### **OPERATIONS & ADMINISTRATIVE COMMITTEE AGENDA**

**Called by:** Keith McDonald, Chairman **Members:** Paul Arena, John Butitta, Valerie Hanserd, Joe Hoffman, Jaime Salgado, Michael Thompson **DATE:** THURSDAY, FEBRUARY 6, 2025 **TIME:** 5:30 PM

LOCATION: ROOM 303 COUNTY ADMINISTRATION BLDG 404 ELM STREET ROCKFORD, IL 61101

### **AGENDA:**

- A. Call to Order
- B. Roll Call
- C. Approval of Minutes January 16, 2025
- D. Public Comment This is the time we invite the public to address the Operations and Administrative Committee with issues and concerns. We ask you to limit your comments to three minutes. Personal attacks or inappropriate language of any sort will not be tolerated. We will allow a maximum of five speakers on a first come basis with sign up at the meeting. Speakers may not address zoning matters which are pending before the ZBA, the Zoning Committee or the County Board. Personnel matters or pending or threatened litigation may not be addressed in open session. An individual may speak a maximum of three times per calendar year on the same topic. This prohibition shall include the repetition of the same topic in a statement on what is purported to be a different topic. After acknowledgement by the chair, please stand and state your name. Thank you.
- E. Resolution to Award Mail-In Ballot Services
- F. Discuss Winnebago County Small Community Water Security Assessment Report
- G. Discuss Public Safety Building Design-Build Project Update
- H. Discuss Purchasing Ordinance State Statute Update
- I. Discuss Waste Management Contract Update
- J. Future Agenda Items
- K. Adjournment

### Winnebago County Board Operations and Administrative Committee Meeting County Administration Building 404 Elm Street, Room 303 Rockford, IL 61101

Thursday, January 16, 2025 5:30 PM

### Present:

Keith McDonald, Chairperson Paul Arena Valerie Hanserd Joe Hoffman Jaime Salgado Michael Thompson

Absent:

John Butitta

### Others Present:

Patrick Thompson, County Administrator
Steve Schultz, Chief Financial Officer
Lafakeria Vaughn, State's Attorney's Office
Chris Dornbush, Chief Operations Officer
Shawn Franks, Director, Facilities
Dan Magers, IT Department
Theresa Grennan, Treasurer's Office
Rick Ciganek, WCSO
Ryan Heavin, WCSO
Dominic Barcellona, Retired Deputy Chief WCSO

### AGENDA:

- A. Call to Order
- B. Roll Call
- C. Approval of Minutes December 5, 2024
- D. Public Comment This is the time we invite the public to address the Operations and Administrative Committee with issues and concerns. We ask you to limit your comments to three minutes. Personal attacks or inappropriate language of any sort will not be tolerated. We will allow a maximum of five speakers on a first come basis with sign-up at the meeting. Speakers may not address zoning matters which are pending before the ZBA, the Zoning Committee or the County Board. Personnel matters or pending or threatened litigation may not be addressed in open session. An individual may speak a maximum of three times per calendar year on the same topic. This prohibition shall include the repetition of the same topic in a statement on what is purported to be a different topic. After acknowledgment by the chair, please stand and state your name. Thank you.
- E. Resolution Awarding Air Duct Cleaning for County Administration Building Using CIP 2024 Funds Cost: \$34,800
- F. Resolution Awarding Purchase of Two Detective Squad Vehicles for Sheriff's Office Using CIP-PSST 2025 Funds Cost: \$ 111,304
- G. Resolution Awarding Purchase of Two Civil Process Squad Vehicles for Sheriff's Office Using CIP-PSST 2025 Funds Cost: \$111,909

- H. Resolution Awarding Purchase of Six Patrol Vehicles for Sheriff's Office Using CIP-PSST 2025 Funds Cost: \$430,575
- I. Resolution Awarding VMWare Annual Licensing Annual Cost: \$17,608 3-Year Renewal Cost: \$52,823
- J. Future Agenda Items
- K. Adjournment

Chairperson McDonald called the meeting to order at 5:30 PM.

### **Roll Call**

Chairperson McDonald yes, Mr. Arena yes, Ms. Hanserd yes, Mr. Hoffman yes, Mr. Salgado yes, Mr. Thompson yes.

### Approval of Minutes –December 5, 2024

Chairperson McDonald called for a motion to approve the minutes of December 5, 2024. Motion: Ms. Hanserd. Second: Mr. Thompson. Chairperson McDonald called for any discussion. The motion was passed by a unanimous voice vote.

### **Public Comment**

Chairperson McDonald omitted reading the Public Comment Section of the Agenda because no one was present to speak.

# Resolution Awarding Air Duct Cleaning for County Administration Building Using CIP 2024 Funds

### Cost: \$34,800

Motion: Chairperson McDonald. Second: Ms. Hanserd. Chairperson McDonald called for any discussion.

• Discussion followed.

Chairperson McDonald called for any further discussion.

Chairperson McDonald called for a vote to approve the resolution.

The motion to approve the resolution was passed by a unanimous voice vote.

### Resolution Awarding Purchase of Two Detective Squad Vehicles for Sheriff's Office Using CIP-PSST 2025 Funds Cost: \$ 111,304

Resolution Awarding Purchase of Two Civil Process Squad Vehicles for Sheriff's Office Using CIP-PSST 2025 Funds Cost: \$111,909

### Resolution Awarding Purchase of Six Patrol Vehicles for Sheriff's Office Using CIP-PSST 2025 Funds Cost: \$430,575

Chairperson McDonald asked if Items F., G., and H. for the Sheriff's Office could be combined for approval. These items include: F. a resolution for two detective squad vehicles, G. a resolution

for two civil process squad vehicles, and H. a resolution for six patrol vehicles. The committee members unanimously agreed to group these three resolutions together for approval.

Motion: Chairperson McDonald. Second: Ms. Hanserd. Chairperson McDonald called for any discussion.

- Discussion followed.
- Chairperson McDonald called for any further discussion.

Chairperson McDonald called for a vote to approve resolutions F. G. and H.

The motion to approve the three resolutions was passed by a unanimous voice vote.

### **Resolution Awarding VMWare Annual Licensing**

### Annual Cost: \$17,608 3-Year Renewal Cost: \$52,823

Motion: Chairperson McDonald. Second: Mr. Salgado.

Chairperson McDonald called for any discussion.

• Discussion followed.

Chairperson McDonald called for any further discussion.

Chairperson McDonald called for a vote to approve the resolution.

The motion to approve the resolution was passed by a unanimous voice vote.

### Future Agenda Items

No future items were reported.

### Motion to Adjourn

Chairperson McDonald called for a motion to adjourn. Motion: Ms. Hanserd. Second: Mr. Thompson. The motion to adjourn was passed by a unanimous voice vote.

Respectfully submitted,

Nancy Bleile Executive Assistant



# **Resolution Executive Summary**

Prepared By:	Purchasing Department		
Committee:	Operations & Administrative Committee		
Committee Date:	February 6, 2025		
<b>Board Meeting Date:</b>	February 13, 2025		
<b>Resolution Title</b> :	Resolution to Award Mail-In Ballot Services		

Was item budgeted? Yes	Amount Budgeted: \$55,000		
If not, explain funding source:			
ORG/OBJ/Project Code: 13000 - 43450	Descriptor: Supplies & Services: Election Expense		

**Background Information:** The Winnebago County Elections Department is in need of Mail-In Ballot Services. This service will better allow our elections team to manage the increased requests for vote by mail ballots. We have anticipated 15,000 registered voters that have signed up for permanent vote by mail ballots, based on past election data. This service will provide printing, assembly and tracking of all ballots.

The Elections team has researched and held meeting with potential vendors to provide this service. We anticipate this service expenditure to cost about \$3.75 per ballot, averaging around \$55,000 per year. Two quotes were obtained (See Resolution Exhibit A). KNOWiNK presented the best solution for mail in ballot services. They are located in the Midwest and have personal connections with local postmasters. In addition, this is who the City of Rockford Board of Elections is using allowing us to maintain consistency.

Recommended By: Lori Gummow, County Clerk

**Follow-Up Steps:** The Elections Department proceed with a professional services agreement for Mail-In Ballot Services.

### R E S O L U T I O N of the COUNTY BOARD OF THE COUNTY OF WINNEBAGO, ILLINOIS

Sponsored by: Keith McDonald

Submitted by: Operations and Administrative Committee

### 2025 CR

### **RESOLUTION TO AWARD MAIL-IN BALLOT SERVICES**

WHEREAS, the Code of Ordinances for the County of Winnebago, Illinois, provides as in Section 2-357 (b) (1), <u>Conditions for use.</u> All procurements whose value equals or exceeds the competitive bidding threshold of \$30,000 shall be awarded by competitive sealed bidding in accordance with this section except as otherwise provided in 2-357(c) (Request for Proposals), 2-357(d) (Professional Services), 2-357(e) (Sole-Source), 2-357(f) (Emergency Procurements), 2-357 (g) (Cooperative Joint Purchasing) or as provided by State statute; and

**WHEREAS,** the Winnebago County Clerk requested professional services for mail-in ballot services; and

**WHEREAS,** the Purchasing Department and the County Clerk obtained quotes for price, resulting in the best solution presented by KNOWiNK; and

WHEREAS, KNOWiNK will provide printing, assembly and tracking of all vote by mail ballots; and

**WHEREAS,** the Operations & Administrative Committee of the County Board for the County of Winnebago, Illinois has reviewed the quote for services, (Resolution Exhibit A) and recommends awarding the services KNOWiNK, respectively.

**NOW, THEREFORE, BE IT RESOLVED,** by the County Board of the County of Winnebago, Illinois, that the Director of Purchasing is authorized to issue execute a services agreement, on behalf of the County of Winnebago, Illinois to KNOWiNK, 460 N. Lindbergh Blvd. St. Louis, Missouri 63141.

**BE IT FURTHER RESOLVED,** that this Resolution shall be in full force and effective immediately upon its adoption and the Clerk of the County Board is hereby authorized to prepare and deliver certified copies of this Resolution to the Director of Purchasing, Finance Director, County Administrator, County Clerk, County Board Office and County Auditor.

Respectfully Submitted, OPERATIONS AND ADMINISTRATIVE COMMITTEE

DISAGREE
Keith McDonald, Chair
Valerie Hanserd
Paul Arena
John Butitta
JOE HOFFMAN
Jaime Salgado
Michael Thompson
he County Board of the County of
-

ATTESTED BY:

CHAIR OF THE COUNTY BOARD OF THE COUNTY OF WINNEBAGO, ILLINOIS

Lori Gummow			
CLERK OF THE COUNTY BOARD			
OF THE COUNTY OF WINNEBAGO, ILLINOIS			

# **KN•W**iNK

KNOWiNK Pricing to County-

Under 2,500.	\$5.25
2,500 - 5,000.	\$4.55
5,001-10,000.	\$3.90
10,001-15,000.	\$3.75
15,001-20,000.	\$3.60
20,001-50,000.	\$3.25
Over 50,000.	\$2.95

+ non-profit pre-sorted postage - \$0.19 each (est)

This applies to all mail drops of 200 or more. Anything less will be at the First Class Stamp rate and will invoiced for it.

### On Demand Absentee Program

File upload to Modern Litho and ballots usually in the mail within 24-48 hours *\*Not including the larger preregister absentee lists* 

### **Bid Specifications**

Process VR data file

Data duplicate check CASS Certify and Presort Create IMB tracking and voter ballot tracking Setup and manage tracking websites Provide statistics on ballots printed and mailed including USPS scanning and deliveries Provide statistics on voter website tracking visits Qualify non profit status to get postage rate of under \$0.20 per piece

Outer Envelope -1 window on front and 1 on back

Size: 9.25x6" Colors: 2 color 1 side Stock: 24# Uncoated Offset

### Return Envelope

Size: 8.75x5.75" Colors: Black over Black and 1 PMS Stock: 24# Uncoated Offset

### Instruction Sheet

Size: 5.5x8.5" Colors: 6 Printed Colors

# **KN•W**iNK

Front - yellow, k, red, blue Back - flood yellow, k Material: Platinum Semi-gloss/ST95/3.2 SCK Lay Flat with "I Voted" sticker -or-70# white uncoated (without "I Voted" sticker)

### Ballot

Size: 8.5x11 – 8.5x17" (or up to a 22.5" ballot)+ 3.5" tab for mail panel Colors: Black over Black Stock: 80# Uncoated text

This does not include the Non-Profit Postage of as low as \$0.19 and if a third security envelope will be an additional \$0.20, if needed or requested.



# Winnebago Co, Illinois – 2025

### **Budget Estimates**

### Description: Ballot Printing – 80#

- 14" Ballot Initial MRDF 1 & MRDF 2 = \$.30 per ballot card
- 14" Ballot Test Deck = \$ .50 per ballot card
- 14" Ballot Election Day (Poll) = \$.30 per ballot card
- Election Set-up Fee = \$5,500
- Standard ground shipping to local USPS = Actual Shipping. If Dropped in Phoenix = \$75

### **Description: Outgoing Process**

- Insertion of 4 Pieces = \$ .30 per packet
- Insertion beyond (4) pieces = \$.05 per piece
- Supplemental File Fee = \$ 500.00
- Mailing Tracking Outbound/Inbound = \$0.02 per piece
- Mail Packet Sortation for USPS = \$0.03 each
- Mailing Services = Included
- ✓ USPS Coord. & Statements = Included
- Postage = Actual USPS Automation rates

### **Description: Envelopes/Inserts**

- Outgoing Black/0 28# WW = \$ .45 per envelope
- Certification Envelope- Black/Black 28# WW = \$.40 each
- Reply Envelope Variable IMB = \$ .41 each
- Voter Instruction Insert- Black/0 60# Offset Stock = \$0.28 per piece
- USPS Mail Piece Consult & Design = Included
- Initial Envelope Composition = Included



### **Standard Contract Fees:**

- Test Ballots = \$500 fee per set
- BallotTrax Setup = \$150 per election
- Ballot PDF Replacement = \$150 per set
- Artwork Redesign, Envelopes, and Inserts = \$300 per item
- ✓ Blank Ballot Stock Paper 11" 17 = **\$0.185 each sheet**
- Blank Ballot Stock Paper 18" 22" = **\$0.21 each sheet**
- Blank Ballot Stock Paper, Perf or Score = \$0.045 each sheet
- Shrink Wrapping (packages of 250 each or more) = **\$.01 each sheet**
- Shrink Wrapping (packages of less than 250 each) = **\$.02 each sheet**
- \*Optional\* PackeTrak SaaS (tracking of envelopes through Post Office) = \$5,000 per year
- \*Optional\* PackeTrak Setup Fee = \$1,500 per election
- **\*Optional\*** PackeTrak Roundtrip (to apply unique IMB to envelopes) = **\$.06 each packet**

### **Estimated Pricing Summary (April):**

- Ballot 14" 15,000 x \$.30 = **\$4,500**
- Ballot 14" Election Day (Poll) 50,000 x \$.30 = \$15,000
- Insertion Fee 15,000 x \$.30 = \$4,500
- Mail Tracking Setup = **\$150**
- Mail Tracking Outbound/Inbound 15,000 x \$.02 = \$300
- Certification Envelope 15,000 x \$.40 = **\$6,000**
- Outgoing envelopes 15,000 x \$.45 = **\$6,750**
- Reply envelopes 15,000 x \$.41 = \$6,150
- Voter Instruction Insert 15,000 x \$.28 = \$4,200
- Sortation for USPS 15,000 x \$.03 = **\$450**
- Setup fees = \$5,500
   Total Estimated Cost = \$53,500 (not including shipping and postage)

### **Pricing Adjustment**

For any election in which quantity or page count is not consistent with above, Runbeck will provide the County with a
revised quote that reflects the actual quantity and page count.



# Winnebago County Small Community Water Security Assessment Report

May 20, 2024





# A Nationally Accredited Health Department Since

## November 2017



# Acknowledgments

### **Steering Committee Members**

- City of Rockford Engineering Enterprises, Inc. Illinois Rural Water Survey Natural Land Institute North Park Water District Northern Illinois University
- Village of Cherry Valley Village of Winnebago Winnebago County Winnebago-Boone Farm Bureau

### **Subcommittee Members**

Aqua America Clark Mobile Home Park Green Meadow Estates Mobile Home Community Illinois American Water Legend Lakes Water Association South Bluff Mobile Home Park Village of Durand

### **Stakeholders**

- Boone County Conservation District City of Rockford City of South Beloit Illinois Department of Natural Resources Illinois Rural Water Association Illinois State Water Survey Prairie Path Water Rockford Park District
- Utilities Incorporated Village of Rockton Village of Roscoe Winnebago County Winnebago County Health Department Winnebago County Highway Department Winnebago County Soil and Water Conservation District



This report has been prepared by Region 1 Planning Council

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# Section 1 Introduction

The Winnebago County Small Community Water Security Assessment Report was prepared on behalf of Winnebago County by the Region 1 Planning Council (R1). This report summarizes findings of a security assessment examining small community water systems in Winnebago County throughout 2022. The term security in this report refers to access to a clean, safe, and sustainable potable/drinking water. The term community water system (CWS), refers to public water systems (PWSs) that provide water to the same population of 10,000 or fewer consumers year-round. A "small community water system (SCWS)" is a CWS that serves 10,000 or fewer customers annually.

This report describes the process used for conducting the small community water security assessment to prioritize the most vulnerable community water systems (CWSs) within Winnebago County. Section 2 provides an account of engagement activities to establish the assessment criteria and interpret the results. Section 3 highlights determinants of health and how small community water systems (SCWSs) shape health outcomes. Section 4 provides an overview of the assessment criteria and process. Section 5 discusses findings from the assessment and challenges that small water systems in Winnebago County are experiencing. Section 6 discusses the goals and strategies that guides the protections of drinking water in Winnebago County. Finally, the Section 7 summarizes the data sources and water system assessment methodology.



# Section 2 Engagement Activities

While this study focuses on community water systems (CWSs) in Winnebago County, these systems contribute to the regional network of water resources. Engagement activities provided additional awareness of and context for the smaller systems highlighted within the plan. Two (2) community engagement groups were convened to inform this plan, the Steering Committee and Subcommittee. The Steering Committee, which had a regional focus, guided the project scope and provided feedback on prioritizing areas most at risk for water-related concerns. The subcommittee had a local focus and provided expertise on the management and monitoring of the County's small water systems while offering insight into relevant community health considerations.

Steering Committee and Subcommittee meetings were held on an ad-hoc basis, beginning in early 2022. Additional fullgroup stakeholder meetings were held to provide feedback on the final assessment results and proposed goals and recommendations. These meetings were attended by both Steering and Subcommittee members.

# Steering Committee Meetings

The Winnebago County Small Community Water Security Assessment Steering Committee consisted of professionals with expertise ranging from water provision and protection to research, modeling, and engineering. Participating Steering Committee members represented the following organizations:

- City of Rockford
- Engineering Enterprises, Inc.
- Illinois Rural Water Association
- Illinois State Water Survey
- Natural Land Institute
- North Park Water District
- Northern Illinois University

- Village of Cherry Valley
- Village of Winnebago
- Winnebago County
- Winnebago-Boone Farm Bureau

The Steering Committee convened on the following dates:

- February 22, 2022
- June 23, 2022

In addition to regular Steering Committee meetings, some committee members participated in focus group discussions to determine the assessment criteria for the water health assessment. These discussions detailed the prioritization process, often focusing on one (1) or two (2) criteria at a time. Focus groups were held remotely on the following dates:

- July 11, 2022
- July 13, 2022
- August 1, 2022
- August 22, 2022

The small community system assessment criteria were developed as a result of the focus group discussion as well as one-on-one consultation with Steering Committee members.

# Subcommittee Meeting & Stakeholder Survey

## Subcommittee Meetings

Subcommittee members were identified based on their roles as operators and samplers of the small water systems throughout Winnebago County. Region 1 Planning Council (R1) conducted outreach for these systems in June of 2022 over e-mail and phone based on contact information provided by the regulating authority, the Illinois Environmental Protection Agency (IEPA). Following these outreach efforts, the Subcommittee consisted of operators and samplers from the following water systems:

2 | Winnebago County Small Community Water Security Assessment Report

- Aqua America
- Clark Mobile Home Park
- Green Meadow Estates Mobile Home Community
- Illinois American Water
- Legend Lakes Water Association
- South Bluff Mobile Home Park
- Village of Durand

The Subcommittee meeting convened on July 1, 2022.

This meeting introduced members to the project and its goals and solicited feedback on data needs and collection methods. Subcommittee members highlighted the important differences of water systems, such as the age of infrastructure, budget size, and number of residents; prompting the use of stakeholder surveys to determine criteria and data needs for the assessment.

### Stakeholder Survey

In October 2022, the Winnebago County Health Department solicited survey participation through a letter (Section 8) to all known county water system operators serving a population of fewer than 10,000 people (small community water systems), based on information from the Illinois Environmental Protection Agency (IEPA). Survey participants were asked to provide information on their system operations, management, and infrastructure. Due to limited survey responses, the survey was reformulated and shared with the SCWS's corresponding Home Owner Associations (HOAs) to collect additional information on the SCWSs in March 2023. The survey concluded in April 2023 and did not provide sufficient data to make an educated assessment of the local community water system operations, management, and infrastructure. The final assessment was revised to exclude the unavailable data from the final scoring matrix. The final criteria utilized for the assessment are outlined in detail under Section 4 of this report.

### Additional Engagement

An additional large stakeholder meetings was held to provide feedback on the final assessment results and proposed goals and recommendations. The meeting occurred on August 26, 2023. This meeting was attended by both Steering and Subcommittee members. Participating stakeholders represented the following agencies and organizations:

- Illinois State Water Survey
- Winnebago County
- City of Rockford
- City of South Beloit
- Illinois Department of Natural Resources
- Village of Roscoe
- Winnebago County Highway Department
- Winnebago County Soil and Water Conservation District
- Winnebago County Health Department
- Illinois Rural Water Association
- Boone County Conservation District
- Rockford Park District
- Village of Rockton
- Prairie Path Water
- Utilities Incorporated

Additional meetings were held individually to provide information and context for individual stakeholders at their request. These individual meetings included a more in-depth review of the assessment and a discussion about specific community water system concerns. Individual meetings were held with Illinois American – South Beloit and Utilities Incorporated.



# Section 3 Determinants of Health

One of the motivations for assessing small water system security is the impact water has on public health. Water affects health through multiple levels and applications—its treatment, provision, and accessibility, which all contribute to varying health outcomes within a community. A model used for identifying the role of water in public health is the U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion's Social Determinants of Health (SDOH). First included in the Healthy People 2010, SDOH is used broadly to define "the range of personal, social, economic, and environmental factors that influence health status."<sup>i</sup> Different criteria outlined in this assessment capture multiple human and environmental factors that impact SCWSs and the resulting health implications for both individuals and the community.

Figure 3-1: Healthy People 2023 Social Determinants of Health (2023)



Source: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion.

The Social Determinants of Health (SDOH) are grouped into five (5) domains: Economic Stability; Education Access and Quality; Health Care Access and Quality; Neighborhood and Built Environment; and Social and Community Context. Water systems are a featured item in the Neighborhood and Built Environment domain.

Healthy People 2030 additionally establishes detailed objectives for achieving health and well-being improvements over the next decade. Objective EH-03 is central to achieving water security and aims to "increase the proportion of people whose water supply meets Safe Drinking Water Act Regulations."<sup>ii</sup> The Safe Drinking Water Act (SDWA) is the primary federal mechanism that regulates small community water systems. SDWA provisions require that community water systems meet minimum standards for naturally occurring and man-made drinking water contaminants. State Environmental Protection Agencies (EPAs) are responsible for monitoring compliance with the SDWA. This statute requires Winnebago County water systems to submit water quality reports to the Illinois EPA, except for private wells serving fewer than 25 individuals or have fewer than 25 connections. Small water systems, under the SDWA, are also given special consideration and resources to make sure they have the managerial, financial, and technical ability to comply with standards.

The Winnebago County Small Community Water Security Assessment aligns with Healthy People 2030's *Objective EH-03* by determining which water systems have violated water quality standards or are currently violating standards. Human health concerns related to water quality violations include, but may not be limited to:

- rashes;
- eye irritation (e.g. pink eye);
- immune system dysfunctions;
- diarrhea;
- pregnancy complications;
- hormone disruption
- pneumonia;

- neurological impairments;
- organ damage;
- cancers; and
- death.

The wide range of drinking water contaminants and associated effects at different concentrations can become life-threatening, especially to susceptible individuals such as children, seniors, pregnant women, and the chronically ill. The effects of some drinking water contaminants are not fully understood. Specific health concerns of water contamination are found in Section 4.1: Water Quality.



# Section 4 Assessment

The purpose of the assessment is to identify and prioritize community water systems (CWS) and populations most susceptible to disruptions in access to safe and clean drinking water. The assessment criteria are based on guidance from existing Environmental Protection Agency (EPA) programs and extensive input from Steering and Subcommittee members. The final criteria utilized for the prioritization activity are **Water Quality, Water Availability, Social Vulnerability,** and their attendant sub-criteria, shown in Figure 4-1.

#### Figure 4-1: Prioritization Criteria Outline

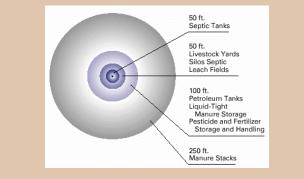


Each criterion has a corresponding weight determined through consultation and consensus with committee members and are aligned with national best practices. The weights assigned to the criteria differ based on the level of threat to access to safe and clean water. For instance, Water Quality criteria are weighted higher than those for Water Availability given the immediate threat water quality issues pose to public health. Assessment criteria are summarized throughout this section and the complete listing of final assessment criteria and corresponding weights is available in the Section 7.

A large portion of this assessment identifies the vulnerability of an individual system's wells and their corresponding aquifer. Small community water systems (SCWSs) may operate multiple wells for daily and/or emergency use; however, some SCWS may operate only the distribution the distribution infrastructure and purchase water from a municipal source. These SCWS with municipal water supplies are at risk should their distribution infrastructure fail. Community systems that do not have daily operating wells have their own distribution systems and purchase water from another source, often from a nearby municipality. Since water is purchased from an outside source but uses SCWS-level piping infrastructure, an infrastructure failure would impact these community systems as the SCWS infrastructure is the primary means of distribution of water resources. This issue removes access to potable water for customers, resulting in public health condemnation. This risk is not factored into the assessment due to limited data availability. See <u>Section 5</u> for relevant findings and recommendations.

This assessment evaluates the following community water systems. Eight (8) of the SCWS are mobile home parks, identified by the acronym (MHP).

- Aqua Illinois Sheridan Grove
- Bill Mar Heights Mobile Home Park (MHP)
- Bradley Heights Subdivisions
- Village of Cherry Valley
- Clarks Mobile Home Park (MHP)
- Village of Durand
- Forest View Mobile Home Park (MHP)
- Green Meadow Estate (MHP)
- Illinois American South Beloit
- Legend Lakes Water Association
- Mancuso Village Park Mobile Home Park (MHP)
- Otter Creek Lake Utility District
- Village of Pecatonica
- Phil-Aire Estates Mobile Park Home (MHP)
- Prairie Road Pump Corporation
- Rainbow Lane Mobile Home Park (MHP)
- Village of Rockton
- Six Oaks Mobile Park Home (MHP)
- South Bluff Mobile Park Home (MHP)
- Utilities Inc. Coventry Creek Subdivision
- Utilities Inc. Coventry Hills
- Utilities Inc. West Lake Utilities
- Wildwood Utilities Company
- Village of Winnebago



### Wells:

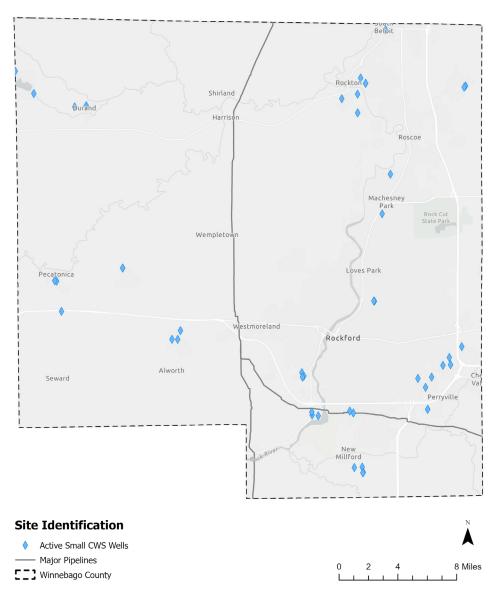
Wells are holes that are drilled into the ground to access water contained in an aquifer, a permeable layer of rock that contains groundwater. Water is extracted at a well level using pipes, a water pump, and filtration devices.

Image source: CDC

In this assessment, a few community water systems (CWSs) fall into the category of systems that do not operate wells daily. Forest View Mobile Park Homes (MPH) and South Bluff do not have wells. Illinois American South Beloit only has one (1) well reserved for emergencies and Green Meadows Estates MHP abandoned its wells in 2022.

These CSWs purchase water from other municipal sources. In this case, Forest View MHP purchases water from North Park Water Public Water District (PWD), Illinois American-South Beloit purchases their water from the City of Beloit, and South Bluff MHP also purchases water from the City of Beloit. Green Meadows purchases water for the City of Rockford.

Figure 4-2: Active SCWS wells throughout Winnebago County (2022)



# Water Quality

Water quality is one of the primary challenges for small community water systems (SCWS). Improving water quality and meeting federal water quality standards can be difficult to achieve without the resources and financing available to connect to larger systems. This portion of the assessment is divided into three (3) sub-criteria:

- Violations,
- Water Vulnerability, and
- Aquifer Vulnerability.

These sub-criteria seek to identify the risk posed to SCWSs, sources of contamination, and historic violations of contamination. Also included is an overview of the various sources of contamination, the effects of specific contaminants, and monitoring and reporting requirements.

### Sources of Contamination

Drinking water contaminants refer to any substance that is not a water molecule and are categorized as either *physical*, *chemical*, *biological*, *or radiological contaminants*. These contaminants are defined as the following:

- Physical contaminants are those that mainly affect the physical properties of water (e.g. appearance or taste);
- Chemical contaminants are natural or man-made elements or compounds, such as nitrogen or metals;
- Biological contaminants are microbes found in water, such as viruses or parasites; and
- Radiological contaminants are chemical elements that emit ionizing radiation, such as plutonium or uranium.<sup>iii</sup>

Water may have contaminants that are not regulated, are below the reporting threshold, or have little to no effect on human health.

The number, severity, and sources of contaminants affecting community water systems vary. Contaminants can become present in community water supplies through proximity to sources of pollution, such as the feces of wildlife, stormwater runoff, industrial operations, and superfund sites; or insufficient infrastructure (e.g., the use of lead pipes or leaks in distribution systems).<sup>iv</sup>

### Monitoring and Reporting

The Safe Drinking Water Act (SDWA) requires community water systems (CWS) to perform routine monitoring and reporting of water quality. Only private wells serving fewer

than 25 people are exempt from this requirement. Testing and reporting frequency to the Illinois Environmental Protection Agencies varies due to rules based on the type of contaminants and previously detected violations. Each community water system is also required to have a Responsible Operator in Charge (ROIC). In the State of Illinois, this operator is accountable for submitting consumer confidence reports, monthly operating reports, and drinking water compliance monitoring results.<sup>v</sup>

The EPA Consumer Confidence Report (CCR) Rule mandates that community water systems provide residents with an annual water quality report containing information on source water, contaminants detected, and compliance with regulatory requirements. For systems serving 500 or fewer people, these reports are not published but must be available upon request.<sup>vi</sup> Additional information on the CCR Rule can be found in Section 4.1.1 Water Quality Violations.

Additional system water reports can be viewed on the EPA's Drinking Water Data and Reports. This website includes the Safe Drinking Water Information System (SDWIS) Federal Reporting Services, Annual Water Quality Reports (Consumer Confidence Reports), and the National Occurrence Database.

### Water Treatment and Provision

Water treatment will depend on the contaminant and amount of contamination. Under Title 35: Environmental Protection Subtitle F: Public Water Supplies Chapter II, system treatment must be conducted by a certified Drinking Water Operator. Additionally, any modification to treatment facilities must have a Public Water Supply Permit from the IEPA. When a water supply is contaminated, the water system operator can take a variety of measures to remedy the issue. Options may include filtration through sand filters and reverse osmosis through carbon filters; softening through additions of phosphate or zeolite; and the addition of disinfectants such as chlorine.<sup>vii</sup>

Water treatment will depend on the amount and composition of the contaminants within the water supply.

### Water Quality Violations

The Safe Drinking Water Act (SDWA) sets federal standards for drinking water quality. These standards are enforced by the Environmental Protection Agency (EPA) at the state level and specify the maximum contaminant levels (MCLs) allowed in drinking water. All exceedances of established MCLs are considered water quality violations under the SDWA. The assessment measures water quality based on the number and severity of water quality violations that occurred over a **five-year period.** This process is consistent with EPA water quality monitoring, specifically through the EPA's Enforcement Targeting Tool (ETT). The ETT tracks public water systems determined by the EPA to be out of compliance with SDWA regulations. The SCWS assessment uses a modified version of the ETT formula to generate scores that rank the SCWSs based on water quality concerns. For more information on the modified formula, see the Section 7.

Violations measured through the modified ETT formula include:

Lead and Copper Violations
Volatile Organic Contaminant (VOC) Violations
Synthetic Organic Contaminant (SOC) Violations
Inorganic Contaminant (IOC) Violations
Revised Total Coliform Violations and Revised Total Coliform Repeat Monitoring Violations
Nitrate Violations
Radionuclides Violations
Disinfectants and Disinfection Byproducts Rules
PFAS
Public Notification Rule
Consumer Confidence Report Rule

### Water Quality Violations: Contaminants, Health Risks, and Maximum Contaminant Levels (MCLs)

### Lead & Copper

Maximum Contaminant Levels: Lead = 0.015 mg/L Copper = 1.3 mg/L

Lead and copper contamination in drinking water often originates from the corrosion of household plumbing systems, especially water systems with high acidity or low mineral content. Less commonly, lead and copper contamination can also come from the erosion of natural deposits.

For adults, lead exposure is linked to kidney problems and high blood pressure.<sup>viii</sup> Childhood exposure to lead has been shown to result in damage to the brain and nervous system, slowed growth and development, learning and behavior issues, and issues with hearing and speech. Even after exposure to lead is stopped, lead can remain in the body, and may take decades for the accumulated lead to decrease.<sup>ix</sup> No safe blood lead level in children has been identified. Elevated lead levels during pregnancy have been associated with increased blood pressure (preeclampsia), miscarriages, low birth weight infants, and impaired neurodevelopment of the infant.<sup>x</sup> For adults, lead exposure has been linked to kidney damage and high blood pressure.

High levels of copper may damage red blood cells and negatively affect male fertility. Short-term exposure to copper can result in gastrointestinal distress, jaundice, and muscle pain; while long-term exposure can cause liver or kidney damage.<sup>xi</sup> Infants are more sensitive to copper and cannot process the metal as effectively as healthy adults.

Together, lead and copper are regulated by the EPA Lead and Copper Rule (LCR), which establishes an action level of 0.015 milligrams per liter for lead and 1.3 milligrams per liter for copper based on the 90th percentile level of tap water samples (Figure 4-3). An action level exceedance is not a violation under the LCR but can trigger the implementation of other requirements that include water quality parameter (WQP) monitoring, corrosion control treatment (CCT), source water monitoring/treatment, public education, and lead service line replacement (LSLR).<sup>xii</sup>

Only Mancuso Village MHP had an LCR violation for monitoring and reporting within the past five (5) years. This violation was noted in October 2019 and returned to compliance as of November 2019.

cws	Total Violations	Monitoring and Reporting	MCL Exceedance	Returned to Compliance
Mancuso Village MHP	1	1	-	Yes

### **Chemical Contaminants**

The EPA Phase II/V Rules and the Chemical Contaminant Rules identify the regulations for chemical contaminants. These rules regulate over 65 contaminants categorized into three (3) contaminant groups: *Inorganic Contaminants (IOCs), Volatile Organic Contaminants (VOCs), and Synthetic Organic Contaminants (SOCs).* The Chemical Contaminant Rules apply to all public water systems (PWS) and the system type, size, and water source type determine which contaminants require monitoring.

#### Inorganic Contaminants (IOCs)

Inorganic Contaminants (IOCs) include salts and metals, which can come from stormwater runoff, wastewater discharges (industrial or domestic), oil and gas production, mining, farming, or are naturally occurring.<sup>xiii</sup> A total of 17 IOCs are regulated: 14 federally, and 3 by the State of Illinois.

Applicability > Systems serving > 50,000 people.								
	Systems serving ≤ 50,000 during monitoring periods in which either AL is exceeded.							
Standard	<ul> <li>WQP samples a</li> </ul>	t taps are collected eve	ery 6 months.					
1		WQPs at entry points to distribution system (EPTDS) are collected every 6 months prior to CCT installation, then every 2 weeks.						
Reduced	<ul> <li>See Table 1 for s</li> </ul>	ample number and pa	ige 2 for criteria. Does	not apply to EPTDS V	VQP monitoring.			
	Ta	able 1: Lead and Cop	oper Tap and WQP T	ap Monitoring				
Cine Category	Custom Cize	Number of Pb/Cu Tap Sample Sites <sup>3</sup>		Number of WQP	Tap Sample Sites <sup>4</sup>			
Size Category	System Size	Standard	Reduced	Standard	Reduced			
1	> 100K	100	50	25	10			
Large	50,001 - 100K	60	30	10	7			
Medium	10,001 - 50K	60	30	10	7			
Medium	3,301 - 10K	40	20	3	3			
	501 - 3,300	20	10	2	2			
Small	101 - 500	10	5	1	1			
	≤ 100	5	5	1	1			
<sup>3</sup> With written <sup>4</sup> Two WQP ta	State approval, PWS o samples are collec	s can collect < 5 samp ted at each sampling s	oles if all taps used for site.	human consumption a	re sampled.			
		Table 2: Criteria for	Reduced Pb/Cu Tap	Monitoring				
Annual	1. PWS serves ≤ 50,000 people and is ≤ both ALs for 2 consecutive 6-month monitoring periods; or							
<ol> <li>Any PWS that meets optimal WQPs (OWQPs) and is ≤ Pb AL for 2 consecutive 6-month monitori periods.</li> </ol>					-month monitoring			
Triennial	1. PWS serves ≤ 50,000 people and is ≤ both ALs for 3 consecutive years of monitoring; or							
	2. Any PWS that meets OWQP specifications and is ≤ Pb AL for 3 consecutive years of monitoring; or							
	<ol> <li>Any PWS with 90<sup>th</sup> percentile Pb and Cu levels ≤ 0.005 mg/L and ≤ 0.65 mg/L, respectively, for 2 consecutive 6-month monitoring periods (i.e., accelerated reduced Pb/Cu tap monitoring).</li> </ol>							
Every 9 years	İ		nonitoring waiver criter					

Source: U.S. EPA

#### Table 4-1: Federal and State Regulated Inorganic Contaminants (Sources and MCLs)

Federally Regulated Inorganic Contaminants	Source
Antimony	Flame retardant, ceramics, glass, batteries, fireworks. Decreases longevity of life and alters cholesterol and glucose levels over time.
Arsenic	Enters water supply through natural earth material deposits and ag/industry practices. Non-cancer effect includes thickening and discoloration of the skin, stomach pain, nausea, vomiting, diarrhea; numbness in hands and feet; partial paralysis; and blindness.
Asbestos	Natural sources and corroded cement pipes. Most asbestos-related conditions stem from inhalation but can cause gastrointestinal tract cancer when ingested orally.
Barium	Naturally occurring in earth deposits. High levels of barium exposure can result in elevated blood pressure levels.
Beryllium	Runoff from mining operations and various industrial operations including processing plants and industrial waste disposal. This chemical is associated with lung and bone damage and cancer from long-term exposure.
Cadmium	Galvanized pipes or improper waste disposal. Long-term exposure at high levels of cadmium has been linked to significant kidney damage.
Chromium	Water runoff from mining operations and poor waste management. High levels of exposure may result in liver and kidney damage, dermatitis, and respiratory problems.
Cyanide	Improper waste disposal. Cyanide may cause fatal damage to the spleen, brain, and liver.
Fluoride	Naturally occurring and may be added to water supplies in some instances to promote dental health. High levels of fluoride may cause dental fluorosis and extreme amounts of fluoride may cause skeletal fluorosis.
Mercury	Improper waste disposal. High levels of mercury may result in kidney damage.
Nickel	Mining and refining operations. High levels of nickel may cause heart and liver damage.
Nitrite	Fertilizer and human/farm waste. Excessive consumption of non-drinking water nitrite poses risk to infants as the nitrite lowers the carrying capacity of blood oxygen. There has not been recorded instances of drinking water contamination with this chemical.
Selenium	Naturally occurring and essential in low-levels. High-levels of selenium exposure may result in loss of feelings in the arms and legs and potential other effects.
Thallium	Naturally occurring. Long-term exposure to high levels of thallium may cause damage to the kidneys, liver, brain, and intestines.

**Table 4-1:** Federal and State Regulated Inorganic Contaminants(Sources and MCLs) Continued

State Regulated Inorganic Contaminants	Source		
Iron	Naturally occurring. No major health risks have been associated with iron but high levels of the IOC can alter the taste and texture of foods and leave deposits on household items such as sinks and laundry. <sup>[b]</sup>		
Manganese	Naturally occurring. Long-term exposure to high-levels of manganese can result in a disease called Manganism, a condition with similar effects of Parkinson's. <sup>[c]</sup>		
Zinc	Naturally occurring, may enter through earth deposits or mining and improper waste disposal. High-levels of zinc ingestion may cause stomach cramps, nausea, and vomiting. Long-term ingestion may cause anemia, cause pancreas damage, and decrease levels of good cholesterol. <sup>[d]</sup>		

#### MCLs for federally regulated IOCs:

Federally Regulated Inorganic Contaminants	Maximum Contaminant Level (MCL)		
Asbestos	7 million fibers per liter		
Cadmium	0.005 mg/L		
Chromium	0.1 mg/L		
Fluoride	4.0 mg/L		
Mercury	0.002 mg/L		
Nitrate	10 mg/L		
Nitrite	1 mg/L		
Selenium	0.05 mg/L		
Barium	2 mg/L		
Antimony	0.006 mg/L		
Beryllium	0.004 mg/L		
Cyanide	0.2 mg/L		
Thallium	0.002 mg/L		
Arsenic	.01 mg/L		

#### MCLs for state regulated IOCs:

State Regulated Inorganic Contaminants	Maximum Contaminant Level (MCL)
Iron	1 mg/L
Manganese	0.15 mg/L
Zinc	5 mg/L

Source:

[a] <u>https://floridadep.gov/water/source-drinking-water/content/</u> inorganic-contaminants

[b] <u>https://dph.illinois.gov/topics-services/environmental-health-protection/private-water/fact-sheets/iron-drinking-water.html</u>

[C] <u>https://www.iowadnr.gov/Portals/idnr/uploads/water/wso/docs/</u> ManganeseFactSheetandFAQ.pdf

[d] <u>https://www.atsdr.cdc.gov/ToxProfiles/tp60-c1-b.pdf</u>

The 2001 Arsenic Rule identified arsenic as the most heavily regulated IOC with an MCL of 0.01 milligrams per liter.

Table 4-1 identifies various potential health outcomes linked to high levels of an identified contaminant. Most of these health outcomes are identified through animal testing and human case studies. Drinking water that meets the established EPA standards does not pose a significant risk to the consumer.

There were no IOC violations for any of the SCWSs between the reporting periods from 2018 to 2022.

#### Volatile Organic Contaminants (VOCs)

Volatile Organic Contaminants (VOCs) are a class of chemicals that contain carbon and evaporate easily at room temperature. These contaminants are usually the result of human activity and are often found in a range of commercial, industrial, and residential products, and are often found at superfund sites.<sup>xiv</sup> VOC exposure can lead to a range of health issues, including headaches, nausea, loss of coordination, and damage to the liver, kidneys, or nervous system.

**Table 4-2:** Maximum Contaminant Levels (MCLs) for VolatileOrganic Contaminants

Volatile Organic Contaminants	Maximum Contaminant Level (MCL)
Benzene	0.005 mg/L
Carbon tetrachloride	0.005 mg/L
p-dichlorobenzene	0.075 mg/L
Trichloroethylene	0.005 mg/L
Vinyl chloride	0.002 mg/L
1,1,1-trichloroethane	0.2 mg/L
1,1-dichloroethylene	0.007 mg/L
1,2-dichloroethane	0.005 mg/L
cis-1,2-dichloroethylene	0.07 mg/L
Ethylbenzene	0.7 mg/L
Chlorobenzene	0.1 mg/L
o-dichlorobenzene	0.6 mg/L
Styrene	0.1 mg/L
Tetrachloroethylene	0.005 mg/L
Toluene	1 mg/L
Trans-1,2-Dichloroethylene	0.1 mg/L
Xylenes	10 mg/L
1,2-dichloropropane	0.005 mg/L
Dichloromethane	0.005 mg/L
1,1,2-trichloroethane	0.005 mg/L
1,2,4-trichlorobenzene	0.07 mg/L

Source: U.S. EPA

VOCs are the contaminant group with the highest number of violations between 2018 and 2022. Two (2) systems had 20 VOC violations each—Bill-Mar Heights MHP and Green Meadows Estates MHP. Both systems reached a "return to compliance" status for all VOC violations.

#### Synthetic Organic Contaminants (SOCs)

SOCs are man-made, carbon-based chemicals that are commonly used as pesticides, insecticides, and fuel additives. These chemicals are not naturally occurring in water but can reach drinking water sources when these chemicals are improperly disposed of, improperly stored, or when spills occur. SOCs can lead to both acute and chronic health effects, damaging the nervous system and kidneys or creating a cancer risk.<sup>xv</sup>

There were no SOC violations for any of the SCWSs between the reporting periods of 2018-2022.

Synthetic Organic Contaminants	Maximum Contaminant Level (MCL)
Alachlor	0.002 mg/L
Atrazine	0.003 mg/L
Carbofuran	0.04 mg/L
Chlordane	0.002 mg/L
EDB (ethylene dibromide)	0.00005 mg/L
DBCP (1,2-dibromo-3-chloropropane)	0.0002 mg/L
Heptachlor	0.0004 mg/L
Heptachlor epoxide	0.0002 mg/L
Lindane	0.0002 mg/L
Methoxychlor	0.04 mg/L
Toxaphene	0.003 mg/L
PCBs	0.0005 mg/L
2,4-D	0.07 mg/L
2,4,5-TP	0.05 mg/L
Pentachlorophenol	0.001 mg/L
Benzo(a)pyrene (PAHs)	0.0002 mg/L
Dalapon	0.2 mg/L
Di(ethylhexyl)-adipate	0.4 mg/L
Di(ethylhexyl)-phthalate	0.006 mg/L
Dinoseb	0.007 mg/L
Diquat	0.02 mg/L
Endothall	0.1 mg/L
Endrin	0.002 mg/L
Glyphosate	0.7 mg/L
Hexachlorobenzene	0.001 mg/L
Hexachlorocyclo-pentadiene	0.05 mg/L
Oxamyl	0.2 mg/L
Picloram	0.5 mg/L
Simazine	0.004 mg/L
2,3,7,8-TCDD (dioxin)	0.00000003 mg/L

**Table 4-3:** Maximum Contaminant Levels for Synthetic OrganicContaminants

### **Revised Total Coliform Rule**

The Revised Total Coliform Rule (RTCR) establishes a Maximum Contaminant Level (MCL) for E. coli, utilizing E. coli and total coliforms presence to initiate a "find and fix" approach to address fecal contamination that could enter water distribution systems. The RTCR requires public water systems to perform assessments to identify sanitary defects and subsequently act to correct them.<sup>xvi</sup>

Total coliform, which includes fecal coliform and E. coli, is not necessarily a serious health threat but is used as an indicator to determine whether other potentially harmful bacteria might be present in drinking water. Coliforms are naturally present in the environment and feces, but fecal coliform and E. coli are exclusively from human and animal waste.

#### Maximum Contaminant Levels: 5.0%

No more than 5.0% of samples can be total coliform-positive (TC-positive) in a month. For water systems that collect fewer than 40 routine samples per month, no more than one sample can be TC-positive per month. Every sample that has total coliform must be analyzed for either fecal coliforms or E. coli. If two consecutive TC-positive samples occur, and one is also positive for E. coli fecal coliforms, the system has an acute MCL violation.

### **Revised Total Coliform Repeat Monitoring**

Repeat monitoring of Revised Total Coliform is required when a sample taken under routine monitoring, as required by Sections 611.1054 through 611.1057 of Illinois Administrative Code Title 35, is coliform positive. Illinois Admin. Code tit. 35 sets rules for total coliform monitoring based on the number of people a water system serves and whether the system uses only groundwater.<sup>xvii</sup>

When coliform is detected, a supplier must collect a set of repeat samples within 24 hours after being notified of the positive result and collect no fewer than three (3) repeat samples for each total coliform-positive sample found.

There were two (2) total coliform violations for the Winnebago County SCWSs, both of which returned to compliance. One was for the Bill-Mar Heights MHP in violation of routine monitoring requirements in 2021. The other was for the Phil-Aire Estates MHP, also in violation of routine monitoring and reporting requirements in 2021.

Source: Know your h2o- Water Research Center

cws	Total Violations	Monitoring and Reporting	MCL Exceedance	Returned to Compliance
Bill-Mar Heights MHP	1	1	-	Yes
Phil-Aire Estates MHP	1	1	-	Yes

#### Nitrates

#### Maximum Contaminant Levels: 10mg/L

Nitrates are nitrogen-based compounds that occur naturally but can also be introduced to the water supply by human activity. Common nitrate sources are runoff from fertilizer use, leaking septic tanks and sewage, and the erosion of natural deposits. Infants under six (6) months old who consume water containing nitrates in excess of the MCL can become seriously ill and, if untreated, symptoms may result in fatality. Symptoms of nitrate poisoning can include shortness of breath and blue-baby syndrome.<sup>xviii</sup>

In Winnebago County, two (2) SCWS systems between 2018 and 2022 had nitrate violations. For Green Meadows Estates MHP, one (1) violation occurred for routine nitrate monitoring in 2017, with a return to compliance in 2020. Rainbow Lane MHP had three (3) violations: one (1) in 2018 for an MCL exceedance and one (1) each in 2020 and 2021 for failure to follow monitoring and reporting requirements. Rainbow Lane MHP also reached "return to compliance" status for all MCL and monitoring and reporting violations in 2018 and 2021, respectively.

cws	Total Violations	Monitoring and Reporting	MCL Exceedance	Returned to Compliance
Green Meadows Estates MHP	1	1	-	Yes
Rainbow Lane MHP	3	2	1	Yes

### Radionuclides

Radionuclides are radioactive forms of elements that occur naturally or can be man-made, either intentionally or as byproducts of nuclear reactions. Each radionuclide emits radiation at a different rate, measured in half-lives.

Common radionuclides include: Americium-241, Cesium-137, Cobalt-60, Iodine, Plutonium, Radium, Radon, Strontium-90, Technetium-99, Thorium, Tritium, and Uranium.<sup>xix</sup> A radioactive half-life is the time required for half of existing radioactive atoms to decay, and the process of decay emits radiation.

The shorter the half-life of a radionuclide, the faster the radionuclide is cleared from the environment and the human body.<sup>\*\*</sup> Some radionuclides, such as teachnetium-99, have short half-lives. Technrtium-99 has a half-life of six (6) hours, limiting major radioactive impacts on the human body. Other radionuclides, such as uranium, can have extremely long half-lives. Naturally occurring uranium-238 has a half-life of almost 4.5 billion years.

The EPA's Radionuclides Rule regulates exposure to radionuclides in drinking water to reduce the risk of exposure to all radionuclides. Radionuclides regulation has been in effect since 1977, but revisions in 2000 set new monitoring provisions for SCWS with fixed MCLs.<sup>xxi</sup> These monitoring provisions are categorized based on radionuclides which are alpha, beta, or photon emitters, radium 226 and radium 228 (combined), or uranium.

Exposure to radionuclides is linked to an increased risk for cancer. Additionally, uranium is linked to an increased risk of kidney toxicity.

Maximum Contaminant Levels: Gross alpha particle = 15 pCi/L (picocuries per liter) Beta/photon emitters = 4 mrem/yr (millirem per year) Combined radium - 226/228 = 5 pCi/L (picocuries per liter) Uranium = 30 μg/L (micrograms per liter)

Four (4) SCWSs experienced radionuclides violations from 2018 to 2022: Cherry Valley, Green Meadows Estates MHP, Phil-Aire Estates MHP, and Otter Creek Lake Utilities District. Cherry Valley had two (2) violations, both for MCL exceedances that returned to compliance in 2021. Green Meadows Estates MHP had eight (8) violations—two (2) for monitoring and reporting violations and six (6) for MCL exceedances. The MCL violation was resolved but only one (1) monitoring and reporting violation was resolved. For Phil-Aire Estates MHP, there were four (4) violations, including two (2) resolved monitoring and reporting violations, one (1) unresolved monitoring and reporting violation, and one (1) unresolved MCL exceedance. Otter Creek Lake Utilities District had just one (1) violation for radionuclides monitoring and reporting that returned to compliance in 2021.

cws	Total Violations	Monitoring and Reporting	MCL Exceedance	Returned to Compliance
Cherry Valley	2	-	2	Yes
Green Meadows Estates MHP	8	2	6	Yes
Phil-Aire Estates MPH	4	3	1	No
Otter Creek Utilities District	1	1	-	Yes

Alpha particles ( $\alpha$ ) are positively charged particles made up of two (2) protons and two (2) neutrons from an atom's nucleus. The particles come from the decay of the heaviest radioactive elements, such as uranium, radium, and polonium. In drinking water, alpha particle contamination is caused by the erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation.

*Beta particles (θ)* and photon emitters are small, fastmoving particles with negative electrical charges emitted from an atom's nucleus during radioactive decay. Beta particles are emitted by certain unstable atoms such as hydrogen-3 (tritium), carbon-14, and strontium-90<sup>xxii</sup>. Similar to alpha particle contamination, contamination from beta particles and photon emitters is the result of the erosion of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation.

*Radium 226 and Radium 228* are the most common isotopes of radium. These isotopes are formed by the decay of uranium and thorium in the environment. Radium 226 and 228 in drinking water also come from the erosion of natural radium deposits.

*Uranium* is a naturally occurring radioactive element that, when refined, becomes a silvery-white metal. Uranium is weakly radioactive and contributes to low levels of natural background radiation in the environment, but also comes from nuclear power generation. In drinking water, uranium contamination comes from the erosion of natural uranium deposits.

#### **Disinfectants and Disinfection Byproducts Rules**

Disinfectants are chemicals used to kill germs, such as viruses and bacteria.<sup>xxiii</sup> Disinfectants, such as chlorine and chloramine, are often added to water systems to minimize contamination with germs through chlorination. Small amounts of disinfectants that are below the MCL are safe for consumption and do not pose health risks.<sup>xxiv</sup> Disinfectants present in drinking water that are above the MCL may cause eye and nose irritation, stomach discomfort, and anemia. Disinfectant contamination may affect the nervous systems of infants and young children.

Maximum Contaminant Levels: Chloramines (as Cl2) = Maximum Residual Disinfectant Level Goal (MRDL) =4.01 Chlorine (as Cl2) = MRDL=4.01 Chlorine dioxide (as ClO2) = MRDL=0.81

Disinfection byproducts (DBPs) are formed when disinfectants interact with organic materials. For example, when chlorine infiltrate as water supply from cleaning activities (e.g. swimming pool maintenance), the subsquent reaction creates DBPs. Since disinfectants are commonly used for cleaning and water treatment, DBPs are very common in everyday activities including showering and dishwashing, and are commonly found in gyms, pools, kitchens, and bathrooms.<sup>XXV</sup> Potential health impacts of long-term exposure include increased risk of cancer, anemia, and other concerns such as liver, kidney, or central nervous system problems.<sup>XXV</sup>

Maximum Contaminant Levels: Bromatezero = 0.010 (mg/L) Chlorite = 1.0 (mg/L) Haloacetic acids (HAA5) = 0.060 (mg/L) Total Trihalomethanes (TTHMs) = 0.080 (mg/L)

Under federal guidelines, SCWSs must abide by Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules (DBPR). These rules promote water quality and safety for SCWSs by minimizing DBP contamination in drinking water sources.<sup>xxvii</sup> Stage 1 DBPR sets standards and treatment techniques to reduce DBP exposure. This rule prevents changes in disinfection methodologies and technologies until federal approval is provided.<sup>xxviii</sup> Stage 2 DBRP requires additional evaluations for total trihalomethanes (TTHM) and five (5) haloacetic acids (HAA5) compliance and reporting standards are based on the size of the SCWS.<sup>xxix</sup>

There were seven (7) DBP violations amongst the SCWSs from 2018 to 2022. Bill-Mar Heights MHP, Green Meadows

Estates MHP, and Phil-Aire Estates MHP each had one (1) resolved monitoring and reporting violation, while Rainbow Lane MHP had two (2). Additionally, Mancuso Village MHP has two (2) unresolved monitoring and reporting violations dating back to 2021.

cws	Total Violations	Monitoring and Reporting	MCL Exceedance	Returned to Compliance
Bill-Mar Heights MHP	1	1	-	Yes
Green Meadows Estates MHP	1	1	-	Yes
Phil-Aire Estates MPH	1	1	-	Yes
Rainbow Lane MHP	2	2	-	Yes
Mancuso Village MHP	2	2	-	No

#### PFAS

Per-and poly-fluoroalkyl substances, referred to collectively as PFAS, are a group of synthetic chemicals manufactured since the 1940s and commonly used in industry and consumer products for their water and oil-resistant properties. While PFAS production and disposal are regulated, PFAS still threatens groundwater quality due to their persistence in the environment.

Often referred to as "forever chemicals", PFAS exposure is linked to adverse health impacts such as increased cholesterol levels and an increased risk of cancer.<sup>xxx</sup> PFAS also have bio-accumulative properties, meaning they are likely to build up in the body, along with soil and water, as exposure continues.

In 2022, state or federal drinking water regulations were enforceable for PFAS. The EPA is working to develop an MCL for PFAS but has not currently set a value. On March 14, 2023, the United States EPA announced the proposed National Primary Drinking Water Regulations (NPDWR) for six (6) PFAS and is anticipated to finalize regulations by the end of 2023. The proposed rule would establish MCLs for six (6) PFAs; PFOA and PFOS as individual contaminants, and PFHxS, PFNA, PFBS, and HFPO-DA as a PFAS mixture. Additionally, the EPA is proposing non-enforceable, heathbased MCL Goals (MCLGs) for the identified PFAS.<sup>xxxi</sup> This rule also requires the following;

- Monitor for the six (6) types of PFAS
- Notify the public of the levels of these PFAS
- Reduce the levels of these PFAS in drinking water if present above the proposed standards.

Until the proposed regulations are enacted, this report utilizes the established EPA Health-Based Guidance Levels to determine PFAS exceedances. These values indicate the PFAS concentrations in which individuals may have an increased risk for related health effects when exposed to PFAS-contaminated drinking water. Guidance Levels exist for the afore mentioned PFAS.<sup>xxxii</sup>

It is important to note that Health-Based Guidance Levels are not enforceable. However, the minimum reporting level, or minimum concentration that can be reported by a laboratory as a quantitated value for a method analyte in a sample following analysis, is 2 parts per trillion (ppt) or nanograms per liter (ng/L) for all six (6) PFAS.

The Illinois Environmental Protection Agency (IEPA) sampled PFAS for SCWSs in Winnebago County, with the exception of Illinois American-South Beloit and South Bluff MHP since they purchase water from the City of Beloit, Wisconsin.

The IEPA's sampling detected PFAS in five (5) SCWSs. Bill-Mar Heights MHP, Mancuso Village MHP, and Rainbow Lane MHP all had PFAS detections above the guidance level for their respective analytes. Bradley Heights Subdivision and Rockton had detections greater than the minimum reporting level but less than the guidance level of 2.0 ppt.

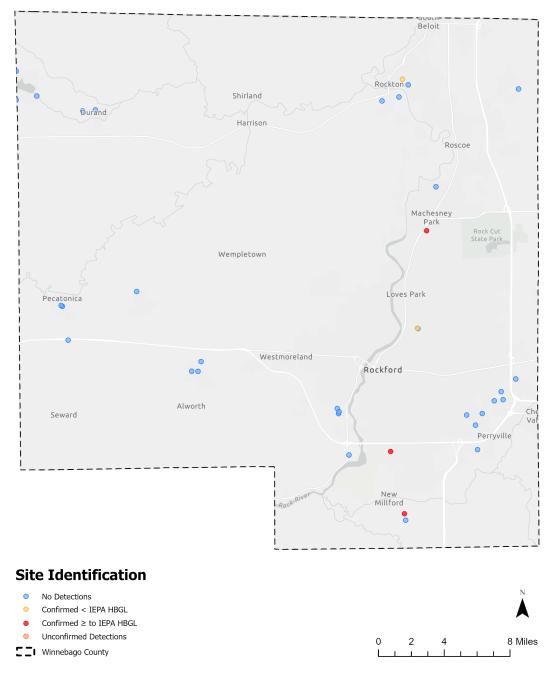
cws	PFAS Detected	Above Guidance Level	Above minimum reporting level but less than Guidance Level
Bill-Mar Heights MHP	Х	Х	-
Mancuso Village MHP	Х	Х	-
Rainbow Lane MHP	Х	Х	-
Bradley Heights Subdivision	Х	-	х
Rockton	Х	-	Х

#### Figure 4-4: Health-Based Guidance Levels for the 6 Types of PFAS

Chemical Abstract Services Registry Number (CASRN)	PFAS Analyte	Acronym	Health-Based Guidance Level (ng/L)	Date Health Advisory Issued/Revised
375-95-1	Perfluorononanoic acid	PFNA	21	July 27, 2021
1763-23-1	Perfluoroctanesulfonic acid	PFOS	14	April 16, 2021
375-73-5	Perfluorobutanesulfonic acid	PFBS	2,100*	April 16, 2021
335-67-1	Perfluorooctanoic acid	PFOA	2	January 28, 2021
355-46-4	Perfluorohexanesulfonic acid	PFHxS	140	January 28, 2021
307-24-4	Perfluorohexanoic acid	PFHxA	560,000	January 28, 2021

Source: Illinois EPA

Figure 4-5: PFAS results for SCWS wells sampled in Winnebago County



Source: IEPA PFAS Sampling Network, 2022

# Water Quality Violations: Reporting and Monitoring

### **Public Notification Rule**

The SDWA's Public Notification Rule requires that public water systems (PWS) notify consumers whenever they violate a national primary drinking water regulation or have circumstances posing a risk to public health. Tier 1 violations require immediate notice (within 24 hours), Tier 2 violations require notice as soon as practical (within 30 days), and Tier 3 notifications require an annual notice. Each violation tier also includes different rules for how the PWS should provide the notice. Failure to provide notice of violations poses significant health risks for consumers as they may not seek the appropriate health care when needed.

Five (5) SCWSs had Public Notification Rule violations from 2018 to 2022. Bill-Mar Heights MHP, Green Meadows Estates MHP, Phil-Aire Estates MHP, and South Bluff MHP each had one (1) monitoring and reporting violation that returned to compliance, and Rainbow Lane MHP had two (2). No systems have outstanding Public Notification Rule violations.

cws	Total Violations	Monitoring and Reporting	Returned to Compliance	
Bill-Mar Heights MHP	1	1	Yes	
Green Meadows Estates MHP	1	1	Yes	
Phil-Aire Estates MPH	1	1	Yes	
South Bluff MHP	1	1	Yes	
Rainbow Lane MHP	2	2	Yes	

### **Consumer Confidence Report (CCR) Rule**

The Consumer Confidence Report (CCR) Rule requires public water systems to supply specific information in annual water quality reports to comply with consumers' "right to know". These requirements include:

- Source water information;
- Definitions of Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs), along with their variances, exemptions, and action level activity on regulated and unregulated contaminants detected;

- Notification of compliance with National Primary Drinking Water Regulation and any violations;
- Statements on any contaminants present in the water;
- Additional information for educating consumers on their water supply; and
- Contact information for the EPA Safe Drinking Water Hotline.xxxiii

Change to Consumer Confidence Reports (CCRs) must be mailed or sent electronically to every customer on the system. SCWSs may publish their CCR in a local paper in place of sending individual copies through the mail. These reports must be made available by request.

Three (3) SCWSs had CCR violations for monitoring and reporting, with one (1) violation each between 2018 and 2022. These were: Forest View MHP, Rainbow Lane MHP, and Six Oaks MHP. All systems returned to compliance by December 2022.

cws	Total Violations	Monitoring and Reporting	Returned to Compliance
Forest View MHP	1	1	Yes
Six Oaks MHP	1	1	Yes
Rainbow Lane MHP	1	1	Yes

### Water Quality Violations: SCWS Results

Using the modified Enforcement Targeting Tool (ETT) equation, water quality violation data found that 11 out of 24 SCWSs have zero EPA water quality violations or PFAS detection within the past five (5) years. Seven (7) systems have low vulnerability (ranging from 0-4 points), three (3) systems have moderate vulnerability (ranging from 5-10 points), and three (3) have high vulnerability (exceeding 10 points). Of the three (3) high-priority systems, Green Meadows Estates MHP had the highest score at 46 but connected to the City of Rockford's water system during the 2022 assessment process. Other systems of high concern include Rainbow Lane MHP and Bill-Mar Estates MHP with scores of 13.5 and 12.5 respectively.

Table 4-4: Results of water quality violations assessment based on the modified ETT

System ID	System Name	Modified ETT Score	Priority Level
IL2010080	AQUA IL SHERIDAN GROVE	0	Low
IL2015345	BILL-MAR HEIGHTS	12.5	High
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0.5	Low
IL2010050	CHERRY VALLEY	5	Moderate
IL2015425	CLARKS MHP	0	Low
IL2010100	DURAND	0	Low
IL2010030	FOREST VIEW MHP	0.5	Low
IL2015495	GREEN MEADOWS ESTATES MHP	46	High
IL2010450	IL AMERICAN SOUTH BELOIT	0	Low
IL2015300	LEGEND LAKES WATER ASSOCIATION	0	Low
IL2015545	MANCUSO VILLAGE MHP	4.5	Moderate
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	0.5	Low
IL2010250	PECATONICA	0	Low
IL2015625	PHIL-AIRE ESTATES MHP	8.5	Moderate
IL2015160	PRAIRIE PATH WATER CO-COVENTRY CREEK	0	Low
IL2015150	PRAIRIE PATH WATER COVENTRY HILL	0	Low
IL2010070	PRAIRIE PATH WATER WESTLAKE	0	Low
IL2015400	PRAIRIE PATH WATER WILDWOOD	2.5	Low
IL2015100	PRAIRIE ROAD PUMP CORPORATION	2.5	Low
IL2015645	RAINBOW LANE MHP	13.5	High
IL2010350	ROCKTON	0.5	Low
IL2015685	SIX OAKS MHP	0.5	Low
IL2010460	SOUTH BLUFF MHP	0.5	Low
IL2010500	WINNEBAGO	0	Low

Source: Region 1 Planning Council

### Water Vulnerability

Water vulnerability is the likelihood of a water source being contaminated by a pollutant. For small community water systems (CWSs), vulnerability is one method of assessing what water quality issues are likely to occur and the possible sources of contamination. In the assessment, water vulnerability is measured based on proximity to sources of potential contamination, all of which have been identified by the Environmental Protection Agency (EPA) as threats to groundwater supplies. These facilities include:

- Septic tank locations
- National Pollutant Discharge Elimination System (NPDES) Permit sites
- Resources Conservation and Recovery Act (RCRA) sites
- Underground Storage Tanks (UST)
- Leaking Underground Storage Tanks (LUST)
- Site Remediation Program (SRP) sites
- Risk-Screening Environmental Indicators (RSEI) sites
- Major Pipelines
- Railroads
- Superfund (CERCLA) sites
- Brownfields
- Landfills

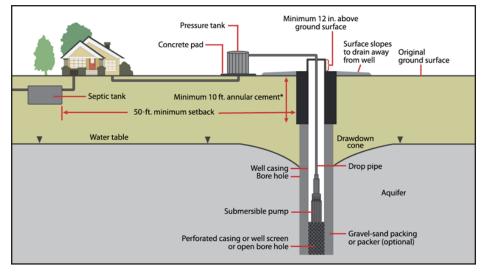
Proximity to the potential contamination sources, or facilities, is assessed by applying distance buffers based on existing well setbacks (the minimum distance between a well and a potential contamination source), guidance from the IEPA Well Site Survey program, and feedback from the Steering Committee.

For all, but the Superfund/CERCLA and landfill sites, vulnerability is ranked depending on whether a potential contamination source is within the well setback zone, between the setback zone and 1,000 feet, or further than 1,000 feet from the well. Title IV of the Illinois Environmental Protection Act is the legislation responsible for determining these setback zones. Setback zones for SCWS wells are either 200 or 400 feet from potential sources of contamination. The distance buffers from each well for Superfund/CERCLA and landfills range from less than 660 feet to over one (1) mile, depending upon corresponding criteria.

### Consistency with Federal and State Efforts

Amendments to the SDWA in 1996 required each state to develop and implement a Source Water Assessment Program (SWAP). The purpose of the SWAP is to protect critical sources of public water supply to ensure safe and affordable water sources are available to serve the public. The SWAP includes: identifying areas that supply drinking water to the public, creating an inventory of potential

<sup>18 |</sup> Winnebago County Small Community Water Security Assessment Report



Source: Mississippi State University Extension

sources of contamination, determining the susceptibility of the source water to contamination, and informing the public of the assessment results.<sup>xxxiv</sup>

In Illinois, each SCWS that treats surface or groundwater as a primary or emergency supply of water is required to have a Source Water Protection Plan (SWPP). The SWPP tasks public water systems with identifying potential contamination sources. This report and assessment are aligned with the SWPP and utilizes the same potential sources of contamination commonly seen in the SWPP.

Section 14.3 of the Illinois Groundwater Protection Act (IGPA) authorizes counties and municipalities utilizing any community water supply well to establish a maximum setback zone, up to 1,000 feet, around their well(s). The IGPA established minimum setback zones of either 200 or 400 feet.<sup>xxxv</sup> There is no established maximum setback zone for Winnebago County and systems are required to meet the minimum setback zones.

### Potential Contamination Sources on Community Water Systems: Definitions and Health Risks

The assessment includes and identifies a total of 3,260 potential contamination sources within Winnebago County. (Figure 4-7). Four (4) SCWSs did not have any of the assessed potential sources of contamination within 1,000 feet of their wells: Bradley Heights Subdivision, Rainbow Lane MHP, Utility Inc. Coventry Hills, and Wildwood Utilities Company. Additionally, Forest View MHP and South Bluff MHP did not have potential contamination concerns because both systems do not have active wells and receive their water supply from Illinois American – South Beloit.

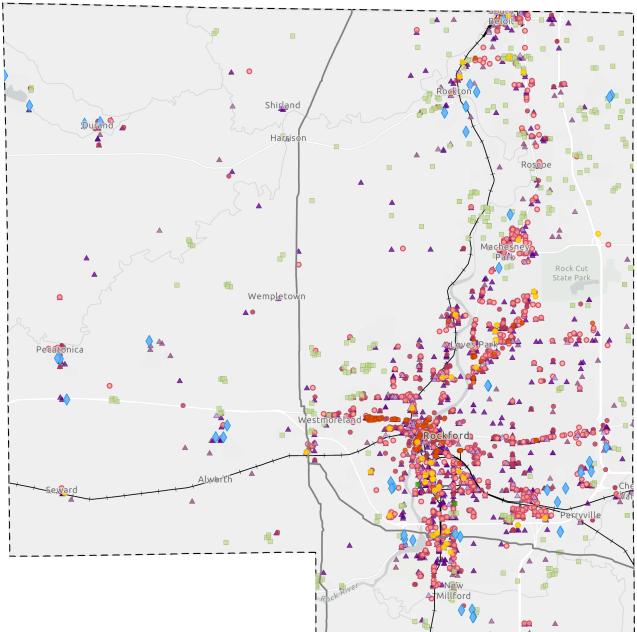
Illinois American – South Beloit purchases water from the City of Beloit but is included in this assessment portion due to the ownership of one (1) emergency well.

### Septic Tanks

Septic tanks are buried tanks made from concrete, plastic, or fiberglass that receive and partially treat domestic sewage. Leaking septic tanks are a known cause of fecal coliform bacteria contamination. This contamination often results from improperly maintained or decommissioned septic tanks.

Coliforms are bacterial species that inhabit the gastrointestinal tract of animals and humans or occur naturally in soil and surface water. The presence of coliforms in drinking water wells is an indicator that sewage or surface water has entered and contaminated the groundwater system<sup>xxxvi</sup>. Negative health outcomes are linked to coliform exposure, including gastrointestinal illnesses such as severe diarrhea and nausea, as well as fatigue, headaches, and jaundice. The severity of symptoms varies based on individual vulnerability; however, these symptoms are not exclusive to coliform exposure.<sup>xxxvii</sup>

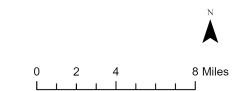
Illinois Environmental Protection Agency (IEPA) and Winnebago Geographic Information System (WinGIS) data identifies 314 septic systems throughout the county (Figure 4-8). However, more septic systems likely exist than are currently accounted for. Of the 314 septic systems identified, only three (3) septic systems fall within 1,000 feet of the SCWSs. These SCWSs are Legend Lakes Water Association, Phil-Aire Estates MHP, and Green Meadows Estates MHP. None of the identified septic tanks fall within the setback zones of any SCWS wells.

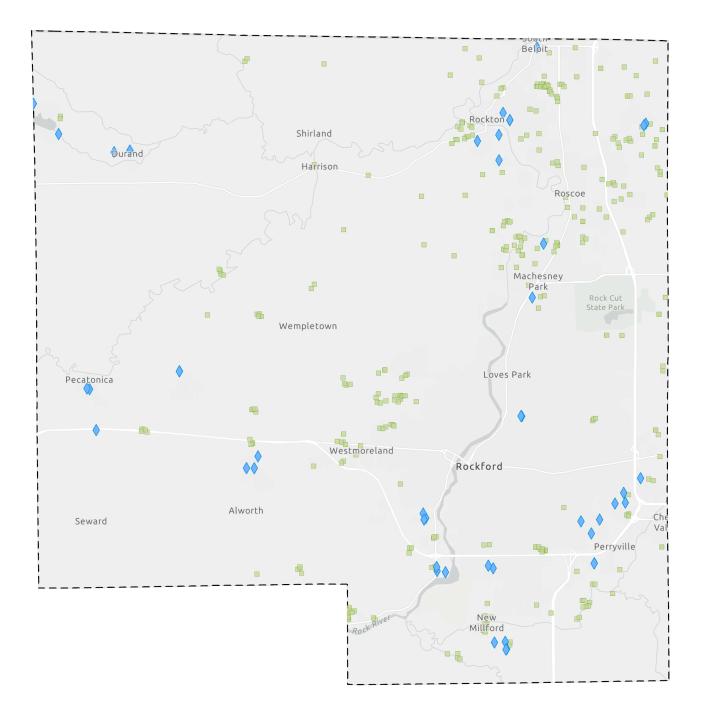


### **Potential Contamination Sources**

- TRI RSEI Sites
- Active Small CWS Wells
- Landfills
- Superfund Sites (CERCLA)
- Brownfields
- ----- Major Pipelines
- Septic Tanks

- SRP Locations
- RCRA Sites
- LUST Locations
- UST Facilities
- NPDES Sites
- ← Railroads
- **C U** Winnebago County







Source: IEPA & Federal Railroad Administration, 2022

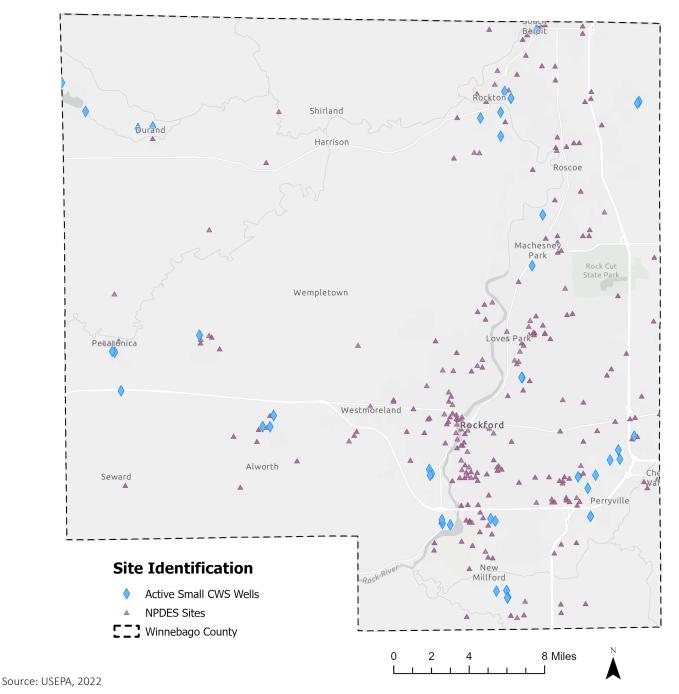
# National Pollutant Discharge Elimination System (NPDES) Permit Sites

The National Pollutant Discharge Elimination System (NPDES) is a permit program that regulates point sources that discharge pollutants into waters. Program areas include animal feeding operations, aquaculture, industrial wastewater, municipal wastewater, national pretreatment program, pesticide permitting, and stormwater. Depending on what pollutants are discharged, NPDES permits are generally not needed if discharging to a municipal sanitary sewer system; however, NPDES permits *are* required if discharging directly "into waters of the United States" or into

Figure 4-9: NPDES permit sites and SCWS wells of Winnebago

a municipal storm sewer system<sup>xxxviii</sup>. Health risks associated with NPDES permit sites vary greatly based on the discharge substance, duration, and amount.

This assessment identifies 263 NPDES source facilities and 497 reported NPDES permits within Winnebago County (Figure 4-9). Of the 497 permits, 233 have an "expired" status, 3 are "pending," 170 have been "terminated," 49 are "effective," 31 are "administratively continued," and the remainder have no status provided. As discharged substances can persist in groundwater, the analysis includes all NPDES permit sites.



### **NPDES Permit Status Classifications**

*Effective:* If an NPDES-regulated entity properly submits a complete notice of intent (NOI) by the due date set in the newly issued general permit and the authorized NPDES program approves coverage under the newly issued general permit, the entity's NPDES permit coverage under this newly issued general permit is "Effective."

Administratively Continued: If an NPDES-regulated entity properly submits a complete NOI by the due date set in the newly issued general permit but the authorized NPDES program has not taken final action (e.g., a hold is placed on the NOI for review), the entity's NPDES permit coverage under the prior general permit is "Administratively Continued."

*Expired:* If an NPDES-regulated entity fails to properly submit a complete NOI by the due date set in the newly issued general permit, the entity's NPDES permit coverage is "Expired." As noted above for individual permits, if an entity continues to discharge after its NPDES permit coverage expires, the entity may be considered to be discharging without a permit.<sup>xxxix</sup>

Altogether, the assessment identifies 11 of the active SCWS wells as being within 1,000 feet of an NPDES permit facility, with 4 wells within 1,000 feet of multiple facilities. However, only two (2) of the NPDES permit sites have an "effective" status, with the majority either expired, terminated, or without an active status listing. The two (2) effective NPDES permit sites are within 1,000 feet of wells for the Village of Winnebago. Additionally, two (2) NPDES permit sites are within the setback zone of a single well belonging to Green Meadow Estates MHP.

#### **Resource Conservation and Recovery Act (RCRA)**

The Resource Conservation and Recovery Act (RCRA) establishes a framework for the proper management of hazardous (Subtitle C) and non-hazardous (Subtitle D) solid waste at waste generators, transporters, treatment, storage, and disposal facilities. The RCRA regulates solid waste because of its adverse impacts on human and environmental health. Contact with solid waste exposes individuals to carcinogens and other potentially toxic materials, resulting in a wide range of health effects. Regulation under RCRA requires that all generators, disposers, transporters, treaters, and storers of hazardous waste have an RCRA hazardous waste permit and report to state environmental agencies.

Even with RCRA permits, solid waste can enter groundwater through leachate—a liquid formed when rainwater filters through waste that draws out chemicals.<sup>xl</sup> RCRA facilities

have leachate collection and removal systems but facilitates are still at risk for leachate pollution if these systems fail or are improperly installed.

The assessment identified 640 active RCRA sites in Winnebago County (Figure 4-10). Only one (1) of these sites is within the setback zone of any SCWS well belonging to Illinois American-South Beloit. Four (4) other systems have RCRA sites between their good setbacks and 1,000 feet: Cherry Valley, Bill-Mar Heights MHP, Durand, and Winnebago. Of these systems, Illinois American-South Beloit and Bill-Mar Heights MHP both have the greatest number of facilities within 1,000 feet of a single well, at three (3) facilities.

# Underground Storage Tank (UST) and Leaking Underground Storage Tanks (LUST)

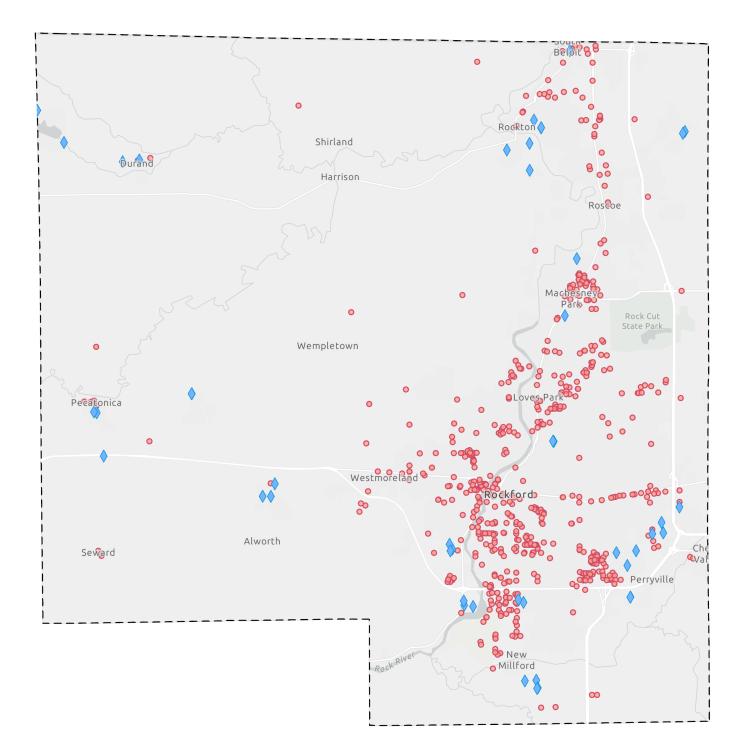
Underground storage tanks (USTs) are tanks and piping that primarily store petroleum products or hazardous waste belowground. At least 10 percent of a tank's combined volume must be underground for the tank to be considered a UST. Underground Storage Tank owners commonly include those who market gasoline to the public (e.g. service stations and convenience stores) and those who use tanks for their own purposes (e.g. local governments and fleet services).<sup>xli</sup> These tanks pose a threat to groundwater resources because of their ability to leak either through corrosion or improper installation, operation, and maintenance.

Leaking underground storage tanks (LUSTs) are USTs that have identifiable releases of a fuel product. Leaking Underground storage tanks can require immediate emergency responses, and legislation requires owners or operators to address the release within a designated timeframe.

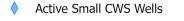
There is a total of 1,444 underground tanks in Winnebago County, 560 of which are LUSTs (Figure 4-11). The following eight (8) systems have wells within 1,000 feet of a UST:

- Cherry Valley (2 wells)
- Winnebago (2 wells)
- Bill-Mar Heights MHP
- Six Oaks MHP
- Durand
- Pecatonica (2 wells)
- Utility Inc. Coventry Hills
- Otter Creek Lake Utilities District

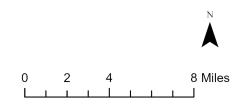
Of these systems, Bill-Mar Heights MHP has the most USTs in proximity to a single well, with four (4) USTs within 1,000 feet of one of its wells. No systems have USTs within the setback zones of any wells.

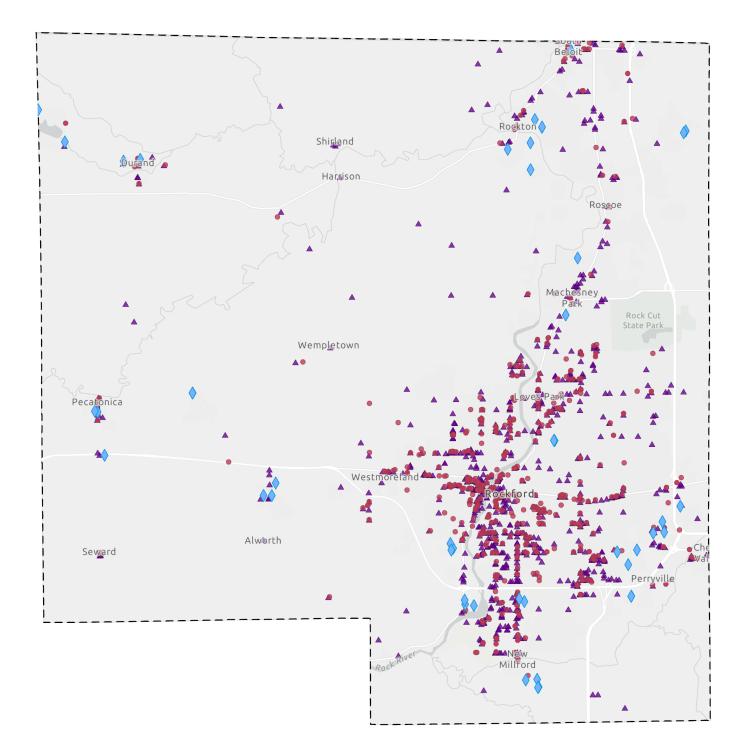


## Site Identification



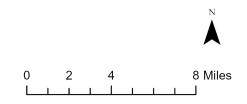
- RCRA Sites
- **C** Winnebago County





## **Site Identification**

- Active Small CWS Wells
- LUST Locations
- UST Facilities
- **Winnebago County**



Nine (9) systems had wells within 1,000 feet of a LUST:

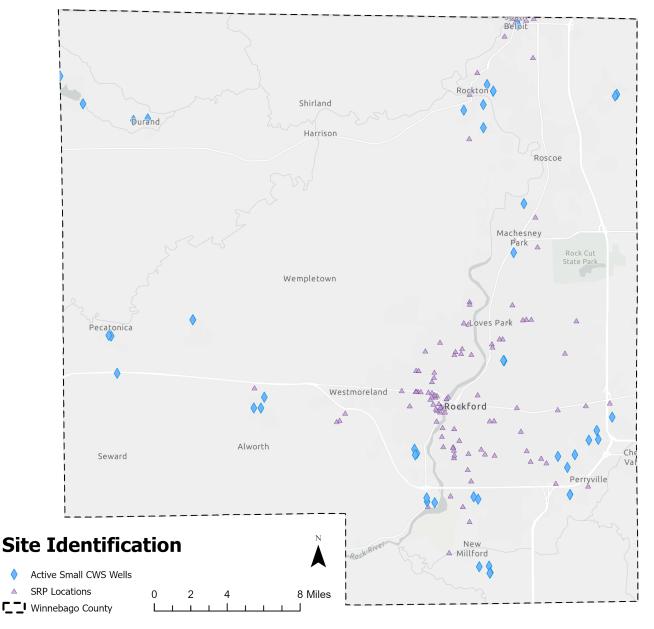
- Cherry Valley (two wells)
- **Bill-Mar Heights MHP**
- Durand
- Pecatonica (two wells)
- IL American-South Beloit
- Utility Inc. Coventry Hills
- Mancuso Village MHP

IL American-South Beloit has the most LUSTs within 1,000 feet of a single well, with six (6) LUSTs. However, it is important to note that Illinois American-South Beloit purchases water from Beloit, WI and its only well is for emergency purposes. Additionally, Cherry Valley has one (1) well with a LUST within its setback zone.

#### Site Remediation Program (SRP)

The SRP is a voluntary cleanup program administered by the Remedial Project Management Section within the Illinois EPA's Bureau of Land. The program reviews, evaluates, and approves services for the remediation of sites where hazardous substances, pesticides, or petroleum may be present.<sup>xlii</sup> Under the program, remediation site investigations must be performed to identify any recognized environmental conditions existing at the remediation site; the related contaminants of concern; and associated factors that will aid in the identification of risks to human health, safety, and the environment; the determination of remediation objectives, and the remedial design.





Source: IEPA

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The human health impacts from proximity to SRP sites are consistent with symptoms from exposure to hazardous substances, pesticides, or petroleum. Some of these impacts include nausea, headaches, diarrhea, birth defects, damage to the nervous system, and cancer.

The assessment identified 113 SRPs within county lines (Figure 4-12). Only three (3) are within 1,000 feet of any SCWS wells, two (2) of which fall within that distance of a single well belonging to Green Meadows Estates MHP. The other well in proximity to an SRP location belongs to Illinois American-South Beloit. However, Illinois American-South Beloit's single well is only for emergencies, and Green Meadows Estates MHP connected to the City of Rockford's water supply in late 2022. No systems have SRP locations within the setback zones of their wells.

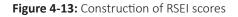
#### **Risk-Screening Environmental Indicators (RSEI)**

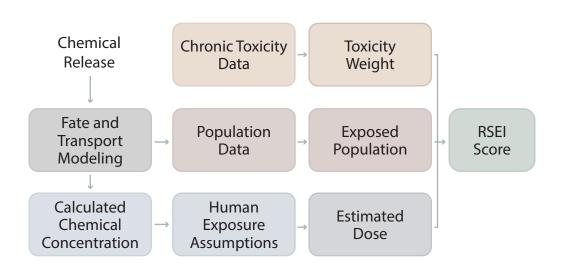
The EPA's Risk-Screening Environmental Indicators (RSEI) is a model used to provide information on the potential health impacts of toxic chemical releases from facilities that report to the Toxic Release Inventory (TRI).<sup>xliii</sup> Toxic release inventory (TRI) facilities are those that are managed and tracked by the EPA based on the presence of certain toxic chemicals that may pose a threat to human and environmental health.<sup>xliv</sup> The EPA's RSEI scoring system is based on more than 30 years of TRI chemical data, toxicity, and physiochemical data from more than 400 chemicals, information from three (3) U.S. censuses, and geographical information from thousands of streams and water bodies.<sup>xiv</sup> Risk-Screening Environmental Indicators (RSEI) scores are used in place of TRI chemical release data in this assessment due to the information included through the RSEI on environmental fate, toxicity, and exposure (Figure 4-13).

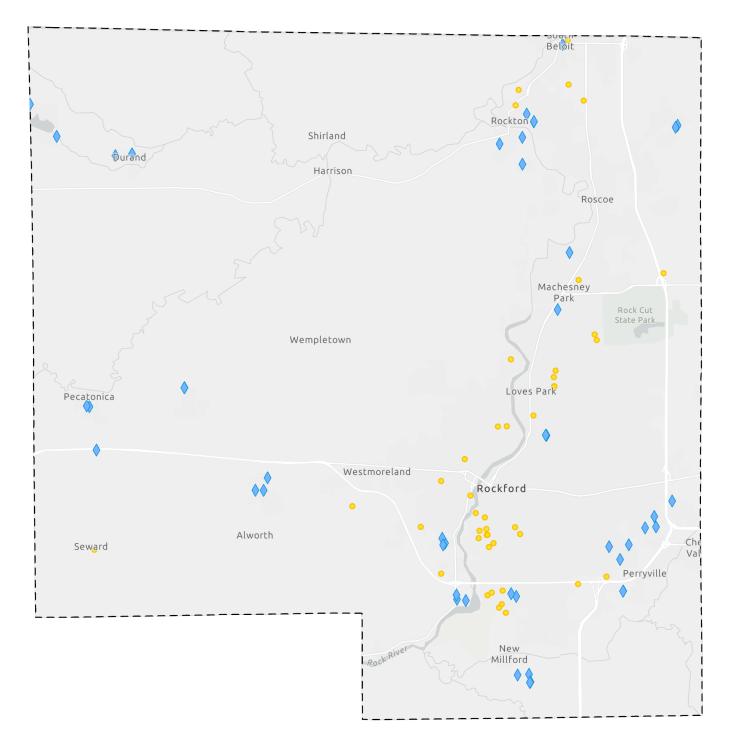
Risk-Screening Environmental Indicators (RSEI) scores are used as a point of comparison for identifying areas of potential concern but do not describe a specific level of risk. The scores are relative and often expressed in percentiles as compared to national averages. A facility found to be in a high percentile may be the greatest priority for further investigation but all RSEI scores above zero are of concern for potential human health impacts.

There were 69 RSEI scores for TRI sites across Winnebago County in 2020 (the most recent year in which data was available) (Figure 4-14). Of these 69 scores, 44 were above zero. The assessment did not include sites with a score of zero because they indicate a negligible potential concern for contamination from TRI facilities.

None of the SCWS wells are within 1,000 feet of any of the RSEI TRI sites, regardless of whether the site scored above zero. SCWS wells in Winnebago County are not within 1,000 feet of any TRI sites that receive an RSEI score between 2015 and 2020.









Source: IEPA 2022

### **Major Pipelines**

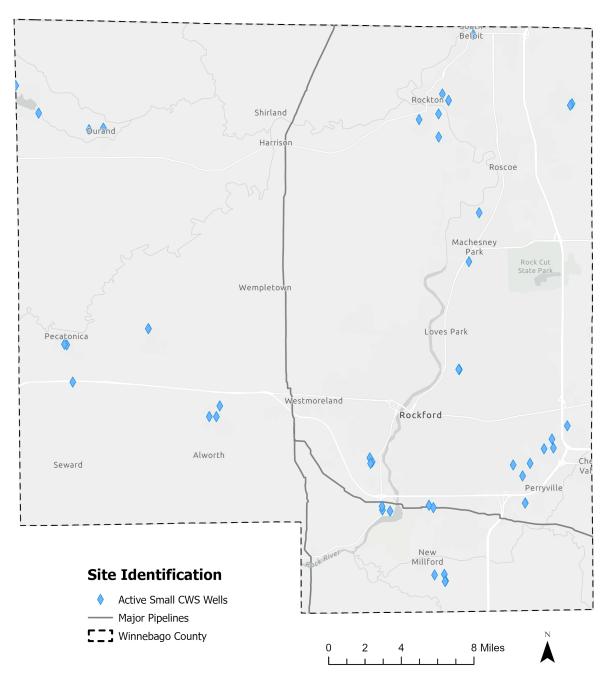
"Major pipelines" are pipelines that transport and supply oil and gas. Pipelines carrying petroleum products can leak and risk groundwater contamination. In March 2022, for example, a pipeline leak near Edwardsville, Illinois released 3,900 barrels (160,000 gallons) of crude oil into the soil and adjacent Cahokia Creek. Drinking water contaminated with crude oil can cause gastrointestinal issues, including cramping, nausea, vomiting, and diarrhea.

Three segments of the West Shore Pipe Line System run through Winnebago County—the Des Plaines Station to

Rockford Station, Rockford Station to Middlebury Station, and Rockford Station to Madison Station pipelines (Figure 4-15). All pipelines transport refined oil.

Only three (3) SCWS wells are within 1,000 feet of any portion of the West Shore Pipe Line System. Two (2) of these wells, belonging to the Bill-Mar Heights MHP, have a portion of the pipeline within their established setback zones (400 feet). The other well belongs to Green Meadows Estates MHP.

Figure 4-15: Major pipelines and active SCWS wells throughout Winnebago County



#### Railroads

Passenger and freight train tracks can be the site of multiple potential contaminant sources, including:

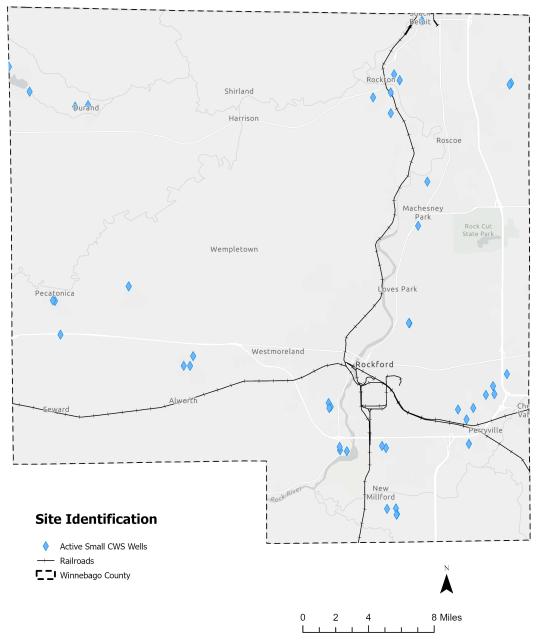
- Railroad ties, which are usually treated with chemicals like creosote;
- Coal ash and cinder containing chemicals such as lead and arsenic;
- Spilled or leaked liquids such as oil, gasoline, and cleaning solvents;
- Herbicides—chemical substances used to control or destroy unwanted vegetation;
- Fossil fuel combustion products like polyaromatic hydrocarbons (PAHs);

- Railcars and railroad buildings containing asbestos—a cancer-causing mineral fiber commonly used in industry and construction until the latter half of the 20th century; and
- Metals.<sup>xlvi</sup>

Each of these contaminants may results in negative health impacts if consumed.

The assessment identifies 78 segments of railroad lines in Winnebago County. Only one (1) well, belonging to the Village of Rockton, is within 1,000 feet of any rail segments and falls within the 400-foot setback zone for this well.

Figure 4-16: Railroads and active SCWS wells throughout Winnebago County



Source: Federal Railroad Administration, 2022

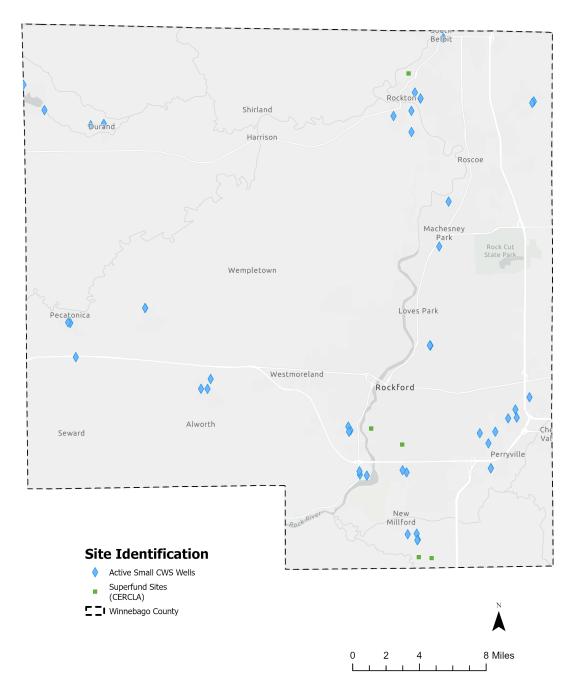
### Superfund (CERCLA) Sites

The EPA's Superfund, also known as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), is intended to identify sites where hazardous materials threaten the environment or public health due to leakage, spillage, or general mismanagement. Sites on the Superfund National Priorities List (NPL) are those that are a national priority due to known or threatened releases of hazardous substances, contaminants, or pollutants.<sup>xlvii</sup>

Within Winnebago County, a total of five (5) Superfund (CERCLA) sites are part of the NPL (Figure 4-17). These sites

are ACME Solvent Reclaiming Inc.; Chemtool (formerly Beloit Corporation); Interstate Pollution Control Inc., Pagel's Pit; and the Southeast Rockford Ground Water Contamination site. All of these sites are on the Final National Priorities List. Five (5) SCWS wells were between one-half (1/2) to one (1) mile from an NPL Superfund site. These wells belong to Aqua Illinois-Sheridan Grove (2 wells), Clarks MHP, Rockton, and Prairie Road Pump Corporation. No systems have an NPL Superfund site less than one-half mile from their wells.

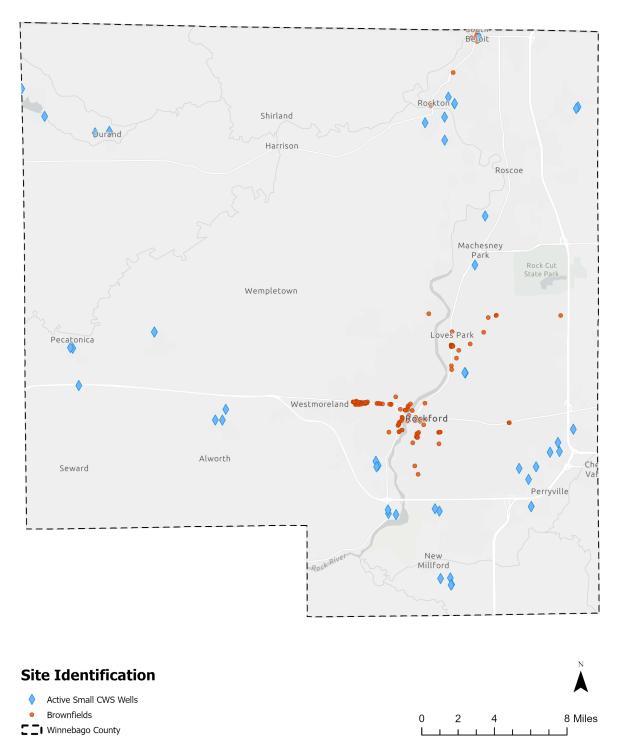
Figure 4-17: Active SCWS wells and NPL Superfund (CERCLA) sites in Winnebago County



#### **Brownfields**

Brownfields are properties in which contamination or potential contamination is present, making reuse or redevelopment of the land difficult. The EPA's Brownfields and Land Revitalization Program works to assess the contamination of these sites with the intent of cleaning up contaminants and revitalizing the area for future use.<sup>xlviii</sup> Winnebago County has 142 identified brownfield locations (Figure 4-18). One of these locations is within 1,000 feet of a well belonging to the Village of Durand. An additional four (4) locations are within 1,000 feet of a single well belonging to Illinois American – South Beloit. No brownfield locations are within the setback of any SCWS well.





Source: IEPA

### Landfills

The assessment defines landfills as permit-approved locations where waste is transported for disposal and burial. Sites that host illegal dumping of waste are not included in this assessment.

The Winnebago Landfill is the only landfill located within Winnebago County, with another landfill being located just south of the Winnebago County/Ogle County line. Both facilities are defined as municipal landfills.

The Winnebago Landfill is located within one (1) mile of four (4) active SCWS wells. These wells belong to Aqua Illinois Sheridan Grove (two wells) and Mancuso Village MHP (two wells). Neither landfill is under one-half mile from any of the SCWS wells.

#### **Total Water Vulnerability Scores**

Table 4-5 is the System Total Water Vulnerability Scores, calculated by using the methodology and indicators outlined above.

Figure 4-19: Landfills and active SCWS wells in Winnebago County

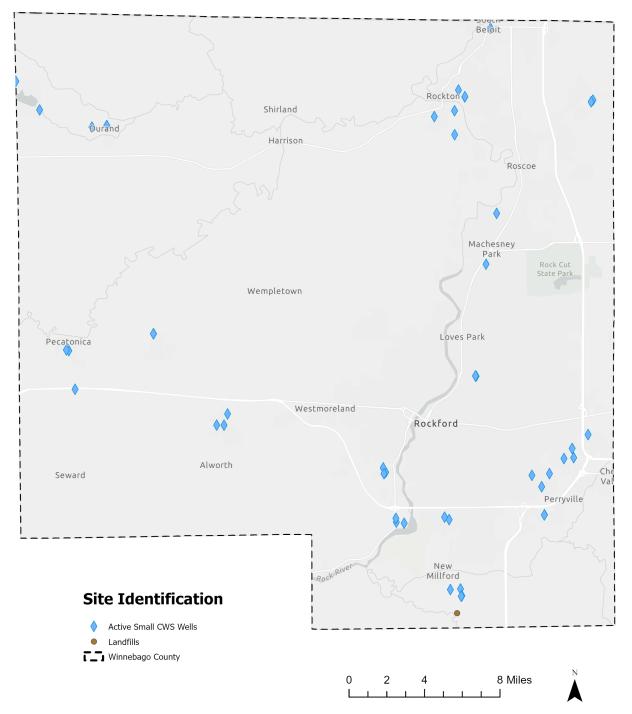


Table 4-5: Results from the water vulnerability assessment for proximity to potential sources of contamination

System ID	System Name	Water Vulnerability Score	Priority Level
IL2010080	AQUA IL SHERIDAN GROVE/ SHERIDAN GROVE SUBDIVISION	1	High
IL2015345	BILL-MAR HEIGHTS MHP	3.5	High
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0	Low
IL2010050	CHERRY VALLEY	5	High
IL2015425	CLARKS MHP	0.25	Moderate
IL2010100	DURAND	2.75	High
IL2010030	FOREST VIEW MHP		
IL2015495	GREEN MEADOWS ESTS OF ROCKFORD	2	High
IL2010450	IL AMERICAN-SOUTH BELOIT	8.75	High
IL2010300	LEGEND LAKES WATER ASSOCIATION	0.25	Moderate
IL2015545	MANCUSO VILLAGE PARK MHP	1	High
IL2015320	OTTER CREEK LAKE UTL DSTRCT	0.25	Moderate
IL2010250	PECATONICA	1.5	High
IL2015625	PHIL-AIRE ESTATES MHP	0.125	Moderate
IL2015160	PRAIRIE ROAD PUMP CORPORATION	0.25	Moderate
IL2015150	RAINBOW LANE MHP	0	Low
IL2010070	ROCKTON	0.75	Moderate
IL2015400	SIX OAKS MHP	0.25	Moderate
IL2015100	SOUTH BLUFF MHP		
IL2015645	UTL INC COVENTRY CREEK SBDV	0	Low
IL2010350	UTL INC COVENTRY HLS UTL INC	1.75	High
IL2015685	UTL INC WESTLAKE UTILITIES INC	0.5	Moderate
IL2010460	WILDWOOD UTILITIES COMPANY	0	Low
IL2010500	WINNEBAGO	3.5	High

Systems without a score or priority level are those that do not have wells.

Source: Region 1 Planning Council

## Aquifer Vulnerability

Aquifer vulnerability is an aquifer's potential for contamination. This vulnerability is assessed based on the depth of an aquifer and its hydrogeological characteristics through an intrinsic vulnerability assessment. An intrinsic vulnerability assessment. An intrinsic vulnerability assessment determines vulnerability without taking into consideration the qualities and behaviors of specific contaminants.<sup>xiix</sup> For this portion, the assessment will instead focus on the physical characteristics of the land and subsurface, and how those characteristics affect the likelihood of contamination more broadly.

The benefit of conducting an intrinsic vulnerability assessment is that it provides a snapshot of relative vulnerability to all contaminants and does not preclude more detailed analyses. Areas determined to be of high vulnerability undergo more thorough assessments and monitoring efforts, with focus on specific site characteristics.

### Aquifer Type

The assessment identifies aquifer types based on the hydrogeology of Winnebago County. The majority of groundwater sources in northern Illinois are sand and gravel aquifers, shallow bedrock aquifers, and Cambrian-Ordovician Sandstone Aquifers.<sup>1</sup> The assessment narrowed down aquifer types common within Winnebago County: sand and gravel aquifers, shallow bedrock aquifers (less than 500 feet), and deep bedrock aquifers (greater than 500 feet). Sand and gravel aquifers are the most susceptible aquifer types to contamination. While less susceptible than sand and gravel aquifers, shallow aquifers are more

susceptible to contamination than deep aquifers, making them a second in susceptibility in the assessment.

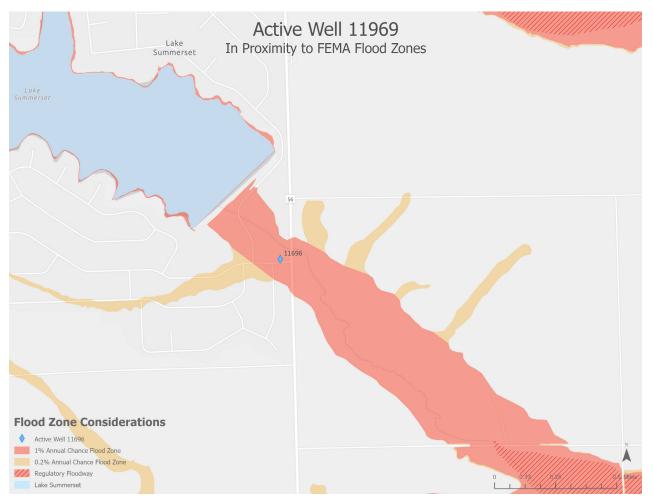
### Flooding

The Otter Creek Lake Utilities District contains the only active SCWS well located in a floodplain (Figure 4-20). This well is located near Lake Summerset and the South Branch of Otter Creek at the northwestern edge of Winnebago County. It falls within an area designated as a one (1) percent annual chance flood hazard zone, meaning it has a one (1) percent chance or greater of experiencing a flood in any given year. Wells that are within a floodplain are more prone to contamination. Floodwaters can carry contaminants such as sewage, animal feces, and inorganic and organic compounds can contaminate these wells, especially if wells are not properly installed or maintained.

Older wells are more susceptible to contamination. Many wells in the county are approaching the end of their lifecycles, creating a higher risk of well casing failure that allows for a high risk of contamination from uncontained aquifers. In the event of a consistent flooding risk, drilling a new well further above the flood elevation may be a method for contamination protection.<sup>II</sup>

### **Flood Protection**

Ways to protect wells from flooding contamination include extending the well casing above the highest flood elevation, installing seals or coves on the well casing, installing backflow valves, and protecting electrical controls from water damage.





#### Table 4-6: Aquifer Vulnerability Results

Sub-Criteria: Water Vulnerability			
Project Name	Score	Project Name	Score
AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	18	LEGEND LAKES WATER ASSOCIATION	9
BILL-MAR HEIGHTS	18	OTTER CREEK LAKE UTILITIES DISTRICT	9
CHERRY VALLEY	18	PRAIRIE ROAD PUMP CORPORATION	9
DURAND	18	SIX OAKS MHP	9
IL AMERICAN SOUTH BELOIT	18	UTL INC WESTLAKE UTILITIES INC	9
MANCUSO VILLAGE MHP	18	BRADLEY HEIGHTS SUBDIVISION	4.5
PECATONICA	18	PHIL-AIRE ESTATES MHP	4.5
ROCKTON	18	RAINBOW LANE MHP	4.5
SOUTH BLUFF MHP	18	UTL INC COVENTRY CREEK SBDV	4.5
UTL INC COVENTRY HLS UTL INC	18	WILDWOOD UTILITIES COMPANY	4.5
WINNEBAGO	18	FOREST VIEW MHP	0
CLARKS MHP	9	GREEN MEADOWS ESTATES MHP	0

# Water Availability

The balance between water supply and demand is a growing concern for small community water systems (CWS). The relationship and balance between these two (2) items determines the availability of water for residents and businesses. The assessment identifies the current state of water availability by assessing Water Supply and Water Demand. This section will identify the mechanisms that influence regional water supply and demand.

### Water Demand

Water demand is the quantification of how much water is requested by consumers to meet their needs. This assessment identifies the demand of each SCWS by quantifying demand as the volume of water a system depletes from an aquifer. This specific value does not account for the amount of water consumed or delivered to the customer. Any water lost in the delivery process, most often through leaks, is not accounted for.

Community water systems withdraw water from the same aquifers that municipal systems and industrial operations withdraw from. If drawdown exceeds a sustainable rate, the aquifer will have a limited water supply for all types of consumption. Water demand is not regulated by any State of Illinois statute and there is no legal authority to intervene in disputes over water demand.<sup>III</sup> As established in Evans v. Merriweather (1842), Illinois adopts the reasonable use doctrine, in which any use of water that is reasonable is allowed. Groundwater rights, however, differ in the passing of the Water Use Act of 1983. The Water Use Act was passed to establish means of reviewing water conflicts before damages or water shortages occur by:

- Providing County Soil Water Conservation Districts to receive notice for incoming substantial use of water;
- Authorizing the County Soil Water Conservation Districts to recommend restrictions of groundwater withdrawal in times of shortage or great need; and
- Establishing "reasonable use" for groundwater withdrawals.<sup>IIII</sup>

Reasonable use is loosely defined within the Water Use Act but defined from regulations imposed by the Illinois Department of Agriculture. Regulations separate natural and artificial use by the necessity for existence and unnecessary for existence, respectively.<sup>liv</sup>

Additional legislation and regulation under the

Environmental Protection Act [415 ILCS 5] (Act), the Pollution Control Board Rules, and the Safe Drinking Water Act (42 U.S.C. 300f et seq.) restrict any behavior that limits water supply adequacy, referring to quality, not quantity.

### External Drivers of Demand

Population growth, industry growth, and change are relevant drivers of water demand. Climate change is a factor in creating demand drivers. Climate projections indicate that precipitation events will occur less often and in higher volumes. This means that prolonged droughts will become more common, leading to an increased demand for groundwater for crops and land maintenance. The Illinois State Water Survey (ISWS) Hot/Dry Climate Scenario predicts an 8.7 percent increase in water demand by 2060, equivalent to an increased demand of 7.1 million gallons per day.

Population growth is another concern for water demand issues. Any increase in population, including climate immigration, job creation, and housing developments, may increase the demand for groundwater.

Additional increase in water demand may also come from the development of industry and employment opportunities. Technical industries, including nuclear energy, the software industry, controlled environment agriculture (e.g., vertical agriculture and aquaculture), and semiconductor manufacturing are just some examples of industries that require high volumes of water for operation. Any influx of technology industries in the County will increase water demand. Industrial and agricultural water consumption is around .3 million gallons per day each. This number is significantly lower than municipal water consumption at 24.1 million gallons per day.<sup>™</sup>

Different response mechanisms, including permit enforcement or drought response plans, may assist in mitigating increased demand. Preparing for these drivers is another method of mitigation.

### Current and Projected Future Demand

This assessment estimates the risks of current water demand by identifying demand and the number of wells in a community water system, along with considering the transmissivity of the aquifer from which the system is depleting. Groundwater, while replenishable, is not a renewable resource and is at risk if drawdown increases beyond the ability for aquifer recharge. As populations grow and climate conditions alter weather patterns, water insecurity is a challenge that will need to be considered. The assessment also accounted for the projected future demand out to the year 2060. Current trends indicate that future climate conditions may significantly impact water demand. According to ISWS 2060 projections, in a Hot/Dry future scenario, public water demand will increase to the greatest degree. ISWS estimates that public system water demand would increase by 7.1 million gallons per day, which is an 8.7 percent increase compared to the present day. The assessment calculates future demand by increasing the current demand by the 8.7 percent estimate.

This assessment identified demand as the drawdown potential of each well based on the demand and transmissivity of the aquifer. The results are shown in Table 4-7.

Cherry Valley and UTL Inc Westlake Utilities Inc. rank the highest for water demand vulnerability. Since Forest View MHP and South Bluff MHP do not have wells, they were assigned the score of zero.

### Drawdown:

The withdrawal of water, oil, or gas from a reservoir or repository.

## Water Supply

Water supply is a primary concern for the Rockford Region. Understanding the current and predicted supply and demand of each small community water system (SCWS) allows system operators to better manage pumping and drawdown rates.

### Influences on Water Supply

Water supply consists of two (2) factors: water quality and water quantity. This section focuses on water quantity. Aquifer productivity is a primary determinant of the amount

Table 4-7: Current and Future Results Water Demand for SCWS in Winnebago County

SUB-CRITERIA: Water Demand			mand	• •	
	Current D	Demand	Future D	Demand	
System Name	Current Q_Score	SCORE	Future Q_Score	Score	Subtotal
CHERRY VALLEY	3	4.5	3	4.5	9
UTL INC WESTLAKE UTILITIES INC	3	4.5	3	4.5	9
DURAND	2	3	2	3	6
OTTER CREEK LAKE UTILITIES DISTRICT	2	3	2	3	6
UTL INC COVENTRY CREEK SBDV	2	3	2	3	6
UTL INC COVENTRY HLS UTL INC	2	3	2	3	6
WILDWOOD UTILITIES COMPANY	2	3	2	3	6
WINNEBAGO	2	3	2	3	6
AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	1	1.5	1	1.5	3
BILL-MAR HEIGHTS	1	1.5	1	1.5	3
BRADLEY HEIGHTS SUBDIVISON	1	1.5	1	1.5	3
CLARKS MHP	1	1.5	1	1.5	3
GREEN MEADOWS ESTATES MHP	1	1.5	1	1.5	3
IL AMERICAN SOUTH BELOIT	1	1.5	1	1.5	3
LEGEND LAKES WATER ASSOCIATION	1	1.5	1	1.5	3
MANCUSO VILLAGE MHP	1	1.5	1	1.5	3
PECATONICA	1	1.5	1	1.5	3
PHIL-AIRE ESTATES MHP	1	1.5	1	1.5	3
PRAIRIE ROAD PUMP CORPORATION	1	1.5	1	1.5	3
RAINBOW LANE MHP	1	1.5	1	1.5	3
ROCKTON	1	1.5	1	1.5	3
SIX OAKS MHP	1	1.5	1	1.5	3
FOREST VIEW MHP	-	0	-	0	0
SOUTH BLUFF MHP	-	0	-	0	0

of water available for drawdown. As discussed previously in **Water Vulnerability**, there are three (3) major sources of groundwater in Winnebago County: sand and gravel aquifers, shallow carbonate bedrock aquifers (Galena-Platteville), and the deeper sandstone bedrock aquifers (Cambrian-Ordovician). Within the Rock River Valley, a productive sand and gravel aquifer directly overlaps the Cambrian-Ordovician sandstone, a relatively productive groundwater source.<sup>Ivi</sup> However, outside of the Rock River Valley, the Galena-Platteville overlies on the Cambrian-Ordovician sandstone, limiting productivity. While both aquifers overlay the Cambrian Ordovician sandstone aquifer, Sand and gravel aquifers are significantly more productive than the Galena-Platteville aquifers.

Aquifers are most often recharged by rainfall and precipitation or surface water infiltration. This means that the water quantity is influenced by weather and climate patterns. If drawdown exceeds the rate at which precipitation and surface water can recharge an aquifer, the result is a shortage of water. This issue is exacerbated by the unpredictability of precipitation events, especially in the event of climate change. Projections from the Illinois State Climatologist predict that the Rockford region (including Winnebago and Boone Counties) will experience a higher volume of total precipitation but over a lower number of precipitation events. This indicates that there will be longer periods without rainfall, potential droughts, limiting windows for aquifer recharge. Additionally, a higher volume of precipitation may not increase aquifer recharge if a particular aquifer requires a long time to refill.

### Aquifer Recharge Potential

Aquifer recharge potential is an aquifer's ability to refill after a well has depleted an amount of water. Similar to aquifer vulnerability, the composition of the material that dominates the upper layer of the unconsolidated material (loose or uncemented material) is the driving factor of this measurement.<sup>Ivii</sup> For this assessment, low-recharge potential indicates high vulnerability. Low recharge potential indicates that an aquifer cannot replenish groundwater effectively or efficiently after significant drawdown.

Recharge potential is assessed by the percentage of sand and gravel near an aquifer's surface. This percentage indicates how quickly water can flow through the surface. Aquifers with a high composition of course-grained materials, such as gravel, have high recharge potential, and fine-grained materials, such as sand, have low recharge potential. Wells in areas of low recharge potential (greater than 90% of finegrained material) are systems with high vulnerability. Wells in areas of high recharge potential (greater than 75 percent of course-grained material) are considered less vulnerable.

There is minimal variation throughout the geologic makeup of Winnebago County and over one-third (1/3) of the SCWSs have low-recharge potential indicating a high vulnerability.

The assessment ranks SCWSs on a level of one (1) to five (5), with five (5) being the most vulnerable. Ten (10) systems received a score of five (5) (Table 4-8). These systems are Durand, Legend Lakes Water Association Otter Creek Lake Utility District, Pecatonica, Six Oaks MHP, Utilities Inc - Coventry Creek Subdivision, Utilities Inc - Coventry Hills Utilities Inc., Utilities Inc.- Westlake Utilities Inc., Wildwood Utility Company, and Winnebago. SCWSs without wells did not receive a ranked value for aquifer recharge potential and receive a zero for this portion.

**Table 4-8:** Aquifer Recharge Potential for SCWS in WinnebagoCounty

Project Name	Average R_Score
DURAND	5
LEGEND LAKES WATER ASSN	5
OTTER CREEK LAKE UTILITY DIST	5
PECATONICA	5
SIX OAKS MHP	5
UTILITIES INC - COVENTRY CREEK SUBD	5
UTILITIES INC - COVENTRY HILLS UTILITIES INC	5
UTILITIES INC WESTLAKE UTILITIES INC.	5
WILDWOOD UTILITY CO	5
WINNEBAGO	5
CHERRY VALLEY	4.7
AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	4
CLARKS MHP	4
PRAIRE ROAD PUMP COMPANY	4
BILL MAR HEIGHTS MHP	3.7
MANCUSO VILLAGE PARK MHP	3.5
BRADLEY HEIGHTS SUBD	3
GREEN MEADOW ESTATE MHP	3
ROCKTON	2.3
RAINBOW LANE MHP	2
ILLINOIS AMERICAN - SOUTH BELOIT	1
PHIL-AIRE ESTATES MHP	1
FOREST VIEW MHP	-
SOUTH BLUFF MHP	-



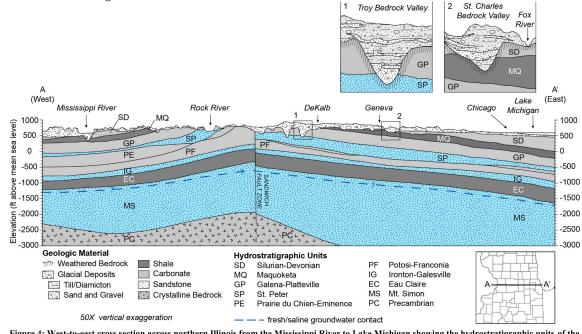


Figure 4: West-to-east cross section across northern Illinois from the Mississippi River to Lake Michigan showing the hydrostratigraphic units of the study area. Note the presence of the Sandwich Fault Zone, which offsets the hydrostratigraphic units. The Troy Bedrock Valley and the St. Charles Bedrock Valley are shown, illustrating the hydrologic connection between glacial sand and gravel aquifers and deeper bedrock aquifers. Troy Bedrock Valley inset modified from Dey et al. (2007).

Source: ISWS

### Aquifer Capacity

Aquifer capacity, or aquifer transmissivity, is an aquifer's potential for groundwater flow through the aquifer. Aquifers with high levels of transmissivity have more water available for withdrawal.<sup>Iviii</sup> This value is a combination of two (2) factors: hydraulic conductivity and saturated thickness. Low aquifer capacity, or transmissivity, indicates a high vulnerability score, and high aquifer capacity, or transmissivity, a low vulnerability score.

Across the county, SCWSs were ranked from high to low transmissivity, with the areas of highest transmissivity concentrated along the Rock River. Transmissivity values ranged from 0-1000 ft<sup>2</sup>/day. These values may be conservative for small systems, low transmissivity scores should not be a cause for alarm but should be an indicator that additional research and discussion is required.

The assessment ranks SCWSs on a level of one (1) to five (5), with five (5) being the most vulnerable (Table 4-9). Only two (2) systems scored above a four (4); Utilities Inc. – Coventry Creek Subdivision (5 points) and Utilities Inc. – Coventry Hills Utilities Inc. (4.5). Six (6) systems received a four (4), the next highest value. These systems include Durand, Legend Lakes Water Association, Otter Creek Lake Utility District, Utilities Inc. – Westlake Utilities Inc., Wildwood Utility Company, and Winnebago. SCWSs without wells did not receive a ranked value for aquifer capacity and receive a zero for this portion.

Table 4-9: Aquifer Capacity for SCWS in Winnebago County

Project Name	Average T_Score
UTILITIES INC - COVENTRY CREEK SUBD	5
UTILITIES INC - COVENTRY HILLS UTILITIES INC	4.5
DURAND	4
LEGEND LAKES WATER ASSN	4
OTTER CREEK LAKE UTILITY DIST	4
UTILITIES INC WESTLAKE UTILITIES INC.	4
WILDWOOD UTILITY CO	4
WINNEBAGO	4
CHERRY VALLEY	3.7
MANCUSO VILLAGE PARK MHP	3.5
AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	3
PECATONICA	3
SIX OAKS MHP	3
BILL MAR HEIGHTS MHP	2
GREEN MEADOW ESTATE MHP	2
ROCKTON	1.8
BRADLEY HEIGHTS SUBD	1
CLARKS MHP	1
ILLINOIS AMERICAN - SOUTH BELOIT	1
PHIL-AIRE ESTATES MHP	1
PRAIRIE ROAD PUMP COMPANY	1
RAINBOW LANE MHP	1
FOREST VIEW MHP	-
SOUTH BLUFF MHP	-

## Social Vulnerability

The assessment includes social vulnerability as a separate criterion to incorporate social and population considerations and address equity concerns. Water equity includes the proportional and equitable distribution of water to ensure that all individuals have access to high-quality, safe, affordable drinking water. Historically, Black, Indigenous, Communities of Color, and low-income communities have faced structural disparities in access to water. These disparities are primarily due to the historic practices of financial disinvestment, redlining, and underrepresentation in policy decisions. Eight (8) SCWS, or one-third (1/3) of the SCWS included in this assessment, are located within Justice 40 census tracts designated by the federal government under Executive Order 14008- Tackling the Climate Crisis at Home and Abroad.<sup>lix</sup>

The U.S. Center for Disease Control (CDC) defines social vulnerability as "the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters or disease outbreaks."<sup>Ix</sup> The CDC's 2020 Social Vulnerability Index (SVI) is used to quantify the effect these external stressors can have in connection with water security concerns.

The SVI assesses social vulnerability based on a combination of 15 factors related to socioeconomic status, household composition, minority status, housing type, and transportation access (Figure 4-22). Social Vulnerability Index (SVI) rankings are available from the CDC at the county and census tract level and range from 0 (lowest vulnerability) to 1 (highest vulnerability). The SVI rankings used in this assessment utilize percentiles compared to other Illinois census tracts.

### Justice40

These communities have higher exposure or proximity to contamination sites, experience disproportionate impacts of climate change and have lacked appropriate investment in health services and surrounding infrastructure. These communities, commonly referred to as underserved communities or environmental justice communities, often have large minority populations and experience higher levels of poverty and historic disinvestment.

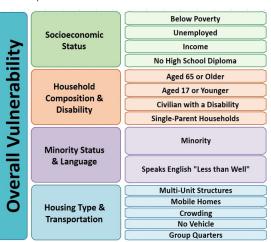
Source: EPA

Winnebago County has an SVI ranking of 0.9802, indicating a high level of vulnerability relative to other counties in Illinois. At the census tract level, SVI rankings ranged from 0.01 to 1.00, indicating vast differences in social vulnerability throughout the County.<sup>1</sup> Areas with high levels of vulnerability are concentrated within the City of Rockford.

Social vulnerability scores for the service areas of Winnebago County SCWSs ranged from 0.07 to 0.94, with an average score of 0.39 (Figure 4-24).<sup>2</sup> The Village of Winnebago serves the area with the least social vulnerability, while Clarks MHP and Prairie Road Pump Corporation serve areas with the highest social vulnerability.

Understanding the level of social vulnerability of SCWS service areas aids in identifying communities in need of more enhanced efforts to assist in responding to water access or infrastructure failure issues. The SVI is not prescriptive to rules and regulation enforcement. It is merely a tool for quantifying vulnerability and prioritizing planning and response efforts.

Figure 4-22: CDC Social Vulnerability Index Components



1

2

Source: Agency for Toxic Substances and Disease Registry (ATSDR)

Numbers are rounded to the second decimal point for clarity.

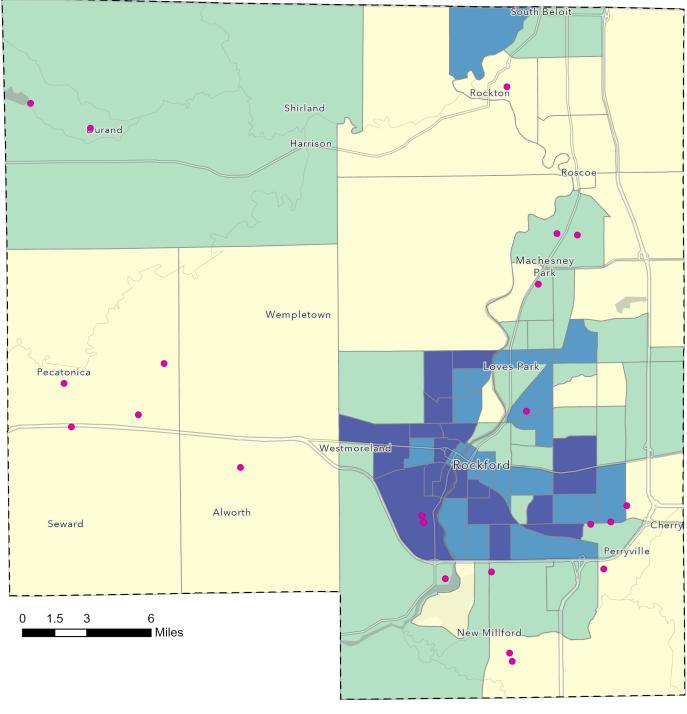
Numbers are rounded to the second decimal point for clarity.

**CDC/ATSDR SVI** Themes



Source: CDC SVI, 2020

0







Source: CDC SVI, 2020



# Section 5 Findings

This assessment grouped small community water systems (SCWSs) into three (3) categories: high concern, average concern, and low concern. These categories are used to prioritize SCWSs based on their respective level of vulnerability. Further based on the assessment results, this summary groups the SCWSs into terciles. The summary ranks SCWSs with the top one-third of scores as a high concern, the second third as an average concern, and the final third tercile as a low concern. This summary highlights additional considerations for SCWSs that purchase water from municipal sources or SCWSs that are missing data. It is also important to note that the water violation scores are weighted higher than other factors due to the significant health risks these violations pose to the communities served by the SCWS. For additional information on the assessment criteria and methodology please see Section 7.

# **High Concern**

The SCWSs highlighted in this section are the systems with the highest concerns from the assessment.

The SCWSs of top concern are as follows.

BILL-MAR HEIGHTS MHP	69.75
CHERRY VALLEY*	63.34
MANCUSO VILLAGE PARK MHP	54.39
RAINBOW LANE MHP	53.23
GREEN MEASDOW ESTS OF ROCKFORD*	47.12
DURAND	44.10
UTL INC COVENTRY HLS UTL INC	43.64
WINNEBAGO	42.42

\*Green Meadow Estate MHP recently decommissioned its wells in 2022. Although this system now purchases municipal water, the assessment still includes this system if the wells are ever reinstated.

\*Cherry Valley has an emergency back-up arrangement with the City of Rockford through an Inter-Governmental Agreement (IGA).

While these systems have varying scores of social vulnerability and water availability, the major contributing factor to their ranking is the Water Quality section, specifically the water quality violations. Water quality violations can be addressed preemptively, especially compared to other unmodifiable factors like aquifer recharge potential or aquifer type.

# Average Concern

The SCWSs highlighted in this portion are the systems that have the median values from the assessment.

PECATONICA	37.92
OTTER CREEK LAKE UTL DSTRCT	37.55
UTL INC WESTLAKE UTILITIES INC	36.72
AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	36.67
ROCKTON	35.78
PHIL-AIRE ESTATES MHP	34.29
IL AMERICAN-SOUTH BELOIT*	33.65
WILDWOOD UTILITIES COMPANY	30.96

\*Illinois American – South Beloit only has one (1) well reserved for emergencies. This system purchases water from the City of Beloit and the system expects to decommission the existing well in the near future.

## Low Concern

The SCWSs highlighted in this portion are the systems that have the lowest values from the assessment.

LEGEND LAKES WATER ASSOCIATION	30.19
UTL INC CONVENTRY CREEK SBDV	29.62
SIX OAKS MHP	28.84
PRAIRIE ROAD PUMP CORPORATION	28.28
CLARKS MHP	28.24
BRADLEY HEIGHTS SUBDIVISION	21.15
SOUTH BLUFF MHP*	19.07
FOREST VIEW MHP*	2.07

\*South Bluff MHP and Forest View MHP are outliers in this assessment since both systems have no wells and purchase water from public water systems.



# Section 6 Goals and Strategies

The following goals and strategies guide the protection of drinking water access for residents of Winnebago County. The five (5) goals represent the primary elements of water resources management, including water quality, water infrastructure, water supply, water policy and planning, and water education. Each goal includes a series of actions to guide the implementation. The Steering Committee and Subcommittee assisted with developing these goals and strategies referencing water resource management best practices.

The goals, strategies, and actions reflect the concerns identified in the assessment and related considerations for Winnebago County.

# Goal 1: Ensure access to safe and clean drinking water for residents served by small community water systems.

- Strategy 1: Monitor contamination sources near high-priority small community water systems.
- **Strategy 2:** Identify capture zones for vulnerable community water systems.
  - Action 2.1: Identify potential contamination sources.
  - Action 2.2: Monitor capture zones for potential alterations to the environment.
- Strategy 3: Ensure small community water system water quality is maintained in compliance with recognized US and Illinois EPA standards.
  - Action 3.1: Limit chloride pollution in water system.
  - Action 3.2: Limit nitrate pollution in water system.
  - Action 3.3: Address any contaminates or deviations in standards on a timely basis as identified in federal and state regulations.
- Strategy 4: Develop public water system infrastructure to promote connections for residential areas within 200 feet of a large (municipal) community water system.

# Goal 2: Maintain and repair small community water system infrastructure.

- **Strategy 1:** Ensure small community water system infrastructure is maintained in compliance with recognized US and Illinois EPA standards.
  - Action 1.1: Develop asset management plans for small community water systems with support from the relevant unit of governance of the water system.
  - Action 1.2: Develop capital improvement programs by the relevant units of government.
- Strategy 2: Identify the next steps for repairing and replacing decaying infrastructure for small community water systems.
  - Action 2.1: Develop asset management plans for small community water systems by the relevant unit of governance of the water system.
  - Action 2.2: Develop capital improvement programs by the relevant units of government.
- **Strategy 3:** Install infrastructure to prevent water system contamination from flooding events.
  - Action 3.1: Update and adopt relevant code requirements at the municipal and county levels of government.
- **Strategy 4:** Transition community water systems to municipal water systems (see Goal 1: Strategy 4).

#### Goal 3: Strengthen a sustainable water supply.

- Strategy 1: Develop, support, and implement water conservation programs to maintain current aquifer volumes and protect the County's drinking water supply.
- **Strategy 2:** Identify funding mechanisms to finance repairing leaks in water infrastructure.
- Strategy 3: Develop public water system infrastructure to promote connections for residential areas within 200 feet.

- Strategy 4: Review and adopt ordinances to support the development of neighborhoods and subdivisions with water system infrastructure to connect to public water systems and limit individual and/or small community wells.
- **Strategy 5:** Create a brought response plan for SCWSs.

Goal 4: Integrate small community water systems into public policies and planning efforts.

- Strategy 1: Ensure repair and/or replacement of existing water systems adhere to Winnebago County Code and have a plan for connection to public systems.
  - Action 1.1: Work with the highest priority SCWS to identify mechanisms for repair and replacement of infrastructure.
- Strategy 2: Incorporate small community water systems into the Winnebago County Hazard Mitigation Plan.
- **Strategy 3:** Adopt ordinances to require insurance to cover emergencies related to water access.
- Strategy 4: Encourage the adoption of a water reserve or water insurance in the event of a water crisis (pump failure, contaminated storage tanks, pipe break)

# Goal 5: Educate the public and elected officials on safe and sustainable water resource management.

- **Strategy 1:** Encourage sustainable practices near wells and/or capture zones.
- Strategy 2: Distribute materials on consumer water rights under the Clean Water Act and state statute.
- **Strategy 3:** Provide information on available mitigations and the maintenance of the systems to reduce or eliminate water contaminants.
- Strategy 4: Provide semi-annual updates to the Winnebago County Board and elected officials on water resource management.
- Strategy 5: Create an informational webpage hosted on the Winnebago County Health Department website.
- Strategy 6: Provide semi-annual updates to residents served by small community water systems.



# Section 7 Appendix: Data & Methodology

The following section outlines the methodology employed for conducting the vulnerability assessment for small community water systems.

# **Overview**

This assessment examines various factors that contribute to the integrity of a small community water system (SCWS). The criteria and weighting system employed in this assessment was determined by the Steering Committee and revised throughout with assistance from stakeholders. This assessment utilizes three (3) primary criteria groups: social vulnerability, water quality, and water availability. The Steering Committee selected criteria based on data availability and accuracy, regional relevance, and proportional impact on a water system. Water Infrastructure, including infrastructure age, repair status, and legacy issues, is excluded as an assessment criterion due to insufficient, consistent data for these criterion.

The Steering Committee assigned each criterion a respective weight. The criteria add up to 100 possible points, each **Table 7-1:** Criteria and Sub-Criteria

Criteria and Subcriteria	Points
SOCIAL VULNERABILITY	10
CDC's Social Vulnerability Index Score	5
Community Water System Size (popula on served)	5
WATER QUALITY	60
SUB-CRITERIA: Violations - Past 5 Years	34
Modified EPA Enforcement Targeting Tool (ETT) Score	34
SUB-CRITERIA: Water Vulnerability	18
Proximity to Potential Sources of Contamination	18
SUB-CRITERIA: Aquifer Vulnerability	8
Aquifer	5
Flooding	3
WATER AVAILABILITY	30
SUB-CRITERIA: Water Supply	15
Aquifer Re-charge Potential	7.5
Aquifer Capacity	7.5
SUB-CRITERIA: Water Supply	15
Current Demand	7.5
Future Demand	7.5
Note: Values may not added to 100% due to rounding.	

Source: Region 1 Planning Council

point value corresponding to the percentage of the system's final score. Water quality criteria account for 60 points, water availability criteria account for 30 points, and social vulnerability criteria account for 10 points. The assessment breaks each main criterion into multiple sub-criteria (Table 7-1).

This section provides details on each main criterion, subcriteria, and the methodology for scoring calculation. Each section of this methodology summarizes the data utilized, the data source, determinants for weight value, and a summary of each sub-criteria. All data was collected to represent the years from 2018 to 2022.

## Water Quality

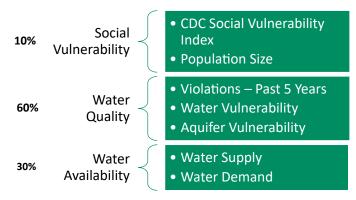
The water quality category accounts for 60 points, or 60 percent, of the final assessment score. The water quality score consists of three (3) sub-criteria: violations, water vulnerability, and aquifer vulnerability. Table 7-2 outlines the different weights for each sub-criterion.

Table 7-2: Water Quality Criteria and Sub-Criteria

WATER QUALITY		60 POINTS
SUB-CRITERIA: Violations - Past 5 Years	METRIC	34 POINTS
Modifed EPA Enforcement Targeting Tool (ETT) Score		
	>10 ETT points	34
	>4, <10 ETT points	17
	<4 ETT points	0
SUB-CRITERIA: Water Vulnerability	METRIC	18 POINTS
Proximity to Potential Sources of Contamination		
	>= 0.75 points	18
	>= 0.25, < 0.75 points	9
	< 0.25 points	4.5
<u>SUB-CRITERIA: Aquifer</u> <u>Vulnerability</u>	METRIC	8 POINTS
Aquifer Type		5
	Sand and Gravel	5
	Shallow Bedrock (<500')	4
	Deep Bedrock (>500')	3
Flooding		3
	In flood zone	3
	Not in flood zone	0

Source: Region 1 Planning Council

Figure 7-1: Violation Severity Factors Point System



## Violations

The violation score accounts for 34 points, or 34 percent, of the assessment, the most heavily weighted sub-criterion. This criterion is given this weight due to the significant risk that water quality violations pose to human health.

The assessment utilizes violation data from the Environmental Protection Agency (EPA) Enforcement and Compliance History (ECHO) database, and in maintaining consistency with the EPA Drinking Water Enforcement Response Policy, a modified version of the EPA Enforcement Targeting Tool (ETT) formula determines the metrics for this sub-criterion. The EPA ETT assigns a score to each public water system, including small community water systems (CWS), that summarizes violations according to the severity of the violation and the number of years that the oldest violation has gone without being addressed. All data was collected for 2018-2022. The score of non-compliance is determined using the following formula:

#### Sum (S1 + S2 + S3+...) + n

Here, S = violation severity factor and n = the number of years the oldest violations have been unaddressed. The point system shown in Table 7-3 is the basis for the violation severity factors(S).

 Table 7-3:
 Violation
 Severity
 Factors
 Point
 System

Points	Description	
10 points	<ul> <li>Acute contaminant maximum contaminant level (MCL) violation (total coliform or nitrate)</li> </ul>	
5 points	<ul> <li>MCL or treatment technique violation for regulated contaminants other than total coliform or nitrate</li> <li>Nitrate monitoring and reporting violation</li> <li>Total coliform repeat monitoring violation</li> </ul>	
1 points	<ul> <li>Monitoring and reporting violation not listed above</li> <li>Public notice violation</li> <li>Consumer Confidence Report violation</li> <li>Additional point for each year a violation in unaddressed</li> </ul>	

Source: EPA- Echo

The ETT equation above is for systems with *outstanding* violations. Built upon feedback from the Steering Committee, this assessment ranks systems with *any* violations within the past five (5) years, regardless of a "return to compliances". To address this issue, the assessment utilizes a modified version of the ETT. This modified equation takes the established point system and assigns half of the points to violations that have been addressed and the other half to violations that have not been addressed. Table 7-4 describes the modified point system.

 Table 7-4:
 Modified
 Violation
 Severity
 Factors
 Point
 System

KNOWN VIOLATIONS	Returned to Compliance	
Points	Points	Description
10 points	5 points	<ul> <li>Acute contsminant maximum contaminant level (MCL) violation (total coliform or nitrate)</li> </ul>
5 points	2.5 points	<ul> <li>MCL or treatment technique violation for regulated contaminants other than total coliform or nitrate</li> <li>Nitrate monitoring and reporting violation</li> </ul>
1 points	.5 points	<ul> <li>Monitoring and reporting violation not listed above</li> <li>Public notice violation</li> <li>Consumer Confidence Report violation</li> <li>Additional point for each year a violation in unaddressed</li> </ul>

Source: Region 1 Planning Council

The assessment groups violation results (Table 7-5) into three (3) scoring categories based on the severity of the violation. The scoring category is shown below (Table 7-6). Known Violations are assigned double the points as Return to Compliance (RTC) violations.

At the time of this assessment, water quality violation reports and the EPA ETT process excludes Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS). This assessment includes PFAS violations by collecting 2020 sampling data downloaded from the Illinois EPA (IEPA) datasets. For any SCWS with PFAS levels greater than the EPA guidance level, the assessment adds an unweighted score of 1 to the modified ETT score. For systems with levels below the guidance level but above zero, the assessment adds an unweighted score of .5 to the modified ETT score. Three (3) SCWSs did not have PFAS sampling data at the time of assessment. These systems include Forest View Mobile Park Home (MPH) (no wells to sample), South Bluff MHP (no wells to sample), and Illinois (IL) American–South Beloit (emergency well only). These systems were assigned a score of zero, along with any systems with PFAS levels below the minimum reporting level.

The assessment groups the results of the modified ETT analysis into three (3) prioritization categories. Water systems with ten (10) or more violation points were deemed the highest priority with an unweighted score of 1. Those with scores ranging from 5 to 9 points receive an

unweighted score of 0.5, and those with scores ranging from 1 to 4 violation points have an unweighted score of 0.25.

Final violation scores (Table 7-6) were weighted based on the total number of points available for this sub-criterion (34). Systems that achieved a high-water quality violation (less than 10 points) ranking in the assessment process receive 34 points, systems with a moderate ranking (between 4 and 10 points) receive 17, and systems with a low ranking (less than 4 points) receive 0 points.

#### Table 7-5: Modified EET assessment of SCWS water quality violations

#### RETURNED TO COMPLIANCE (RTC) - ENFORCEABLE ACTION TAKEN

			5 Point				2.5	Point									.5	Poin	t							
System ID	System Name	RTCR	ws	Nitrate	RTCR	SW	Nitrate	Arsenic	DBP	LCR	Rads	RTCR	TCR	SW	GWR	Arsenic	DBP	LCR	IOC	VOC	soc	Rads	CCR	Nd	n =	RTC TOTAL
IL2015345	BILL-MAR HEIGHTS											1					1			20				1	0	11
IL2010050	CHERRY VALLEY										2														0	
IL2010030	FOREST VIEW MHP																						1		0	0
IL2015495	GREEN MEADOWS ESTATES MHP							1									1			20		1		1	0	
IL2015545	MANCUSO VILLAGE MHP																	1							0	0
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT																					1			0	0
IL2015625	PHIL-AIRE ESTATES MHP												1				1					2		1	0	2
IL2015100	PRAIRIE ROAD PUMP CORPORATION				1																				0	2
IL2015645	RAINBOW LANE MHP			1				2									2						1	2	0	12
IL2015685	SIX OAKS MHP																						1		0	C
IL2010460	SOUTH BLUFF MHP																							1	0	(

#### **KNOWN VIOLATIONS (KV) - NOT IN COMPLIANCE**

			10 Point					5 Poi	int								1	Poin	t							
System ID	System Name	RTCR	SW	Nitrate	RTCR	SW	GWR	Nitrate	Arsenic	DBP	Rads	RTCR	TCR	SW	GWR	Arsenic	DBP	LCR	IOC	VOC	soc	Rads	CCR	PN	n =	KV TOTAL
IL2015495	GREEN MEADOWS ESTATES MHP										e	5										1			1	32
IL2015545	MANCUSO VILLAGE MHP																2								1	
IL2015625	PHIL-AIRE ESTATES MHP										1	L										1			0	6

Small CWS not listed in the Return to Compliance (RTC) or Know Viola ons (KV) tables did not have any water quality viola ons in the past 5 years.

#### Table 7-6: Water Quality Violation Results Based on Modified EPA Enforcement Targeting Tool

			SUB-CRITER	A: ETT	
		Return to	Known	PFAS Score	ETT Score
PROJECT ID	Project Name	Compliance	Violations	PFAS Score	Total
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	0	0	0	0
IL2015345	BILL-MAR HEIGHTS	11.5	0	1	12.5
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0	0	0.5	0.5
IL2010050	CHERRY VALLEY	5	0	0	5
IL2015425	CLARKS MHP	0	0	0	0
IL2010100	DURAND	0	0	0	0
IL2010030	FOREST VIEW MHP	0.5	0	0	0.5
IL2015495	GREEN MEADOWS ESTATES MHP	14	32	0	46
IL2010450	IL AMERICAN SOUTH BELOIT	0	0	0	0
IL2015300	LEGEND LAKES WATER ASSOCIATION	0	0	0	0
IL2015545	MANCUSO VILLAGE MHP	0.5	3	1	4.5
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	0.5	0	0	0.5
IL2010250	PECATONICA	0	0	0	0
IL2015625	PHIL-AIRE ESTATES MHP	2.5	6	0	8.5
IL2015100	PRAIRIE ROAD PUMP CORPORATION	2.5	0	0	2.5
IL2015645	RAINBOW LANE MHP	12.5	0	1	13.5
IL2010350	ROCKTON	0	0	0.5	0.5
IL2015685	SIX OAKS MHP	0.5	0	0	0.5
IL2010460	SOUTH BLUFF MHP	0.5	0	0	0.5
IL2015160	UTL INC COVENTRY CREEK SBDV	0	0	0	0
IL2015150	UTL INC COVENTRY HLS UTL INC	0	0	0	0
IL2010070	UTL INC WESTLAKE UTILITIES INC	0	0	0	0
IL2015400	WILDWOOD UTILITIES COMPANY	2.5	0	0	2.5
IL2010500	WINNEBAGO	0	0	0	0

		X/3	4
		SUB-CRITERIA: Violat	tions - Past 5 Years
		Modifed EPA Enforcement	Targeting Tool (ETT) Score
System ID	System Name	ETT POINTS	SCORE
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	0	0
IL2015345	BILL-MAR HEIGHTS	12.5	34
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0.5	0
IL2010050	CHERRY VALLEY	5	17
IL2015425	CLARKS MHP	0	0
IL2010100	DURAND	0	0
IL2010030	FOREST VIEW MHP	0.5	0
IL2015495	GREEN MEADOWS ESTATES MHP	46	34
IL2010450	IL AMERICAN SOUTH BELOIT	0	0
IL2015300	LEGEND LAKES WATER ASSOCIATION	0	0
IL2015545	MANCUSO VILLAGE MHP	4.5	17
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	0.5	0
IL2010250	PECATONICA	0	0
IL2015625	PHIL-AIRE ESTATES MHP	8.5	17
IL2015100	PRAIRIE ROAD PUMP CORPORATION	2.5	0
IL2015645	RAINBOW LANE MHP	13.5	34
IL2010350	ROCKTON	0.5	0
IL2015685	SIX OAKS MHP	0.5	0
IL2010460	SOUTH BLUFF MHP	0.5	0
IL2015160	UTL INC COVENTRY CREEK SBDV	0	0
IL2015150	UTL INC COVENTRY HLS UTL INC	0	0
IL2010070	UTL INC WESTLAKE UTILITIES INC	0	0
IL2015400	WILDWOOD UTILITIES COMPANY	2.5	0
IL2010500	WINNEBAGO	0	0

## Water Vulnerability

The water vulnerability score accounts for 18 points, or 18 percent, of the assessment. This criterion is given this weight due to the significant risk violations pose to human health. This score accounts for the probability and severity of potential contamination of drinking water sources. The assessment uses a Geographic Information System (GIS) buffer analysis to identify and measure the proximity of wells to potential contamination sources. The potential contamination sources are listed below.

- Septic tanks
- National Pollutant Discharge Elimination System (NPDES) sites
- Resources Conservation and Recovery Act (RCRA) sites
- Underground Storage Tank (UST) sites
- Leaking Underground Storage Tank (LUST) sites
- Site Remediation Program (SRP) sites
- Risk-Screening Environmental Indicators (RSEI) sites

- Major Pipelines
- Railroads
- Superfund (CERCLA) sites
- Brownfields
- Landfills

The potential contamination sources identified in this criterion are consistent with the IEPA Source Water Assessment Protection Plan. The assessment categorizes each potential contamination source into low, medium, or high risk, with each level of proximity accounting for a different score (Table 7-8). Facilities of low priority include railroads, major pipelines, and septic tanks. Facilities of moderate priority include National Pollutant Discharge Elimination System (NPDES), Underground Storage Tank (UST), and Site Remediation Program (SRP) sites. Facilities of high priority include Resources Conservation and Recovery Act (RCRA), Leaking Underground Storage Tank (LUST) sites, Toxic Release Inventory (TRI) Risk-Screening Environmental Indicators (RSEI), brownfield, Superfund (CERCLA), and landfill sites. All data was pulled for 2022.

		Γ	Total points possible
	Septic Tank		
		0-200ft	0.25
		0-400ft	0.25
		setback-1000ft	0.125
	Major Pipel		0.125
гом		0-200ft	0.25
2		0-400ft	0.25
		setback-1000ft	0.125
	Railroads		01220
	rian outo	0-200ft	0.25
		0-400ft	0.25
		setback-1000ft	0.125
	NPDES		
		0-200ft	0.50
		0-400ft	0.50
		setback-1000ft	0.25
ΤE	UST		
MODERATE		0-200ft	0.50
ŌD		0-400ft	0.50
ž		setback-1000ft	0.25
	SRP		
		0-200ft	0.50
		0-400ft	0.50
		setback-1000ft	0.25
	RCRA		
		0-200ft	1.00
		0-400ft	1.00
	LUCT	setback-1000ft	0.50
	LUST	0.200#	1.00
		0-200ft 0-400ft	1.00
		setback-1000ft	1.00 0.50
	TRI RSEI	Setback-10001	0.50
	THINSET	0-200ft	1.00
		0-400ft	1.00
		setback-1000ft	0.50
Ξ	Brownfields		
нідн		0-200ft	1.00
		0-400ft	1.00
			1.00
		setback-1000ft	0.50
	Superfund (	setback-1000ft	
	Superfund (	setback-1000ft	
	Superfund (	setback-1000ft CERCLA)	0.50
	Superfund (	setback-1000ft CERCLA) < 660 feet	0.50
	Superfund (	setback-1000ft CERCLA) < 660 feet >= 660 feet, <1/4 mile	0.50 1.00 0.75
	Superfund (	setback-1000ft CERCLA) < 660 feet >= 660 feet, <1/4 mile >=1/4 mile, <1/2 mile	0.50 1.00 0.75 0.50
		setback-1000ft CERCLA) < 660 feet >= 660 feet, <1/4 mile >=1/4 mile, <1/2 mile >= 1/2 mile, <1 mile < 660 feet	0.50 1.00 0.75 0.50
		setback-1000ft CERCLA) < 660 feet >= 660 feet, <1/4 mile >=1/4 mile, <1/2 mile >= 1/2 mile, <1 mile	0.50 1.00 0.75 0.50 0.25
		setback-1000ft CERCLA) < 660 feet >= 660 feet, <1/4 mile >=1/4 mile, <1/2 mile >= 1/2 mile, <1 mile < 660 feet	0.50 1.00 0.75 0.50 0.25 1.00

Except for landfills and Superfund-designated sites, the metrics for this score align setback zones for individual wells within a SCWS, 200 feet to 400 feet. The IEPA Well Site Survey program uses a 1,000-foot radius around a wellhead and potential contamination sources beyond this parameter are not of immediate concern. The assessment assigns a score to each potential contamination source within a well setback zone (0-200 feet or 0-400 feet). The assessment

determines the score using the proximity to the well and the severity of the risk. Sites that fell between 1,000 feet and the setback zone were assigned a lesser value. For landfills and Superfund (CERCLA) sites, the assessment identifies proximity as 660 feet of a well, between 660 feet and a quarter (1/4) mile, between a quarter (1/4) mile and half (1/2) mile, between a half (1/2) mile and one (1) mile, or beyond one (1) mile from the well (Table 7-9).

An ArcGIS buffer analysis assessed the proximity of a well to potential contamination source sites. The buffer analysis used data from the following sources:

- Railroads: Federal Railroad Association (FRA), 2022. U.S. National Transportation Atlas Railroads represents a comprehensive database of the nation's railway system at a 1 to 100,000 scale. The data set covers the 48 contiguous States plus the District of Columbia within the United States. U.S. National Transportation Atlas Railroads provides location and partial attribute information for use in national and regional network analysis applications.
- Major Pipelines: Winnebago Geographic Information Systems (WinGIS), 2022. This data source is a local county shapefile that identifies the location of major pipelines within Winnebago County.
- Septic Tanks: Illinois Environmental Protection Agency (IEPA), 2022. The IEPA Source Water Assessment Protection Program mapping tool was utilized to identify the septic tanks. The IEPA shapefile was merged with the local WinGIS file containing data on septic tanks to cross-reference identified sites.
- Active Landfills: Source Water Assessment Protection Program: Illinois Environmental Protection Agency (IEPA), 2022. The IEPA Source Water Assessment Protection Program mapping tool was used to identify the active landfill locations.
- Site Remediation Program (SRP) Locations: Illinois Environmental Protection Agency (IEPA), 2022. The IEPA Source Water Assessment Protection Program mapping tool provided the active landfill locations. The Site Remediation Program (SRP) database identifies the status of all voluntary remediation projects administered through the Pre-Notice Site Cleanup Program (1989 to 1995) and the Site Remediation Program (1996 to the present).

- Underground Storage Tanks (UST): Illinois Environmental Protection Agency (IEPA), 2022. The IEPA Source Water Assessment Protection Program mapping tool identifies the Underground Storage Tanks (UST) locations.
- Leaking Underground Storage Tanks (LUST): Illinois Environmental Protection Agency (IEPA), 2022. The assessment utilized the IEPA Source Water Assessment Protection Program mapping tool to identify the Leaking Underground Storage Tanks (LUST) locations based on IEPA data. Additional data was also collected for the location of LUSTs that require additional remediation.
- Resource Conservation and Recovery Act (RCRA) Active & Inactive: United States Environmental Protection Agency (EPA), 2022. Locations of Resource Conservation and Recovery Act (RCRA) sites were collected from the Active Resource Conservation and Recovery Act Information System (RCRAInfo) and the EPA Hazardous Waste Facilities in the United States database.
- Risk-Screening Environmental Indicators (RESI) Toxic Release Inventory (TRI): United States Environmental Protection Agency (EPA), 2022. Locations of TRI sites were downloaded from the EPA's Toxics Release Inventory (TRI) Form R & A Download to identify the locations of TRI facilities, release/transfer data, and RSEI Score from reporting years 2015 to the present. EPA's Risk-Screening Environmental Indicators (RSEI) is a multi-media model that helps policymakers,

researchers, and communities explore data on releases of toxic substances from industrial and federal facilities. RSEI incorporates information from EPA's Toxics Release Inventory (TRI), which tracks certain toxic chemical releases and waste management activities at federal facilities and larger industrial facilities across the United States.

- National Pollutant Discharge Elimination System (NPDES) and Active NPDES Outfalls: United States Environmental Protection Agency (EPA), 2022. Locations of National Pollutant Discharge Elimination System (NPDES) sites were collected from EPA's Enforcement and Compliance History Online (ECHO) database. These sites are identified as point-source polluters by the EPA.
- Brownfields: United States Environmental Protection Agency (EPA), 2022. Locations of brownfield sites were pulled from the EPA Cleanups In My Community Map, a mapping tool that identifies brownfields in identified counties.
- Environmental Protection Agency Superfund Sites/Comprehensive Environmental Response Compensation and Recovery Act (CERCLA): United States Environmental Protection Agency (EPA), 2022 Superfund sites that are listed on the National Priorities List (NPL) were collected from the EPA's Superfund National Priorities List (NPL) Where You Live Map.

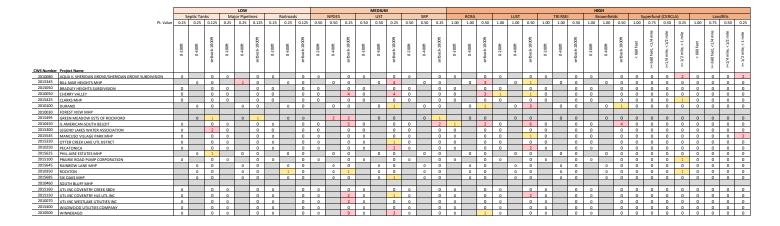


Table 7-9: Water Vulnerability Assessment

		X/	18
		SUB-CRITERIA: W	ater Vulnerability
		Proximity to Pot	ential Sources of
		Contam	nination
System ID	System Name	CWS Total	SCORE
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	1	18
IL2015345	BILL-MAR HEIGHTS	3.5	18
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0	4.5
IL2010050	CHERRY VALLEY	5	18
IL2015425	CLARKS MHP	0.25	9
IL2010100	DURAND	2.75	18
IL2010030	FOREST VIEW MHP	-	0
IL2015495	GREEN MEADOWS ESTATES MHP	-	0
IL2010450	IL AMERICAN SOUTH BELOIT	8.75	18
IL2015300	LEGEND LAKES WATER ASSOCIATION	0.25	9
IL2015545	MANCUSO VILLAGE MHP	1	18
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	0.25	9
IL2010250	PECATONICA	1.5	18
IL2015625	PHIL-AIRE ESTATES MHP	0.125	4.5
IL2015100	PRAIRIE ROAD PUMP CORPORATION	0.25	9
IL2015645	RAINBOW LANE MHP	0	4.5
IL2010350	ROCKTON	0.75	18
IL2015685	SIX OAKS MHP	0.25	9
IL2010460	SOUTH BLUFF MHP	-	18
IL2015160	UTL INC COVENTRY CREEK SBDV	0	4.5
IL2015150	UTL INC COVENTRY HLS UTL INC	1.75	18
IL2010070	UTL INC WESTLAKE UTILITIES INC	0.5	9
IL2015400	WILDWOOD UTILITIES COMPANY	0	4.5
IL2010500	WINNEBAGO	3.5	18

Based on the buffer analysis and weighted criteria above, the maximum score achieved by a single well is 8.75. This is also the maximum score for any SCWS as a whole. For systems with multiple wells, scores were combined to determine the overall system score.

With the number of points available for the water vulnerability sub-criteria (18), high-priority systems (score  $\geq$  0.75) receive 18 points, moderate-priority systems receive 9 points (score  $\geq$  0.25, < 0.75 points), and low-priority systems receive 4.5 points (score < 0.25 points) for the final prioritization (Table 7-10). Systems that did not have wells received 0 points.

## Aquifer Vulnerability

The aquifer vulnerability score accounts for 8 points, or 8 percent, of the assessment. Aquifer vulnerability does not create immediate threats to health and safety and, therefore is the lowest-scoring element within the Water Quality Section. This score consists of two (2) sub-criteria: aquifer type (5 points) and flooding (3 points).

### Aquifer Type

The assessment calculates aquifer type utilizing aquifer maps from the Illinois State Water Survey (ISWS) and Illinois State Geological Survey (ISGS). These maps classify aquifers into three (3) types: sand and gravel, shallow bedrock (less than 500 feet deep), and deep bedrock (greater than 500 feet deep). Small community water system (SCWS) wells on a sand and gravel aquifer receive 5 points, wells on a shallow bedrock aquifer receive 4 points, and wells on a deep bedrock aquifer receive 3 points. The final aquifer value for the system is an average of all the wells located within the SCWS (Table 7-11). Systems that do not have wells receive 0 points. These weights are an indicator of how susceptible each aquifer is to contamination. Sand and gravel aquifers are the most susceptible to contamination and receive an unweighted score of 5 points. Shallow bedrock aquifers are less susceptible to contamination, but not nearly as much as deep bedrock aquifers. Therefore, shallow bedrock receives an unweighted score of 4 points, and deep bedrock, a score of 3 points. Deep bedrock aquifers are not immune to contamination and received a value is 3 points.

PROJECT ID	CWS Number	Project Name	Well Depth (Feet)	Aquifer Type	Aquifer Type Score	System Score
1661		AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	557	Cambrian Ordovician Sandstone	3	2
1662	2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	557	Cambrian Ordovician Sandstone	3	3
11127	2015345	BILL-MAR HEIGHTS MHP	232	Cambrian Ordovician Sandstone	4	
11128	2015345	BILL-MAR HEIGHTS MHP	245	Cambrian Ordovician Sandstone	4	4
11673	2015050	BRADLEY HEIGHTS SUBDIVISION	550	Cambrian Ordovician Sandstone	3	
11674		BRADLEY HEIGHTS SUBDIVISION	130	Sand and gravel	5	4
133	2010050	CHERRY VALLEY		Cambrian Ordovician Sandstone	3	
134	2010050	CHERRY VALLEY		Cambrian Ordovician Sandstone	3	
135		CHERRY VALLEY		Cambrian Ordovician Sandstone	3	4.3
1605	2010050	CHERRY VALLEY	1500	Cambrian Ordovician Sandstone	3	
11133		CLARKS MHP		Shallow bedrock	4	4
11610		DURAND	-	Cambrian Ordovician Sandstone	4	
11611		DURAND	-	Cambrian Ordovician Sandstone	3	3.5
		FOREST VIEW MHP				
121		GREEN MEADOW ESTS OF ROCKFORD	772	Cambrian Ordovician Sandstone	3	
11135		GREEN MEADOW ESTS OF ROCKFORD		Sand and gravel	5	4.3
11135		GREEN MEADOW ESTS OF ROCKFORD		Sand and gravel	5	
11150		IL AMERICAN-SOUTH BELOIT		Cambrian Ordovician Sandstone	3	3
380		LEGEND LAKES WATER ASSOCIATION		Cambrian Ordovician Sandstone	4	
11685		LEGEND LAKES WATER ASSOCIATION		Cambrian Ordovician Sandstone	4	4
11685		MANCUSO VILLAGE PARK MHP		Cambrian Ordovician Sandstone	3	
11688		MANCUSO VILLAGE PARK MITP		Cambrian Ordovician Sandstone	4	3.5
1094		OTTER CREEK LAKE UTL DSTRCT	-	Cambrian Ordovician Sandstone	4	4
11696		OTTER CREEK LAKE UTL DSTRCT	-	Cambrian Ordovician Sandstone		
11618		PECATONICA		Cambrian Ordovician Sandstone	3	3
11619			-	Cambrian Ordovician Sandstone	3	F
11146		PHIL-AIRE ESTATES MHP		Sand and gravel	5	5
11671		PRAIRIE ROAD PUMP CORPORATION		Cambrian Ordovician Sandstone	4	4
11672		PRAIRIE ROAD PUMP CORPORATION		Cambrian Ordovician Sandstone	4	-
11147		RAINBOW LANE MHP		Sand and gravel	5	5
796		ROCKTON	-	Cambrian Ordovician Sandstone	3	
1602		ROCKTON		Cambrian Ordovician Sandstone	3	
1789		ROCKTON		Sand and gravel	5	4
1981		ROCKTON		Sand and gravel	5	
11665		ROCKTON		Sand and gravel	5	
11666		ROCKTON		Cambrian Ordovician Sandstone	3	
11151		SIX OAKS MHP	275	Shallow bedrock	4	4
		SOUTH BLUFF MHP		1	-	
11677	2015160	UTL INC COVENTRY CREEK SBDV	520	Cambrian Ordovician Sandstone	3	3
11678	2015160	UTL INC COVENTRY CREEK SBDV	530	Cambrian Ordovician Sandstone	3	-
11679	2015150	UTL INC COVENTRY HLS UTL INC	520	Cambrian Ordovician Sandstone	3	3
11681	2015150	UTL INC COVENTRY HLS UTL INC	590	Cambrian Ordovician Sandstone	3	5
1116	2010070	UTL INC WESTLAKE UTILITIES INC	440	Cambrian Ordovician Sandstone	4	3.5
1542	2010070	UTL INC WESTLAKE UTILITIES INC	500	Cambrian Ordovician Sandstone	3	5.5
11698	2015400	WILDWOOD UTILITIES COMPANY	531	Cambrian Ordovician Sandstone	3	3
1219	2010500	WINNEBAGO	833	Cambrian Ordovician Sandstone	3	
11668	2010500	WINNEBAGO	810	Cambrian Ordovician Sandstone	3	3.0
11669	2010500	WINNEBAGO	835	Cambrian Ordovician Sandstone	3	

### Flooding

The flood score measures how likely a well is to experience a flood. The score identifies any SCWS with a well within a Federal Emergency Management Agency (FEMA)designated floodplain. Data from FEMA flood zone maps inform the data collection for this sub-criterion. Wells in a FEMA-designated floodplain receive an unweighted score of 3 points, and any wells outside a floodplain receive 0 points. The assessment averages individual well scores for the final flood score for each SCWS.

#### Table 7-12: Flood Scores

ROJECT ID	CWS Number	Project Name	Flooplain	Flood Score
1661	2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	N	0
1662	2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	N	C
11127	2015345	BILL-MAR HEIGHTS MHP	N	C
11128	2015345	BILL-MAR HEIGHTS MHP	N	C
11673	2015050	BRADLEY HEIGHTS SUBDIVISION	N	C
11674	2015050	BRADLEY HEIGHTS SUBDIVISION	N	(
133	2010050	CHERRY VALLEY	N	(
134	2010050	CHERRY VALLEY	N	(
135	2010050	CHERRY VALLEY	N	(
1605	2010050	CHERRY VALLEY	N	(
11133	2015425	CLARKS MHP	N	(
11610	2010100	DURAND	N	(
11611	2010100	DURAND	N	(
	2010030	FOREST VIEW MHP		
121	2015495	GREEN MEADOW ESTS OF ROCKFORD	N	(
11135	2015495	GREEN MEADOW ESTS OF ROCKFORD	N	(
11136	2015495	GREEN MEADOW ESTS OF ROCKFORD	N	(
11667	2010450	IL AMERICAN-SOUTH BELOIT	N	(
380	2015300	LEGEND LAKES WATER ASSOCIATION	N	(
11685	2015300	LEGEND LAKES WATER ASSOCIATION	N	(
11687	2015545	MANCUSO VILLAGE PARK MHP	N	(
11688	2015545	MANCUSO VILLAGE PARK MHP	N	(
1094	2015320	OTTER CREEK LAKE UTL DSTRCT	N	(
11696	2015320	OTTER CREEK LAKE UTL DSTRCT	Y	1
11618	2010250	PECATONICA	N	(
11619	2010250	PECATONICA	N	(
11146	2015625	PHIL-AIRE ESTATES MHP	N	(
11671	2015100	PRAIRIE ROAD PUMP CORPORATION	N	(
11672	2015100	PRAIRIE ROAD PUMP CORPORATION	N	(
11147	2015645	RAINBOW LANE MHP	N	(
796	2010350	ROCKTON	N	(
1602	2010350	ROCKTON	N	(
1789	2010350	ROCKTON	N	(
1981	2010350	ROCKTON	N	(
11665	2010350	ROCKTON	N	(
11666	2010350	ROCKTON	N	(
11151		SIX OAKS MHP	N	(
		SOUTH BLUFF MHP		
11677	2015160	UTL INC COVENTRY CREEK SBDV	N	(
11678		UTL INC COVENTRY CREEK SBDV	N	(
11679		UTL INC COVENTRY HLS UTL INC	N	(
11681		UTL INC COVENTRY HLS UTL INC	N	(
1116		UTL INC WESTLAKE UTILITIES INC	N	(
1542		UTL INC WESTLAKE UTILITIES INC	N	
11698		WILDWOOD UTILITIES COMPANY	N	(
1219		WINNEBAGO	N	(
11668		WINNEBAGO	N	(
11669		WINNEBAGO	N	(

[	X/8
	SUB-CRITERIA: Aquifer Vulnerability
System Name	SCORE
AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	3
BILL-MAR HEIGHTS	4
BRADLEY HEIGHTS SUBDIVISION	4
CHERRY VALLEY	3
CLARKS MHP	4
DURAND	3.5
FOREST VIEW MHP	-
GREEN MEADOWS ESTATES MHP	-
IL AMERICAN SOUTH BELOIT	3
LEGEND LAKES WATER ASSOCIATION	4
MANCUSO VILLAGE MHP	3.5
OTTER CREEK LAKE UTILITIES DISTRICT	5.5
PECATONICA	3
PHIL-AIRE ESTATES MHP	5
PRAIRIE ROAD PUMP CORPORATION	4
RAINBOW LANE MHP	5
ROCKTON	4
SIX OAKS MHP	4
SOUTH BLUFF MHP	0
UTL INC COVENTRY CREEK SBDV	3
UTL INC COVENTRY HLS UTL INC	3
UTL INC WESTLAKE UTILITIES INC	3.5
WILDWOOD UTILITIES COMPANY	3
WINNEBAGO	3

## Final Water Quality Score

Table 7-14: Final Water Quality Score

		X/	34	X/	'18	X/8	
			RITERIA: Past 5 Years		RIA: Water rability	SUB-CRITERIA: Aquifer Vulnerability	
		Enforceme	ed EPA nt Targeting T) Score	Sourc	o Potential ces of nination	Results of All CWS Wells	X/60
System ID	System Name	ETT POINTS	SCORE	CWS Total	SCORE	SCORE	Total
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	0	0	1	18	3	21
IL2015345	BILL-MAR HEIGHTS	12.5	34	3.5	18	4	56
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0.5	0	0	4.5	4	8.5
IL2010050	CHERRY VALLEY	5	17	5	18	3	38
IL2015425	CLARKS MHP	0	0	0.25	9	4	13
IL2010100	DURAND	0	0	2.75	18	3.5	21.5
IL2010030	FOREST VIEW MHP	0.5	0	-	18	0	18
IL2015495	GREEN MEADOWS ESTATES MHP	46	34	2	18	4.3	56.3
IL2010450	IL AMERICAN SOUTH BELOIT	0	0	8.75	18	3	21
IL2015300	LEGEND LAKES WATER ASSOCIATION	0	0	0.25	9	4	13
IL2015545	MANCUSO VILLAGE MHP	4.5	17	1	18	3.5	38.5
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	0.5	0	0.25	9	5.5	14.5
IL2010250	PECATONICA	0	0	1.5	18	3	21
IL2015625	PHIL-AIRE ESTATES MHP	8.5	17	0.125	4.5	5	26.5
IL2015100	PRAIRIE ROAD PUMP CORPORATION	2.5	0	0.25	9	4	13
IL2015645	RAINBOW LANE MHP	13.5	34	0	4.5	5	43.5
IL2010350	ROCKTON	0.5	0	0.75	18	4	22
IL2015685	SIX OAKS MHP	0.5	0	0.25	9	4	13
IL2010460	SOUTH BLUFF MHP	0.5	0	-	18	0	18
IL2015160	UTL INC COVENTRY CREEK SBDV	0	0	0	4.5	3	7.5
IL2015150	UTL INC COVENTRY HLS UTL INC	0	0	1.75	18	3	21
IL2010070	UTL INC WESTLAKE UTILITIES INC	0	0	0.5	9	3.5	12.5
IL2015400	WILDWOOD UTILITIES COMPANY	2.5	0	0	4.5	3	7.5
IL2010500	WINNEBAGO	0	0	3.5	18	3	21

# Water Availability

The water availability category accounts for 30 points, or 30 percent, of the final assessment score. Two (2) sub-criteria determine this score: water supply and water demand, each with their respective sub-criteria. Illinois State Water Survey (ISWS) provided data and methodology for this portion. The data included in this section uses publicly available data, meaning that data is approximate and may be subject to errors due to incomplete well logs, inaccurate location, or local unmapped heterogeneities.

Figure 7-2: Water Availability Criteria and Sub-Criteria Flow Graphic

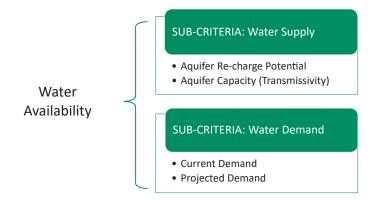


 Table 7-15:
 Water Availability Criteria and Sub-Criteria

WATER AVAILABILITY		30 POINTS
SUB-CRITERIA: Water		
Supply	METRIC	15 POINTS
Aquifer Re-charge Potent	ial	7.5
	0-10% Sand & Gravel (Low Recharge	7.5
	10-25% Sand & Gravel	6
	25-50% Sand & Gravel	4.5
	50-75% Sand & Gravel	3
	75-100% Sand & Gravel (High	1.5
	Recharge Poten al)	
Aquifer Capacity (ft <sup>2</sup> /d)		7.5
	<1000 (ft^2/d)	7.5
	1000-5000 (ft^2/d)	6
	5000-10000 (ft^2/d)	4.5
	10000-20000 (ft^2/d)	3
	>20000 (ft^2/d)	1.5
SUB-CRITERIA: Water		
Demand	METRIC	15 POINTS
Current Demand		7.5
	>100 ft/well	1
	50-100 ft/well	2
	25-50 ft/well	3
	10-25 ft/well	4
	< 10 ft/well	5
Future Demand		7.5
	>100 ft/well	1
	50-100 ft/well	2
	25-50 ft/well	3
	10-25 ft/well	4
	< 10 ft/well	5

## Water Supply

The water supply sub-criteria utilizes data from two (2) subcriteria: aquifer recharge potential and aquifer capacity (Table 7-15). Water supply accounts for 15 points of the assessment, half of the water availability score. Relevant studies often use this methodology to assess larger water systems, and values may be conservative for smaller water systems.

#### Aquifer Recharge Potential

Aquifer potential is a measurement of the type of aquifer the small community water system (SCWS) draws water from. This score uses similar data and methodology for aquifer vulnerability criteria but considers how easily groundwater can flow through to replenish the aquifer. This value is the aquifer's "R score", displayed as a percentage of a type of material. The assessment utilizes scores from the ISWS database and converts them to a quantified vulnerability score ranging from 1-5 points (Table 7-16). Partners at ISWS designed this approach to convert the "R score" into a usable metric for this assessment.

The aquifer recharge potential vulnerability score corresponds to the percent of coarse-grained material (sand and gravel) that dominates the aquifer's upper layers of unconsolidated material. High vulnerability (5 points) is classified by a greater than 90 percent makeup of finegrained materials, such as silt or clay. A low vulnerability score (1 point) is classified by a greater than 75 percent makeup of coarse-grained materials, such as sand and gravel.

This score is worth a total of 7.5 points, based on the percentage of recharge potential of a SCWS. Five (5) options were identified for point designation ranging from low recharge potential to high recharge potential: 0-10% (7.5 points), 10-25% (6 points), 25-50% (4.5 points), 50-75% (3 points), and 75-100% (1.5 points) (Table 7-17). System scores were determined by averaging the recharge potential scores of the SCWSs' wells. Systems without wells receive a value of 0 points for this sub-criterion.

20190080 AC 20190080 AC 20195345 BII 20195345 BII 20195345 BII 20195345 BII 20195050 BR	roject Name QUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON QUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	11.453	R_score 4	Average R_Score
20190080 AC 20195345 BII 20195345 BII 20195345 BII 20195050 BR	· ·			
20195345 BII 20195345 BII 20195345 BII 20195350 BR		11.453	4	4.0
20195345 BII 20195345 BII 20195050 BR	ILL MAR HEIGHTS MHP	24.4347	4	
20195345 BII 20195050 BR	ILL MAR HEIGHTS MHP	28.5449	3	3.7
20195050 BR	ILL MAR HEIGHTS MHP	20.1484	4	
	RADLEY HEIGHTS SUBD	36.2938	3	
Z01950501BP	RADLEY HEIGHTS SUBD	32.6411	3	3.0
	RADLEY HEIGHTS SUBD	35.3334	3	
	HERRY VALLEY	40.5359	3	
	HERRY VALLEY	0.17246	5	
	HERRY VALLEY	0.354827	5	
	HERRY VALLEY	0.262676	5	4.7
	HERRY VALLEY	3.19622	5	
	HERRY VALLEY	9.98115	5	
20190030 CF		19.0765	5	4.0
20193423 CL 20190100 DL			5	4.0
		0		5.0
20190100 DU		0	5	5.0
20190100 DU		0	5	l
	REEN MEADOW ESTATES OF ROCKFORD	37.3411	3	1
	REEN MEADOW ESTATES OF ROCKFORD	33.2586	3	3.0
	REEN MEADOW ESTATES OF ROCKFORD	32.7679	3	
20190450 ILI	LINOIS AMERICAN - SOUTH BELOIT	76.0965	1	1.0
20195300 LE	EGEND LAKES WATER ASSN	0.993958	5	5.0
20195300 LE	EGEND LAKES WATER ASSN	0.81538	5	
20195545 M	IANCUSO VILLAGE PARK MHP	13.0947	4	3.5
20195545 M	IANCUSO VILLAGE PARK MHP	25.1261	3	
20195320 OT	TTER CREEK LAKE UTILITY DIST	0	5	
20195320 OT	TTER CREEK LAKE UTILITY DIST	0	5	5.0
20195320 OT	TTER CREEK LAKE UTILITY DIST	0	5	510
20195320 OT	TTER CREEK LAKE UTILITY DISTRICT	0	5	
20190250 PE	ECATONICA	1.82499	5	
20190250 PE	ECATONICA	6.17084	5	5.0
20190250 PE	ECATONICA	5.35709	5	
20195625 PH	HIL-AIRE ESTATES MHP	78.4028	1	1.0
20195100 PR	RAIRIE ROAD PUMP COMPANY	20.2892	4	4.0
20195100 PR	RAIRIE ROAD PUMP COMPANY	24.2826	4	4.0
	AINBOW LANE MHP	72.5751	2	2.0
20190350 RC		78.27	1	
20190350 RC		47.9142	3	
20190350 RC		68.3144	2	1 .
20190350 RC		22.952	4	2.3
20190350 RC		76.2273	1	
20190350 RC		25.23	3	1
20195585 SIX		4.13426	5	5.0
	OUTH BLUFF MHP	4.13420		5.0
	TILITIES INC - COVENTRY CREEK SUBD	2.07855	5	
1	TILITIES INC - COVENTRY CREEK SUBD	0.795683	5	5.0
1	TILITIES INC - COVENTRY CREEK SOBD	5.48153	5	
				5.0
	TILITIES INC - COVENTRY HILLS UTILITIES INC	0.486356	5	
	TILITIES INC WESTLAKE UTILITIES INC.	0.969577	5	5.0
	TILITIES INC WESTLAKE UTILITIES INC.	0.950224	5	5.0
1		3.64238	5	5.0
20100500 14/	/INNEBAGO	0	5	
	/INNEBAGO	0	5	5.0

	Aquifer Re-charge Potential (R_Score)		
System Name	R_Score	SCORE	
AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	4	6	
BILL-MAR HEIGHTS	3.7	5.5	
BRADLEY HEIGHTS SUBDIVISION	3	4.5	
CHERRY VALLEY	4.7	7	
CLARKS MHP	4	6	
DURAND	5	7.5	
FOREST VIEW MHP		0	
GREEN MEADOWS ESTATES MHP	3	4.5	
IL AMERICAN SOUTH BELOIT	1	1.5	
LEGEND LAKES WATER ASSOCIATION	5	7.5	
MANCUSO VILLAGE MHP	3.5	5.3	
OTTER CREEK LAKE UTILITIES DISTRICT	5	7.5	
PECATONICA	5	7.5	
PHIL-AIRE ESTATES MHP	1	1.5	
PRAIRIE ROAD PUMP CORPORATION	4	6	
RAINBOW LANE MHP	2	3	
ROCKTON	2.3	3.5	
SIX OAKS MHP	5	7.5	
SOUTH BLUFF MHP		0	
UTL INC COVENTRY CREEK SBDV	5	7.5	
UTL INC COVENTRY HLS UTL INC	5	7.5	
UTL INC WESTLAKE UTILITIES INC	5	7.5	
WILDWOOD UTILITIES COMPANY	5	7.5	
WINNEBAGO	5	7.5	

Source: ISWS

#### **Aquifer Capacity**

Aquifer capacity is measured using the transmissivity value, or "t score", of an aquifer. This value quantifies the ability for water to flow through an aquifer, implying the ease and speed at which an operator can withdraw water from an aquifer. This measurement identifies the rate of flow through an aquifer by square foot per day  $\left(\frac{ft^2}{d}\right)$ . This score is based on aquifer-level data on hydraulic conductivity and saturated thickness. Vulnerable systems have a lower transmissivity score, and less vulnerable aquifers have a high transmissivity score.

This score is worth a total of 7.5 points based on the transmissivity indication of vulnerability. Five (5) options were identified for point designation ranging from low recharge potential to high recharge potential: less than 1,000 square feet per day (7.5 points), 1,000 to 5,000 square feet per day (6 points), 5,000 to 10,000 square feet per day (4.5 points), 10,000 to 20,000 square feet per day (3 points), and greater than 20,000 square feet per day (1.5 points) (Table 7-19). System scores were determined by averaging the recharge potential scores of the SCWSs' wells. Systems without wells receive a value of 0 points for this sub-criterion.

WELL ID	Project Name	T (ft^2/d)	T_score	Average T_Score
20190080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	5067.87	3	2
20190080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	5067.87	3	3
20195345	BILL MAR HEIGHTS MHP	15788.9	2	
20195345	BILL MAR HEIGHTS MHP	18961.9	2	2
20195345	BILL MAR HEIGHTS MHP	13477.7	2	
20195050	BRADLEY HEIGHTS SUBD	31907.8	1	
20195050	BRADLEY HEIGHTS SUBD	30774.9	1	1
20195050	BRADLEY HEIGHTS SUBD	32404.5	1	
20190050	CHERRY VALLEY	18415.8	2	
20190050	CHERRY VALLEY	1027.05	4	
20190050	CHERRY VALLEY	1289.11	4	27
20190050	CHERRY VALLEY	1245.86	4	3.7
20190050	CHERRY VALLEY	2000.98	4	
20190050	CHERRY VALLEY	3176.2	4	
20195425	CLARKS MHP	23509.6	1	1
20190100	DURAND	2152.82	4	
20190100		2308.6		4
20190100		2369.17	4	1
	FOREST VIEW MHP			
	GREEN MEADOW ESTATES OF ROCKFORD	19157.2	2	
20195495	GREEN MEADOW ESTATES OF ROCKFORD	18425.4		2
20195495	GREEN MEADOW ESTATES OF ROCKFORD	19132.9	2	
-	ILLINOIS AMERICAN - SOUTH BELOIT	20033.7	1	1
	LEGEND LAKES WATER ASSN	4916.01	4	
	LEGEND LAKES WATER ASSN	4848.28	4	4
	MANCUSO VILLAGE PARK MHP	4975.19	4	
-	MANCUSO VILLAGE PARK MHP	9031.15		3.5
	OTTER CREEK LAKE UTILITY DIST	1260.78	4	
	OTTER CREEK LAKE UTILITY DIST	1210.47	4	
	OTTER CREEK LAKE UTILITY DIST	1817.38		4
	OTTER CREEK LAKE UTILITY DISTRICT	1012.02		
-	PECATONICA	5873.61	3	
	PECATONICA	6412.57		3
	PECATONICA	6260.23		
	PHIL-AIRE ESTATES MHP	78989.8		1
	PRAIRIE ROAD PUMP COMPANY	23198.1	1	
	PRAIRIE ROAD PUMP COMPANY	25869.3		1
	RAINBOW LANE MHP	76013.1		1
	ROCKTON	26057.7		
-	ROCKTON	12998.2		
	ROCKTON	17121.1		
	ROCKTON	5932.9		1.8
	ROCKTON	25979.8		
	ROCKTON	13107.3		
	SIX OAKS MHP	5052.13		3
	SOUTH BLUFF MHP	2332.13		-
	UTILITIES INC - COVENTRY CREEK SUBD	842.722	5	
	UTILITIES INC - COVENTRY CREEK SUBD	639.431		5
	UTILITIES INC - COVENTRY HILLS UTILITIES INC	1070.41		
	UTILITIES INC - COVENTRY HILLS UTILITIES INC	691.456		4.5
	UTILITIES INC WESTLAKE UTILITIES INC.	2328.41		
	UTILITIES INC WESTLAKE UTILITIES INC.	2632.28		4
	WILDWOOD UTILITY CO	1299.14		4
	WINNEBAGO	3448.02		
	WINNEBAGO	3953.4		. 4
	WINNEBAGO	4035.07		Ť
20190200		4035.07	4	l

		Aquifer Capcity (T T_Score	-
System ID	System Name	T_Score	SCORE
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	3	4.5
IL2015345	BILL-MAR HEIGHTS	2	3
IL2015050	BRADLEY HEIGHTS SUBDIVISION	1	1.5
IL2010050	CHERRY VALLEY	3.7	5.5
IL2015425	CLARKS MHP	1	1.5
IL2010100	DURAND	4	6
IL2010030	FOREST VIEW MHP	0	0
IL2015495	GREEN MEADOWS ESTATES MHP	2	3
IL2010450	IL AMERICAN SOUTH BELOIT	1	1.5
IL2015300	LEGEND LAKES WATER ASSOCIATION	4	6
IL2015545	MANCUSO VILLAGE MHP	3.5	5.3
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	4	6
IL2010250	PECATONICA	3	4.5
IL2015625	PHIL-AIRE ESTATES MHP	1	1.5
IL2015100	PRAIRIE ROAD PUMP CORPORATION	1	1.5
IL2015645	RAINBOW LANE MHP	1	1.5
IL2010350	ROCKTON	1.8	2.8
IL2015685	SIX OAKS MHP	3	4.5
IL2010460	SOUTH BLUFF MHP	0	0
IL2015160	UTL INC COVENTRY CREEK SBDV	5	7.5
IL2015150	UTL INC COVENTRY HLS UTL INC	4.5	6.8
IL2010070	UTL INC WESTLAKE UTILITIES INC	4	6
IL2015400	WILDWOOD UTILITIES COMPANY	4	6
IL2010500	WINNEBAGO	4	6

#### Water Demand

The Water Demand sub-criteria utilizes data from two (2) sub-criteria: current demand and future demand (Table 7-15). Water demand accounts for 15 points of the assessment, half of the water availability score.

#### **Current Demand**

The methodology for calculating current demand was provided by ISWS utilizing available data. This value is determined by dividing the total small community water system (SCWS) demand by the transmissivity and the number of wells within the system. This score accounts for the potential drawdown, not just the demand value.

This element is worth 7.5 points, half of the water demand score. Five (5) options were identified for point designation ranging from high demand to low demand: greater than 100 (7.5 points), between 50 and 100 (6 points), between 25-50 (4.5 points), between 10 to 5 (3 points), and less than 10 (1.5 points) (Table 7-21). Systems without wells receive a value of 0 points for this sub-criterion.

#### Table 7-20: Current Water Demand Scoring System

System ID	System Name	Q_current (Demand)	T (transmissivity) (ft^2/d)	# of Wells	Q/T/#wells	Q_Score
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	0.00	5067.87	1	0.72	1
IL2015345	BILL-MAR HEIGHTS	0.01	16076.17	3	0.21	1
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0.03	31695.73	3	0.28	1
IL2010050	CHERRY VALLEY	0.89	4525.83	6	32.75	3
IL2015425	CLARKS MHP	0.00	23509.60	1	0.20	1
IL2010100	DURAND	0.11	2276.86	3	15.64	2
IL2010030	FOREST VIEW MHP					
IL2015495	GREEN MEADOWS ESTATES MHP	0.04	2276.86	3	6.38	1
IL2010450	IL AMERICAN SOUTH BELOIT	0.00	20033.70	1	0.00	1
IL2015300	LEGEND LAKES WATER ASSOCIATION	0.02	4882.15	2	1.56	1
IL2015545	MANCUSO VILLAGE MHP	0.02	7003.17	2	1.27	1
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	0.08	1325.16	4	15.25	2
IL2010250	PECATONICA	0.15	6182.14	3	7.98	1
IL2015625	PHIL-AIRE ESTATES MHP	0.00	78989.80	1	0.02	1
IL2015100	PRAIRIE ROAD PUMP CORPORATION	0.03	24533.70	2	0.67	1
IL2015645	RAINBOW LANE MHP	0.01	76013.10	1	0.09	1
IL2010350	ROCKTON	0.71	16866.17	6	7.06	1
IL2015685	SIX OAKS MHP	0.00	2947.43	1	1.44	1
IL2010460	SOUTH BLUFF MHP					
IL2015160	UTL INC COVENTRY CREEK SBDV	0.02	741.08	2	11.65	2
IL2015150	UTL INC COVENTRY HLS UTL INC	0.04	880.93	2	20.90	2
IL2010070	UTL INC WESTLAKE UTILITIES INC	0.13	2480.35	2	26.26	3
IL2015400	WILDWOOD UTILITIES COMPANY	0.03	1299.14	1	22.88	2
IL2010500	WINNEBAGO	0.20	3812.16	3	17.15	2

Table 7-21: Current Water Demand Results

		Current Demand	
System ID	System Name	Current Q_Score	SCORE
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	1	1.5
IL2015345	BILL-MAR HEIGHTS	1	1.5
IL2015050	BRADLEY HEIGHTS SUBDIVISION	1	1.5
IL2010050	CHERRY VALLEY	3	4.5
IL2015425	CLARKS MHP	1	1.5
IL2010100	DURAND	2	3
IL2010030	FOREST VIEW MHP		
IL2015495	GREEN MEADOWS ESTATES MHP	1	1.5
IL2010450	IL AMERICAN SOUTH BELOIT	1	1.5
IL2015300	LEGEND LAKES WATER ASSOCIATION	1	1.5
IL2015545	MANCUSO VILLAGE MHP	1	1.5
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	2	3
IL2010250	PECATONICA	1	1.5
IL2015625	PHIL-AIRE ESTATES MHP	1	1.5
IL2015100	PRAIRIE ROAD PUMP CORPORATION	1	1.5
IL2015645	RAINBOW LANE MHP	1	1.5
IL2010350	ROCKTON	1	1.5
IL2015685	SIX OAKS MHP	1	1.5
IL2010460	SOUTH BLUFF MHP		
IL2015160	UTL INC COVENTRY CREEK SBDV	2	3
IL2015150	UTL INC COVENTRY HLS UTL INC	2	3
IL2010070	UTL INC WESTLAKE UTILITIES INC	3	4.5
IL2015400	WILDWOOD UTILITIES COMPANY	2	3
IL2010500	WINNEBAGO	2	3

#### **Future Demand**

The Illinois State Water Survey (ISWS) provided the data and methodology for calculating future demand utilizing data from the current demand calculations and future climate projections. This value is determined by taking the current demand score and multiplying it by 8.7 percent (Table 7-22). The 8.7 percent value is the expected increase in demand in a 2060 Hot/Dry climate scenario. While this calculation does not heavily alter final assessment scores, scores on the cusp of two (2) values will move to the higher vulnerability score.

This score is worth 7.5 points, half of the water demand score. Five (5) options were identified for point designation ranging from high future demand to low future demand: greater than 100 (7.5 points), between 50 and 100 (6 points), between 25-50 (4.5 points), between 10 to 5 (3 points), and less than 10 (1.5 points) (Table 7-23). Systems without wells receive a value of 0 points for this sub-criterion.

#### Table 7-22: Future Demand Scoring System

System ID	System Name	Q_current (Demand)	Q_projected	T (transmissivity) (ft^2/d)	# of Wells	Q/T/#wells	Q_Score
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	0.00	0.00	5067.87	1	0.78	5
IL2015345	BILL-MAR HEIGHTS	0.01	0.01	16076.17	3	0.23	5
IL2015050	BRADLEY HEIGHTS SUBDIVISION	0.03	0.03	31695.73	3	0.30	5
IL2010050	CHERRY VALLEY	0.89	0.97	4525.83	6	35.60	3
IL2015425	CLARKS MHP	0.00	0.01	23509.60	1	0.22	5
IL2010100	DURAND	0.11	0.12	2276.86	3	17.00	4
IL2010030	FOREST VIEW MHP						
IL2015495	GREEN MEADOWS ESTATES MHP	0.04	0.05	2276.86	3	6.94	5
IL2010450	IL AMERICAN SOUTH BELOIT	0.00	0.00	20033.70	1	0.00	5
IL2015300	LEGEND LAKES WATER ASSOCIATION	0.02	0.02	4882.15	2	1.70	5
IL2015545	MANCUSO VILLAGE MHP	0.02	0.02	7003.17	2	1.38	5
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	0.08	0.09	1325.16	4	16.58	4
IL2010250	PECATONICA	0.15	0.16	6182.14	3	8.68	5
IL2015625	PHIL-AIRE ESTATES MHP	0.00	0.00	78989.80	1	0.02	5
IL2015100	PRAIRIE ROAD PUMP CORPORATION	0.03	0.04	24533.70	2	0.73	5
IL2015645	RAINBOW LANE MHP	0.01	0.01	76013.10	1	0.09	5
IL2010350	ROCKTON	0.71	0.78	16866.17	6	7.68	5
IL2015685	SIX OAKS MHP	0.00	0.00	2947.43	1	1.56	5
IL2010460	SOUTH BLUFF MHP						
IL2015160	UTL INC COVENTRY CREEK SBDV	0.02	0.02	741.08	2	12.67	4
IL2015150	UTL INC COVENTRY HLS UTL INC	0.04	0.04	880.93	2	22.72	4
IL2010070	UTL INC WESTLAKE UTILITIES INC	0.13	0.14	2480.35	2	28.54	3
IL2015400	WILDWOOD UTILITIES COMPANY	0.03	0.03	1299.14	1	24.88	4
IL2010500	WINNEBAGO	0.20	0.21	3812.16	3	18.64	4

Table 7-23: Future Water Availability Score

		Future Demand	
System ID	System Name	Future Q_Score	SCORE
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	1	1.5
IL2015345	BILL-MAR HEIGHTS	1	1.5
IL2015050	BRADLEY HEIGHTS SUBDIVISION	1	1.5
IL2010050	CHERRY VALLEY	3	4.5
IL2015425	CLARKS MHP	1	1.5
IL2010100	DURAND	2	3
IL2010030	FOREST VIEW MHP	0	0
IL2015495	GREEN MEADOWS ESTATES MHP	1	1.5
IL2010450	IL AMERICAN SOUTH BELOIT	1	1.5
IL2015300	LEGEND LAKES WATER ASSOCIATION	1	1.5
IL2015545	MANCUSO VILLAGE MHP	1	1.5
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	2	3
IL2010250	PECATONICA	1	1.5
IL2015625	PHIL-AIRE ESTATES MHP	1	1.5
IL2015100	PRAIRIE ROAD PUMP CORPORATION	1	1.5
IL2015645	RAINBOW LANE MHP	1	1.5
IL2010350	ROCKTON	1	1.5
IL2015685	SIX OAKS MHP	1	1.5
IL2010460	SOUTH BLUFF MHP	0	0
IL2015160	UTL INC COVENTRY CREEK SBDV	2	3
IL2015150	UTL INC COVENTRY HLS UTL INC	2	3
IL2010070	UTL INC WESTLAKE UTILITIES INC	3	4.5
IL2015400	WILDWOOD UTILITIES COMPANY	2	3
IL2010500	WINNEBAGO	2	3

## Final Water Availability Score

Table 7-24: Final Water Availability Score

			SUB-CRITERIA: Water Supply (X/15)			SUB-CRITERIA: Water Demand (X/15)						
		Aquifer Re-cha (R_Se		Aquifer Capcity (Transmissivity, T_Score_)			Current Demand		Current Demand Future Demand			
System ID	System Name	R_Score	SCORE	T_Score	SCORE	SUBTOTAL	Current Q_Score	SCORE	Future Q_Score	SCORE	SUBTOTAL	Total
IL2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISON	4	6	3	4.5	10.5	1	1.5	1	1.5	3	13
IL2015345	BILL-MAR HEIGHTS	3.7	5.5	2	3	8.5	1	1.5	1	1.5	3	11
IL2015050	BRADLEY HEIGHTS SUBDIVISION	3	4.5	1	1.5	6	1	1.5	1	1.5	3	
IL2010050	CHERRY VALLEY	4.7	7	3.7	5.5	12.5	3	4.5	3	4.5	9	21
IL2015425	CLARKS MHP	4	6	1	1.5	7.5	1	1.5	1	1.5	3	10
IL2010100	DURAND	5	7.5	4	6	13.5	2	3	2	3	6	19
IL2010030	FOREST VIEW MHP	0	0	0	0	0	0	0	0	0	0	
IL2015495	GREEN MEADOWS ESTATES MHP	3	4.5	2	3	7.5	1	1.5	1	1.5	3	10
IL2010450	IL AMERICAN SOUTH BELOIT	1	1.5	1	1.5	3	1	1.5	1	1.5	3	
IL2015300	LEGEND LAKES WATER ASSOCIATION	5	7.5	4	6	13.5	1	1.5	1	1.5	3	16
IL2015545	MANCUSO VILLAGE MHP	3.5	5.3	3.5	5.3	10.5	1	1.5	1	1.5	3	13
IL2015320	OTTER CREEK LAKE UTILITIES DISTRICT	5	7.5	4	6	13.5	2	3	2	3	6	19
IL2010250	PECATONICA	5	7.5	3	4.5	12	1	1.5	1	1.5	3	
IL2015625	PHIL-AIRE ESTATES MHP	1	1.5	1	1.5	3	1	1.5	1	1.5	3	
IL2015100	PRAIRIE ROAD PUMP CORPORATION	4	6	1	1.5	7.5	1	1.5	1	1.5	3	10
IL2015645	RAINBOW LANE MHP	2	3	1	1.5	4.5	1	1.5	1	1.5	3	7
IL2010350	ROCKTON	2.3	3.5	1.8	2.8	6.3	1	1.5	1	1.5	3	9.:
IL2015685	SIX OAKS MHP	5	7.5	3	4.5	12	1	1.5	1	1.5	3	
IL2010460	SOUTH BLUFF MHP	0	0	0	0	0	0	0	0	0	0	
IL2015160	UTL INC COVENTRY CREEK SBDV	5	7.5	5	7.5	15	2	3	2	3	6	
IL2015150	UTL INC COVENTRY HLS UTL INC	5	7.5	4.5	6.8	14.3	2	3	2	3	6	20.:
IL2010070	UTL INC WESTLAKE UTILITIES INC	5	7.5	4	6	13.5	3	4.5	3	4.5	9	22
IL2015400	WILDWOOD UTILITIES COMPANY	5	7.5	4	6	13.5	2	3	2	3	6	19
IL2010500	WINNEBAGO	5	7.5	4	6	13.5	2	3	2	3	6	19

# **Social Vulnerability**

The Social Vulnerability category accounts for 10 points, or 10 percent, of the final assessment score. This score utilizes data from two (2) sub-criteria: The Center for Disease Control (CDC) Social Vulnerability Index (SVI) and the size of the population that the small community water system (SCWS) serves. Table 7-25 outlines the different weights for each sub-criterion.

**Figure 7-3:** Social Vulnerability Criteria and Sub-Criteria Flow Graphic

Social Vulnerability SUB-CRITERIA: CDC's Social Vulnerability Index SUB-CRITERIA: Community Water System Size

### Social Vulnerability Index

The assessment utilizes Social Vulnerability Index (SVI) scores from the CDC's 2020 SVI for Winnebago County census tracts and maps in ArcGIS using the "RPL\_THEMES" field. The SVI RPL THEMES are relative rankings based on the percentiles of socioeconomic status, household characteristics, racial and ethnic minority status, and housing type and transportation, compared to other Illinois census tracts. The SCWS SVI scores were determined based on the RPL\_THEMES value for census tracts of well locations. While systems have wells within the same census tract, the assessment averages SVI scores for systems with wells across a larger service area.

Social Vulnerability Index (SVI) scores range from 0 to 1 point, with 1 indicating the highest level of social vulnerability. The final SVI scores are worth a total of 5 points. The assessment converts the original 0-1 CDC scale to a sliding scale of 0-5 points for this sub-criterion (Table 7-26).

#### Table 7-25: Social Vulnerability Criteria

SOCIAL VULNERABILITY		10 POINTS
SUB-CRITERIA	METRIC	Points
CDC's Social Vulnerability Index Score		5
The score ranges from 0 to 1, with 1 being the most vulnerable	adjusted to 0-5 scale	
Community Water System Size (population served)		5
Populations range from 0-10,000	adjusted to 0-5 scale	

### 0 **CDC/ATSDR SVI** Themes Socioeconomic Status<sup>5</sup> Household Characteristics<sup>6</sup> Vulnerability (SVI 2020)<sup>2</sup> Highest (Top 4th) Highest Vulnerability Lowest Lowest (SVI 2020)2 (Top 4th) (Bottom 4th) (Bottom 4th) Racial and Ethnic Minority Status7 Housing Type/Transportation<sup>8</sup> Lowest Highest Highest Vulnerability Vulnerability Lowest (SVI 2020)2 (SVI 2020)2 (Top 4th) (Top 4th) (Bottom 4th) (Bottom 4th)

Source: CDC SVI, 2020

		CDC Social Vulnerability Index Score		
PROJECT ID	Project Name	2020 INDEX	SCORE	
2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	0.4251	2.12	
2015345	BILL-MAR HEIGHTS MHP	0.4251	2.13	
2015050	BRADLEY HEIGHTS SUBDIVISION	0.7174	3.59	
2010050	CHERRY VALLEY	0.2681	1.34	
2015425	CLARKS MHP	0.9407	4.70	
2010100	DURAND	0.4696	2.35	
2010030	FOREST VIEW MHP	0.3492	1.75	
2015495	GREEN MEADOW ESTS OF ROCKFORD	0.4278	2.14	
2010450	IL AMERICAN-SOUTH BELOIT	0.4856	2.43	
2015300	LEGEND LAKES WATER ASSOCIATION	0.1103	0.55	
2015545	MANCUSO VILLAGE PARK MHP	0.4251	2.13	
2015320	OTTER CREEK LAKE UTL DSTRCT	0.4696	2.35	
2010250	PECATONICA	0.164	0.82	
2015625	PHIL-AIRE ESTATES MHP	0.3492	1.75	
2015100	PRAIRIE ROAD PUMP CORPORATION	0.9407	4.70	
2015645	RAINBOW LANE MHP	0.437	2.19	
2010350	ROCKTON	0.138	0.69	
2015685	SIX OAKS MHP	0.164	0.82	
2010460	SOUTH BLUFF MHP	0.164	0.82	
2015160	UTL INC COVENTRY CREEK SBDV	0.1855	0.93	
2015150	UTL INC COVENTRY HLS UTL INC	0.3897	1.95	
2010070	UTL INC WESTLAKE UTILITIES INC	0.164	0.82	
2015400	WILDWOOD UTILITIES COMPANY	0.7436	3.72	
2010500	WINNEBAGO	0.0737	0.37	

## Population

The assessment identifies the service population for each SCWS using data from the IEPA Drinking Water Branch. Small community water systems (SCWSs) can serve a maximum of 10,000 residents. At the time of the assessment, the

maximum population size served in Winnebago County by any SCWS was 8,448 people.

The assessment adjusts each population to a 0-5 points scale (Table 7-27). The final population scores are worth a total of 5 points.

		Community Water System Size (Pop.)		
PROJECT ID	Project Name	POPULATION	SCORE	
2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	100	0.05	
2015345	BILL-MAR HEIGHTS MHP	240	0.12	
2015050	BRADLEY HEIGHTS SUBDIVISION	130	0.07	
2010050	CHERRY VALLEY	5000	2.50	
2015425	CLARKS MHP	80	0.04	
2010100	DURAND	1500	0.75	
2010030	FOREST VIEW MHP	650	0.33	
2015495	GREEN MEADOW ESTS OF ROCKFORD	970	0.49	
2010450	IL AMERICAN-SOUTH BELOIT	8448	4.22	
2015300	LEGEND LAKES WATER ASSOCIATION	283	0.14	
2015545	MANCUSO VILLAGE PARK MHP	537	0.27	
2015320	OTTER CREEK LAKE UTL DSTRCT	2400	1.20	
2010250	PECATONICA	2195	1.10	
2015625	PHIL-AIRE ESTATES MHP	80	0.04	
2015100	PRAIRIE ROAD PUMP CORPORATION	150	0.08	
2015645	RAINBOW LANE MHP	85	0.04	
2010350	ROCKTON	7685	3.84	
2015685	SIX OAKS MHP	48	0.02	
2010460	SOUTH BLUFF MHP	507	0.25	
2015160	UTL INC COVENTRY CREEK SBDV	388	0.19	
2015150	UTL INC COVENTRY HLS UTL INC	882	0.44	
2010070	UTL INC WESTLAKE UTILITIES INC	1800	0.90	
2015400	WILDWOOD UTILITIES COMPANY	490	0.25	
2010500	WINNEBAGO	3101	1.55	

## Final Social Vulnerability Score

Table 7-28: Final Social Vulnerability Score

		Social Vulnerability		
		X/10	X/10	
System ID	System Name	SOCIAL VULNERABILITY	SCORE	
2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GROVE SUBDIVISION	2.2	2.2	
2015345	BILL-MAR HEIGHTS MHP	2.2	2.2	
2015050	BRADLEY HEIGHTS SUBDIVISION	3.7	3.7	
2010050	CHERRY VALLEY	3.8	3.8	
2015425	CLARKS MHP	4.7	4.7	
2010100	DURAND	3.1	3.1	
2010030	FOREST VIEW MHP	2.1	2.1	
2015495	GREEN MEADOW ESTS OF ROCKFORD	2.6	2.6	
2010450	IL AMERICAN-SOUTH BELOIT	6.7	6.7	
2015300	LEGEND LAKES WATER ASSOCIATION	0.7	0.7	
2015545	MANCUSO VILLAGE PARK MHP	2.4	2.4	
2015320	OTTER CREEK LAKE UTL DSTRCT	3.5	3.5	
2010250	PECATONICA	1.9	1.9	
2015625	PHIL-AIRE ESTATES MHP	1.8	1.8	
2015100	PRAIRIE ROAD PUMP CORPORATION	4.8	4.8	
2015645	RAINBOW LANE MHP	2.2	2.2	
2010350	ROCKTON	4.5	4.5	
2015685	SIX OAKS MHP	0.8	0.8	
2010460	SOUTH BLUFF MHP	1.1	1.1	
2015160	UTL INC COVENTRY CREEK SBDV	1.1	1.1	
2015150	UTL INC COVENTRY HLS UTL INC	2.4	2.4	
2010070	UTL INC WESTLAKE UTILITIES INC	1.7	1.7	
2015400	WILDWOOD UTILITIES COMPANY	4.0	4.0	
2010500	WINNEBAGO	1.9	1.9	

# Summary

#### Table 7-29: Summary (RANKED)

		Social Vulner	ability	Water Quality		Water Availability					
		X/10	X/10	X/34	X/18	X/8	X/60	X/15	X/15	X/30	
System ID	System Name	SOCIAL VULNERABILITY	SCORE	VIOLATIONS	WATER VULNERABILITY	AQUIFER VULNERABILITY	SCORE	WATER SUPPLY	WATER DEMAND	SCORE	Total
2015345	BILL-MAR HEIGHTS MHP	2.2	2.2	34	18	4	56	8.5	3	11.5	69.75
2010050	CHERRY VALLEY	3.8	3.8	17	18	3	38	12.5	9	21.5	63.34
2015545	MANCUSO VILLAGE PARK MHP	2.4	2.4	17	18	3.5	38.5	10.5	3	13.5	54.39
2015645	RAINBOW LANE MHP	2.2	2.2	34	4.5	5	43.5	4.5	3	7.5	53.23
2015495	GREEN MEADOW ESTS OF ROCKFORD	2.6	2.6	34	0	0	34	7.5	3	10.5	47.12
2010100	DURAND	3.1	3.1	0	18	3.5	21.5	13.5	6	19.5	44.10
2015150	UTL INC COVENTRY HLS UTL INC	2.4	2.4	0	18	3	21	14.25	6	20.3	43.64
2010500	WINNEBAGO	1.9	1.9	0	18	3	21	13.5	6	19.5	42.42
2010250	PECATONICA	1.9	1.9	0	18	3	21	12	3	15	37.92
2015320	OTTER CREEK LAKE UTL DSTRCT	3.5	3.5	0	9	5.5	14.5	13.5	6	19.5	37.55
2010070	UTL INC WESTLAKE UTILITIES INC	1.7	1.7	0	9	3.5	12.5	13.5	9	22.5	36.72
2010080	AQUA IL SHERIDAN GROVE/SHERIDAN GR	2.2	2.2	0	18	3	21	10.5	3	13.5	36.67
2010350	ROCKTON	4.5	4.5	0	18	4	22	6.25	3	9.3	35.78
2015625	PHIL-AIRE ESTATES MHP	1.8	1.8	17	4.5	5	26.5	3	3	6	34.29
2010450	IL AMERICAN-SOUTH BELOIT	6.7	6.7	0	18	3	21	3	3	6	33.65
2015400	WILDWOOD UTILITIES COMPANY	4.0	4.0	0	4.5	3	7.5	13.5	6	19.5	30.96
2015300	LEGEND LAKES WATER ASSOCIATION	0.7	0.7	0	9	4	13	13.5	3	16.5	30.19
2015160	UTL INC COVENTRY CREEK SBDV	1.1	1.1	0	4.5	3	7.5	15	6	21	29.62
2015685	SIX OAKS MHP	0.8	0.8	0	9	4	13	12	3	15	28.84
2015100	PRAIRIE ROAD PUMP CORPORATION	4.8	4.8	0	9	4	13	7.5	3	10.5	28.28
2015425	CLARKS MHP	4.7	4.7	0	9	4	13	7.5	3	10.5	28.24
2015050	BRADLEY HEIGHTS SUBDIVISION	3.7	3.7	0	4.5	4	8.5	6	3	9	21.15
2010460	SOUTH BLUFF MHP	1.1	1.1	0	18	0	18	0	0	0	19.07
2010030	FOREST VIEW MHP	2.1	2.1	0	0	0	0	0	0	0	2.07



# Section 8 Appendix: Survey Participation Letter

Eight (8) water small community water systems were associated with Home Owner Associations (HOA) – Bill-Mar Heights Mobile Home Park; Clarks Mobile Home Park; Mancuso Mobile Home Park; Phil-Air Mobile Home Park; Prairie Road Pump; Rainbow Lane Mobile Home Park; Six Oaks Mobile Home Park; and Timber Creek Mobile Home Park. Initially the survey was sent to the Water Operator on file for each of the water systems in the fall of 2022 with follow-up phone contacts made by the Winnebago County Health Department (WCHD) to the water operators in early March 2023. A final push to get the assessment data complete on these eight (8) water systems was done in mid-March 2023 with letters being sent to the President of the HOA for each of the designated water systems. Despite the layered approach to obtaining the data, there was minimal participation from the water systems.

Figure 8-1: Winnebago County Water System Infrastructure & Operations Survey (10.19.2022)

#### Winnebago County Water System Infrastructure & Operations Survey

#### **General Information**

า:
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Namo of	<sup>Responsible</sup>	Operator in (	Inorator	Chargo	
Name Or	responsible	Operator in C	Jperator	Charge	nome).

Name of Sample Collector: \_\_\_\_\_

#### System Overview

Maximum Daily Demand (gallons): \_\_\_\_\_

Unaccounted for Water (annual average daily water loss in gallons): \_\_\_\_\_

Does your system have a cross-connectivity or backflow preventer program in place? Does your system have service shut-off valves?

□ Yes □ No

Does your system have main line shut-off valves?

🗆 Yes 🛛 🗆 No

Does your system have low-service and/or high-service pumps?

 $\Box$  Yes  $\Box$  No

Please provide the dollar amount spent on operations & maintenance (O&M) and repairs for the past 5 years.

	2018	2019	2020	2021	2022
O&M Costs					
Repair Costs					

If you exceeded your annual budget for any year between 2018-2022, please include each budget exceedance (by percent) below.

Exceedance (%)					
	2018	2019	2020	2021	2022

#### System Management

What is the monthly fee charged to residents for water services? For HOA's what is the monthly HOA fee for this service?

Is this the monthly fee rate or flat fee?

□ Monthly fee □ Flat fee

How much do you have in capital reserves for maintenance and repairs?

Does your system have a Capita Please select all that apply.	il Improvement Plan, Strategic A	Asset Management Plan (S	AMP), or 10-Year Projection Plan?
<ul> <li>Capital Improvement Plan</li> <li>10-Year Projection Plan</li> </ul>	<ul> <li>Strategic Asset Managemen</li> <li>None of the above</li> </ul>	t Plan (SAMP)	
How does your system commur	nicate with residents? Please se	lect all that apply.	
Image: Monthly HOA meetings	Other meetings	🗆 Mail	🗆 E-mail
Please list all other methods you	u use to communicate with resi	dents below.	

#### Please attach your system's consumer confidence reports for the last 5 years with this form before submitting.

#### Wells

The following questions pertain only to wells.

How many wells does your system have?

Please fill out the table below for each well your system has. If your system does not have any wells, please enter "N/A" under the Well ID # or Code column and leave all remaining columns blank.

	Well ID # or Code	Age of Well	Well Life Expectancy (Years)	Age of Well Pump	Pump Life Expectancy (Years)	Well Capacity	Has Well-House or Back-up Power Source (Yes or No)	Date of Last Well Rehabilitation
1								
2								
3								
4								
5								
6								

#### Service Lines

The following questions pertain only to service lines.

#### Please attach files with your survey submissions detailing service line addresses and material types.

Please enter the reported number of service line leaks for past 3 years.

	2019	2020	2021		
Number of Leaks					
Total Number of Service Meters:					

#### Water Mains

The following questions pertain only to water mains.

Please attach files with your submission detailing water main identification numbers/codes, installation year, material type, diameter, and length. If you are already including this information with another attachment, please proceed to the next question.

Please enter the reported number of water main breaks for past 3 years.

2020 2021 2022

#### **Number of Breaks**

Total Number of Miles of Water Main: \_\_\_\_\_

#### Other System Components

The following questions pertain only to water mains.

Please complete the table below for each tank your system has.

	Tank Type (Ground Tank, Elevated Tank, or Hydropneumatic Tank)	Tank Install Year	Tank Material	Tank Capacity	Date of Last Inspection	Life Expectancy (in years)
1						
2						
3						
4						
5						
6						

Please list all treatment devices or products that your system has.

Does your system have filtration?

□ Yes □ No

Does your system have radium removal systems?

□ Yes □ No

Please provide any notes or comments below, if needed.

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# Discuss Public Safety Building Design-Build Project Update

# Discuss Purchasing Ordinance State Statute Update

# Discuss Waste Management Contract Update

# FUTURE AGENDA ITEMS

# Adjournment