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Enhanced Construction Standards and Techniques	Low	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
Village of Elkhart Lake	Ensure tornado sirens can be heard throughout the village	High	Ongoing	$10,000	Village of Elkhart Lake
Village of Random Lake	Add an emergency siren on the east side of the village	High	As funds become available	$20,000	Village of Random Lake
Village of Waldo	Upgrade existing tornado siren systems	High	As funds become available	Costs to be Determined	Village of Waldo
Village of Howards Grove	Replace emergency siren on the north side of the village	Medium	As funds become available	$15,000	Village of Howards Grove
Winter Storms					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Priority Policy for Salting and Plowing Roadways	High	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Promote Winter Storm Hazard Awareness	Medium	Ongoing	Covered by Existing Annual Budgets	Sheboygan County

Table 4.2: Municipal Mitigation Strategies (Continued)

Lightning Storms and Thunderstorms					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Review Critical Facilities for Lightning Improvement Needs	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Lightning Safety Guidelines	Low	Ongoing	Costs to be Determined	City of Sheboygan
Flooding					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
Cities of Sheboygan, Sheboygan Falls, and Plymouth; and Villages of Cedar Grove, Howards Grove, Oostburg, Waldo, Cascade, Kohler, and Random Lake	Maintain Participation in the National Flood Insurance Program	High	Ongoing	Covered by Existing Annual Budgets	Applicable Local Government
City of Sheboygan	Preservation of Natural Resources in Floodplains	High	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Flood Forecasting, Warning Systems and Emergency Plans	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Floodproofing Techniques	Medium	Ongoing	Costs to be Determined	City of Sheboygan
City of Sheboygan	Update and Maintain Stormwater Retention (see City of Sheboygan Stormwater Management Plan)	Medium	2020	Costs detailed in Stormwater Management Plan	City of Sheboygan
City of Sheboygan	Incorporation of Floodplain Management in Comprehensive Plan Updates	Medium	Ongoing	Costs to be Determined (Done Once Every Decade)	City of Sheboygan
City of Sheboygan	Inform Property Owners in cases where property is located in the 100-Year Floodplain	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Reevaluation of Floodplain Zoning Ordinances	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Acquisition and Relocation	Medium	Ongoing	Costs to be Determined	City of Sheboygan

Table 4.2: Municipal Mitigation Strategies (Continued)

Flooding (Continued)					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Annual Review of Flood Mitigation Plan	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan Falls	Oak Street Storm Sewer Project	Medium	2020 - 2025	$570,000	City of Sheboygan Falls
Village of Kohler	Flood mitigation/Retention Pond along Woodland Road	Medium	As funds become available	$226,000	Village of Kohler
City of Plymouth	Implement Strategies Under the Mullet River Corridor Study or Upgrade Spillway	Medium	2020 - 2025	Costs to be Determined	City of Plymouth
Extreme Temperature (Cold and Heat)					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Publicity of Extreme Heat Events	Medium	Ongoing	Covered by Existing Annual Budgets	Sheboygan County
City of Sheboygan	Supplies for Vulnerable Populations	Low	Ongoing	Costs to be Determined	City of Sheboygan
City of Sheboygan	Publicity of Extreme Cold Events	Medium	Ongoing	Covered by Existing Annual Budgets	Sheboygan County
Fog					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Publicity of Fog Events	Medium	Ongoing	Covered by Existing Annual Budgets	Sheboygan County
Coastal Hazards					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Support and maintain Water Safety Task Force group and its mission	Medium	Ongoing	Covered by Existing Annual Budgets and Donations	City of Sheboygan and Sheboygan County
City of Sheboygan	Build life jacket and hazard information kiosk at the shoreline	High	2020	Covered by Existing Annual Budgets and Donations	City of Sheboygan and Sheboygan County

Table 4.2: Municipal Mitigation Strategies (Continued)

Coastal Hazards (Continued)					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Continue to monitor activity on Lake Michigan piers during high hazard conditions and communicate these hazards to the public	High	Ongoing	Covered by Existing Annual Budgets and Donations	City of Sheboygan and Sheboygan County
City of Sheboygan	Maintain support and participation in the MABAS Division 113 Dive Team and encourage regular training and exercising between response agencies	High	Ongoing	Covered by Existing Annual Budgets and Donations	City of Sheboygan and Sheboygan County
Wildland Fires					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Maintain proper fire department training in wildland firefighting techniques	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Maintain mutual aid agreements and participation in Mutual Aid Box Alarm Systems (MABAS), and encourage cross-department training and exercises for fire departments	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
MAN-MADE HAZARDS					
Hazardous Materials Incidents					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Maintain representation on and involvement with the Local Emergency Planning Committee (LEPC)	High	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Maintain representation on and involvement with the Sheboygan County Hazardous Materials Response Team	High	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
Village of Elkhart Lake	Invest in an app to contact village residents when a hazardous materials situation may occur or has occurred	Low	2020	$3,000 per year	Village of Elkhart Lake
Village of Oostburg	Handle fuel spills from motor vehicles	Medium	As Needed	Covered by Existing Budgets	Local Fire Department

Table 4.2: Municipal Mitigation Strategies (Continued)

Water Supply Contamination					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Plymouth	Complete AWIA Risk Assessment and Emergency Operations Plan	Medium	2020 - 2021	Covered by Existing Annual Budget	City of Plymouth
Village of Elkhart Lake	Prevent contamination of new sources of surface and groundwater, especially for new development	Medium	Ongoing	Included in Village Budget	Village of Elkhart Lake
Village of Howards Grove	Identify and implement an alternate public water source in the event of contamination	Medium	As needed	$8,000,000	Village of Howards Grove
Communicable Diseases					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Continue to maintain a close relationship with Sheboygan County Public Health in the areas of emergency preparedness and planning	High	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
Violence					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Provide response agencies with training, staffing and resources for effective prevention, preparedness and response	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Work with local schools, hospitals and businesses to develop and maintain active threat policies	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Continue to conduct joint response agency training and exercising with local schools, hospitals and businesses for active threat and mass casualty response	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
Cybersecurity					
Municipality	***Project***	***Priority***	***Project Timetable***	***Estimated Cost***	***Responsible Party***
City of Sheboygan	Develop internal policies and training regarding cyber threats	Medium	2020 - 2025	Covered by Existing Annual Budgets	City of Sheboygan
City of Sheboygan	Maintain software tools for the combating of cyber threats	Medium	Ongoing	Covered by Existing Annual Budgets	City of Sheboygan
Village of Kohler	Maintain and enhance the village's firewall and network protection	Medium	Ongoing	Covered by Existing Annual Budgets	Village of Kohler

Source: Cities and Villages in Sheboygan County, 2019; Sheboygan County Hazard Mitigation Plan Steering Committee, 2019; and Bay-Lake Regional Planning Commission, 2019.

Policies, Programs and Resources for Mitigation

Sheboygan County has several authorities that enforce policies, execute programs, and provide resources that support the mitigation action plan for reducing potential losses identified in the risk assessment. These authorities have been identified under the responsible parties (where applicable) in the mitigation action plan for Sheboygan County (Table 4.1) and for its municipalities (Table 4.2), and include the following:

- Sheboygan County Emergency Management
  - Relevant policies and programs include coordinating effective disaster response and recovery efforts in the county through response, recovery, planning, training, exercises, and mitigation.
- Sheboygan County Transportation Department, Highway Division
  - Relevant policies and programs include road maintenance, stormwater management, and management of salt storage for winter storms.
- Sheboygan County Health and Human Services Department, Public Health Division
  - Relevant policies and programs focus on protecting and promoting the health and safety of people in the county in cooperation with community partners (includes assisting citizens with emergency preparedness).
- Sheboygan County Sheriff's Department and Local Law Enforcement
  - Relevant policies and programs focus on protecting the lives, safety and property of people in the county.
- Sheboygan County Planning and Conservation Department
  - Relevant policies and programs focus on improving and promoting the quality of community living and natural resources in the county.
- Sheboygan County Traffic Safety Commission
  - Relevant policies and programs focus on enhancing safe traffic patterns and vehicle-pedestrian interactions in the county.
- Sheboygan County Local Emergency Planning Committee (LEPC)
  - Relevant policies and programs focus on preparing the county to cope with emergencies involving the accidental release of hazardous substances.
- Sheboygan County Land Information Committee
  - Relevant policies and programs focus on maintaining accurate and current land information in the county.
- Sheboygan County Emergency Medical Services (EMS) Council
  - Relevant policies and programs include overseeing the county's EMS system and keeping the county informed on present and future EMS needs.

- Local Fire Departments
    - Relevant policies and programs include coordinating emergency preparedness, mitigation, response, and recovery efforts.
- Local Utility Companies
    - Relevant policies and programs include maintaining electrical power and transmission facilities.
- Wisconsin Emergency Management
    - Relevant policies and programs include supporting effective disaster response and recovery efforts in support of local government through planning, training and exercises.
- Wisconsin Department of Natural Resources
    - Relevant policies and programs include regulation enforcement of state shoreland and floodplain management rules, and wildland fire response and education.
- Wisconsin Department of Agriculture, Trade and Consumer Protection
    - Relevant policies and programs focus on monitoring for animal diseases and responding when outbreaks occur.
- American Red Cross
    - Relevant policies and programs include disaster relief and educational programs that promote health and safety.
- National Weather Service
    - Relevant policies and programs include publicizing information, and providing outreach and education about hazardous weather.

These authorities have the ability to expand or modify their programs when needed to improve existing tools to address mitigation. Sheboygan County has taxing authority through property taxes to raise funds for the purpose of hazard mitigation. Additional funding sources for hazard mitigation actions are available from numerous federal and state grant programs.

Potential Funding Sources for Mitigation

Funding for hazard mitigation programs and projects can come from many sources both public and private. Non-local funding can come from various sources, either in the form of a grant or a loan. The following text provides a description of several potential grant programs available to Sheboygan County (or other entities seeking to carry out hazard mitigation actions) in funding future mitigation actions identified in this plan.

Federal Programs

Economic Development Administration (EDA) Public Works and Development Facilities

These funds are available for local units of government to enhance regional competitiveness and promote long-term economic development in regions experiencing substantial economic distress. EDA provides public works investments to help distressed communities and regions revitalize, expand and upgrade their physical

infrastructure to attract new industry, encourage business expansion, diversify local economies, and generate or retain long-term private sector jobs and investment.

Federal Emergency Management (FEMA) Assistance to Firefighters Grant

The primary goal of the Assistance to Firefighters Grants (AFG) is to meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical service organizations. Since 2001, the AFG program has helped firefighters and other first responders to obtain critically needed equipment, protective gear, emergency vehicles, training and other resources needed to protect the public and emergency personnel from fire and related hazards. The Grant Programs Directorate in FEMA administers the grants.

The Fire Prevention and Safety (FP&S) Grants are part of the Assistance to Firefighters Grants (AFG). FP&S grants support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal is to reduce injury and prevent death among high-risk populations.

FEMA Flood Mitigation Assistance Program

The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of the National Flood Insurance Act of 1968 (as amended), with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist States, Territories, federally-recognized tribes and local communities for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the NFIP. FMA funding is also available for management costs. Funding is appropriated by Congress annually. FEMA requires state, tribal and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for HMA mitigation projects.

FEMA Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program (HMGP) provides funds to states, tribes and local communities after a disaster declaration to protect public or private property through various mitigation measures. Hazard mitigation includes long-term efforts to reduce the impact of future events. HMGP recipients have the primary responsibility for prioritizing, selecting and administering state and local hazard mitigation projects. Although individuals may not apply directly to a state for assistance, local governments may sponsor an application on their behalf. The purpose of the HMGP is to help communities implement hazard mitigation measures following a Presidential Major Disaster Declaration in the areas of the state, tribe or territory requested by the Governor or Tribal Executive. The key purpose of this grant program is to enact mitigation measures that reduce the risk of loss of life and property from future disasters.

FEMA Pre-Disaster Mitigation Program

The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, tribal governments and local communities in implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in future disasters. This program awards planning and project grants, and provides opportunities for raising public awareness about reducing future losses before disaster

strikes. Mitigation planning is a key process used to break the cycle of disaster damage, reconstruction and repeated damage. PDM grants are funded annually by Congressional appropriations, and are awarded on a nationally competitive basis. FEMA requires state, territorial, tribal and local governments to develop and adopt hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for PDM mitigation projects. Project subapplications submitted in consideration for PDM funding must be consistent with the goals and objectives identified in the current, FEMA-approved hazard mitigation plan for the jurisdiction in which the activity is located. Planning subapplications submitted for consideration for PDM funding must result in a mitigation plan approved by the applicable jurisdiction that is also approved by FEMA.

Pipeline and Hazardous Materials Safety Administration, Hazardous Materials Emergency Preparedness

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

U.S. Department of Education School Emergency Response and Crisis Management Plan Discretionary Grant Program

This grant program is designed to provide funds to Local Education Agencies (LEA) to strengthen and improve their emergency response and crisis plans, at the district and school-building level. Grantees are required to address all four phases of crisis planning: prevention and mitigation, preparedness, response, and recovery. In addition, LEAs are required to form partnerships and collaborate with community organizations, local law enforcement agencies, heads of local governments, and offices of public safety, health, and mental health, as they review and revise school crisis plans. Plans must be coordinated with state or local homeland security plans and support implementation of the National Incident Management System (NIMS). Grant funds may be used for the following activities: training school safety teams and students; conducting building and facilities audits; communicating emergency response policies to parents and guardians; implementing an Incident Command System (ICS); purchasing school safety equipment (to a limited extent); conducting drills and tabletop simulation exercises; and preparing and distributing copies of crisis plans.

State of Wisconsin Programs

Wisconsin Department of Natural Resources (WDNR) Lake Planning Grant Program

Lake planning grants are available from the WDNR "to collect and analyze information needed to protect and restore lakes and their watersheds." Eligible entities include counties, towns, cities, villages, tribes, qualified non-profit conservation organizations, qualified lake associations, school districts (in partnership with another eligible party), public inland lake protection and rehabilitation districts, town sanitary districts, and other local governmental units that are established for the purpose of lake management.

Eligible activities include: gathering and analysis of physical, chemical and biological information on lakes; describing present and potential land uses within lake watersheds and on shorelines; reviewing jurisdictional boundaries and evaluating ordinances that relate to zoning, sanitation, pollution control or surface use; assessments of fish, aquatic life, wildlife, and their habitats; and developing, evaluating, publishing, and distributing alternative courses of action and recommendations in a lake management plan.

WDNR Municipal Flood Control Grant Program

The Wisconsin Department of Natural Resources offers this grant assistance package to all cities, villages, towns, tribes, and metropolitan sewerage districts concerned with municipal flood control management in the state of Wisconsin. Assistance is provided with the availability of acquisition and development grants to purchase property or vacant land, structure removal, construction or other development costs, and with local assistance grants for providing administrative support activities.

WDNR River Planning Grant Program

Counties, cities, villages, towns, tribes, other local governmental units, qualified river management organizations, and qualified nonprofit conservation organizations are eligible to apply for funding under this grant program. Projects funded by this program must be designed to: collect, assess and disseminate information on riverine ecosystems; assist in developing organizations to help manage rivers; assist the public in understanding riverine ecosystems; and/or create management plans for the long term protection and improvement of riverine ecosystems. Eligible activities include: organizational development for existing river protection/improvement organizations; assistance with the formation of a qualified river management organization; public education projects; and planning and assessment projects. Capital improvement projects are not eligible for funding under this grant.

WDNR Forest Fire Protection Grant Program

Forest fire protection (FFP) grants are available to Wisconsin fire departments and county/area fire associations. Grant funding is intended to expand the use of local fire departments to augment and strengthen the WDNR's overall initial-attack fire suppression capabilities on forest fires.

WDNR Lead Service Line Replacement Programs

The WDNR has a Safe Drinking Water Loan Program (SDWLP) that provides funding for replacement of lead service lines under the control of municipalities and their water utilities. In addition, the WDNR offered a Private Lead Service Line (LSL) Replacement Funding Program that funded the replacement of lead service lines that are privately owned; this program was authorized for state fiscal years 2017 and 2018 (July 1, 2016, through June 30, 2018), but the program could be reinstituted by the state legislature in the future. The Private LSL Replacement Funding Program provided funding to municipalities to loan to homeowners to replace their lead piping on their property. Sheboygan County communities that were awarded funding under the Private LSL Replacement Funding Program included the City of Sheboygan and the Village of Elkhart Lake. For SDWLP funded projects, approval from the Wisconsin Public Service Commission is required before work can proceed.

Wisconsin Department of Health Services (WDHS) Public Health Emergency Preparedness Program

The Wisconsin Department of Health Services (WDHS) applies for federal funding each year through the Hospital Preparedness Program – Public Health Emergency Preparedness Cooperative Agreement. The WDHS Health Emergency Preparedness (HEP) Section must submit an application, budget narrative and other documentation each year in order to receive funding for the upcoming fiscal year. Once that documentation has been reviewed and approved, the federal government distributes a Notice of Award that allocates the amount of funding that the state receives for the fiscal year. For the 2018 state fiscal year (July 1, 2017 – June 30, 2018), the WDHS HEP Section was awarded over $14.9 million between two programs: the Public Health Emergency Preparedness Program (PHEP) and the Hospital Preparedness Program (HPP). Approximately 47 percent of PHEP funding goes to local health departments and tribal health centers, with one of these being the Sheboygan County Health and Human Services Department's Division of Public Health.

CHAPTER 5 - PLAN MAINTENANCE AND ADOPTION PROCESS

PLAN ADOPTION PROCESS

The *Sheboygan County Hazard Mitigation Plan 2020-2025* development process was guided by the county Hazard Mitigation Plan Steering Committee over an 18-month timeframe, with professional planning support from the Bay-Lake Regional Planning Commission. A list of Steering Committee members is located in Table 1.1 of this document.

Both WEM and FEMA reviewed a final draft of the county's hazard mitigation plan prior to adoption by the Sheboygan County Board. Comments received from WEM and FEMA were reviewed by the Steering Committee, and necessary revisions were made. The plan was then adopted by resolution by the Sheboygan County Board on X, 2020. The resolution adopting the plan can be found on page v, just after the Table of Contents. After the plan was adopted by the Sheboygan County Board, it was approved by WEM and FEMA. Approval letters from WEM and FEMA can be found starting on page vi.

PLAN MAINTENANCE

Planning is an ongoing process, and this plan should grow and adapt in order to keep pace with growth and change in the planning area and its local jurisdictions. The Disaster Mitigation Act of 2000 requires that local plans be evaluated and updated at least every five years in order to remain eligible for assistance.

Plan Monitoring, Evaluation, and Updating

This *Sheboygan County Hazard Mitigation Plan 2020-2025* is an update to the 2014 plan, and will continue to be monitored, evaluated, and updated by Sheboygan County Emergency Management. Every five years, the *Sheboygan County Hazard Mitigation Plan* will be comprehensively reviewed, and fully updated. This update shall involve the collection of the most current data to support the plan and the development of new mitigation strategies and an implementation plan. This planning effort will be comprehensive, and will incorporate opportunities for public involvement to meet all requirements of 44 CFR Part 201.6 and/or any applicable requirements or regulations developed over the next five years.

The five-year plan update will be coordinated by the Sheboygan County Emergency Management Director for Sheboygan County Board approval. All meetings to update the plan shall be subject to the Wisconsin Open Meetings Law, and shall be properly noticed to allow for public involvement and comment.

This plan update is the second update to the county's Hazard Mitigation Plan since it was originally adopted in 2008. This update involves a comprehensive county plan that includes the City of Sheboygan, the county's most populous city, which once maintained its own plan. In addition, the mitigation action plan includes several new additions that resulted in a comprehensive strategy. This plan update also addresses additional hazards not covered in the 2014 plan that have the potential to impact the county, including coastal hazards, wildland fires, communicable diseases, violence and cybersecurity.

Additional Plan Review

Within three to six months following a significant natural or man-made hazard event (as determined by the Steering Committee), a special post-disaster review will occur. Information concerning the disaster shall be collected by the Sheboygan County Emergency Management Coordinator from local law enforcement personnel, fire department personnel, disaster response personnel, WEM staff, FEMA staff, affected citizens, and any other pertinent entities. This information shall be provided to the Steering Committee for its review.

At a public meeting, the Steering Committee for the plan will analyze factors that contributed to any impacts of the hazard event, the likelihood of the event recurring, and any strategies that should be implemented to mitigate the impacts in the event of a recurrence. The county Emergency Management Director will have primary responsibility for establishing post-disaster review meeting dates, distributing related materials, facilitating the meetings, and advertising these special meetings to affected county department heads and citizens and community groups, so that additional input and comment can be received. Special post-disaster review meetings shall be subject to the Wisconsin Open Meetings Law and shall be properly noticed to allow for public involvement and comment.

The Steering Committee may choose to revise or amend the existing county plan based on what is learned in the review process. Any recommended changes to the plan shall be forwarded to the Sheboygan County Board for its action and consideration.

PLAN INCORPORATION

The mitigation action plan in Chapter 4 links the mitigation strategies to related plans or policies. As the county and jurisdictions in the planning area update their comprehensive plans, incorporation of this Hazard Mitigation Plan is highly recommended. The Wisconsin comprehensive planning law includes a detailed description of elements that need to be addressed in all comprehensive plans. The following items must be considered when incorporating this Hazard Mitigation Plan into the required elements of local comprehensive plans for jurisdictions in the planning area:

- Issues and Opportunities Element – A summary of major hazards that local governments are vulnerable to, and what is proposed to be done to mitigate future losses from the hazards.
- Housing Element – An inventory of the properties that are in the floodplain boundaries, the location of mobile homes, recommendations concerning building codes, shelter opportunities, and a survey of homeowners that may be interested in a voluntary buyout and relocation program.
- Transportation Element – Identify any transportation routes or facilities that are most at risk during flooding, winter storms or other hazards.
- Agricultural, and Natural and Cultural Resources Element – Identify the floodplains and agricultural areas that are at risk during hazardous events, and incorporate recommendations on how to mitigate future losses to these areas.
- Economic Development Element – Describe the impacts that past hazards have had on area businesses.

- Intergovernmental Cooperation Element – Identify intergovernmental police, fire and rescue service sharing agreements that are in effect or which may merit further investigation, and consider cost sharing and resource pooling of government services and facilities.
- Land Use Element – Describe how flooding has impacted land uses and what is being done to mitigate negative land use impacts from flooding; map and identify natural hazard areas, such as floodplains and soils with limitations.
- Implementation Element – Have recommended actions from this plan included in the implementation element of comprehensive plans of all jurisdictions in the planning area.

Elements of the *Sheboygan County Hazard Mitigation Plan 2020-2025* should continue to be incorporated into the *Sheboygan County Comprehensive Plan* and the *2030 Sheboygan Urbanized Area Sewer Service Plan*.

The *Sheboygan County Comprehensive Plan* (adopted in 2009) provides information on flooding, discourages development in the floodplain, and encourages parks and open space in floodplain areas. The plan also calls for shoreline regulation and erosion control projects to mitigate bluff erosion on Lake Michigan (addressed under Coastal Hazards). The *Sheboygan County Comprehensive Plan* should be updated by the end of 2019 in order to remain compliant with Wisconsin's comprehensive planning law.

The *Sheboygan Urbanized Area Sewer Service Area Plan* (adopted in 2011) identifies floodplain areas as environmentally sensitive areas where development cannot occur within the sewer service area.

PLAN COORDINATION

To maximize coordination of the hazard mitigation plan with other related plans for Sheboygan County, mitigation strategies recommended in this plan have been and should continue to be considered when developing capital improvement plans, stormwater management plans, or flood mitigation plans.

A number of relevant plans and reports, and technical data were referenced and incorporated into the *Sheboygan County Hazard Mitigation Plan 2020-2025*. The following is a comprehensive list of the information that was utilized in plan development:

- Population, housing and employment data from the Bureau of the Census (2000 and 2010);
- Bay-Lake Regional Planning Commission land use inventory dataset (2002, 2009 and 2015);
- Risk Assessment Matrix Worksheet adapted from the *Resource Guide to All Hazards Mitigation Planning in Wisconsin* (AWRPC, 2003);
- Local Hazard Mitigation Plan Review Crosswalk (Completed for Sheboygan County in 2013) was used to complete the updated crosswalk;
- *State of Wisconsin Hazard Mitigation Plan* (2016) was used to develop hazard descriptions for the risk assessment;

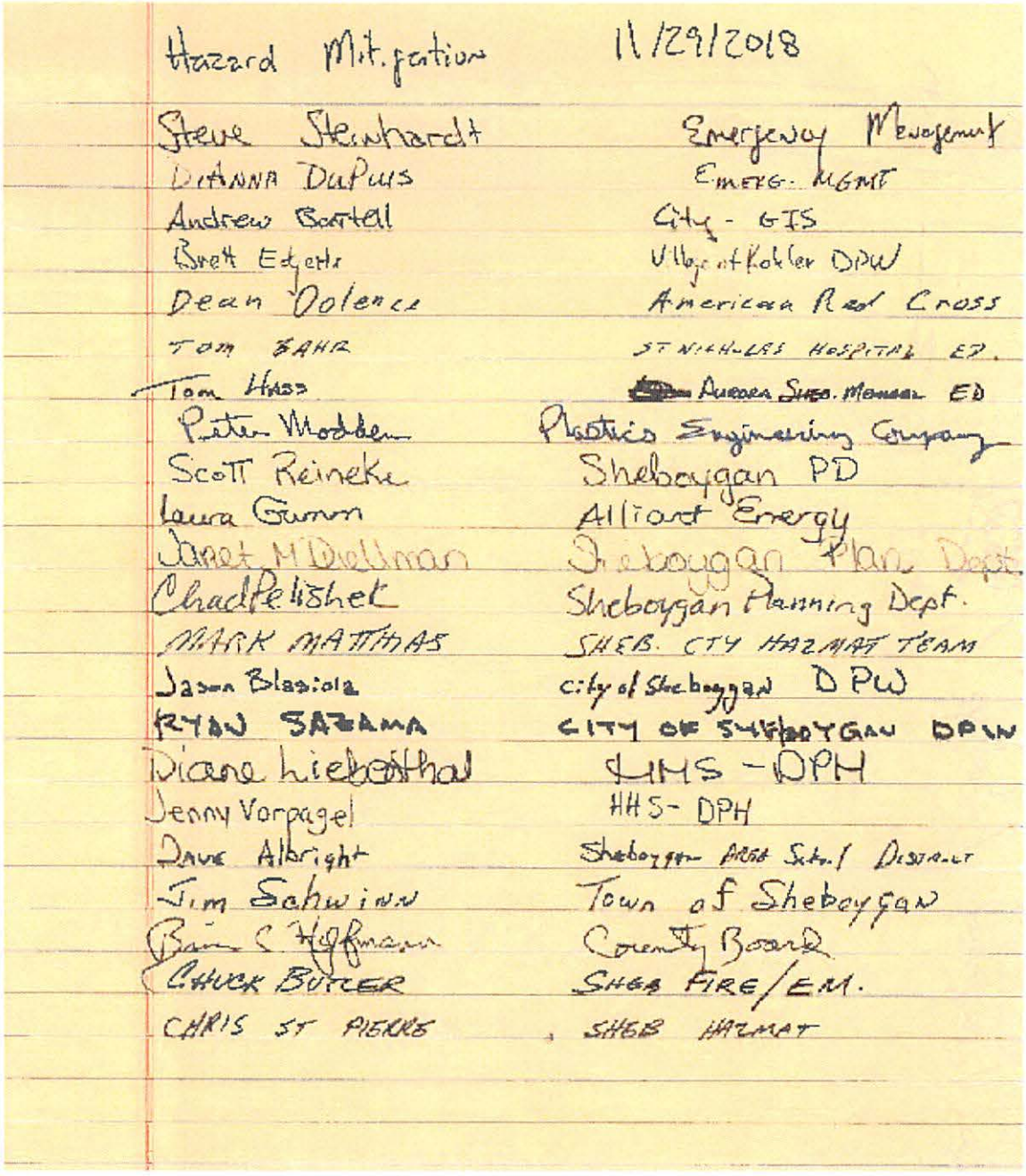
- FEMA *Local Mitigation Plan Review Guide* (2011) was used to ensure that the plan contained all required information;
- FEMA *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* (2013) contributed to the development of the mitigation action plan;
- Past natural hazard occurrences were obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) – severe weather event data (1995 - 2018);
- U.S. Geological Survey maps on landslides, land subsidence and earthquakes were used to describe those hazards;
- FEMA Flood Insurance Studies and FEMA Flood Insurance Rate Maps (FIRMs) were used to map floodplain areas;
- Parcel data from Sheboygan County was used to determine the impacts of hazards with defined areas;
- Assessed valuation data from Sheboygan County was used to derive estimates of potential dollar losses;
- Data from reporting under Sections 311 and 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA) was used to develop the hazardous materials incidents portion of the risk assessment;
- Wisconsin Electronic Disease Surveillance System (WEDSS) data for Sheboygan County (reported by the Wisconsin Department of Health Services) was used to develop the communicable diseases portion of the risk assessment;
- Wisconsin Department of Health Services county profiles of Sheboygan County were used to develop the communicable diseases portion of the risk assessment;
- The *Sheboygan County Emergency Operations Plan* contributed to the development of the mitigation action plan;
- The *Sheboygan County Hazard Analysis* contributed to the development of the mitigation action plan;
- The *Sheboygan County Hazardous Materials Response Plan* contributed to the development of the mitigation action plan;
- *The Sheboygan County Comprehensive Plan* was used to develop the community profile and contributed to the development of the mitigation action plan; and
- Comprehensive plans for local jurisdictions within the planning area contributed to the development of the mitigation action plan.

It is recommended that similar materials be referenced when completing any updates to the hazard mitigation plan.

APPENDIX A – STEERING COMMITTEE SIGN-IN SHEETS

In order to assist in plan development, Sheboygan County established a Hazard Mitigation Plan Steering Committee. A table listing all members of the committee can be found in Chapter 1 - Introduction. The plan steering committee met on five occasions: November 29, 2018; and February 14, June 20, August 22, and October 17, 2019. This appendix contains the sign-in sheets from each of these meetings to verify attendance and participation by committee members.

Sign-in Sheet for November 29, 2018, Meeting



Hazard Mitigation 11/29/2018

Steve Steinhardt	Emergency Management
DiANNA DuPuis	EMERG. MGMT
Andrew Bartel	City - GIS
Brett Edgett	Village of Kohler DPW
Dean Dolence	American Red Cross
TOM BAHR	ST NICHOLAS HOSPITAL ED.
Tom Hass	[redacted] Aurora Sheb. Memorial ED
Peter Madden	Plastics Engineering Company
Scott Reineke	Sheboygan PD
Laura Gunn	Alliant Energy
Janet M Dhillman	Sheboygan Plan. Dept.
Chad Pelishek	Sheboygan Planning Dept.
MARK MATTHIAS	SHEB. CTY HAZMAT TEAM
Jason Blasiola	city of Sheboygan DPW
RYAN SAZAMA	CITY OF SHEBOYGAN DPW
Diane Hiebsthal	HHS - DPH
Jenny Vorpagel	HHS - DPH
Dave Albright	Sheboygan Area School District
Jim Schwinn	Town of Sheboygan
Barb C Hoffmann	County Board
CHUCK BUTLER	SHEB FIRE/EM.
CHRIS ST PIERRE	SHEB HAZMAT

Sign-in Sheet for February 14, 2019, Meeting

Sheboygan County Hazard Mitigation Plan
Steering Committee Sign-In

Date: 2/14/19

BAY LAKE
Regional Planning Commission Since 1972

Name	Affiliation	Present
Andrew Bartell	Sheboygan DPW	X
Angela Kowalzek-Adrians	Bay-Lake RPC	X
Bill Blashka	Town of Sheboygan DPW	
Bob Kroeplien	Sheboygan County Fire Chiefs	
~~Bob Mayer~~ Dean Dolence	Red Cross	X
Brett Edgerle Brett Edgerle	Kohler DPW	X
Brian Hoffmann	Sheboygan County Board	
Bryan Olson	Sheboygan County Highway	
Carol Tsagarakis	NEMAK	
Chad Pelishek	Sheboygan Planning	
Chasong Yang	Hmong Assoc	
Chris St. Pierre	Sheboygan County HazMat	
Chuck Butler	City of Sheboygan EM	
Dave Albright	Sheboygan School District	X
Dave Bichel	Sheboygan DPW	
Dean Dolence	Red Cross	
Diane Liebenthal	Sheboygan County H&HS	X
DiAnna DuPuis	Sheboygan County Sheriff's Dept	X
~~Greg Schnell~~ Emily Stewart	Sheboygan County Highway	X
Jackie Veldman	Town of Mitchell	
James Schwinn	Town of Sheboygan	X
Janet Duellman	Sheboygan Planning	X
Jason Dwyer	US Coast Guard	
Jason Liermann	Sheboygan County Sheriff's Dept	

Sign-in Sheet for February 14, 2019, Meeting (Continued)

Name	Affiliation	Present
Jennifer Vorpagel	Sheboygan County H&HS	
Jessica Reilly	Village of Elkhart Lake	
Joe Kerlin	Sheboygan DPW	
Laura Goetz-Gumm	Alliant Energy	
Mark Matthias	Sheboygan County HazMat	
Pete Madden Peter Madden	Plastics Engineering	✓
Robert Zemba	Sheboygan County Planning	✓
Star Grossman Star Grossman	Sheboygan County H&HS	✓
Steve Cobb	City of Sheboygan PD	
Ted Vallis	Wisconsin Public Service	
Karen Pohl	Town of Lima	
Steve Stenbrecher		✓
AARON BRAULT	Sheb Co Planning & Cons	✓
Tom Hass	AURORA EMERGENCY MANAGEMENT	✓

Sign-in Sheet for June 20, 2019, Meeting

Sheboygan County Hazard Mitigation Plan
Steering Committee Sign-In
Date: [redacted] 6-20-2019

BAY LAKE Regional Planning Commission | Since 1972

Name	Affiliation	Present
Aaron Brault	Sheboygan County Planning & Conservation	
Andrew Bartell	City of Sheboygan GIS 920-930-1836	✓
~~Angela Kowalzek-Adkins~~	Bay-Lake RPC	✓
Bill Blashka	Town of Sheboygan DPW	
Bob Kroeplien	Sheboygan County Fire Chiefs	
Brett Edgerle 920.459.3881	Kohler DPW	✓
Brian Hoffmann	Sheboygan County Board 920-918-2010	✓
Carol Tsagarakis	NEMAK	
Chad Pelishek 920/459.3383	City of Sheboygan Planning	
Chasong Yang	Hmong Assoc	
Chris St. Pierre	Sheboygan County HazMat	
Chuck Butler	City of Sheboygan EM	
Dave Albright	Sheboygan School District 920-946-1129	✓
Dean Dolence	American Red Cross 920-838-2959 (volunteer)	2
Diane Liebenthal	Sheboygan County H&HS	
DiAnna DuPuis	Sheboygan County Sheriff's Dept	✓
Emily Stewart	Sheboygan County Highway 459 4529	ES
Jackie Veldman	Town of Mitchell	
James Schwinn	Town of Sheboygan 451-2320	JRS
Janet Duellman 920/459 3280	City of Sheboygan Planning	JMD
Jason Blasiola	City of Sheboygan DPW	
Jason Dwyer	US Coast Guard	
Jason Llermann	Sheboygan County Sheriff's Dept 920 980 1709	✓
Jennifer Vorpagel	Sheboygan County H&HS 920-251-8253	JV
Jessica Reilly	Village of Elkhart Lake	
Karen Pohl	Town of Lima	
Laura Gumm	Alliant Energy 920-459-6353	✓
Mark Matthias	Sheboygan County HazMat	
Peter Madden	Plastics Engineering 920-207-0300	✓
Ryan Sazama	City of Sheboygan DPW	
Scott Reineke	City of Sheboygan PD	
Star Grossman	Sheboygan County H&HS 920-243-7776	SG ✓
Steve Steinhardt	Sheboygan County EM	
Ted Vallis	Wisconsin Public Service	
Tom Bahr	St. Nicholas Hospital	
Tom Hass 920 698-2453	Aurora Sheboygan Memorial EM	TCH

Sign-in Sheet for June 20, 2019, Meeting (Continued)

Name	Affiliation	Present
Amanda Strojinc 920 547-0671	DPH - Sheboygan Cty.	AS
Michael Meeusen 980-9886	Elkhart Lake Police	[illegible]

Sign-in Sheet for August 22, 2019, Meeting

Sheboygan County Hazard Mitigation Plan
Steering Committee Sign-In

BAY LAKE Regional Planning Commission | Since 1972

Date: 08/22/2019

Name	Affiliation	Present
Aaron Brault	Sheboygan County Planning & Conservation	
Andrew Bartell	City of Sheboygan GIS	
~~Angela Kowalzek-Adrians~~ Jeff Agnoli	Bay-Lake RPC	JCA
Bill Blashka	Town of Sheboygan DPW	
Bob Kroeplien	Sheboygan County Fire Chiefs	
Brett Edgerle	Kohler DPW	X
Brian Hoffmann	Sheboygan County Board	
Carol Tsagarakis	NEMAK	
Chad Pelishek	City of Sheboygan Planning	
Chasong Yang	Hmong Assoc	
Chris St. Pierre	Sheboygan County HazMat	
Chuck Butler (chief for) Eric Montellano	City of Sheboygan EM	X
Dave Albright	Sheboygan School District	
Dean Dolence	American Red Cross	
Diane Liebenthal	Sheboygan County H&HS	
DiAnna DuPuis	Sheboygan County Sheriff's Dept	
Emily Stewart	Sheboygan County Highway	
Jackie Veldman	Town of Mitchell	
James Schwinn JRS	Town of Sheboygan	JRS
Janet Duellman	City of Sheboygan Planning	
Jason Blasiola	City of Sheboygan DPW	JB
Jason Dwyer	US Coast Guard	
Jason Liermann	Sheboygan County Sheriff's Dept	
Jennifer Vorpagel	Sheboygan County H&HS	JV
Jessica Reilly	Village of Elkhart Lake	
Karen Pohl	Town of Lima	
Laura Gumm	Alliant Energy	
Mark Matthias	Sheboygan County HazMat	
Peter Madden PJS	Plastics Engineering	
Ryan Sazama	City of Sheboygan DPW	RS
Scott Reineke	City of Sheboygan PD	
Star Grossman	Sheboygan County H&HS	
Steve Steinhardt	Sheboygan County EM	
Ted Vallis	Wisconsin Public Service	
Tom Bahr	St. Nicholas Hospital	
Tom Hass	Aurora Sheboygan Memorial EM	

Insert Sign-in Sheet for October 17, 2019, Meeting

Insert Sign-in Sheet for October 17, 2019, Meeting

APPENDIX B – PUBLIC NOTICE OF OPEN HOUSE ON THE DRAFT PLAN

NOTICE OF PUBLIC INFORMATIONAL MEETING

Sheboygan County Hazard Mitigation Plan 2020-2025 Update

PLEASE TAKE NOTICE THAT a *Public Informational Meeting* has been scheduled for **January ____, 2020** to provide information about the county's hazard mitigation plan update. This informational meeting will be held from **__ p.m. to __ p.m.** at _____ located at _____.

Hazard mitigation planning involves developing a set of actions designed to reduce or eliminate long-term risk to people and property from natural hazards and their effects. This informational meeting will provide interested individuals with an overview of the plan, a draft plan for review, display maps from the plan, and an opportunity to comment. A copy of the draft plan can downloaded for review in advance of the meeting at: ____(.)

For additional information, you can contact Jeff Agee-Aguayo with the Bay-Lake Regional Planning Commission at jagee@baylakerpc.org or at 920-448-2820, Ext. 103.

Any person wishing to attend this meeting who, because of a disability, requires special accommodations, please contact the Bay-Lake Regional Planning Commission at 920-448-2820 at least two working days prior to the meeting so that arrangements can be made.

APPENDIX C – MULTI-JURISDICTIONAL COOPERATION EXERCISE

As a way to ensure accurate data and multi-jurisdictional cooperation in the update of the county's hazard mitigation plan, the steering committee and Bay-Lake Regional Planning Commission engaged the local communities in a cooperation exercise to review and provide input on plan materials.

Communities were provided a listing of their critical facilities, goals identified in the plan, and hazards mitigation actions, and were asked to review and comment on the materials. In addition, they were asked to identify mitigation actions specific to their community. Table C.1 displays the communities that participated in the review and the community representative that provided community-specific information and signed off on the review materials.

Table C.1: Incorporated Community Plan Participation via Materials Review

Municipality	Community Representative		
	Name	Title	Date Signed
City of Plymouth	Cathy Austin	Director of Public Works	8/5/2019
City of Sheboygan	Chuck Butler	Assistant Fire Chief	8/15/2019
City of Sheboygan Falls	Steve Ross	Chief of Police	8/20/2019
Village of Adell	Andy Schmitt	Village President	8/20/2019
Village of Cascade	Jason Liermann	Chief of Police	9/30/2019
Village of Cedar Grove	Julie Brey	Clerk-Treasurer	9/18/2019
Village of Elkhart Lake	Michael Meeusen	Chief of Police	8/27/2019
Village of Glenbeulah	Michele Bertram	Clerk-Treasurer	9/24/2019
Village of Howards Grove	Christan Brandt	Clerk-Treasurer	9/26/2019
Village of Kohler	Brett Edgerle	Director of Public Works	8/11/2019
Village of Oostburg	Jill Ludens	Clerk-Treasurer	8/13/2019
Village of Random Lake	Joe Huiras	Director of Public Works	9/9/2019
Village of Waldo	Michelle Brecht	Clerk-Treasurer	8/21/2019

Source: Bay-Lake Regional Planning Commission, 2019.

APPENDIX D – CRITICAL FACILITIES BY COMMUNITY

The steering committee for the *Sheboygan County Hazard Mitigation Plan 2020 - 2025* and community representatives identified critical infrastructure assets for all the communities in the county.

Table D.1 summarizes the critical facilities by municipality for Sheboygan County.

Table D.1: Critical Facilities by Community, Sheboygan County

NAME	ADDRESS	MCD	TYPE
Anitas Gardens	1900 Arbor View Dr	City of Plymouth	Assisted Living Facilities
Kindredhearts Plymouth	112 South River Blvd	City of Plymouth	Assisted Living Facilities
The Waterford at Plymouth I	2581 Valley Rd	City of Plymouth	Assisted Living Facilities
The Waterford at Plymouth II	2653 Valley Rd	City of Plymouth	Assisted Living Facilities
The Waterford at Plymouth III	2586 Valley Rd	City of Plymouth	Assisted Living Facilities
Bridge	CTH PP/Mullet River	City of Plymouth	Bridge
Bridge	Frederict St/Mullet River	City of Plymouth	Bridge
Bridge	Eastern Ave/Mullet River	City of Plymouth	Bridge
Bridge	Railroad/E Mill St	City of Plymouth	Bridge
Bridge	S Milwaukee St/Mullet River	City of Plymouth	Bridge
Bridge	Stafford St/Mullet River	City of Plymouth	Bridge
Bridge	Pleasant View Rd/Unnamed Water	City of Plymouth	Bridge
Bridge	Riverveiw Rd/Mullet River	City of Plymouth	Bridge
Bridge	Carr Rd/Unnamed Water	City of Plymouth	Bridge
Commonwealth Telephone	118 Division St	City of Plymouth	Communications
Phone	County Rd PP	City of Plymouth	Communications
Wireless Tower	120 APPLETON ST.	City of Plymouth	Communications
Wireless Tower	W5832 CTY TK J	City of Plymouth	Communications
Dam	Mullet River	City of Plymouth	Dam
Plymouth Utilities Substation No.1	200 Frederick St	City of Plymouth	Electric
Plymouth Utilities Substation No.2	625 CTH PP	City of Plymouth	Electric
Plymouth Fire Dept	111 E Main St	City of Plymouth	Fire/Rescue
City Hall	128 Smith St	City of Plymouth	Government
Frontier - 941-51576-83240	118 Division St	City of Plymouth	HazMat
Glacier Transit & Storage	976 Willow Rd	City of Plymouth	HazMat
Glacier Transit & Storage	404 Schwartz St	City of Plymouth	HazMat
Glacier Transit & Storage	128 Appleton St	City of Plymouth	HazMat
Great Lakes Cheese of WI	2602 County Road PP	City of Plymouth	HazMat
Masters Gallery Foods	411 County Road PP	City of Plymouth	HazMat
Sargento Foods Inc	1 Persnickety Place	City of Plymouth	HazMat
Sartori Company	12 W Main St	City of Plymouth	HazMat
Sartori Company	2 E Main St	City of Plymouth	HazMat
Sartori Whey	4200 County Road PP	City of Plymouth	HazMat

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Toro - Plymouth	3424 County Road PP	City of Plymouth	HazMat
WalMart - Plymouth	428 Walton Dr	City of Plymouth	HazMat
Arbor View Assisted Living	1900 Arbor View Dr	City of Plymouth	Hospital/Clinic
Aurora	2600 Kiley Way	City of Plymouth	Hospital/Clinic
Aurora Valley View Surgical Center	901 Reed St	City of Plymouth	Hospital/Clinic
Generations	1500 Douglas Dr	City of Plymouth	Hospital/Clinic
Kindred Hearts	112 S River Blvd	City of Plymouth	Hospital/Clinic
Libby House Assisted Living	2581 Valley Rd	City of Plymouth	Hospital/Clinic
Marsho Clinic	515 E Mill St	City of Plymouth	Hospital/Clinic
Plymouth Care Center	916 E Clifford St	City of Plymouth	Hospital/Clinic
Plymouth Family Physicians	1000 Eastern Ave	City of Plymouth	Hospital/Clinic
Prevea Clinic	825 Walton Way	City of Plymouth	Hospital/Clinic
Quit Qu Oc Manor	1200 Reed St	City of Plymouth	Hospital/Clinic
Plymouth Police Dept	128 Smith St	City of Plymouth	Law Enforcement
Cedar View Mobile Home Park	County Rd C	City of Plymouth	Manufactured Housing Community
Plymouth Country View Estates	728 State Road 57	City of Plymouth	Manufactured Housing Community
Armory	625 Sunset Dr	City of Plymouth	Military Installation
Municipal Garage	1004 Valley Rd	City of Plymouth	Public Works
Fairview El	300 Salem Dr	City of Plymouth	School
Horizon El	411 S Highland Ave	City of Plymouth	School
Parkview El	500 Parkview Dr	City of Plymouth	School
Plymouth Hi	125 S Highland Ave	City of Plymouth	School
Riverview Mid	300 Riverside Cir	City of Plymouth	School
St John Lutheran	222 N Stafford St	City of Plymouth	School
St John the Baptist	116 Pleasant St	City of Plymouth	School
Plymouth Utilities CTH PP Sewage Lift Station	2100 CTH PP	City of Plymouth	Sewage Treatment
Plymouth Utilities Willow Sewage Lift Station	1300 S Willow Rd	City of Plymouth	Sewage Treatment
Plymouth Wastewater Treatment Facilities	625 CTH PP	City of Plymouth	Sewage Treatment
Plymouth Utilities Water Reservoir No. 1/2	800 Summit St	City of Plymouth	Water
Plymouth Utilities Water Supply Well No. 10	900 S Milwaukee St	City of Plymouth	Water
Plymouth Utilities Water Supply Well No. 11	2109 Sunset Dr	City of Plymouth	Water

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Plymouth Utilities Water Supply Well No. 12	12 Persnickety Pl	City of Plymouth	Water
Plymouth Utilities Water Supply Well No. 13	423 S Highland Ave	City of Plymouth	Water
Plymouth Utilities Water Supply Well No. 15	900 S Milwaukee St	City of Plymouth	Water
Plymouth Utilities Water Supply Well No. 8	900 S Milwaukee St	City of Plymouth	Water
Azura Memory Care of Sheboygan	2629 Indiana Ave	City of Sheboygan	Assisted Living Facilities
Golden Harbor	505 S Water St	City of Sheboygan	Assisted Living Facilities
Homes for Independent Living	2307 N 30th St	City of Sheboygan	Assisted Living Facilities
Homes for Independent Living	1411 N 26th St	City of Sheboygan	Assisted Living Facilities
Homes for Independent Living	4545 Prairie View Rd	City of Sheboygan	Assisted Living Facilities
Homes for Independent Living	4170 S 15th St	City of Sheboygan	Assisted Living Facilities
Hometown Retirement	920 N 26th St	City of Sheboygan	Assisted Living Facilities
Lutheran Social Services Turning Point Facility	1202 N 31st St	City of Sheboygan	Assisted Living Facilities
Our Place	1117 Clara Ave	City of Sheboygan	Assisted Living Facilities
Sheboygan County Half Way House	503 Ontario Ave	City of Sheboygan	Assisted Living Facilities
The Shores of Sheboygan Assisted Living I & II	3315 & 3319 Superior Ave	City of Sheboygan	Assisted Living Facilities
TLC Homes N 33rd Place	1536 N 33rd Pl	City of Sheboygan	Assisted Living Facilities
Bridge	IH 42/STH 23	City of Sheboygan	Bridge
Bridge	Lakeshore Dr/Unnamed Water	City of Sheboygan	Bridge
SBC Station	725 New York Ave	City of Sheboygan	Communications
Taylor Hill Tower	924 N Taylor Dr	City of Sheboygan	Communications
Tower	3001 S 31st St	City of Sheboygan	Communications
Tower	3501 Lakeshore Dr	City of Sheboygan	Communications
Tower	3440 Weeden Creek Rd	City of Sheboygan	Communications
Tower	1829 S 17th St	City of Sheboygan	Communications
Tower	3319 Paine Ave	City of Sheboygan	Communications
Tower	1705 Martine Ave	City of Sheboygan	Communications
Tower	2746 Muth Ct	City of Sheboygan	Communications
Tower	1315 N 23rd St	City of Sheboygan	Communications
Wireless Tower	611 N WATER STREET	City of Sheboygan	Communications
Wireless Tower	4520 S. 12TH STREET	City of Sheboygan	Communications
Wireless Tower	605 N. 8TH STREET	City of Sheboygan	Communications

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Wireless Tower	1314 N. 43RD STREET	City of Sheboygan	Communications
Wireless Tower	2931 GEORGIA AVE	City of Sheboygan	Communications
Wireless Tower	812 BROUGHTON DR	City of Sheboygan	Communications
Wireless Tower	4420 S TAYLOR DR	City of Sheboygan	Communications
Wireless Tower	1325 N 23 ST	City of Sheboygan	Communications
County Emergency Operations Center	1326 N 25th St	City of Sheboygan	Disaster Response
Alliant Energy Facility	4421 Tower Dr	City of Sheboygan	Electric
Edgewater Generator Plant	3739 Lakeshore Dr	City of Sheboygan	Electric
Electric Power Substations	1718 North Ave	City of Sheboygan	Electric
Electric Power Substations	2217 N Taylor Dr	City of Sheboygan	Electric
Electric Power Substations	2018 Kohler Mem Dr	City of Sheboygan	Electric
Electric Power Substations	824 S 8th St	City of Sheboygan	Electric
Electric Power Substations	2010 S 19th St	City of Sheboygan	Electric
Electric Power Substations	727 Washington Ave	City of Sheboygan	Electric
Electric Power Substations	3024 Washington Ave	City of Sheboygan	Electric
Electric Power Substations	3739 Lakeshore Dr	City of Sheboygan	Electric
Orange Cross	1919 Ashland Ave	City of Sheboygan	Fire/Rescue
Sheboygan City Fire/Rescue Station #1	833 New York Ave	City of Sheboygan	Fire/Rescue
Sheboygan City Fire/Rescue Station #2	2413 S 18th Ave	City of Sheboygan	Fire/Rescue
Sheboygan City Fire/Rescue Station #3	1326 N 25th St	City of Sheboygan	Fire/Rescue
Sheboygan City Fire/Rescue Station #4	2622 N 15th St	City of Sheboygan	Fire/Rescue
Sheboygan City Fire/Rescue Station #5	4504 S 18th Ave	City of Sheboygan	Fire/Rescue
Nemak	3101 S Taylor Dr	City of Sheboygan	Fuel Storage
Nemak	4243 Gateway Dr	City of Sheboygan	Fuel Storage
City Hall	828 Center Ave	City of Sheboygan	Government
County Administration	508 New York Ave	City of Sheboygan	Government
County Public Health Department	1011 N 8th St	City of Sheboygan	Government
Health and Human Services	1011 N 8th St	City of Sheboygan	Government
Acuity	2800 S Taylor Dr	City of Sheboygan	HazMat
American Orthodontics	3524 Washiington Ave	City of Sheboygan	HazMat
Ameritech - Sheboygan Co PL0406	625 New York Ave	City of Sheboygan	HazMat
AT&T - P12761	630 N 6th St	City of Sheboygan	HazMat

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Ameritech - Sheboygan Co PL0406	625 New York Ave	City of Sheboygan	HazMat
AT&T - P12761	630 N 6th St	City of Sheboygan	HazMat
Edgewater Generating Station	3739 Lakeshore Dr	City of Sheboygan	HazMat
Hexion Inc	2522 S 24th St	City of Sheboygan	HazMat
HTT Inc	1828 Oakland Ave	City of Sheboygan	HazMat
J L Di-Coat	1213 S 7th St	City of Sheboygan	HazMat
Nemak USA Inc - Gateway Plant	4243 Gateway Dr	City of Sheboygan	HazMat
Nemak USA Inc - Taylor Plant	3101 S Taylor Dr	City of Sheboygan	HazMat
Old Wisconsin Sausage Co.	2413 Union Ave	City of Sheboygan	HazMat
Old Wisconsin Sausage Co.	4036 Weeden Creek Rd	City of Sheboygan	HazMat
Piggly Wiggly Midwest LLC	2215 Union Ave	City of Sheboygan	HazMat
Plastics Engineering Co	2732 N 15th St	City of Sheboygan	HazMat
Rockline Industries	1113 Maryland Ave	City of Sheboygan	HazMat
SAFCO Products	1213 Pennsylvania Ave	City of Sheboygan	HazMat
Sheboygan Paint Company	1439 N 25th St	City of Sheboygan	HazMat
The Vollrath Company LLC	1236 N 18th St	City of Sheboygan	HazMat
Three Twins Ice Cream Company Inc	816 Michigan Ave	City of Sheboygan	HazMat
Lakeshore Community Health Care	1721 Seamann Ave	City of Sheboygan	Hospital/Clinic
Sheboygan Memorial Hospital	2629 N 7th St	City of Sheboygan	Hospital/Clinic
St Nicholas Hospital	3100 Superior Ave	City of Sheboygan	Hospital/Clinic
City Police Department	1315 N 23rd St	City of Sheboygan	Law Enforcement
County Sheriff Department/Jail	525 N 6th St	City of Sheboygan	Law Enforcement
Courthouse	615 N 6th St	City of Sheboygan	Law Enforcement
Police Impound Garage	2026 New Jersey Ave	City of Sheboygan	Law Enforcement
Sheboygan County Detention Center	2923 S 31st St	City of Sheboygan	Law Enforcement
Indian Meadows	63 South Hiawatha Cr	City of Sheboygan	Manufactured Housing Community
Sommer's Woodhaven Mobile Home Park	4441 South 12th St	City of Sheboygan	Manufactured Housing Community
Army Reserve Center	2913 Erie Ave	City of Sheboygan	Military Installation
US Coast Guard	209 Pennsylvania Ave	City of Sheboygan	Military Installation
WPS Office	933 S Wildwood Ave	City of Sheboygan	Natural Gas
County Highway Department	1211 N 23rd St	City of Sheboygan	Public Works

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Department of Public Works	2026 New Jersey Ave	City of Sheboygan	Public Works
Bethlehem Lutheran	1121 Georgia Ave	City of Sheboygan	School
Central Hi	621 S Water St	City of Sheboygan	School
Christ Child Academy	2722 Henry St	City of Sheboygan	School
Cooper El	2014 Cooper Ave	City of Sheboygan	School
Early Learning Ctr	1227 Wilson Ave	City of Sheboygan	School
Ebenezer Christian	610 N 25th St	City of Sheboygan	School
Etude El	3508 N 21st St	City of Sheboygan	School
Etude Hi	834 Virginia Ave	City of Sheboygan	School
Etude Mid	843 Jefferson Ave	City of Sheboygan	School
Farnsworth Mid	1017 Union Ave	City of Sheboygan	School
George D. Warriner Mid/Hi	712 Riverfront Dr	City of Sheboygan	School
Grant El	1528 N 5th St	City of Sheboygan	School
Horace Mann Mid	2820 Union Ave	City of Sheboygan	School
Immanuel Lutheran	1626 Illinois Ave	City of Sheboygan	School
Jackson El	2530 Weeden Creek Rd	City of Sheboygan	School
James Madison El	2302 David Ave	City of Sheboygan	School
Jefferson El	1538 N 15th St	City of Sheboygan	School
Lake Country Acadamy	4101 Technology Pkwy	City of Sheboygan	School
Lincoln-Erdman El	4101 N 50th St	City of Sheboygan	School
Longfellow El	819 Kentucky Ave	City of Sheboygan	School
North Hi	2926 N 10th St	City of Sheboygan	School
Pigeon River El	3508 N 21st St	City of Sheboygan	School
Saint Elizabeth Ann Seton	814 Superior Ave	City of Sheboygan	School
Sheboygan Area Lutheran	3323 University Dr	City of Sheboygan	School
Sheboygan Christian	418 Geele Ave	City of Sheboygan	School
Sheboygan Leadership Acadamy	1305 St Clair Ave	City of Sheboygan	School
Sheridan El	1412 Maryland Ave	City of Sheboygan	School
South Hi	3128 S 12th St	City of Sheboygan	School
Trinity Lutheran Grade Sch	824 Wisconsin Ave	City of Sheboygan	School
Urban Mid	1226 North Ave	City of Sheboygan	School
Warriner	712 Riverfront Dr	City of Sheboygan	School
Wilson El	1625 Wilson Ave	City of Sheboygan	School
Lift Station	N 3rd St	City of Sheboygan	Sewage Treatment
Lift Station	S 7th Ave	City of Sheboygan	Sewage Treatment
Lift Station	2805 Indiana Ave	City of Sheboygan	Sewage Treatment
Lift Station	S Business Dr	City of Sheboygan	Sewage Treatment

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Sheboygan Wastewater Treatment	3333 Lakeshore Dr	City of Sheboygan	Sewage Treatment
Critical Water Storage Tank	927 N Taylor Dr	City of Sheboygan	Water
Critical Water Storage Tank	2925 Georgia Ave	City of Sheboygan	Water
Critical Water Storage Tank	4435 Gatway Dr	City of Sheboygan	Water
Critical Water Storage Tank	4024 Erie Ave	City of Sheboygan	Water
Sheboygan Water Utility	72 Park Ave	City of Sheboygan	Water
Water Tower	2900 Washington Ave	City of Sheboygan	Water
Haven Drive Assisted Living	220 Haven Dr	City of Sheboygan Falls	Assisted Living Facilities
Pine Haven Christian Home	531 Gidding Ave	City of Sheboygan Falls	Assisted Living Facilities
Woodland Manor	851 Fond du Lac Ave	City of Sheboygan Falls	Assisted Living Facilities
Bridge	Broadway St/Sheboygan River	City of Sheboygan Falls	Bridge
Bridge	Monroe St/Sheboygan River	City of Sheboygan Falls	Bridge
Bridge	STH 28/Onion River	City of Sheboygan Falls	Bridge
Phone	704 Broadway St	City of Sheboygan Falls	Communications
WCLB 950 Radio Towers	N Main St	City of Sheboygan Falls	Communications
Wireless Tower	661 WESTERN AVE	City of Sheboygan Falls	Communications
Wireless Tower	315-A FOREST AVE.	City of Sheboygan Falls	Communications
Dam	Sheboygan River	City of Sheboygan Falls	Dam
Dam	Mullet River	City of Sheboygan Falls	Dam
Electiric Power Substation	111 Hamann Dr	City of Sheboygan Falls	Electric
Electric Power Substations	Monroe St	City of Sheboygan Falls	Electric
Electric Power Substations	608 Water St	City of Sheboygan Falls	Electric
Electric Power Substations	Jackson St	City of Sheboygan Falls	Electric
Sheboygan Falls Fire Dept	375 Buffalo St	City of Sheboygan Falls	Fire/Rescue
Bemis Manufacturing	300 Mill St	City of Sheboygan Falls	Fuel Storage
City Hall	375 Buffalo St	City of Sheboygan Falls	Government
Bemis Manufacturing Co. - Plant B	300 Mill St	City of Sheboygan Falls	HazMat
Curt G Joa, Inc	100 Crocker Ave	City of Sheboygan Falls	HazMat
Rockline Industries	N5252 County Raod TT	City of Sheboygan Falls	HazMat
Rockline Industries - Birch Warehouse	100 Birch Rd	City of Sheboygan Falls	HazMat
Rockline Industries - Willow Warehouse	985 Willow Dr	City of Sheboygan Falls	HazMat
Spartech LLC	360 Rangeline Rd	City of Sheboygan Falls	HazMat
WI Bell - Sheboygan Falls Co 7 - PL0401	704 Broadway St	City of Sheboygan Falls	HazMat

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Aurora	1146 Plankview Green Blvd	City of Sheboygan Falls	Hospital/Clinic
Pine Haven	531 Giddings Ave	City of Sheboygan Falls	Hospital/Clinic
Woodland Manor	851 Fond Du Lac Ave	City of Sheboygan Falls	Hospital/Clinic
Sheboygan Falls Police Dept	375 Buffalo St	City of Sheboygan Falls	Law Enforcement
Acacia Falls	801 Acacia	City of Sheboygan Falls	Manufactured Housing Community
DPW	111 Hamann Dr	City of Sheboygan Falls	Public Works
Sheboygan Falls El	1 Alfred W Miley Ave	City of Sheboygan Falls	School
Sheboygan Falls Hi	220 Amherst Ave	City of Sheboygan Falls	School
Sheboygan Falls Mid	101 School St	City of Sheboygan Falls	School
Water Storage and Booster	661 Western Ave	City of Sheboygan Falls	Water
Water Supply Well	10 Fond Du Lac Ave	City of Sheboygan Falls	Water
Water Tower	Forest Ave	City of Sheboygan Falls	Water
Water Tower	Old County Rd PP	City of Sheboygan Falls	Water
Bridge	CTH A/Mullet River	Town of Greenbush	Bridge
Bridge	CTH A/Mullet River	Town of Greenbush	Bridge
Bridge	Plank Rd/Mullet River	Town of Greenbush	Bridge
Bridge	Center Rd/Mullet River	Town of Greenbush	Bridge
Bridge	Clark St/Mullet River	Town of Greenbush	Bridge
JSM Radio Tower	W7385 State Hwy 67	Town of Greenbush	Communications
Phone	W7787 Center St	Town of Greenbush	Communications
Tower	N6644 County Rd S	Town of Greenbush	Communications
Tower	N5621 Hillcrest Dr	Town of Greenbush	Communications
Tower	N5455 Division Rd	Town of Greenbush	Communications
Tower	W7042 Wildberry Hill Rd	Town of Greenbush	Communications
Tower - KMCI	W9071 Forest Dr	Town of Greenbush	Communications
WXER 104.5/96.1 Radio Tower	W7166 State Hwy 67	Town of Greenbush	Communications
Dam	NA	Town of Greenbush	Dam
Town Hall/Fire Dept	N6644 Sugarbush Rd	Town of Greenbush	Government
Kettle Moraine Correctional Institution	W9071 Forest Dr	Town of Greenbush	Law Enforcement
	N6466 Plank Cr	Town of Greenbush	Manufactured Housing Community
	W9202 County Rd C	Town of Greenbush	Natural Gas
KMCI Water Tower	W9071 Forest Dr	Town of Greenbush	Water
Bridge	CTH MM/Pigeon River	Town of Herman	Bridge
Bridge	CTH A/Sheboygan River	Town of Herman	Bridge
Bridge	STH 42/Pigeon River	Town of Herman	Bridge

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Bridge	Orchard Rd//Pigeon River	Town of Herman	Bridge
Bridge	Willow Rd/Sheboygan River	Town of Herman	Bridge
Bridge	Main Rd/Sheboygan River	Town of Herman	Bridge
Bridge	Franklin Rd/Sheboygan River	Town of Herman	Bridge
Bridge	CTH FF/Sheboygan River	Town of Herman	Bridge
Bridge	Garton Rd/Sheboygan River	Town of Herman	Bridge
Bridge	Playbird Rd/Pigeon River	Town of Herman	Bridge
Bridge	Meadowlark Rd/Fisher Creek	Town of Herman	Bridge
Bridge	County Line Rd/Pigeon River	Town of Herman	Bridge
Bridge	County Line Rd/Pigeon River	Town of Herman	Bridge
Bridge	County Line Rd/Pigeon River	Town of Herman	Bridge
Bridge	County Line Rd/Pigeon River	Town of Herman	Bridge
Bridge	County Line Rd/Pigeon River	Town of Herman	Bridge
Bridge	Main Rd/Sheboygan River	Town of Herman	Bridge
Bridge	CTH A Main/Sheboygan River	Town of Herman	Bridge
Tower	N8220 Rangeline Rd	Town of Herman	Communications
Tower	N7956 Highland Rd	Town of Herman	Communications
Wireless Tower	W2975 CTY TK MM	Town of Herman	Communications
Electiric Power Substation	W2603 County Rd FF	Town of Herman	Electric
Ada Fire Dept	W3984 Highway 32	Town of Herman	Fire/Rescue
Franklin Fire Dept	N8165 Franklin Rd	Town of Herman	Fire/Rescue
Town Hall	N8139 Frankin Rd	Town of Herman	Government
	N8141 Meadowlark Rd	Town of Herman	Natural Gas
Bridge	IH 43/Center Ave	Town of Holland	Bridge
Bridge	CTH A/Onion River	Town of Holland	Bridge
Bridge	IH 43/Dewitt Rd	Town of Holland	Bridge

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Bridge	IH 43/Dewitt Rd	Town of Holland	Bridge
Bridge	IH 43/Smies Rd	Town of Holland	Bridge
Bridge	IH 43/Smies Rd	Town of Holland	Bridge
Bridge	CTH G/Onion River	Town of Holland	Bridge
Bridge	CTH G/Onion River	Town of Holland	Bridge
Bridge	CTH RR/Unnamed Water	Town of Holland	Bridge
Bridge	CTH RR/Unnamed Water	Town of Holland	Bridge
Bridge	STH 32/IH 43	Town of Holland	Bridge
Bridge	IH 43/Amsterdam Rd	Town of Holland	Bridge
Bridge	IH 43/Amsterdam Rd	Town of Holland	Bridge
Bridge	Hoitink Rd/Onion River	Town of Holland	Bridge
Bridge	CTH D/Unnamed Water	Town of Holland	Bridge
Bridge	Eernisse Rd/Onion River	Town of Holland	Bridge
Bridge	Risseeuw Rd/Onion River	Town of Holland	Bridge
Bridge	Risseeuw Rd/Unnamed Water	Town of Holland	Bridge
Bridge	CTH GW/Unnamed Water	Town of Holland	Bridge
Bridge	CTH GW/Unnamed Water	Town of Holland	Bridge
Bridge	CTH KW/Onion River	Town of Holland	Bridge
Bridge	CTH A/Onion River	Town of Holland	Bridge
Tower	W2263 Smies Rd	Town of Holland	Communications
Tower	N188 CTH LL	Town of Holland	Communications
Electiric Power Substation	W3999 Risseeuw Rd	Town of Holland	Electric
Kettle-Lakes Cooperative	W2521 Smies Rd	Town of Holland	Fuel Storage
Town Hall	W3005 County Rd G	Town of Holland	Government
	County Rd A	Town of Holland	Natural Gas
	County Rd D	Town of Holland	Natural Gas
Bridge	STH 32/Onion River	Town of Lima	Bridge
Bridge	CTH V/Onion River	Town of Lima	Bridge
Bridge	BridgeRd/Onion River	Town of Lima	Bridge
Bridge	Ourtown Rd/Onion River	Town of Lima	Bridge
Bridge	CTH OO/Onion River	Town of Lima	Bridge
Bridge	CTH W/Unnamed Water	Town of Lima	Bridge
Bridge	CTH W/Onion River	Town of Lima	Bridge

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Bridge	Camp Riversite Rd/Onion River	Town of Lima	Bridge
Bridge	STH 32/Unnamed Water	Town of Lima	Bridge
Old County Hospital Tower	N3773 Garden Pkwy	Town of Lima	Communications
Tower	W2130 Koene Ct	Town of Lima	Communications
Tower	N3589 Atlanta Rd	Town of Lima	Communications
Dam	Onion River	Town of Lima	Dam
Electric Power Substations	N4703 Brusse Rd	Town of Lima	Electric
Town Hall	N3689 County Rd I	Town of Lima	Government
Gibbsville Sanitary District	W2401 County Rd OK W	Town of Lima	Sewage Treatment
Onion River Wastewater	W4311 Water St	Town of Lima	Sewage Treatment
Water Tower	N3773 Garden Pkwy	Town of Lima	Water
Bridge	CTH E/Onion River	Town of Lyndon	Bridge
Bridge	Blueberry Ln/Onion River	Town of Lyndon	Bridge
Bridge	CTH N/Onion River	Town of Lyndon	Bridge
Bridge	CTH V/Onion River	Town of Lyndon	Bridge
Bridge	Clearview Rd/Onion River	Town of Lyndon	Bridge
Bridge	CTH NN/Unnamed Water	Town of Lyndon	Bridge
Bridge	CTH NN/N Branch Milwaukee River	Town of Lyndon	Bridge
Bridge	Silver Creek Cascade Rd/N Branch Milwaukee Ri	Town of Lyndon	Bridge
Bridge	CTH U/Onion River	Town of Lyndon	Bridge
Bridge	Winooski Rd/Onion River	Town of Lyndon	Bridge
Bridge	CTH W/N Branch Milwaukee River	Town of Lyndon	Bridge
Bridge	CTH NN/Unnamed Water	Town of Lyndon	Bridge
Bridge	CTH NN/Unnamed Water	Town of Lyndon	Bridge
Phone	W5975 State Hwy 28	Town of Lyndon	Communications
Tower	W5688 County Rd V	Town of Lyndon	Communications
Wireless Tower	W4792 CTY TK IW	Town of Lyndon	Communications
Wireless Tower	N4355 STATE HIGHWAY 57	Town of Lyndon	Communications

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Wireless Tower	W4792 CTY TK IW	Town of Lyndon	Communications
Wireless Tower	N4355 STATE HIGHWAY 57	Town of Lyndon	Communications
Dam	NA	Town of Lyndon	Dam
Dam	Lake Ellen	Town of Lyndon	Dam
Electric Power Substations	W5206 Clearview Rd	Town of Lyndon	Electric
Town Hall	N6135 County Rd N	Town of Lyndon	Government
Hager's Hilly Haven Campground	N2827 Dusty Ln	Town of Lyndon	Manufactured Housing Community
	W6294 Harbor Lights Rd	Town of Lyndon	Manufactured Housing Community
	County Rd E	Town of Lyndon	Natural Gas
	W5698 County Rd V	Town of Lyndon	Natural Gas
	State Hwy 28	Town of Lyndon	Natural Gas
County Highway Department	W6451 State Hwy 28	Town of Lyndon	Public Works
Bridge	CTH W/Chambers Creek	Town of Mitchell	Bridge
Wireless Tower	N4590 COUNTY HWY V	Town of Mitchell	Communications
Wireless Tower	W7257 PARNELL RD.	Town of Mitchell	Communications
Town Hall	W8095 Parnell Rd	Town of Mitchell	Government
KMCI Sewage Treatment	W9071 Forest Dr	Town of Mitchell	Sewage Treatment
Bridge	Garton Rd/IH 43	Town of Mosel	Bridge
Bridge	Playbird Rd/IH 43	Town of Mosel	Bridge
Bridge	County Line Rd/IH 43	Town of Mosel	Bridge
Bridge	Orchard Rd/IH 43	Town of Mosel	Bridge
Bridge	CTH MM/Sevenmile Creek	Town of Mosel	Bridge
Bridge	CTH MM/IH 43	Town of Mosel	Bridge
Bridge	Luelloff Rd/Sevenmile Creek	Town of Mosel	Bridge
Bridge	CTH LS/Sevenmile Creek	Town of Mosel	Bridge
Bridge	CTH FF/IH 43	Town of Mosel	Bridge
Bridge	Rowe Rd/IH 43	Town of Mosel	Bridge
Fed Ex	3510 Playbird Rd	Town of Mosel	Chemical
Tower	W1545 County Rd MM	Town of Mosel	Communications
Tower	N7677 Garton Ct	Town of Mosel	Communications
Tower	N8137 Rangeline Rd	Town of Mosel	Communications
Tower	W1534 Orchard Rd	Town of Mosel	Communications
Wireless Tower	1111 WEST RIVERSIDE DRIVE	Town of Mosel	Communications
Wireless Tower	N8501 CTY LS	Town of Mosel	Communications

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Wireless Tower	N7677 GARTON COURT	Town of Mosel	Communications
Wireless Tower	N8569 CTY TK LS	Town of Mosel	Communications
Kohler Company	N7650 CTH LS	Town of Mosel	Fuel Storage
Motor Propane SVS	W2059 Garton Rd	Town of Mosel	Fuel Storage
Town Hall	W982 County Rd FF	Town of Mosel	Government
Kohler Company - Generator Division	N7650 Lakeshore Rd	Town of Mosel	HazMat
County Highway Department	N7563 State Hwy 42	Town of Mosel	Public Works
Bridge	Blueberry Ln/Mullet River	Town of Plymouth	Bridge
Bridge	S Milwaukee St/Mullet River	Town of Plymouth	Bridge
Bridge	STH 23/STH 57	Town of Plymouth	Bridge
Bridge	STH 23/STH 57	Town of Plymouth	Bridge
Bridge	CTH J/Otter Creek	Town of Plymouth	Bridge
Bridge	CTH J/Otter Creek	Town of Plymouth	Bridge
Bridge	STH 23/STH 67-Mullet River	Town of Plymouth	Bridge
Bridge	STH 23/Riverview-Rd Sunset Dr-Railroad	Town of Plymouth	Bridge
Bridge	STH 67/Mullet River	Town of Plymouth	Bridge
Bridge	STH 57/Mullet River	Town of Plymouth	Bridge
Bridge	Pleasant View Rd/Mullet River	Town of Plymouth	Bridge
Bridge	Short Cut Rd/Mullet River	Town of Plymouth	Bridge
Bridge	Woodland Rd/Mullet River	Town of Plymouth	Bridge
Bridge	Willow Rd/Otter Creek	Town of Plymouth	Bridge
Bridge	STH 57/Unnamed Water	Town of Plymouth	Bridge
Bridge	STH 23/Unnamed Water	Town of Plymouth	Bridge
Bridge	River Heights Rd/Mullet River	Town of Plymouth	Bridge
Bridge	STH 23/STH 67-Mullet River	Town of Plymouth	Bridge
Bridge	STH 23/Riverview-Rd Sunset Dr-Railroad	Town of Plymouth	Bridge
Rocky Knoll Radio Tower	N7135 Rocky Knoll Pkwy	Town of Plymouth	Communications
Tower	N6607 County Rd P	Town of Plymouth	Communications
Tower - Fairgrounds	Fairview Dr	Town of Plymouth	Communications

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Tower - Road America	W5832 County Rd J	Town of Plymouth	Communications
WJUB 1420	N5569 State Hwy 57	Town of Plymouth	Communications
Dam	Mullet River	Town of Plymouth	Dam
Dam	Mullet River	Town of Plymouth	Dam
Electric Power Substations	642 S Milwaukee St	Town of Plymouth	Electric
Electric Power Substations	642 S Milwaukee St	Town of Plymouth	Electric
Plymouth Fire Dept	120 Suhrke Rd	Town of Plymouth	Fire/Rescue
Ferrellgas Co	N5591 STH 57	Town of Plymouth	Fuel Storage
Highway Department Complex	W5741 County Road J	Town of Plymouth	Government
Town Hall	120 Suhrke Rd	Town of Plymouth	Government
Mills Fleet Farm	3110 Eastern Ave	Town of Plymouth	HazMat
Rocky Knoll HCC	N7135 Rocky Knoll Pkwy	Town of Plymouth	Hospital/Clinic
Plymouth Rock Campground	N7271 Lando St	Town of Plymouth	Manufactured Housing Community
County Highway Department	N6111 County Rd OJ	Town of Plymouth	Public Works
Plymouth Utilities Operations Center	900 CTH PP	Town of Plymouth	Public Works
Plymouth Utilities Water RPV Station No. 1	3200 CTH PP	Town of Plymouth	Water
Water Tower	N7235 Rocky Knoll Pkwy	Town of Plymouth	Water
Bridge	STH 67/Unnamed Water	Town of Rhine	Bridge
Bridge	CTH EH/Sheboygan River	Town of Rhine	Bridge
Bridge	CTH MM/Sheboygan River	Town of Rhine	Bridge
Bridge	STH 57/Sheboygan River	Town of Rhine	Bridge
Bridge	CTH MC/Sheboygan River	Town of Rhine	Bridge
Bridge	CTH MM/Sheboygan River	Town of Rhine	Bridge
Bridge	STH 57/CTH A	Town of Rhine	Bridge
Bridge	STH 67/LaBudde Creek	Town of Rhine	Bridge
Bridge	Garton Rd/LaBudde Creek	Town of Rhine	Bridge
Tower	N8429 State Hwy 57	Town of Rhine	Communications
Tower	N8364 State Hwy 57	Town of Rhine	Communications
Wireless Tower	N9363 HWY 57	Town of Rhine	Communications
Electric Power Substations	N7865 County Rd P	Town of Rhine	Electric
Town Hall	W5250 County Road FF	Town of Rhine	Government
	Garton Rd	Town of Rhine	Natural Gas

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Bridge	CTH J/Sheboygan River	Town of Russell	Bridge
Dam	Sheboygan River	Town of Russell	Dam
Town Hall	N9691 County Rd H	Town of Russell	Government
Sheboygan Marsh Park	W7039 County Rd SR	Town of Russell	Manufactured Housing Community
	W6963 County Rd SR	Town of Russell	Natural Gas
Beechwood Rest Home	N1495 County Road A West	Town of Scott	Assisted Living Facilities
Bridge	STH 28/Batavia Creek	Town of Scott	Bridge
Bridge	Cranberry Rd/Mink Creek	Town of Scott	Bridge
Bridge	CTH D/Mink Creek	Town of Scott	Bridge
Bridge	STH 28 & 144/Mink Creek	Town of Scott	Bridge
Bridge	STH 144/Mink Creek	Town of Scott	Bridge
Bridge	STH 144/Mink Creek	Town of Scott	Bridge
Bridge	STH 144/N Branch Milwaukee River	Town of Scott	Bridge
Bridge	Boltonville Rd/Mink Creek	Town of Scott	Bridge
Bridge	CTH S/Mink Creek	Town of Scott	Bridge
ANR Radio Tower	W8656 Tower Dr	Town of Scott	Communications
Wireless Tower	N1360 STATE HIGHWAY 28	Town of Scott	Communications
Wireless Tower	N2113 STATE ROAD 28	Town of Scott	Communications
Dam	Mink Creek	Town of Scott	Dam
Beechwood Fire Department	W8451 County Rd S	Town of Scott	Fire/Rescue
Boehlke Bottled Gas Corp	N477 Riverview Rd	Town of Scott	Fuel Storage
Town Hall	N1306 Boltonville Rd	Town of Scott	Government
Hoefts Mobile Home Park & Campground	W9070 Crooked Lake Dr	Town of Scott	Manufactured Housing Community
Countryside Manor	4221 Kadlec Dr	Town of Sheboygan	Assisted Living Facilities
Countryside Manor West	4228 Kadlec Dr	Town of Sheboygan	Assisted Living Facilities
Homes for Independent Living	1302 & 1304 N 49th St	Town of Sheboygan	Assisted Living Facilities
Sheboygan Senior Community	3505 County Road Y	Town of Sheboygan	Assisted Living Facilities
Bridge	Rangeline Rd/Pigeon River	Town of Sheboygan	Bridge
Bridge	CTH J/Pigeon River	Town of Sheboygan	Bridge
Bridge	Rangeline Rd/STH 23	Town of Sheboygan	Bridge

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Bridge	Rangeline Rd/Pigeon River	Town of Sheboygan	Bridge
Bridge	CTH J/Pigeon River	Town of Sheboygan	Bridge
Bridge	Rangeline Rd/STH 23	Town of Sheboygan	Bridge
Bridge	IH 43/STH 42	Town of Sheboygan	Bridge
Bridge	IH 43/STH 42	Town of Sheboygan	Bridge
Bridge	IH 43/CTH J	Town of Sheboygan	Bridge
Bridge	Mueller Rd/IH 43	Town of Sheboygan	Bridge
Bridge	IH 43/Pigeon River	Town of Sheboygan	Bridge
Bridge	IH 43/Pigeon River	Town of Sheboygan	Bridge
Bridge	IH 43/Superior Ave	Town of Sheboygan	Bridge
Bridge	IH 43/Superior Ave	Town of Sheboygan	Bridge
Bridge	IH 42/STH 23	Town of Sheboygan	Bridge
Bridge	IH 42/STH 23	Town of Sheboygan	Bridge
Bridge	IH 42/STH 23	Town of Sheboygan	Bridge
Bridge	CTH Y/Pigeon River	Town of Sheboygan	Bridge
Bridge	IH 43/STH 28	Town of Sheboygan	Bridge
Bridge	IH 43/STH 28	Town of Sheboygan	Bridge
Bridge	IH 43/CTH J	Town of Sheboygan	Bridge
Tower	1814 N 44th St	Town of Sheboygan	Communications
Wireless Tower	1814 N 44TH STREET	Town of Sheboygan	Communications
Wireless Tower	W1942 CTY J	Town of Sheboygan	Communications
Wireless Tower	5300 HWY 42	Town of Sheboygan	Communications
Electric Power Substations	4417 County Rd J	Town of Sheboygan	Electric
Town of Sheboygan Fire Dept	3911 County Rd Y	Town of Sheboygan	Fire/Rescue
Park Shelter	3805 CTH Y	Town of Sheboygan	Government
Town Hall	1512 N 40th St	Town of Sheboygan	Government
	534 S 28th St	Town of Sheboygan	Natural Gas
Town Highway Department	3770 Enterprise Dr	Town of Sheboygan	Public Works
Lift Station	1100 Riverview Dr	Town of Sheboygan	Sewage Treatment
Lift Station	5101 Blackstock Rd	Town of Sheboygan	Sewage Treatment
Lift Station	2101 Playbird Rd	Town of Sheboygan	Sewage Treatment
Lift Station	W1814 County Rd J	Town of Sheboygan	Sewage Treatment
Lift Station	4009 Erie Ave	Town of Sheboygan	Sewage Treatment
Lift Station	N 47th St	Town of Sheboygan	Sewage Treatment
Lift Station	Cardinal Dr	Town of Sheboygan	Sewage Treatment
Water Supply Well	5058 Lakeshore Rd	Town of Sheboygan	Water
Water Supply Well	3329 N 48th Pl	Town of Sheboygan	Water
Water Supply Well	5221 Superior Ave	Town of Sheboygan	Water

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Water Supply Well	5058 Lakeshore Rd	Town of Sheboygan	Water
Water Tower	3770 Enterprise Dr	Town of Sheboygan	Water
Water Tower	1512 N 40th St	Town of Sheboygan	Water
Sheboygan Co Memorial Airport	N6180 Resource Dr	Town of Sheboygan Falls	Airport
Bridge	STH 23/STH 32	Town of Sheboygan Falls	Bridge
Bridge	STH 23/STH 32	Town of Sheboygan Falls	Bridge
Bridge	CTH JM/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	CTH J/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	CTH M/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	CTH C/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	Rio Rd/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	CTH O/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	CTH M/Muller River	Town of Sheboygan Falls	Bridge
Bridge	Old County Rd PP/Mullet River	Town of Sheboygan Falls	Bridge
Bridge	Willow Rd/Mullet River	Town of Sheboygan Falls	Bridge
Bridge	Woodland Road/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	CTH PP/Unnamed Water	Town of Sheboygan Falls	Bridge
Bridge	Sumac Rd/Muller River	Town of Sheboygan Falls	Bridge
Bridge	Meadowlark Rd/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	Woodland Rd/Unnamed Water	Town of Sheboygan Falls	Bridge
Bridge	CTH O/Unnamed Water	Town of Sheboygan Falls	Bridge
Bridge	CTH TT/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	STH 23/Sheboygan River	Town of Sheboygan Falls	Bridge
Bridge	STH 23/Sheboygan River	Town of Sheboygan Falls	Bridge
Phone	N6853 State Hwy 32	Town of Sheboygan Falls	Communications
Radio?	N5764 CTH TT	Town of Sheboygan Falls	Communications
Tower	N5711 Willow Rd	Town of Sheboygan Falls	Communications
Tower	454 N Bluebird Ln	Town of Sheboygan Falls	Communications
Tower	N 6063 Willow Rd	Town of Sheboygan Falls	Communications
Johnsonville Dam	Sheboygan River	Town of Sheboygan Falls	Dam
Alliant Energy Peaker Plant	N5787 Bridgewood Rd	Town of Sheboygan Falls	Electric
Plymouth Utilities Substation No.3	N6025 Willow Rd	Town of Sheboygan Falls	Electric

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Johnsonville Fire Department	W4284 County RD JM	Town of Sheboygan Falls	Fire/Rescue
Sheboygan Falls Fire Dept	N5480 County Road TT	Town of Sheboygan Falls	Fire/Rescue
Boehlke Bottled Gas Corp	N5856 CTH M	Town of Sheboygan Falls	Fuel Storage
Town Hall	W 3860 CTH O	Town of Sheboygan Falls	Government
Johnsonville LLC	N6928 Johnsonville Way	Town of Sheboygan Falls	HazMat
Sheboygan Falls Energy Facility	N5787 Bridgewood Rd	Town of Sheboygan Falls	HazMat
Bains	W2220 County Rd O	Town of Sheboygan Falls	Manufactured Housing Community
	W3970 County Rd C	Town of Sheboygan Falls	Natural Gas
	Highland Rd	Town of Sheboygan Falls	Natural Gas
	Highland Rd	Town of Sheboygan Falls	Natural Gas
	N5876 Rangeline Rd	Town of Sheboygan Falls	Natural Gas
Bridge	CTH I/Silver Creek	Town of Sherman	Bridge
Bridge	CTH A/N Branch Milwaukee River	Town of Sherman	Bridge
Bridge	Silver Creek Cascade Rd/N Branch Milwaukee Ri	Town of Sherman	Bridge
Bridge	Silver Creek Cascade Rd/N Branch Milwaukee Ri	Town of Sherman	Bridge
Bridge	Camp Awana Rd/Silver Creek	Town of Sherman	Bridge
Bridge	CTH DE/Silver Creek	Town of Sherman	Bridge
Bridge	Creek Rd/Silver Creek	Town of Sherman	Bridge
Bridge	Creek Rd/Silver Creek	Town of Sherman	Bridge
Bridge	Abbott Dr/N Branch Milwaukee River	Town of Sherman	Bridge
Bridge	STH 144/Allen Rd-Railroad	Town of Sherman	Bridge
Tower	W4698 County Rd D	Town of Sherman	Communications
Vorphal Radio Tower	N702 CTH CC	Town of Sherman	Communications
Dam	North Branch Milwaukee River	Town of Sherman	Dam
Silver Creek Fire Department	W6566 Highway 144	Town of Sherman	Fire/Rescue
Country Vision Cooperative	W5274 CTH K	Town of Sherman	Fuel Storage
Town Hall	W6566 State Hwy 144	Town of Sherman	Government
	Wolf Rd	Town of Sherman	Natural Gas
Bridge	S Business Dr/Railroad	Town of Wilson	Bridge

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Bridge	S 12th St/Unnamed Water	Town of Wilson	Bridge
Bridge	IH 43/Railroad	Town of Wilson	Bridge
Bridge	IH 43/Railroad	Town of Wilson	Bridge
Bridge	IH 43/Weeden Creek Rd	Town of Wilson	Bridge
Bridge	IH 43/Weeden Creek Rd	Town of Wilson	Bridge
Bridge	CTH A/Weedens Creek	Town of Wilson	Bridge
Bridge	IH 43/CTH V	Town of Wilson	Bridge
Bridge	IH 43/CTH V	Town of Wilson	Bridge
Bridge	IH 43/Wilson Lima Rd	Town of Wilson	Bridge
Bridge	IH 43/Wilson Lima Rd	Town of Wilson	Bridge
Bridge	W Evergreen Dr/Black River	Town of Wilson	Bridge
Bridge	Stahl Rd/Weedens Creek	Town of Wilson	Bridge
Bridge	Old Park Rd/Black River	Town of Wilson	Bridge
Bridge	Wilson Lima Rd/Black River	Town of Wilson	Bridge
Bridge	Indian Mound Rd/Black River	Town of Wilson	Bridge
Bridge	Town Line Rd/IH 43	Town of Wilson	Bridge
Tower	5217 County Rd A	Town of Wilson	Communications
Wireless Tower	5702 WILSON LIMA RD	Town of Wilson	Communications
Electric Power Substations	S Business Dr	Town of Wilson	Electric
Wilson-Black River Fire Department	5536 Evergreen DR	Town of Wilson	Fire/Rescue
Aldrich Chemical Co	5485 CTH V	Town of Wilson	Fuel Storage
Town Hall	5933 South Business Dr	Town of Wilson	Government
Glacier Transit & Storage	4910 Frontage Rd	Town of Wilson	HazMat
Millapore-Sigma (Aldrich Chemical)	5485 County Road V	Town of Wilson	HazMat
County Highway Department	7614 Frontage Rd	Town of Wilson	Public Works
Aldrich Station	5436 County Rd V	Town of Wilson	Water
Curtis Station	300 Wahgouly Rd	Town of Wilson	Water
KK Station	1200 Stahl Rd	Town of Wilson	Water
Lakeshore Station	4300 Lakeshore Dr	Town of Wilson	Water
Schinker Creek Station	1606 County Rd V	Town of Wilson	Water
Adell Fire Department	508 Seifert Street	Village of Adell	Fire/Rescue
Village Hall	508 Seifert Street	Village of Adell	Government

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Adell Cooperative Union	707 Mill St	Village of Adell	HazMat
Milk Specialities Global	627 Maine Ave	Village of Adell	HazMat
	Edgewood Ave	Village of Adell	Natural Gas
Adell Ingredients	503 Mill St	Village of Adell	Sewage Treatment
Water Supply Well	Adell Ave	Village of Adell	Water
Water Tower	608 Tower Ave	Village of Adell	Water
Tower	N3191 Bates Rd	Village of Cascade	Communications
Dam	North Branch Milwaukee River	Village of Cascade	Dam
Cascade Fire Dept	501 Milwaukee Ave	Village of Cascade	Fire/Rescue
Village Hall	301 1st St	Village of Cascade	Government
Village of Cascade Well #1	303 1st St	Village of Cascade	HazMat
	601 Milwaukee Ave	Village of Cascade	Natural Gas
Cascade	N3191 Bates Rd	Village of Cascade	Sewage Treatment
Water Supply Well	301 1st St	Village of Cascade	Water
Water Tower	Lake St	Village of Cascade	Water
Cedar Grove Gardens I	606 W Van Altena Ave	Village of Cedar Grove	Assisted Living Facilities
Cedar Grove Gardens II	626 W Van Altena Ave	Village of Cedar Grove	Assisted Living Facilities
Bridge	CTH RR/Railroad	Village of Cedar Grove	Bridge
Phone	254 S Main St	Village of Cedar Grove	Communications
Cedar Grove Fire Dept	306 S Main St	Village of Cedar Grove	Fire/Rescue
Village Hall	22 E Willow Dr	Village of Cedar Grove	Government
Aurora	313 S Main St	Village of Cedar Grove	Hospital/Clinic
Cedar Grove-Belgium El/Mid/Hi	321 N 2nd St	Village of Cedar Grove	School
Cedar Grove Sewage Treatment	State Hwy 32	Village of Cedar Grove	Sewage Treatment
Water Supply Well	22 E Willow Ave	Village of Cedar Grove	Water
Water Supply Well	W Union Ave	Village of Cedar Grove	Water
Water Tower	131 W Vanaltena Ave	Village of Cedar Grove	Water
Phone	74 Square St	Village of Elkhart Lake	Communications
Wireless Tower	210 N LINCOLN ST	Village of Elkhart Lake	Communications
Wireless Tower	633B ARBOR DRIVE	Village of Elkhart Lake	Communications
Wireless Tower	N7390 Highway 67	Village of Elkhart Lake	Communications
Dam	Elkhart Lake	Village of Elkhart Lake	Dam
WI Electric Power Repair	220 N Lincoln St	Village of Elkhart Lake	Electric
Elkhart Lake Fire Station	610 S Lincoln St	Village of Elkhart Lake	Fire/Rescue
Village Hall	40 Pine St	Village of Elkhart Lake	Government
Elkhart Lake Water Utility	81 N East St	Village of Elkhart Lake	HazMat

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Elkhart LAke Water Utility Well #3	633 Arbor Dr	Village of Elkhart Lake	HazMat
Elkhart Lake Police Dept	40 Pine St/81 N East St	Village of Elkhart Lake	Law Enforcement
	300 E Maple St	Village of Elkhart Lake	Natural Gas
County Highway Department	604 S Lincoln St	Village of Elkhart Lake	Public Works
Department of Public Works	51 E Maple St	Village of Elkhart Lake	Public Works
Elkhart Lake El/Mid	251 E Maple St	Village of Elkhart Lake	School
Elkhart Lake Hi	201 N Lincoln St	Village of Elkhart Lake	School
Water Supply Well	81 N East St	Village of Elkhart Lake	Water
Water Tower	201 N Lincoln St	Village of Elkhart Lake	Water
Water Tower/Well	633B Arbor Dr	Village of Elkhart Lake	Water
Bridge	S Swift St/Mullet River	Village of Glenbeulah	Bridge
Glenbeulah Fire Dept	110 N Swift St	Village of Glenbeulah	Fire/Rescue
Village Hall	110 N Swift St	Village of Glenbeulah	Government
Northern Moraine Utility	N7025 County Rd P	Village of Glenbeulah	Sewage Treatment
Harvest Home Senior Living Services	2005 Appletree Rd	Village of Howards Grove	Assisted Living Facilities
Harvest Home Senior Living Services	2004 Appletree Rd	Village of Howards Grove	Assisted Living Facilities
Harvest Home Senior Living Services	2003 Appletree Rd	Village of Howards Grove	Assisted Living Facilities
Harvest Home Senior Living Services	2002 Appletree Rd	Village of Howards Grove	Assisted Living Facilities
Bridge	Oriole Ln/Pigeon River	Village of Howards Grove	Bridge
Bridge	Madison Ave/Pigeon River	Village of Howards Grove	Bridge
Bridge	Roosevelt Rd/Pigeon River	Village of Howards Grove	Bridge
Bridge	Millersville Ave/Pigeon River	Village of Howards Grove	Bridge
Bridge	S Wisconsin Dr/Fisher Creek	Village of Howards Grove	Bridge
Phone	532 N Wisconsin Dr	Village of Howards Grove	Communications
Wireless Tower	1110 ALOCTT AVE	Village of Howards Grove	Communications
Howards Grove Fire Dept	1013 S Wisconsin Dr	Village of Howards Grove	Fire/Rescue
Village Hall	913 S Wisconsin Dr	Village of Howards Grove	Government
Howards Grove Hi	401 Audubon Rd	Village of Howards Grove	School
Howards Grove Mid	506 Kennedy Ave	Village of Howards Grove	School
Northview El	902 Tyler Rd	Village of Howards Grove	School
Saint Pauls Lutheran	441 Millersville Ave	Village of Howards Grove	School

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Howards Grove Sanitary District	1111 Alcott Ave	Village of Howards Grove	Sewage Treatment
Bridge	Woodland Rd/STH 23	Village of Kohler	Bridge
Bridge	STH 28/Weedons Creek	Village of Kohler	Bridge
Bridge	Railroad/Unnamed Water	Village of Kohler	Bridge
Bridge	Highland Dr/STH 23	Village of Kohler	Bridge
Bridge	IH 43/Unnamed Water	Village of Kohler	Bridge
Wireless Tower	419 HIGHLAND DR	Village of Kohler	Communications
Wireless Tower	500 Highland Drive	Village of Kohler	Communications
Wireless Tower	444 Highland Dr	Village of Kohler	Communications
Dam	Sheboygan River	Village of Kohler	Dam
Dam	Sheboygan River	Village of Kohler	Dam
Electric Power Substations	444 Highland Dr	Village of Kohler	Electric
Kohler Fire Dept	289 Highland Dr	Village of Kohler	Fire/Rescue
Kohler Memorial Building	260 School St	Village of Kohler	Government
Village Hall	319 Highland Dr	Village of Kohler	Government
Kohler Company	444 Highland Dr	Village of Kohler	HazMat
Prevea Clinic	950 Woodlake Rd	Village of Kohler	Hospital/Clinic
Kohler Police Dept	319 Highland Dr	Village of Kohler	Law Enforcement
Fenwood Storage Building/Salt Shed	1500 W Riverside Dr	Village of Kohler	Public Works
Fenwood Salt Sheds	1500 W Riverside Dr	Village of Kohler	Public Works
Fenwood Water Department Building	1500 W Riverside Dr	Village of Kohler	Public Works
Public Works Garage	219 Highland Dr	Village of Kohler	Public Works
Kohler El/Mid/Hi	333 Upper Rd	Village of Kohler	School
Fenwood Main Wastewater Pump Station	1500 W Riverside Dr	Village of Kohler	Water
Sports Core Wastewater Pump Station	930 Woodlake Rd	Village of Kohler	Water
Sunset Wastewater Pump Station	6435 Sunset Rd	Village of Kohler	Water
Water Tower	444 Highland Dr	Village of Kohler	Water
Water Tower	444 Highland Dr	Village of Kohler	Water
Water Tower	444 Highland Dr	Village of Kohler	Water
Water Tower Booster Pump Station	444 Highland Dr	Village of Kohler	Water
Pine Haven Christian Home	701 Pine Dr	Village of Oostburg	Assisted Living Facilities
Bridge	IH 43/Center Ave	Village of Oostburg	Bridge

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Communication Facility on Water Tower	522 Michigan Ave	Village of Oostburg	Communications
Phone	1029 Center Ave	Village of Oostburg	Communications
Tower	32 Enterprise Ct	Village of Oostburg	Communications
Electric Power Substations	S 10th St	Village of Oostburg	Electric
Oostburg Fire Dept	1130 Superior Ave	Village of Oostburg	Fire/Rescue
Ferrellgas Co	330 N 9th St	Village of Oostburg	Fuel Storage
Village Offices	927 Center Ave	Village of Oostburg	Government
Masters Gallery Foods	621 N Business Park Dr	Village of Oostburg	HazMat
Oostburg Christian	101 S 7th St	Village of Oostburg	School
Oostburg El	203 N 7th St	Village of Oostburg	School
Oostburg Hi	410 New York Ave	Village of Oostburg	School
Oostburg Mid	408 New York Ave	Village of Oostburg	School
Oostburg	816 N 10 St	Village of Oostburg	Sewage Treatment
Water Supply Well	513 Center Ave	Village of Oostburg	Water
Water Supply Well	539 S Business Park Dr	Village of Oostburg	Water
Water Tower	522 Michigan Ave	Village of Oostburg	Water
Gables on the Pond I & II	305 & 305A S Spring St	Village of Random Lake	Assisted Living Facilities
Bridge	STH 144/Silver Creek	Village of Random Lake	Bridge
Bridge	Hickory Dr/Unnamed Water	Village of Random Lake	Bridge
Tower	W4923 State Hwy 144	Village of Random Lake	Communications
Dam	Random Lake	Village of Random Lake	Dam
Random Lake Fire Department	718 N Spring St	Village of Random Lake	Fire/Rescue
Village Hall	96 Russell Dr	Village of Random Lake	Government
Krier Foods Inc	551 Krier Ln	Village of Random Lake	HazMat
Lakeside Foods Inc	709 Allen St	Village of Random Lake	HazMat
Random Lake Wastewater Treatment Plant	690 Wolf Rd	Village of Random Lake	HazMat
Aurora	110 Butler St	Village of Random Lake	Hospital/Clinic
	W4923 State Hwy 144	Village of Random Lake	Natural Gas
Random Lake El/Mid/Hi	605 Random Lake Rd	Village of Random Lake	School
St John Lutheran	W5407 County Road SS	Village of Random Lake	School
Random Lake	690 Wolf Rd	Village of Random Lake	Sewage Treatment
Water Tower	600 Butler St	Village of Random Lake	Water
Well	701 North St	Village of Random Lake	Water
Well	100 Lake Dr	Village of Random Lake	Water
Bridge	W 1st St/Unnamed Water	Village of Waldo	Bridge

Table D.1: Critical Facilities by Community, Sheboygan County (Continued)

NAME	ADDRESS	MCD	TYPE
Bridge	N Mill St/Onion River	Village of Waldo	Bridge
Bridge	W 1st St/Unnamed Water	Village of Waldo	Bridge
Bridge	N Depot St/Unnamed Water	Village of Waldo	Bridge
Wireless Tower	417 E FIRST ST	Village of Waldo	Communications
Dam	Onion River	Village of Waldo	Dam
Electric Power Substations	S Mill St	Village of Waldo	Electric
Waldo Fire Department	810 W 2nd ST	Village of Waldo	Fire/Rescue
Waldo Oil	827 W 1st St	Village of Waldo	Fuel Storage
Village Hall	301 1st St	Village of Waldo	Government
	W 1st St	Village of Waldo	Natural Gas
Waldo Wastewater Utility	N Mill St	Village of Waldo	Sewage Treatment
Water Tower	W 1st St	Village of Waldo	Water

APPENDIX E – HAZARD RISK ASSESSMENT SURVEY AVERAGE SCORES

The steering committee for the *Sheboygan County Hazard Mitigation Plan 2020 - 2025* was asked to rate natural and man-made hazards in the spring of 2019. This information was used to prioritize these hazards.

Table E.1 shows the average scores for each natural and man-made hazard from this rating exerc

. TABLE E.1

SHEBOYGAN COUNTY HAZARD RISK ASSESSMENT MATRIX

1	2	3	4	5	6	7	8	9	10	11	12
Hazard Identification	**Hazard Frequency**	**Hazard Probability**	**Health & Public Safety**	**Home Damage**	**Business Disruption**	**Public Expenditures**	**Magnitude of Population at Risk**	**Magnitude of Homes at Risk**	**Magnitude of Businesses at Risk**	**Risk Assessment Rating Total**	**Average Rating**
Hazard Type	*Frequency of past hazard occurrences*	*Probability of hazard occurring in the future*	*Degree of past hazard events causing injuries, sickness and/or deaths*	*Degree of past hazard events causing damage to homes*	*Degree of past hazard events causing damage to business and/or interruption of business trade*	*Amount of local, state, and federal funds expended on past hazard recovery activities*	*Amount of population still vulnerable to injury, sickness, and/or death from hazard*	*Amount of homes still vulnerable to damage from hazard*	*Amount of businesses still vulnerable to damage or interruption of business trade*		
	1, 2 or 3	*1, 2 or 3*	*1, 2 or 3*	*1, 2 or 3*	*1, 2 or 3*	*1, 2 or 3*	*1, 2 or 3*	*1, 2 or 3*	*1, 2 or 3*		
Flooding (including flash, riverine, lake, stormwater, and dam failure flooding)	26	31	19	32	27	29	21	25	25	235	18
Lightning Storms and Thunderstorms (including hail storms)	29	29	13	21	19	17	15	21	19	183	14
Tornadoes/High Winds	27	27	21	26	24	26	24	26	26	227	17
Winter Storms (includes heavy snow storms, ice storms and blizzards)	32	33	21	16	24	21	18	18	20	203	16
Wildland Fires	17	18	15	15	15	14	15	15	15	139	11
Drought	15	16	16	16	16	15	15	15	16	140	11
Extreme Heat	16	18	18	15	14	14	15	14	14	138	11
Extreme Cold	22	23	17	15	16	14	14	14	15	150	12
Fog	28	28	22	15	15	16	17	15	15	171	13
Coastal Hazards	22	23	21	16	16	17	16	15	15	161	12
Landslide	15	15	15	16	15	16	16	15	15	138	11
Subsidence	14	14	14	14	14	14	14	14	14	126	11
Hazardous Materials	20	23	22	14	19	17	19	15	18	167	13
Water Supply Contamination	17	17	17	13	15	14	20	17	18	148	11
Communicable Diseases	19	20	19	14	18	21	21	14	16	162	12
Violence	17	17	15	13	14	13	15	14	14	132	10
Cybersecurity*	9	10	5	5	8	7	5	7	12	68	14

*Cybersecurity was rated following all other natural and man-made hazards. While 13 steering committee members rated most hazards, only five steering committee members rated the cybersecurity hazard.

Source: Sheboygan County Hazard Mitigation Plan Update Steering Committee, 2019; and Bay-Lake Regional Planning Commission, 2019.

APPENDIX F – COMMUNITY RESOLUTIONS OF ADOPTION

The following are copies of resolutions of adoption by participating incorporated jurisdictions within Sheboygan County.

Community Resolutions of Adoption (Reserved)

BAY-LAKE REGIONAL PLANNING COMMISSION

Commission Members

BROWN COUNTY
Vacant

DOOR COUNTY
Ken Fisher

FLORENCE COUNTY
Edwin Kelley
Larry Neuens
Rich Wolosyn

KEWAUNEE COUNTY
Tom Romdenne
Mary Ellen Dobbins
Vacant

MANITOWOC COUNTY
Dan Koski, Secretary/Treasurer
James Falkowski
Marc Holsen

MARINETTE COUNTY
Ann Hartnell
Michael Kunesh
Thomas Mandli

OCONTO COUNTY
Terry Brazeau, Vice-Chairperson
Karl Ballestad
Dennis Kroll

SHEBOYGAN COUNTY
Mike Hotz, Chairperson
Ed Procek
Brian Yerges

Staff

CINDY J. WOJTCZAK
Executive Director
cwojtczak@baylakerpc.org

BRANDON G. ROBINSON
Principal Planner
brobinson@baylakerpc.org

JEFFREY AGEE-AGUAYO
Transportation Planner
jagee@baylakerpc.org

NICOLE BARBIAUX
GIS Specialist
nbarbiaux@baylakerpc.org

HARRY GRAHAM
Community Assistance Planner
hgraham@baylakerpc.org

EMILY J. PIERQUET
Administrative Assistant
letsplan@baylakerpc.org

MADISON A. SMITH
Environmental Planner
msmith@baylakerpc.org

SYDNEY SWAN
Economic Development Planner
sswan@baylakerpc.org

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Resolution adopting the Sheboygan County, Wisconsin Hazard Mitigation Plan 2020-2025.

REPORT PREPARED BY: David H. Biebel, Director of Public Works

REPORT DATE: December 10, 2020 **MEETING DATE:** December 15, 2020

FISCAL SUMMARY:

Budget Line Item:	N/A
Budget Summary:	N/A
Budget Expenditure:	N/A
Budgeted Revenue:	N/A

STATUTORY REFERENCE:

Wisconsin Statues:	N/A
Municipal Code:	N/A

BACKGROUND / ANALYSIS: The primary focus of the Sheboygan County Hazard Mitigation Plan 2020-2025 is to re-evaluate the planning area's potential exposure to hazards and to identify appropriate mitigation strategies. Consistent with federal regulations (44 CFR Part 201.6). Completing and approving this plan is necessary to maintain Sheboygan County's eligibility to apply for future FEMA disaster relief and mitigation project funds, enabling the county to implement mitigation strategies.

STAFF COMMENTS: The Department of Public Works is pursuing a FEMA Grant that is due in January 2021, and the plan must be adopted before the grant is submitted.

ACTION REQUESTED: Motion to recommend the Common Council adopt Res. No. 132-20-21 resolution adopting the Sheboygan County, Wisconsin Hazard Mitigation Plan 2020-2025.

ATTACHMENTS:

I. Res. No. 132-20-21
II. Sheboygan County Wisconsin Hazard Mitigation Plan 2020-2025

7.2

Gen. Ord. No. 21 - 20 - 21. By Alderpersons Dekker and Sorenson.
December 7, 2020.

AN ORDINANCE amending Sections 122-403, 122-404, and 122-405 of the Municipal Code relating to sewers and sewerage disposal so as to make changes to service charges.

THE COMMON COUNCIL OF THE CITY OF SHEBOYGAN DO ORDAIN AS FOLLOWS:

Section 1. Section 122-403 of the Municipal Code entitled, "Categories of Users; Amounts; Reassignment - City of Sheboygan," is hereby amended to read as follows:

"Sec. 122-403. *Categories of Users; Amounts; Reassignment - City of Sheboygan.*

(a) *Category A.* Category A users of the City Wastewater treatment system shall be subject to the following:

(1) *Definition*: The term "category A" is defined as normal domestic strength wastewater, that is, wastewater having concentrations of biochemical oxygen demand (BOD) no greater than 171 mg/l, suspended solids no greater than 435 mg/l, and total phosphorus no greater than 7.05 mg/l.

(2) *Amount*: The sewer service charge for category A wastewater is as follows:

a. Fixed charge, $49.00 per quarter.
b. Volume charge, $1.95 total charge per 100 cubic feet.

(b) *Category B.* Category B users of the City Wastewater treatment system shall be subject to the following:

(1) *Definition*: The term "category B" is defined as wastewater having concentrations of biochemical oxygen demand greater than 171 mg/l, suspended solids greater than 435 mg/l, and phosphorous greater than 7.05 mg/l. Users whose wastewater exceeds the concentrations for any one of these parameters shall be in category B. The minimum category B charge will be based on a concentration of not less than 171 mg/l for BOD, 435 mg/l for suspended solids, and 7.05 mg/l for phosphorous.

PW

(2) *Amount:* The sewer service charge for category B wastewater is as follows:

a. Fixed Charge - $49.00 per quarter;

b. If billing is on a monthly basis, $16.33 per month.

c. Volume Charge, $1.95 per 100 cubic feet.

d. Surcharge, total (per pound):

1. BOD greater than 171 mg/L, $0.2955.

2. Suspended Solids greater than 435 mg/l, $0.2069.

3. Phosphorus greater than 7.05 mg/l, $5.3988.

(3) *Computation.* The category B sewer service charges for volume, BOD, suspended solids and phosphorus shall be computed in accordance with the following formula:

$$C = F + (V \times C^V) + .00624V[(B - B^R \times C^B) + (S - S^R \times C^S) + (P - P^R \times C^P)]$$

Where:

Table 1

C	=	Charge to sewer user for collection and treatment of wastewater
F	=	Fixed charge per billing period
B	=	Concentration of BOD in mg/l in the wastewater
B^R	=	Concentration of BOD in mg/l as defined for Category A users
S	=	Concentration of suspended solids in mg/l in the wastewater
S^R	=	Concentration of suspended solids in mg/l as defined for Category A users
P	=	Concentration of phosphorus in mg/l in the wastewater
P^R	=	Concentration of phosphorus in mg/l as defined for Category A users
V	=	Wastewater volume (per 100 cubic feet for Category B users; per 1000 gallons for Category C users)
C^V	=	Cost per volume of wastewater (per 100 cubic feet for Category B users; per 1000 gallons for Category C users)
C^B	=	Cost per pound of BOD
C^S	=	Cost per pound of suspended solids
C^P	=	Cost per pound of phosphorus
.00624	=	Conversion factor

(c) *Reassignment of users.* The city approving authority will reassign sewer users into appropriate sewer service charge categories if wastewater sampling programs and other related information indicate a change of categories is necessary.

(d) *Sampling requirement.* Sampling frequency for category B users to determine concentrations of BOD, suspended solids, total phosphorus and pH shall be determined by the wastewater discharge loading by the industry. Results of all analyses shall be submitted to the wastewater treatment plant superintendent. Sampling shall be conducted as follows:

(1) Samples collected shall be flow-proportional 24-hour composite samples.

(2) Sampling periods shall be two consecutive days during normal operation.

(3) Flow-weighted average may be used if data is presented.

(4) Samples shall be analyzed for BOD, suspended solids, and total phosphorus.

(5) Sampling frequency shall be quarterly or more frequently as determined by the superintendent of the wastewater treatment plant. The quarterly sampling periods shall be during the months of January through March, April through June, July through September, and October through December.

(6) All data shall be submitted to the superintendent of the wastewater treatment plant."

Section 2. Section 122-404 of the Sheboygan Municipal Code entitled "Categories of users; amounts; reassignment for other municipalities" is hereby amended to read as follows:

"Sec. 122-404. *Categories of users; amounts; reassignment for other municipalities.*

Other municipal users shall be charged pursuant to the guidelines established under this section.

Table 2

	Village of Kohler	City of Sheboygan Falls	Town of Sheboygan Sanitary District No. 2	Town of Wilson Sanitary District	
				No. 1	No. 2
Fixed Charge	None	None	None	None	None
Volume Charge:					
Volume	$0.5394	$0.5394	$0.5394	$0.5394	$0.5394
Debt retirement	0.0519	0.0519	0.0519	0.0519	0.0519
Total volume charge, per 1,000 gallons:	0.5913	0.5913	0.5913	0.5913	0.5913
Surcharges (per pound):					
BOD	0.2955	0.2955	0.2955	0.2955	0.2955
Suspended Solids	0.2069	0.2069	0.2069	0.2069	0.2069
Phosphorus	5.3988	5.3988	5.3988	5.3988	5.3988 "

Section 3. Section 122-405 of the Sheboygan Municipal Code entitled "Charges for disposal of septic tank sludge, holding tank sewerage, or hauled wastewater" is hereby amended to read as follows:

"Sec. 122-405. *Charges for disposal of septic tank sludge, holding tank sewerage, or hauled wastewater.*

Category C. Category C users are persons with a permit for disposing of hauled wastewater into the wastewater collection and treatment facilities and shall be subject to the following charges and requirements:

(a) Septic tank sludge, $48.00 per 1,000 gallons.

(b) Holding tank sewage, $10.00 per 1,000 gallons.

(c) "Other" hauled wastewater:

(1) Hauled wastewater shall be sampled and characterized on the basis of suspended solids, BOD, total phosphorous, and pH. Frequency of sampling shall be based on experience and under the direction of the superintendent of the wastewater treatment plant.

(2) *Amount:* The sewer service charge for "Other" hauled wastewater is as follows:

a. Volume Charge, $0.5913 per 1000 gallons.

b. Surcharge, total (per pound):

1. $0.2955 per pound of BOD

2. $0.2069 per pound of suspended solids

3. $5.3988 per pound of phosphorus

(3) Computation. The "Other" hauled wastewater service charges for volume, BOD, suspended solids, and phosphorus shall be computed in accordance with the following formula and paragraphs a and b of this subsection or in accordance with section c of this subsection.

$$C = (V \times C^{V}) + (B \times C^{B}) + (S \times C^{S}) + (P \times C^{P})$$

See Table 1 Section 122-403(b)(3) for definitions.

a. "Other" hauled wastewater analysis data shall be applied to the formula set forth above.

b. The discharge fee per 1,000 gallons shall be determined on the result of subsection (c)(3)a. of this section, multiplied by 1.25.

c. Charges for high strength waste will be determined by the superintendent of the wastewater treatment plant based on the frequency of the hauled wastewater and the needs of the wastewater treatment plant."

Section 4. All ordinances or parts thereof in conflict with the provisions of this ordinance are hereby repealed to the extent of such conflict, and this ordinance shall be in effect from and after its passage and publication.

_____

_____

I HEREBY CERTIFY that the foregoing Ordinance was duly passed by the Common Council of the City of Sheboygan, Wisconsin, on the _____ day of _____, 20____.

Dated_____ 20____. _____, City Clerk

Approved_____ 20____. _____, Mayor

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Ordinance re-establishing the bulkhead line along the north side of the Sheboygan River in the City of Sheboygan.

REPORT PREPARED BY: Chad Pelishek, Director of Planning and Development

REPORT DATE: December 9, 2020 **MEETING DATE:** December 15, 2020

FISCAL SUMMARY:

Budget Line Item:	N/A
Budget Summary:	N/A
Budget Expenditure:	N/A
Budgeted Revenue:	N/A

STATUTORY REFERENCE:

Wisconsin Statues:	N/A
Municipal Code:	N/A

BACKGROUND / ANALYSIS: The Common Council has approved two prior versions of the bulkhead ordinance along Broughton Drive, the Marina, and the Sheboygan River. Both of those versions were shared with the Wisconsin Department of Natural Resources (DNR). Based on conversations with DNR, it was determined that the areas along the lakeshore are already in public trust, and establishing a bulkhead in this area is not necessary. The DNR recommended we establish a bulkhead line along the Sheboygan River because in the future, should we need to maintain the sheet pile wall, we would not need to obtain DNR permission.

Therefore, City staff had our consultant Terra Tech legally describe a six-foot offset line along the north wall of the Sheboygan River.

STAFF COMMENTS: None

ACTION REQUESTED: Motion to recommend to the Common Council adopt Gen. Ord. 28-20-21 re-establishing the bulkhead line along the north side of the Sheboygan River in the City of Sheboygan.

ATTACHMENTS:

I. Gen. Ord. No. 28-20-21

7.2

Gen. Ord. No. 21 - 20 - 21. By Alderpersons Dekker and Sorenson.
December 7, 2020.

AN ORDINANCE amending Sections 122-403, 122-404, and 122-405 of the Municipal Code relating to sewers and sewerage disposal so as to make changes to service charges.

THE COMMON COUNCIL OF THE CITY OF SHEBOYGAN DO ORDAIN AS FOLLOWS:

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(2) *Amount*: The sewer service charge for category A wastewater is as follows:

a. Fixed charge, $49.00 per quarter.
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(b) *Category B.* Category B users of the City Wastewater treatment system shall be subject to the following:

(1) *Definition*: The term "category B" is defined as wastewater having concentrations of biochemical oxygen demand greater than 171 mg/l, suspended solids greater than 435 mg/l, and phosphorous greater than 7.05 mg/l. Users whose wastewater exceeds the concentrations for any one of these parameters shall be in category B. The minimum category B charge will be based on a concentration of not less than 171 mg/l for BOD, 435 mg/l for suspended solids, and 7.05 mg/l for phosphorous.

PW

(2) *Amount:* The sewer service charge for category B wastewater is as follows:

a. Fixed Charge - $49.00 per quarter;

b. If billing is on a monthly basis, $16.33 per month.

c. Volume Charge, $1.95 per 100 cubic feet.

d. Surcharge, total (per pound):

1. BOD greater than 171 mg/L, $0.2955.

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(3) *Computation.* The category B sewer service charges for volume, BOD, suspended solids and phosphorus shall be computed in accordance with the following formula:

$$C = F + (V \times C^V) + .00624V[(B - B^R \times C^B) + (S - S^R \times C^S) + (P - P^R \times C^P)]$$

Where:

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See Table 1 Section 122-403(b)(3) for definitions.

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b. The discharge fee per 1,000 gallons shall be determined on the result of subsection (c)(3)a. of this section, multiplied by 1.25.

c. Charges for high strength waste will be determined by the superintendent of the wastewater treatment plant based on the frequency of the hauled wastewater and the needs of the wastewater treatment plant."

Section 4. All ordinances or parts thereof in conflict with the provisions of this ordinance are hereby repealed to the extent of such conflict, and this ordinance shall be in effect from and after its passage and publication.

_____

_____

I HEREBY CERTIFY that the foregoing Ordinance was duly passed by the Common Council of the City of Sheboygan, Wisconsin, on the _____ day of _____, 20____.

Dated_____ 20____. _____, City Clerk

Approved_____ 20____. _____, Mayor

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Ordinance amending Sections 122-403, 122-404, and 122-405 of the Municipal Code relating to sewers and sewerage disposal so as to make changes to service charges.

REPORT PREPARED BY: Steve Jossart, Superintendent of Wastewater

REPORT DATE: November 13, 2019 **MEETING DATE:** December 15, 2020

FISCAL SUMMARY:

Budget Line Item:	N/A
Budget Summary:	N/A
Budget Expenditure:	N/A
Budgeted Revenue:	N/A

STATUTORY REFERENCE:

Wisconsin Statues:	N/A
Municipal Code:	122-403,122-404,122-405

BACKGROUND / ANALYSIS: The referenced ordinance amendments include the 2021 User Charge Rates for users of the City of Sheboygan's sanitary sewers and wastewater treatment plant, as well as charges to the satellite communities. The amended sections also define the concentration of normal domestic strength wastewater.

STAFF COMMENTS: The present rates are adequate to support the operation of the wastewater treatment plant and sanitary sewer system. For 2021, the fixed charge will remain flat, while the volume charge will be increased by approximately 15% for an overall increase of 5.4%.

ACTION REQUESTED: Motion to recommend the Common Council adopt Gen. Ord. No. 27-20-21 amending Sections 122-403, 122-404, and 122-405 of the Municipal Code relating to sewers and sewerage disposal so as to make changes to service charges.

ATTACHMENTS:

I. Gen. Ord. No. 27-20-21