



**Department of Public Works  
Engineering Division**  
W240 N3065 Pewaukee Road  
Pewaukee WI 53072  
Phone: 262-691-0804

**PUBLIC WORKS COMMITTEE  
MEETING NOTICE AND AGENDA  
Thursday, August 7, 2025  
4:00 PM**

Pewaukee City Hall Common Council Chambers  
W240N3065 Pewaukee Road, Pewaukee, WI

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1. Call to Order and Pledge of Allegiance
2. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.
3. Discussion and Action Regarding the Minutes
  - 3.1 Discussion and possible action to adopt May 22 2025 meeting minutes
4. Water and Sewer Division
  - 4.1 Discussion regarding the Sewer Utility CMAR (Compliance Maintenance Annual Report)
  - 4.2 Discussion on status of the Gun Club Lift Station construction
  - 4.3 Discussion and possible action regarding Water Supply Service Area Plan.
5. Engineering Division
  - 5.1 Discussion and possible action regarding the Pewaukee Road Trail Extension Study and selection of 2 alternatives to move forward with detailed preliminary engineering.
  - 5.2 Discussion and possible action regarding a multi-use trail along Redford Boulevard (CTH F) and the City support for WisDOT to add accommodations on the proposed diverging diamond interchange over I94.
6. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.
7. Adjournment

Magdelene Wagner  
Director of Public Works  
August 7, 2025

**NOTICE**

It is possible that members of other governmental bodies of the municipality may be in attendance to gather information that may form a quorum. At the above stated meeting, no action will be taken by any governmental body other than the governmental body specifically referred to above in this notice.

Any person who has a qualifying disability under the Americans with Disabilities Act that requires the meeting or materials at the meeting to be in an accessible format must contact the DPW Main Office at (262) 691-0804 by 12:00 p.m. the Tuesday prior to the meeting so that arrangements may be made to accommodate your request.

City of Pewaukee - New Agenda Item

Agenda Language:

Discussion and possible action to adopt May 22 2025 meeting minutes

Sub Item Agenda Language:

Background Provided By:

Background:

Attached are the minutes from the May 22, 2025 meeting for your review and approval.

Fiscal Impact:

Recommended Motion:

PWC approve the May 22 2025 meeting minutes.

In Attendance:

Mayor Steve Bierce, Alderman Jerry Wamser, Michael Kreiter, David Swan, Jeffery Tormey.

Also In Attendance:

Director of Public Works M. Wagner, Chief Engineer-Utilities R. Wirtz, Chief Engineer-Streets & Development M. Gabbey, Utility Manager J. Mueller, Utility Assistant Manager R. Kincaid, Utility Billing Specialist R. Reed, Administrative Assistant S. Smaxwill.

1. Call to Order and Pledge of Allegiance

Mayor Bierce called the meeting to order at 4:05 p.m. and called to stand for the Pledge of Allegiance.

2. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.

None

3. Discussion and Action Regarding the Minutes

3.1 Discussion and possible action to adopt the April 24 2025 meeting minutes.

Mr. Tormey noted an error in the April minutes on page 7, third paragraph from the top. The text referred to putting a walkway across Watertown **Plank** Road on the south side; it should have been Watertown Road. It should have been the crossing at Highway 164, not Watertown Road. The committee agreed to these corrections.

4. Communications

4.1 Discussion and possible action regarding Lindsay Road and Pewaukee Road (STH 164) intersection.

Ms. Wagner provided an update on the Lindsay Road and Highway 164 intersection. She mentioned that Mr. Swan requested this item to be placed on the agenda, but he was unable to attend this meeting. The committee had previously discussed installing signals at the intersection of Lindsay Road and Highway 164, as part of the Highway 164 project.

The City had sent a letter to the Village of Pewaukee requesting cost-sharing for the potential signals. The Department of Transportation (DOT) had provided a preliminary price on it. The Village would also have to sign the paperwork as it is a Village intersection. The Village, in turn, had requested Waukesha County to fund the project,

believing it would benefit the County. Despite multiple follow-ups, the Village was still awaiting a response from the County.

Ms. Wagner noted that the deadline to sign an agreement with the DOT for the project had passed. She expressed that at this point, there was little the City could do since the intersection was outside their jurisdiction. The most they could do would be to follow up with the Village, which now has a new administrator.

Committee members agreed that the window of opportunity for this project had closed, and their hands were tied on the matter.

## 5. Water and Sewer Division

### 5.1 Discussion and possible action regarding the Lisbon Water Service Report

Ms. Wagner presented a report on the potential for providing water service to a limited area in the southeast quarter of the Village of Lisbon, as requested by the Village. Lisbon paid for the study included in the packet.

Ms. Wagner highlighted several concerns about providing this service, noting issues within the City's current system, such as PFAS and radium contamination, and reduced capacity at certain wells. She explained that these issues have raised concerns about firm capacity, indicating that it would likely take 2 to 3 years before the City could provide service to the requested area due to these existing challenges.

Ms. Wagner sent the report to Lisbon and is awaiting their response to see if they are still interested in receiving service within this timeframe. She mentioned that Lisbon was also in talks with the Village of Sussex about water service.

Committee members expressed support for serving these areas once the City's **firm** capacity is restored, provided it does not shortchange Pewaukee's own customers. They viewed it as a good move to promote tranquility between municipalities.

Mr. Tormey asked if Lisbon was looking for immediate service. Ms. Wagner responded they were looking for service within the next year.

Ms. Wagner also mentioned that Lisbon was in discussions about possibly leveraging funding from a quarry to support the water main extensions in that area.

Additionally, Ms. Wagner discussed the possibility of laying out loops for the water service to ensure adequate flow and pressure, considering both existing infrastructure and potential future needs. The committee members also recognized that achieving the proposed extensions would be instrumental in addressing the well relief areas for affected residents while ultimately supporting community-wide growth and cooperation.

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5.2 Discussion and possible action regarding capping assessments for connecting to municipal water and sanitary sewer [Wagner / Mueller]

Ms. Wagner reported on discussions from a recent Common Council meeting regarding capping assessments for water and sewer connections. The Council had requested additional information, including the value of sewer and water installations in new developments to benchmark potential cap levels. The Council is moving forward with the Public Works Committee's recommendation to set a cap. The proposed cap for water and sewer assessments was around \$51,000 total, with approximately \$20,000 for water and just under \$30,000 for sewer. Ms. Wagner mentioned that a policy would be developed to reflect this cap for future projects.

Ms. Wagner also noted that a secondary discussion would address whether to provide service to the entire community or if some areas would remain on well and septic systems.

Ms. Wagner informed the committee that this item would be returned to the Council on June 2nd for further discussion and will also be discussed on June 10<sup>th</sup> at a special meeting for the Hickory Grove sewer extension and road reconstruction project.

6. Engineering Division

6.1 Discussion and possible action regarding the Quiet Zone Crossing at Springdale Road

Ms. Wagner provided an update on the Springdale Road quiet zone crossing. She reported that the City of Brookfield, which is leading the project, had received Federal Railroad Administration (FRA) approval. Brookfield plans to complete the work ahead of the county paving project this year, likely before fall. Once the improvements are made, the final letter can be sent requesting the quiet zone crossing.

The improvements will include a two-foot center island and some road widening. The total cost for the improvements, excluding signal relocation, was estimated at around \$75,000.

The committee discussed the possibility of moving forward with the Duplainville Road crossing separately, as it is on the same line as Springdale Road. Ms. Wagner agreed to check on the required improvements for Duplainville and potentially submit paperwork to include it with the Springdale Road application to the railroad for review.

The committee members expressed support for this approach, noting that silencing even one line would be an improvement for residents affected by train noise.

Ms. Wagner also mentioned that she would try to coordinate the timing of the Duplainville application with Brookfield's Springdale Road application so that the railroad could review both simultaneously for that corridor.

The committee discussed the surrounding municipalities' quiet zones. Ms. Wagner stated that Wauwatosa is quiet and believes that most Milwaukee crossings are elevated. Mr. Wirtz mentioned that Oconomowoc and Watertown are quiet as well.

7. Public Comment - Please limit your comments to two minutes. If further time for discussion is needed, please contact your District Alderperson prior to the meeting.

None

8. Adjournment

**A motion was made and seconded by (Ald. Wamser, M. Kreiter) to adjourn the meeting at 4:35 p.m. The motion passed unanimously.**

Respectfully Submitted

Magdelene Wagner  
Director of Public Works

DRAFT

City of Pewaukee - New Agenda Item

Agenda Language:

Discussion regarding the Sewer Utility CMAR (Compliance Maintenance Annual Report)

Sub Item Agenda Language:

Background Provided By:

Rob Kincaid

Background:

The City of Pewaukee Sewage Collection System CMAR was approved by Common Council at the June meeting and submitted on June 17, 2025. This report assures the WI DNR that the Sewer Utility is meeting oversight compliance with their regulation in chapter NR 208, Wis. Adm Code and that the Utility is meeting the needs for financial responsibility, sustainability and permit requirements.

Fiscal Impact:

Recommended Motion:

No motion required.

RESOLUTION #25-06-14

Wisconsin Department of Natural Resources  
NR 208 – Compliance Maintenance Resolution  
2024

**WHEREAS**, it is a requirement under a Wisconsin Pollutant Discharge Elimination System (WPDES) permit issued by the Wisconsin Department of Natural Resources to file a Compliance Maintenance Annual Report (CMAR) for the City of Pewaukee Wastewater collection system under Wisconsin Administrative Code NR 208; and,

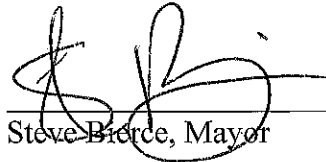
**WHEREAS**, it is necessary to acknowledge that the governing body has reviewed the Compliance Maintenance Annual Report (CMAR) for 2024; and,

**WHEREAS**, all sections within the Compliance Maintenance Annual Report (CMAR) received a grade of B or better which results in a Grade Point Average (GPA) of 3.0 or greater.

**NOW, THEREFORE, BE IT RESOLVED** that the Common Council of the City of Pewaukee does hereby agree to commit reasonable and fiscally prudent funding to operate the City’s sewer utility effectively and maintain an acceptable point average.

Dated this 16<sup>th</sup> day of June 2025.

CITY OF PEWAUKEE

  
\_\_\_\_\_  
Steve Bierce, Mayor

This is to certify that this is a true and accurate copy of Resolution 25-06-14 which was adopted by the Common Council of the City of Pewaukee.

  
\_\_\_\_\_  
Kelly Tarczewski, Clerk-Treasurer

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 **2024**

## Financial Management

<p>1. Provider of Financial Information</p> <p>Name: <input style="width: 150px;" type="text" value="Renee Reed"/></p> <p>Telephone: <input style="width: 150px;" type="text" value="2626916022"/> (XXX) XXX-XXXX</p> <p>E-Mail Address (optional): <input style="width: 300px;" type="text" value="reed@pewaukee.wi.us"/></p>																	
<p>2. Treatment Works Operating Revenues</p> <p>2.1 Are User Charges or other revenues sufficient to cover O&amp;M expenses for your wastewater treatment plant AND/OR collection system ?</p> <p>● Yes (0 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ No (40 points)</p> <p>If No, please explain:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>2.2 When was the User Charge System or other revenue source(s) last reviewed and/or revised?</p> <p>Year: <input style="width: 100px;" type="text" value="2023"/></p> <p>● 0-2 years ago (0 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ 3 or more years ago (20 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ N/A (private facility)</p> <p>2.3 Did you have a special account (e.g., CFWP required segregated Replacement Fund, etc.) or financial resources available for repairing or replacing equipment for your wastewater treatment plant and/or collection system?</p> <p>● Yes (0 points)</p> <p>○ No (40 points)</p>	0																
<p>REPLACEMENT FUNDS [PUBLIC MUNICIPAL FACILITIES SHALL COMPLETE QUESTION 3]</p>																	
<p>3. Equipment Replacement Funds</p> <p>3.1 When was the Equipment Replacement Fund last reviewed and/or revised?</p> <p>Year: <input style="width: 100px;" type="text" value="2024"/></p> <p>● 1-2 years ago (0 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ 3 or more years ago (20 points) <input type="checkbox"/><input type="checkbox"/></p> <p>○ N/A</p> <p>If N/A, please explain:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>3.2 Equipment Replacement Fund Activity</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"><b>3.2.1 Ending Balance Reported on Last Year's CMAR</b></td> <td style="width: 5%;"></td> <td style="width: 5%; text-align: right;">\$</td> <td style="width: 30%; text-align: right;"><input style="width: 150px;" type="text" value="2,708,163.75"/></td> </tr> <tr> <td>3.2.2 Adjustments - if necessary (e.g. earned interest, audit correction, withdrawal of excess funds, increase making up previous shortfall, etc.)</td> <td style="text-align: center;">+</td> <td style="text-align: right;">\$</td> <td style="text-align: right;"><input style="width: 150px;" type="text" value="135,943.10"/></td> </tr> <tr> <td>3.2.3 Adjusted January 1st Beginning Balance</td> <td></td> <td style="text-align: right;">\$</td> <td style="text-align: right;"><input style="width: 150px;" type="text" value="2,844,106.85"/></td> </tr> <tr> <td>3.2.4 Additions to Fund (e.g. portion of User Fee, earned interest, etc.)</td> <td style="text-align: center;">+</td> <td style="text-align: right;">\$</td> <td style="text-align: right;"><input style="width: 150px;" type="text" value="8,916.88"/></td> </tr> </table>	<b>3.2.1 Ending Balance Reported on Last Year's CMAR</b>		\$	<input style="width: 150px;" type="text" value="2,708,163.75"/>	3.2.2 Adjustments - if necessary (e.g. earned interest, audit correction, withdrawal of excess funds, increase making up previous shortfall, etc.)	+	\$	<input style="width: 150px;" type="text" value="135,943.10"/>	3.2.3 Adjusted January 1st Beginning Balance		\$	<input style="width: 150px;" type="text" value="2,844,106.85"/>	3.2.4 Additions to Fund (e.g. portion of User Fee, earned interest, etc.)	+	\$	<input style="width: 150px;" type="text" value="8,916.88"/>	
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# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 **2024**

3.2.5 Subtractions from Fund (e.g., equipment replacement, major repairs - use description box 3.2.6.1 below\*) -

\$ 0.00

3.2.6 Ending Balance as of December 31st for CMAR Reporting Year

\$ 2,853,023.73

All Sources: This ending balance should include all Equipment Replacement Funds whether held in a bank account(s), certificate(s) of deposit, etc.

3.2.6.1 Indicate adjustments, equipment purchases, and/or major repairs from 3.2.5 above.

3.3 What amount should be in your Replacement Fund?

\$ 2,853,023.73

0

Please note: If you had a CFWP loan, this amount was originally based on the Financial Assistance Agreement (FAA) and should be regularly updated as needed. Further calculation instructions and an example can be found by clicking the SectionInstructions link under Info header in the left-side menu.

3.3.1 Is the December 31 Ending Balance in your Replacement Fund above, (#3.2.6) equal to, or greater than the amount that should be in it (#3.3)?

- Yes
- No

If No, please explain.

## 4. Future Planning

4.1 During the next ten years, will you be involved in formal planning for upgrading, rehabilitating, or new construction of your treatment facility or collection system?

- Yes - If Yes, please provide major project information, if not already listed below.
- No

Project #	Project Description	Estimated Cost	Approximate Construction Year
1	Kopmeier sanitary sewer relay/replace. We have an approximately 400ft section of truss pipe (we think) that lies at the bottom of a bay in Pewaukee Lake. There are some major sags in the line, and the upstream manhole needs some rehab. Our consultant has recommended pipe bursting this section of sewer.  We are currently preparing plans & specifications in 2025 with bidding late summer for winter 2025 - 2026 construction.	\$850,000	2026
2	Sewer line repairs. Includes repairs to areas in which the City will be reconstructing the roadway. Also to include other repairs as needed.	\$150,000	2025
3	Pipe Lining I-94 easement	\$200,000	2026
4	Engineering study Gun Club Lift station service area and pipe condition evaluation study.	\$25,000	2026
5	Rehabilitation of the Spice Creek lift station including upgrades of controls and pumps	\$250,000	2026

## 5. Financial Management General Comments

The Utility will be working on a sewer rate study in late summer/early fall of 2025.

## ENERGY EFFICIENCY AND USE

## 6. Collection System 6.1 Energy Usage

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 **2024**

6.1.1 Enter the monthly energy usage from the different energy sources:

## COLLECTION SYSTEM PUMPAGE: Total Power Consumed

Number of Municipally Owned Pump/Lift Stations:

	Electricity Consumed (kWh)	Natural Gas Consumed (therms)
<b>January</b>	27,661	85
<b>February</b>	29,165	108
<b>March</b>	29,826	79
<b>April</b>	36,444	105
<b>May</b>	28,653	81
<b>June</b>	33,309	89
<b>July</b>	28,705	58
<b>August</b>	25,799	117
<b>September</b>	23,593	51
<b>October</b>	22,403	60
<b>November</b>	19,911	94
<b>December</b>	27,648	72
<b>Total</b>	<b>333,117</b>	<b>999</b>
<b>Average</b>	<b>27,760</b>	<b>83</b>

6.1.2 Comments:

## 6.2 Energy Related Processes and Equipment

6.2.1 Indicate equipment and practices utilized at your pump/lift stations (Check all that apply):

- Comminution or Screening
- Extended Shaft Pumps
- Flow Metering and Recording
- Pneumatic Pumping
- SCADA System
- Self-Priming Pumps
- Submersible Pumps
- Variable Speed Drives
- Other:

6.2.2 Comments:

6.3 Has an Energy Study been performed for your pump/lift stations?

No

Yes

Year:

By Whom:

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 **2024**

Describe and Comment:

Wisconsin Rural Water Association conducted an energy audit in 2021. The audit recommended changing lift station lighting to LED fixtures and consider using variable speed drive technology on pumps.

## 6.4 Future Energy Related Equipment

6.4.1 What energy efficient equipment or practices do you have planned for the future for your pump/lift stations?

The 2024 Kopmeier pump were replaced with VFD's built into the pumps. We will consider additional changes as we upgrade stations.

<b>Total Points Generated</b>	<b>0</b>
<b>Score (100 - Total Points Generated)</b>	<b>100</b>
<b>Section Grade</b>	<b>A</b>

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 2024

## Sanitary Sewer Collection Systems

### 1. Capacity, Management, Operation, and Maintenance (CMOM) Program

#### 1.1 Do you have a CMOM program that is being implemented?

- Yes
- No

If No, explain:

#### 1.2 Do you have a CMOM program that contains all the applicable components and items according to Wisc. Adm Code NR 210.23 (4)?

- Yes
- No (30 points)
- N/A

If No or N/A, explain:

#### 1.3 Does your CMOM program contain the following components and items? (check the components and items that apply)

- Goals [NR 210.23 (4)(a)]

Describe the major goals you had for your collection system last year:

Clean 33% of all sewers and manhole inspections. Compile and create a comprehensive list of pipe and manhole lining.

Did you accomplish them?

- Yes
- No

If No, explain:

The Utility had staffing challenges in 2024 - 2025. We did not have anyone available to put the plan together.

- Organization [NR 210.23 (4) (b)]

Does this chapter of your CMOM include:

- Organizational structure and positions (eg. organizational chart and position descriptions)
- Internal and external lines of communication responsibilities
- Person(s) responsible for reporting overflow events to the department and the public

- Legal Authority [NR 210.23 (4) (c)]

What is the legally binding document that regulates the use of your sewer system?

Sewer Use Ordinance

If you have a Sewer Use Ordinance or other similar document, when was it last reviewed and revised? (MM/DD/YYYY) 1996-09-23

Does your sewer use ordinance or other legally binding document address the following:

- Private property inflow and infiltration
- New sewer and building sewer design, construction, installation, testing and inspection
- Rehabilitated sewer and lift station installation, testing and inspection
- Sewage flows satellite system and large private users are monitored and controlled, as necessary
- Fat, oil and grease control
- Enforcement procedures for sewer use non-compliance

- Operation and Maintenance [NR 210.23 (4) (d)]

Does your operation and maintenance program and equipment include the following:

- Equipment and replacement part inventories
- Up-to-date sewer system map

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

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6/17/2025 **2024**

A management system (computer database and/or file system) for collection system information for O&M activities, investigation and rehabilitation  
 A description of routine operation and maintenance activities (see question 2 below)  
 Capacity assessment program  
 Basement back assessment and correction  
 Regular O&M training  
 Design and Performance Provisions [NR 210.23 (4) (e)]    
 What standards and procedures are established for the design, construction, and inspection of the sewer collection system, including building sewers and interceptor sewers on private property?  
 State Plumbing Code, DNR NR 110 Standards and/or local Municipal Code Requirements  
 Construction, Inspection, and Testing  
 Others:

Overflow Emergency Response Plan [NR 210.23 (4) (f)]    
 Does your emergency response capability include:  
 Responsible personnel communication procedures  
 Response order, timing and clean-up  
 Public notification protocols  
 Training  
 Emergency operation protocols and implementation procedures  
 Annual Self-Auditing of your CMOM Program [NR 210.23 (5)]    
 Special Studies Last Year (check only those that apply):  
 Infiltration/Inflow (I/I) Analysis  
 Sewer System Evaluation Survey (SSES)  
 Sewer Evaluation and Capacity Management Plan (SECAP)  
 Lift Station Evaluation Report  
 Others:

0

2. Operation and Maintenance

2.1 Did your sanitary sewer collection system maintenance program include the following maintenance activities? Complete all that apply and indicate the amount maintained.

Cleaning	<input type="text" value="37"/>	% of system/year
Root removal	<input type="text" value="0"/>	% of system/year
Flow monitoring	<input type="text" value="95"/>	% of system/year
Smoke testing	<input type="text" value="0"/>	% of system/year
Sewer line televising	<input type="text" value="4"/>	% of system/year
Manhole inspections	<input type="text" value="38"/>	% of system/year
Lift station O&M	<input type="text" value="18"/>	# per L.S./year
Manhole rehabilitation	<input type="text" value=".1"/>	% of manholes rehabbed
Mainline rehabilitation	<input type="text" value="0"/>	% of sewer lines rehabbed
Private sewer inspections	<input type="text" value="0"/>	% of system/year

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

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6/17/2025 **2024**

Private sewer I/I removal  % of private services  
 River or water crossings  % of pipe crossings evaluated or maintained

Please include additional comments about your sanitary sewer collection system below:

### 3. Performance Indicators

3.1 Provide the following collection system and flow information for the past year.

<input type="text" value="43.16"/>	Total actual amount of precipitation last year in inches
<input type="text" value="32.26"/>	Annual average precipitation (for your location)
<input type="text" value="67.5"/>	Miles of sanitary sewer
<input type="text" value="12"/>	Number of lift stations
<input type="text" value="0"/>	Number of lift station failures
<input type="text" value="0"/>	Number of sewer pipe failures
<input type="text" value="0"/>	Number of basement backup occurrences
<input type="text" value="0"/>	Number of complaints
<input type="text" value="1.7"/>	Average daily flow in MGD (if available)
<input type="text" value="2.5"/>	Peak monthly flow in MGD (if available)
<input type="text"/>	Peak hourly flow in MGD (if available)

3.2 Performance ratios for the past year:

<input type="text" value="0.00"/>	Lift station failures (failures/year)
<input type="text" value="0.00"/>	Sewer pipe failures (pipe failures/sewer mile/yr)
<input type="text" value="0.00"/>	Sanitary sewer overflows (number/sewer mile/yr)
<input type="text" value="0.00"/>	Basement backups (number/sewer mile)
<input type="text" value="0.00"/>	Complaints (number/sewer mile)
<input type="text" value="1.5"/>	Peaking factor ratio (Peak Monthly:Annual Daily Avg)
<input type="text" value="0.0"/>	Peaking factor ratio (Peak Hourly:Annual Daily Avg)

### 4. Overflows

#### LIST OF SANITARY SEWER (SSO) AND TREATMENT FACILITY (TFO) OVERFLOWS REPORTED \*\*

Date	Location	Cause	Estimated Volume
None reported			

\*\* If there were any SSOs or TFOs that are not listed above, please contact the DNR and stop work on this section until corrected.

### 5. Infiltration / Inflow (I/I)

5.1 Was infiltration/inflow (I/I) significant in your community last year?

- Yes
- No

If Yes, please describe:

5.2 Has infiltration/inflow and resultant high flows affected performance or created problems in your collection system, lift stations, or treatment plant at any time in the past year?

- Yes

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 **2024**

<ul style="list-style-type: none"> <li>● No</li> </ul> <p>If Yes, please describe:</p> <div style="border: 1px solid black; height: 20px; margin-bottom: 10px;"></div> <p>5.3 Explain any infiltration/inflow (I/I) changes this year from previous years:</p> <div style="border: 1px solid black; padding: 2px;">N/A</div> <p>5.4 What is being done to address infiltration/inflow in your collection system?</p> <div style="border: 1px solid black; padding: 2px;">The Utility televises a portion of the sanitary sewer annually. Efforts are being made to put together a plan to repair leaking manholes and sewer lines</div>	
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<b>Total Points Generated</b>	<b>0</b>
<b>Score (100 - Total Points Generated)</b>	<b>100</b>
<b>Section Grade</b>	<b>A</b>

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 **2024**

## Grading Summary

WPDES No: 0047341

<b>SECTIONS</b>	<b>LETTER GRADE</b>	<b>GRADE POINTS</b>	<b>WEIGHTING FACTORS</b>	<b>SECTION POINTS</b>
Financial	A	4	1	4
Collection	A	4	3	12
<b>TOTALS</b>			<b>4</b>	<b>16</b>
<b>GRADE POINT AVERAGE (GPA) = 4.00</b>				

Notes:

- A = Voluntary Range (Response Optional)
- B = Voluntary Range (Response Optional)
- C = Recommendation Range (Response Required)
- D = Action Range (Response Required)
- F = Action Range (Response Required)

# Compliance Maintenance Annual Report

Pewaukee City Sewage Collection System

Last Updated: Reporting For:  
6/17/2025 **2024**

## Resolution or Owner's Statement

Name of Governing  
Body or Owner:

City of Pewaukee

Date of Resolution or  
Action Taken:

2025-06-16

Resolution Number:

2025-06-14

Date of Submittal:

### **ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO SPECIFIC CMAR SECTIONS (Optional for grade A or B. Required for grade C, D, or F):**

Financial Management: Grade = A

Collection Systems: Grade = A

(Regardless of grade, response required for Collection Systems if SSOs were reported)

### **ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO THE OVERALL GRADE POINT AVERAGE AND ANY GENERAL COMMENTS**

(Optional for G.P.A. greater than or equal to 3.00, required for G.P.A. less than 3.00)

**G.P.A. = 4.00**

City of Pewaukee - New Agenda Item

Agenda Language:

Discussion on status of the Gun Club Lift Station construction

Sub Item Agenda Language:

Background Provided By:

Rob Kincaid

Background:

Interior finishing touches on the facility are nearing completion. As of July 31, electrical, plumbing, and HVAC systems are approximately 90% complete. Electrical and controls integration is scheduled to take place the week of August 4.

Pre-installation testing of the PLC and motor control instrumentation was completed in April, ensuring all operational functionality is programmed correctly ahead of final installation. Clear water pump testing will follow the PLC installation. Dates for training for Utility Staff on all lift station components have been reserved.

Staab Construction obtained permit approval through Waukesha County for necessary road and lane closures on Watertown Road for the Village of Pewaukee's force main tie-in and water line connection to the facility. Demolition of the existing lift station is slated for the first week of September, with final site work to follow.

Fiscal Impact:

Recommended Motion:

No motion required.

## City of Pewaukee - New Agenda Item

### Agenda Language:

Discussion and possible action regarding Water Supply Service Area Plan.

### Sub Item Agenda Language:

### Background Provided By:

Jane Mueller

### Background:

The Wisconsin DNR has issued a directive requiring all community water supplies serving populations over 10,000 to prepare a Water Supply Service Area Plan by December 31, 2025. In accordance with NR 854.05(2)(a), the plan shall delineate the area for which the plan is being prepared, including all areas to which the public water supply system currently serves retail customers and the projected growth area for the system within the planning period of ten and twenty years under NR 854.05(1). Notably, “Identifying an area as a projected growth area for planning purposes does not obligate the public water supply system to provide water to the projected growth area.”

The Utility considers this plan to be the next phase of the Water System Study completed by Strand Associates in 2023. However, this delves deeper into water source options, considering population growth, future water system expansion, and water quality and quantity challenges.

The Utility contracted with Strand to prepare the Water Supply Service Area Plan as a continuation of the work they did in 2023.

This report encourages public engagement. An open house was held on April 30, which was attended by approximately 30 people who came to learn about the scope and purpose of the Water Supply Service Study. A Public Hearing will be scheduled once the full report is complete—likely in late October or early November.

Following are some excerpts from the draft report. Please let us know if you would like a copy of the full 81-page draft for review.

In Section 6, the Utility requested that the consultant provide projections in the report for both the Village of Pewaukee and the Village of Lisbon. The Utility has had prior discussions with the Village of Pewaukee about extending water and sewer service to the northwest quadrant of the City, and has also previously discussed extending service to Lisbon lands adjacent to Weyer Road.

### Fiscal Impact:

Recommended Motion:  
No motion is required.

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**APPENDICES**

APPENDIX A–VILLAGE OF LISBON CAPACITY EVALUATION LETTER

## 1.01 PURPOSE AND SCOPE

This report presents the water supply service area study and plan for the City of Pewaukee (City) in accordance with Wisconsin Administrative Code (WAC) § NR 854 (2025). System operation and water demand requirements for the present day, 10-, 20-, and 50-year planning years (2025, 2035, 2045, and 2075, respectively) were evaluated. Calculations, assessments, and planning conducted as a part of the 2023 *Water System Study* (2023 Study) prepared by Strand Associates, Inc.<sup>®</sup> (Strand) were incorporated as appropriate.

The scope of the study includes the following:

1. Delineate service area boundaries, including the City operating independently and the City providing water service to adjacent areas identified by the City.
2. Review the City's water use history and develop water demand projections for each planning period.
3. Summarize potential opportunities for water conservation.
4. Conduct an inventory of existing water supply sources and water system facilities. Tabulate existing system deficiencies and prepare a planning-level Opinion of Probable Cost (OPC) to address existing deficiencies.
5. Conduct a desktop capacity analysis, and summarize supply and storage deficiencies associated with each planning year.
6. Review source water alternative options for the planned service area.
7. Review service area supplier arrangement alternatives.
8. Conduct water distribution system hydraulic modeling analysis of the developed water supply service area plan alternatives, summarizing maximum day demand (MDD) service pressures and fire flow availability for each.
9. Develop a scoring matrix to evaluate each developed water supply service area plan alternative.
10. Develop a budgetary-level OPC and life-cycle costs for each alternative.
11. Summarize the study's findings in comparison to other published plans.

**2.01 OVERVIEW**

According to WAC § NR 854.05(2)(a), “The [water supply service area] plan shall delineate the area for which the plan is being prepared, including all areas to which the public water supply system currently serves retail customers and the projected growth area for the system within the planning period under s. 854.05(1). Identifying an area as a projected growth area for planning purposes does not obligate the public water supply system to provide water to the projected growth area.”

Proposed water supply service areas discussed in this section present the incremental planned growth through full buildout.

**2.02 EXISTING WATER SERVICE AREA**

The existing water service area is entirely within the City’s municipal boundary, encompassing the green shaded area in Figure 2.02-1. The City spans a total of 21.15 acres, including surface water, and undeveloped environmental areas. The City currently serves exclusively retail customers, and does not provide any wholesale service. The existing service area will be considered the full service area for the current planning year, 2025.

**2.03 PROPOSED WATER SERVICE AREAS**

The proposed water service areas include additions to the existing water system extents within the City’s municipal boundary, and future potential retail and wholesale customers outside of the City are presented in Figure 2.02-1. Areas within the City intended to be developed and provided municipal water service by 2035, 2045, and 2075 are shown shaded in yellow, blue, and orange, respectively.

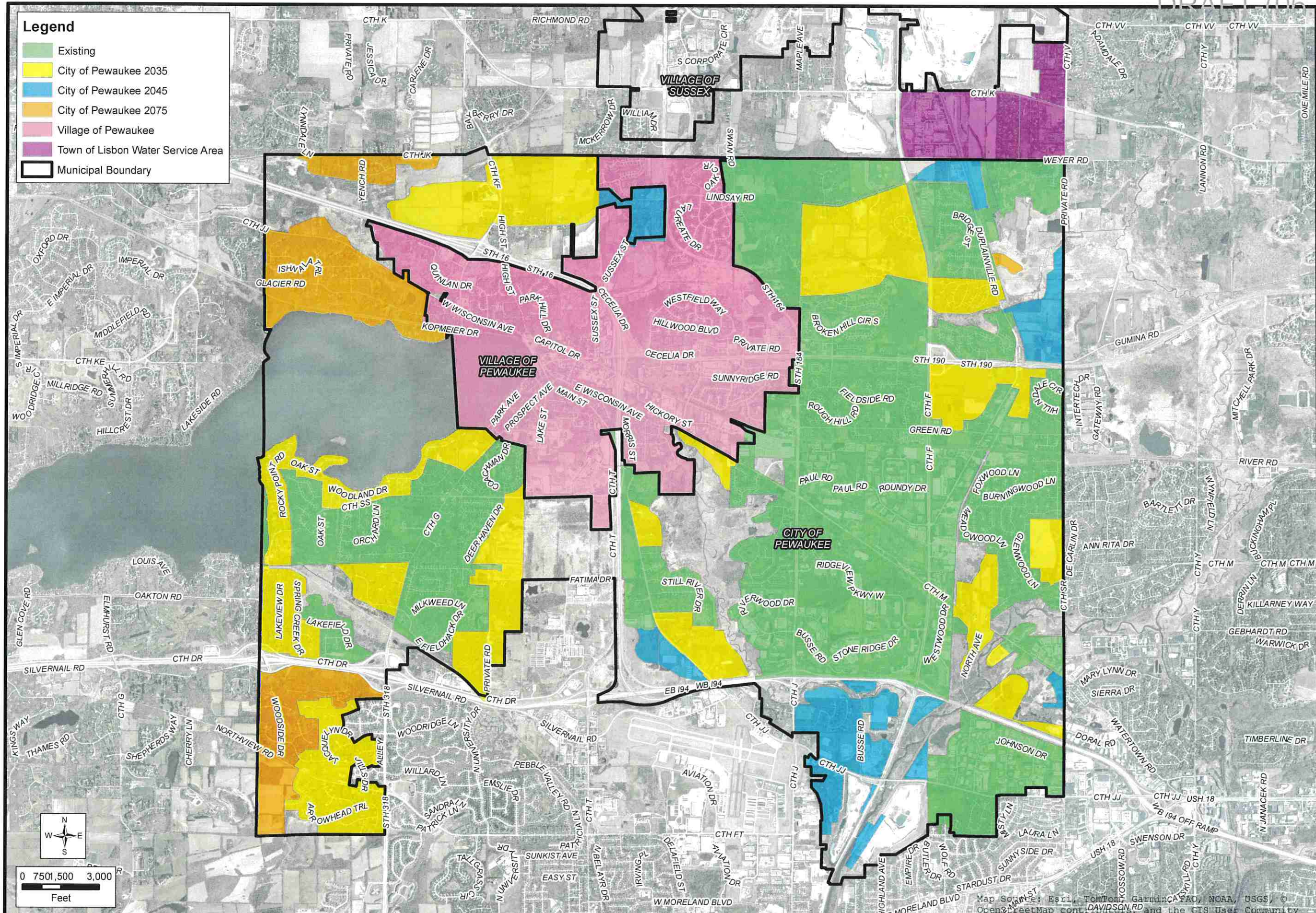
The 2035 service areas are the same as areas shown as 2035 development areas in the 2023 Study. The 2045 planning year includes areas described as 2050 development areas in the 2023 Study, and will be considered partially built out by 2045. The 2075 service area represents full buildout within the City’s existing municipal boundary, including converting all existing areas not currently served by municipal water to public water service. All shaded areas within the City represent full buildout of the City.

Areas shaded in purple and pink represent extended water service areas outside of the City’s municipal boundary. Shown shaded in purple is a small section of the Village of Lisbon (Lisbon) expected to be served by the City as retail customers by 2030. Finally, the Village of Pewaukee is shown shaded in pink. The Village of Pewaukee may be served as a wholesale customer by the City by 2030. All shaded areas are considered the full extents of the potential water supply service areas to be served by the City.

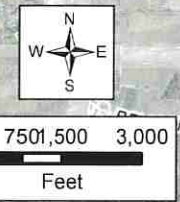
Figure 2.02-2 presents a topographical analysis of the City and surrounding areas’ ground elevations. Contours are color-coded based on their relation to the City’s typical operating hydraulic grade line (HGL). Yellow contours denote areas which would observe water pressures between 40 and 80 pounds per square inch (psi) during normal operating conditions at ground elevation. Red contours denote areas that may require a boosted zone if served by the City, and pink contours denote areas that may require pressure reduction if served by the City.

**Legend**

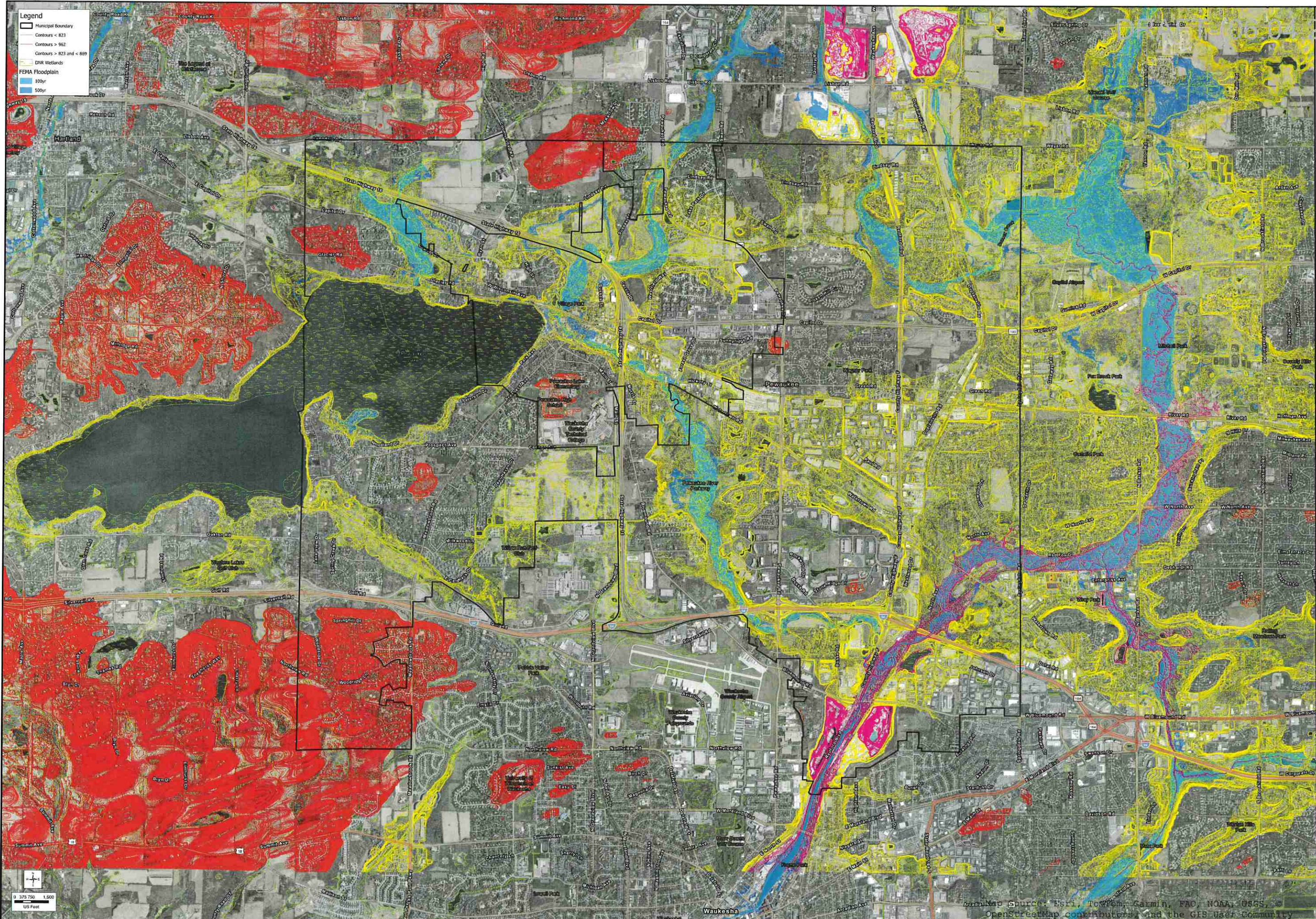
- Existing
- City of Pewaukee 2035
- City of Pewaukee 2045
- City of Pewaukee 2075
- Village of Pewaukee
- Town of Lisbon Water Service Area
- Municipal Boundary



**WATER SERVICE EXTENTS**  
**WATER SUPPLY SERVICE AREA PLAN**  
**CITY OF PEWAUKEE**  
**WAUKESHA COUNTY, WISCONSIN**



**FIGURE 2.02-1**  
**4621.034**



**Legend**

- ▭ Municipal Boundary
- ▭ Contours < 823
- ▭ Contours > 823
- ▭ Contours > 823 and < 869
- ▭ DNR Wetlands
- ▭ FEMA Floodplain
- ▭ 100yr
- ▭ 500yr

0 375 750 1500  
US Feet

**PRESSURE ZONE PLANNING ANALYSIS**

WATER SUPPLY SERVICE AREA PLAN  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN



FIGURE 2.02-2

Map Source: Esri, TomTom, Garmin, FAO, NOAA, USGS, OpenStreetMap contributors, and the GIS User Community

### 3.01 OVERVIEW

According to WAC § NR 854.05(3), “a [water supply service area] plan shall include a description of the public water supply system, using schematics, as appropriate. The description shall include... A description or schematic identifying the general location of existing water treatment facilities and related equipment... A description and schematic of the existing water storage and distribution facilities including, as applicable: the location of water mains; water pressure booster stations; water pressure reducing stations; metering stations; storage reservoirs; and any connections with other water utilities.”

The City owns and operates a municipal community public water system comprised of groundwater supplied by a combination of shallow and deep aquifer wells (12 wells total), over 100 miles of water main, five ground storage tanks (GST), one standpipe (SP), and one elevated storage tank (EST). This section summarizes the capacities and general condition of major water system facilities. A facility condition assessment was conducted by Strand and City personnel on June 7, 2022, as reported in the 2023 Study. Recommendations have been updated as a part of this evaluation, but an additional field assessment was not conducted. Note that the Well No. 5 facility was not evaluated because this facility was planned to be decommissioned in 2023. The well is currently still in use.

Figure 3.01-1 presents a map of the major water system components, and Figure 3.01-2 presents a schematic of the water system.

### 3.02 EXISTING WATER SUPPLY AND WATER TREATMENT

#### A. Well Supply Summary

The water system includes 12 raw water supply wells: Well Nos. 1 through 12. Table 3.02-1 presents a summary of the system’s well characteristics.

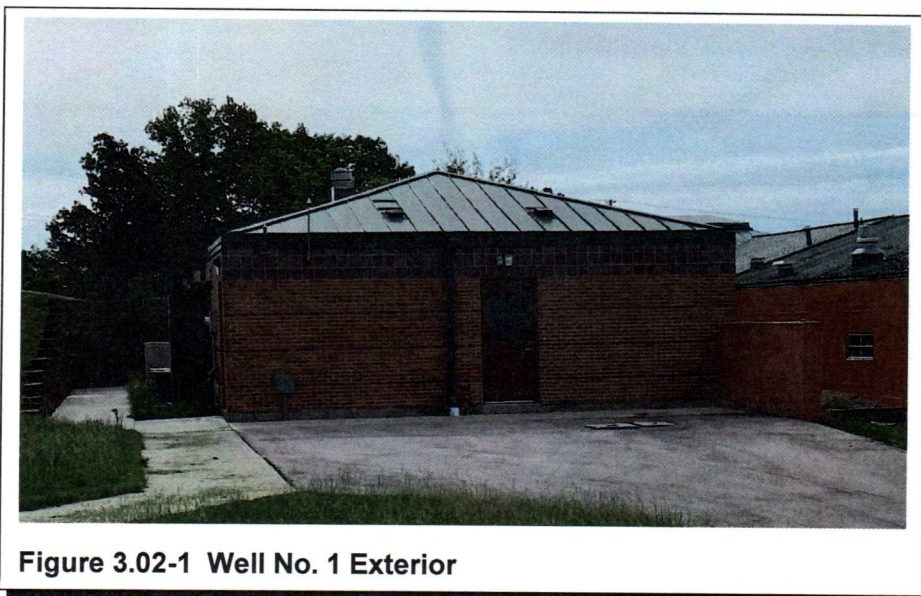
Well No.	WDNR ID	Construction Year	Depth (feet)	Diameter (inches)	Rated Capacity (gpm)	Rated Capacity (MGD)
1	BH 442	1974	1,200	12	500	0.72
2	BH 443	1981	1,075	12	450	0.65
3	KW 576	1989	340	15	500	0.72
4	AY 336	1999	340	15.25	300	0.43
5 <sup>1</sup>	FN 814	1992	-	-	0	0
6	LK 033	1999	1,415	25	975	1.40
7	TO 501	2006	1,344	23	600	0.86
8	WO 067	2009	180	19	500	0.72
9	BO 775	1950	1,248	10	150	0.22
10	AX 416	1988	182	8	50	0.06
11	KW 578	1996	1,180	15.25	580	0.84
12	WP 651	2008	155	8	125	0.18
<b>Total Capacity:</b>					<b>4,730</b>	<b>6.80</b>
<b>WDNR Firm Capacity (18-hour):</b>					<b>2,816</b>	<b>4.05</b>

<sup>1</sup>Well No. 5 is under order by the WDNR to be abandoned, and it not considered to provide usable capacity.  
WDNR=Wisconsin Department of Natural Resources  
gpm=gallons per minute  
MGD=million gallons per day

**Table 3.02-1 Well Supply Summary**

B. Well No. 1

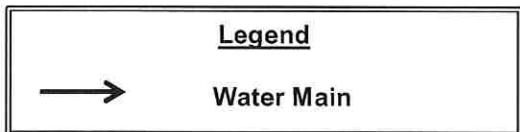
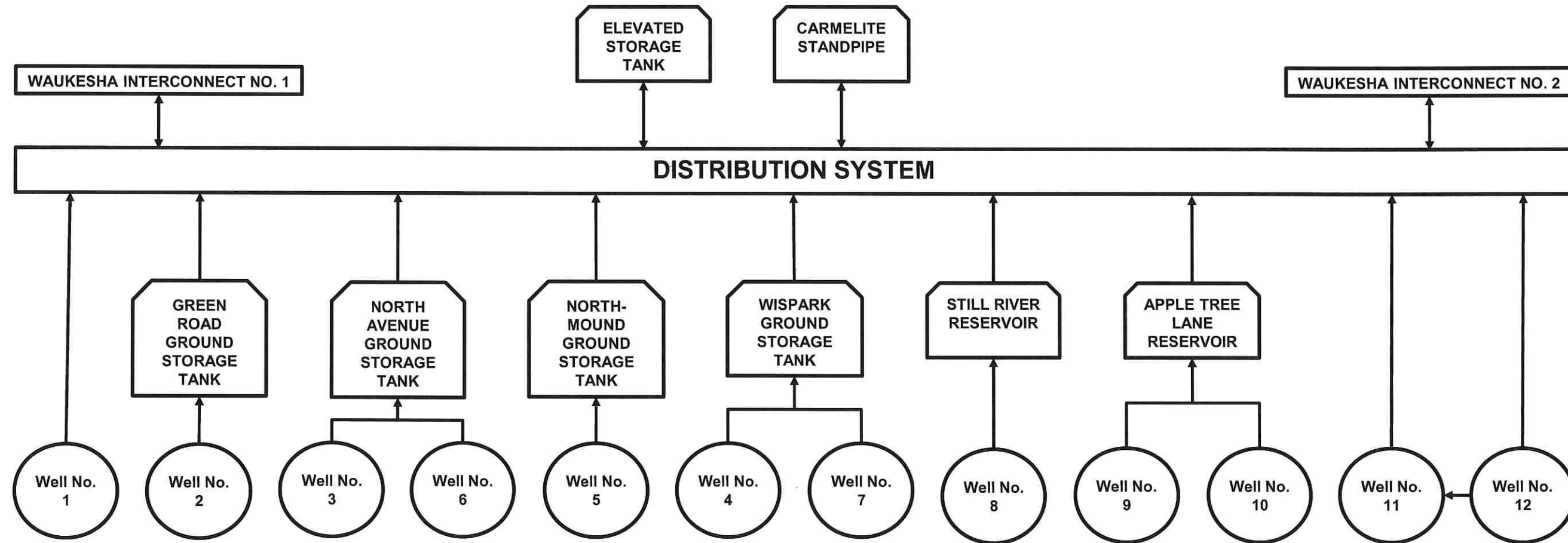
Figure 3.02-1 shows the exterior of the Well No. 1 facility. Water is disinfected with sodium hypochlorite and treated with sodium silicate for iron sequestrations. Subsequently, water flows to the preformed hydrous manganese oxide (HMO) filtration system within the Well No. 1 facility, and then into the system.



**Figure 3.02-1 Well No. 1 Exterior**

Tables 3.02-2 and 3.02-3 present the general condition and recommendations of major Well No. 1 components.

*P16*



WATER SYSTEM SCHEMATIC  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN



FIGURE 3.01-2

4621.034

PLS

**5.01 OVERVIEW**

According to WAC § NR 854.05(5), “The [water supply service area] plan shall describe the existing water use of the public water supply system.”

This section presents a summary of the City’s existing and historical water use from the past 10 years. Historical water use trends will be the basis for water demand projections presented in Section 6. Water demand terminology used in this report is defined as follows:

- Average Day                    The total volume of water pumping in a year divided by the number of days in the year.
- Maximum Day                 The day of the year on which the maximum amount of water is pumped. The maximum day normally occurs during a dry summer period when customer irrigation use is high.
- Maximum Hour                The maximum rate of demand for any hour on the maximum day.
- Fire Demand                    An estimate of the amount of water required to fight a fire. This demand is generally specified as a rate of flow for a given time period. The Insurance Services Office (ISO) has prepared a guide for determining fire demand. The fire demand is added to the MDD to obtain the demand on a day that a major fire occurs. Fire demand greatly increases the volume of storage that must be available on a maximum day.
- Water Usage                    The amount of water used by the end consumer. This accounts for water sales, not for total system pumpage.
- Water Demand                 The amount of water pumped into the distribution system, including water sales, accounted for nonrevenue water, and unaccounted for water.

5.02 EXISTING WATER USERS

The City encompasses approximately 13,500 acres (21.1 square miles) of land in Waukesha County. As of 2024, the City’s population was estimated to be 16,215 (population density of 768 residents per square mile). In 2023, residential water use was the City’s largest customer class accounting for 60 percent of total water pumpage (including multifamily residential), as presented in Figure 5.02-1.

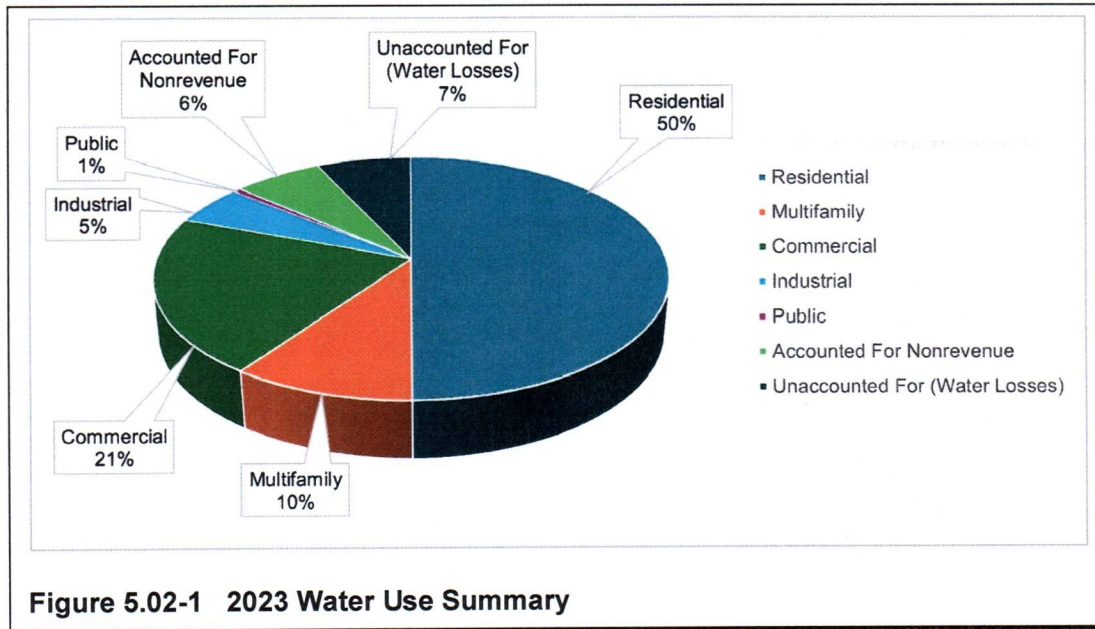


Figure 5.02-1 2023 Water Use Summary

5.03 EXISTING WATER USE

Table 5.03-1 presents a summary of water sales and water demand per customer category and pumpage from 2014 to 2023. Approximately 8 percent of water use is associated with the City’s top ten retail customers, which are presented in Table 5.03-2. The City’s water use over the past 10 years has been exclusively retail service within the City’s municipal boundary.

Table 5.03-2 Annual Water Use (Thousand Gallons)

Customer	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Waukesha Memorial	1,954	3,641	1,676	2,368	9,387	8,695	5,394	5,470	4,313	4,484
Heart of America	5,631	3,436	3,392	3,249	3,990	3,038	4,679	2,800	4,189	6,131
Marriott Hotel	9,027	10,936	9,399	8,403	7,787	3,337	5,840	7,011	6,629	6,047
Aurora Health Center	2,752	2,872	3,076	2,663	2,343	8,210	3,303	2,436	2,646	2,246
A.L. Schutzman	2,218	2,101	2,874	2,739	2,825	4,746	2,894	3,623	3,414	3,372
Quad Graphics	3,369	2,269	2,575	2,465	2,195	1,588	1,873	1,710	1,352	1,548
GE Healthcare Institution	2,079	2,031	1,720	2,018	2,001	1,164	1,876	1,787	2,426	1,548
Zignego Ready Mix	1,361	1,251	3,682	1,134	1,021	895	975	4,851	1,646	1,798
CCC of Pewaukee	2,456	3,504	3,288	3,510	3,258	3,075	2,866	2,507	2,053	2,649
ITT Flygt	2,156	3,851	2,040	3,847	3,068	1,566	2,718	1,471	3,031	1,693

## 6.01 OVERVIEW

According to WAC § NR 854.05(6), “The [water supply service area] plan shall project water demands for the planning period and shall include the projected water demand for the existing service area and proposed growth area of the public water supply system, along with any anticipated sales to consecutive water systems served by the public water supply system.”

This section presents projected water demands with respect to each design year: 2025 (current year), 2035 (10-year), 2045 (20-year), and 2075 (50-year; full buildout). Demand projections detailed in this section account for water use within the City and potential service to the neighboring communities of Lisbon and the Village of Pewaukee.

Water demand projections through 2050 were completed as a part of the 2023 Study. Figures and values were updated as part of this plan to include water use data that has been collected in the time since the 2023 Study water written. However, methodologies for water demand projections have remained largely unchanged. Changes to water demand projections from the 2023 Study are detailed in this section.

## 6.02 POPULATION PROJECTIONS

The City’s population is estimated to be 16,215 as of 2024. The Wisconsin Department of Administration (WDOA) provides population projections for the City through 2050. Additionally, population projections inclusive of planned residential developments were provided from the *Neighborhood Plans for the City of Pewaukee* (City Plan), prepared by the City Plan Commission in 2012. Historical population estimated by WDOA and these projections are presented in Figure 6.02-1.

Historical service population and service population projections from the 2023 Study are also plotted. Service population represents the number of residents served by the public water system. Projections are based on projected residential development through 2035, and 2050, respectively, as described in Table 6.02-1. Service population is calculated using the number of residential and multifamily meters reported to Public Service Commission of Wisconsin (PSCW), with an estimated 2.52 residents per single-family meter and an estimated 12.6 residents per multifamily meter (six units per meter and 2.1 residents per unit). The estimated six units per multifamily meter was derived using water sales per customer type reported by the City to PSCW in 2023, with the assumption that water use per resident is approximately equal between residents in single- and multifamily units. Service population will continue to increase through 2075 in two ways: added population from newly developed areas, and conversion of existing developed areas onto municipal water. By 2050, the City anticipates that all new development planned in the City Plan will be built out, and it is expected that all or nearly all residents will be served by the public water system by 2075. The service population in 2075 represents the total buildout of all planned development according to the City Plan, and conversion of every existing developed area to municipal water.

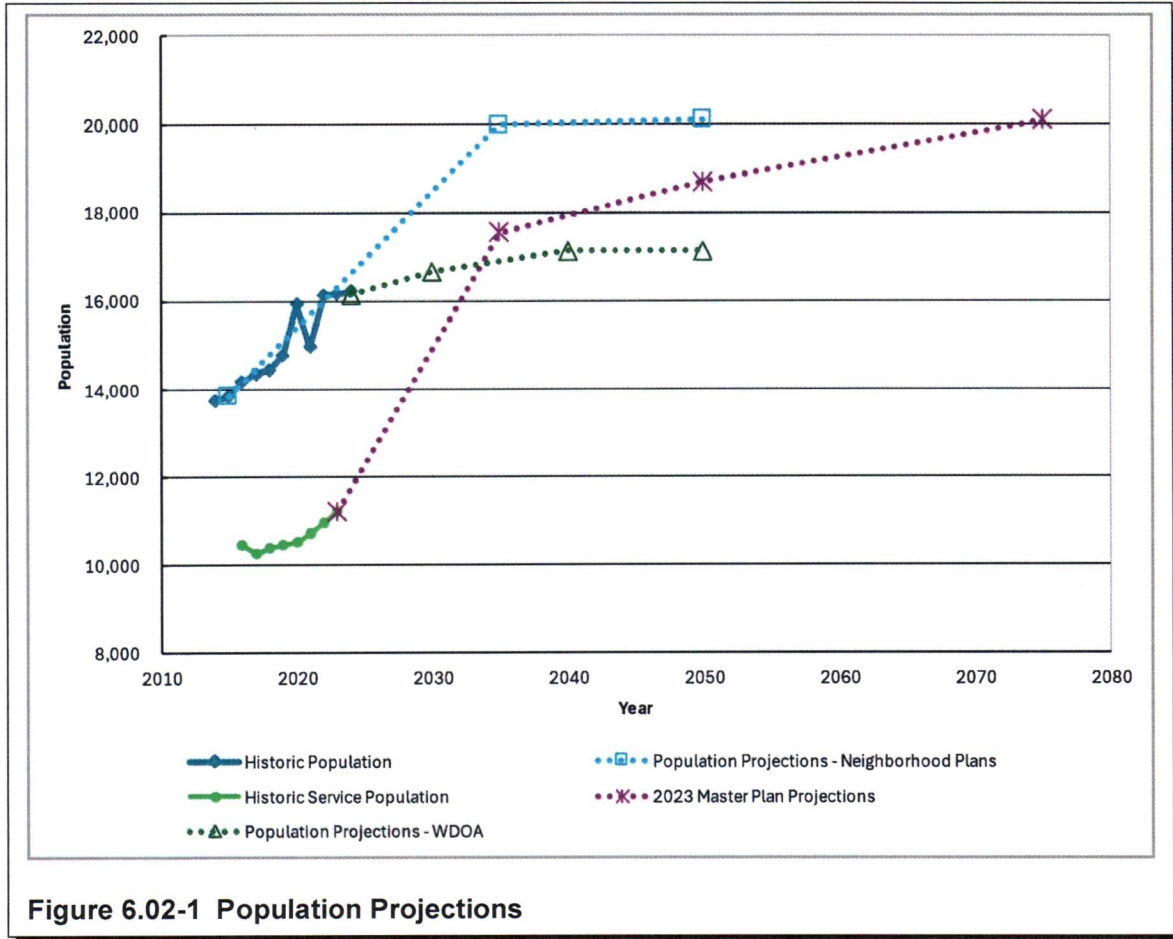


Figure 6.02-1 Population Projections

Future residential developments included within projected service populations are areas within the water service area identified for new residential land use in the City Plan. Expected residential development with anticipated completion between 2023 and 2050 by zoned density is presented in Table 6.02-1. Population increases are calculated based on an average of 2.52 residents per residential unit, which is the average number of residents per unit according to the 2020 United States (US) Census Report. Development beyond 2050 is expected to consist of in-fill development and an increased service population related to converting existing residences to municipal water. Therefore, the residential population of the City is anticipated to be steady from 2050 to 2075.

Figures 6.02-2 and 6.02-3 present the planning land use maps for the 2035 and 2050, respectively, as described in the City Plan.

Zoned Residential Density	Dwelling Unit Density (Unit per Acre)	Unit Density (Residents per Unit)	2023 to 2035			2035 to 2050		
			Land Use Increase (Acres)	Housing Units	Population Increase	Land Use Increase (Acres)	Housing Units	Population Increase
Low	0.5	2.92	458	198	578	58	29	73
Low to Medium	0.8	3.13	425	274	857	177	126	356
Medium	3.0	3.56	553	1,173	4,179	96	284	725
High	6.7	2.52	43	285	719	-	-	-
<b>Total</b>			<b>1,479</b>	<b>1,930</b>	<b>6,333</b>	<b>331</b>	<b>439</b>	<b>1,154</b>

**Table 6.02-1 Anticipated Residential Development**

**6.03 PROJECTED WATER USE WITHIN THE CITY**

A. Water Sales by Land Use Type

Water sales are projected based on water use factors for each customer category. Water use factors reported by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) were applied to growth areas within the planning years. These water use factors are presented in Table 6.03-1. Note that water sales do not represent total water demand, and do not account for factors such as water loss. Projected water sale values through full buildout of the City are the same as was reported in the 2023 Study.

Land Use Type	Usage Factor (gpad)
Industrial	1,005
Commercial	667
Governmental and Institutional	667
Low-Density Residential	84
Low-Medium Density Residential	135
Medium-Density Residential	507
High-Density Residential	1,126

gpad=gallons per acre per day

**Table 6.03-1 Water Usage Factors**

Water sales for 2075 also include increased residential sales to account for existing residences which are not currently served by municipal water, but will be included as a part of the full buildout condition. Water sales to these residences were added at a per capita rate of 82 gallons per capita per day (gpcd), which is the average rate of residential sales for the past 10 years. The current population of the City not served by municipal water is estimated to be 6,740.

**6.04 PROJECTED WATER SALES TO CONSECUTIVE WATER SYSTEMS**

Potential future water sales to two consecutive water systems were evaluated: retail service to a portion of Lisbon and wholesales service to the Village of Pewaukee. Water sales to consecutive systems are considered a part of extended water service for this evaluation, and projected water demands including service to these areas are discussed in this section.

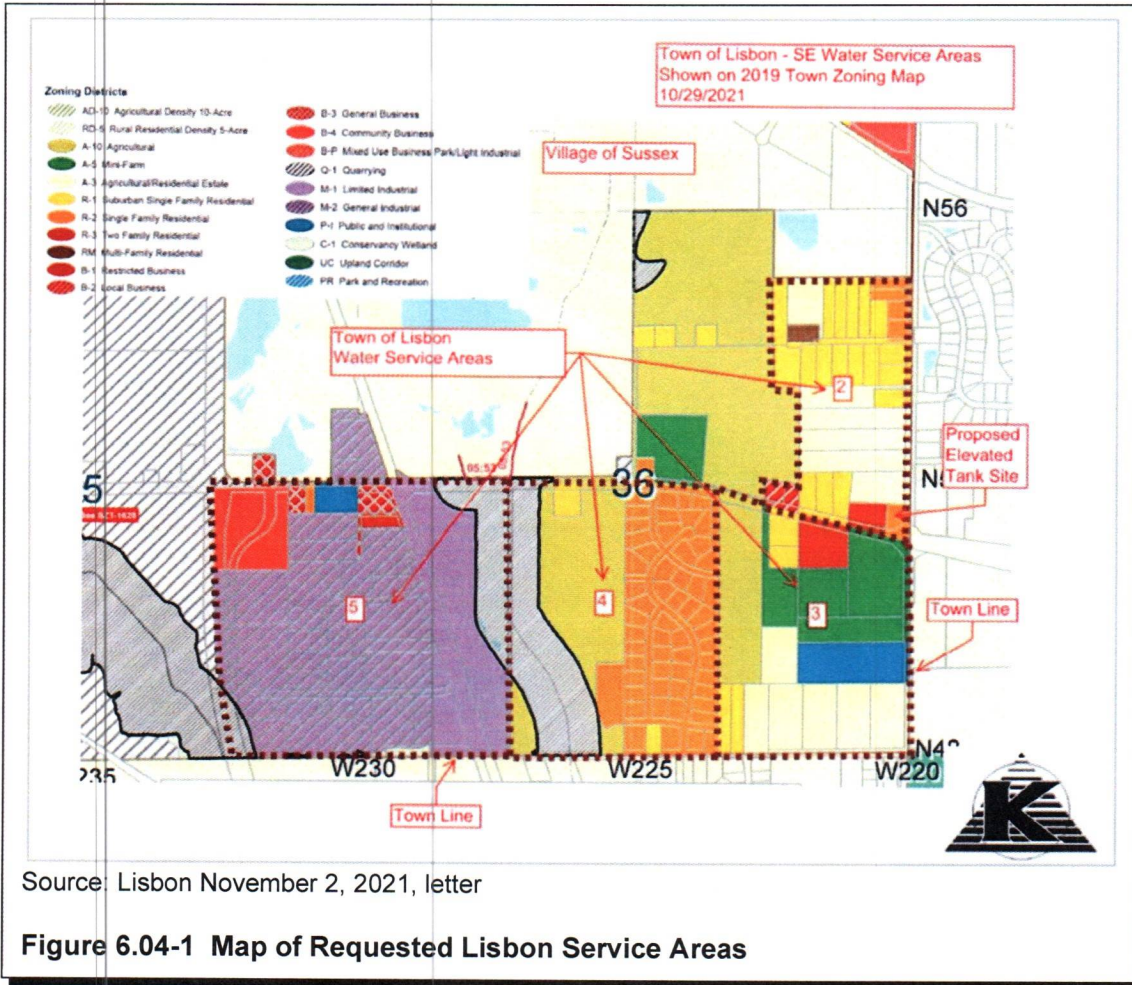
A. Retail Service to Lisbon

Lisbon has requested retail service from the City to an area of land to the north of the City. Water demands associated with Lisbon’s existing and future projected water use were detailed in a November 2, 2021, letter from Lisbon to the City, as described in the May 8, 2025, technical letter prepared by Strand (reference Appendix A) and presented here in Table 6.04-1. Those water demands were used for this analysis, with the expectation that retail service to Lisbon will begin by 2030. Lisbon’s 2045 water demands were considered full buildout demands in this study. Water demands for 2035 and 2040 were interpolated based on 2030 and 2045 values.

Year	ADD (MGD)	ADD (gpm)	MDD (MGD)	MDD (gpm)
2030	0.07	47	0.14	97
2035	0.09	60	0.18	124
2040	0.10	69	0.20	142
2045	0.12	86	0.26	178
2075	0.12	86	0.26	178

**Table 6.04-1 Lisbon Projected Demands**

The areas of Lisbon proposed to be served by the City are labeled as Areas 2 through 5 in Figure 6.04-1.



Source: Lisbon November 2, 2021, letter

Figure 6.04-1 Map of Requested Lisbon Service Areas

B. Wholesale Service to the Village of Pewaukee

The City may provide the Village of Pewaukee wholesale service by 2030. The Village of Pewaukee provided a copy of its *2022 Water System Master Plan* prepared by Ruekert & Mielke, Inc., which included water demand projections through 2040, as presented in Table 6.04-2. Because the Village of Pewaukee is landlocked and close to full development, the 2040 projected demands were considered full buildout demands for the Village of Pewaukee in this study.

Year	ADD (MGD)	ADD (gpm)	MDD (MGD)	MDD (gpm)
2030	0.88	610	1.74	1,210
2035	0.92	640	1.84	1,280
2040	1.07	740	2.13	1,480
2045	1.07	740	2.13	1,480
2075	1.07	740	2.13	1,480

**Table 6.04-2 Village of Pewaukee Projected Demands**

6.05 PROJECTED WATER DEMANDS–CITY ONLY

Water demand projections for service to the City only are presented in Figure 6.05-1 and Table 6.05-1. Water demands in 2075 represent the full buildout of the City, but it should be noted that water demands past 2075 could increase beyond these values due to changes in land uses, residential densities, and other factors.

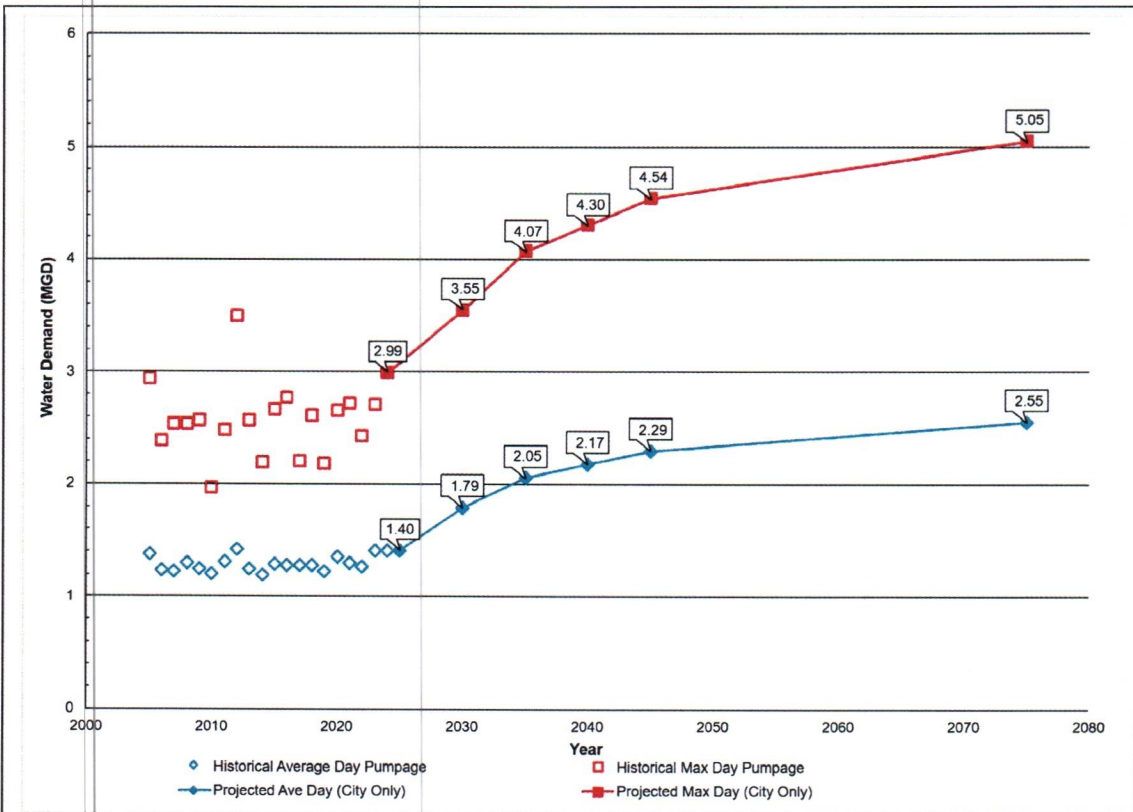


Figure 6.05-1 Water Demand Projections–City Only

Year	ADD (MGD)	ADD (gpm)	MDD (MGD)	MDD (gpm)
2025	1.40	970	2.78	1,930
2030	1.79	1,205	3.55	2,470
2035	2.05	1,430	4.07	2,820
2040	2.17	1,510	4.30	2,990
2045	2.29	1,590	4.54	3,150
2075	2.55	1,770	5.05	3,510

Table 6.05-1 Water Demand Projections–City Only

6.06 PROJECTED WATER DEMANDS–EXTENDED WATER SERVICE

Water demand projections for service to the City (as described in Section 6.05) plus extended service to Lisbon and the Village of Pewaukee (as described in Section 6.04) are presented in Figure 6.06-1 and Table 6.06-1.

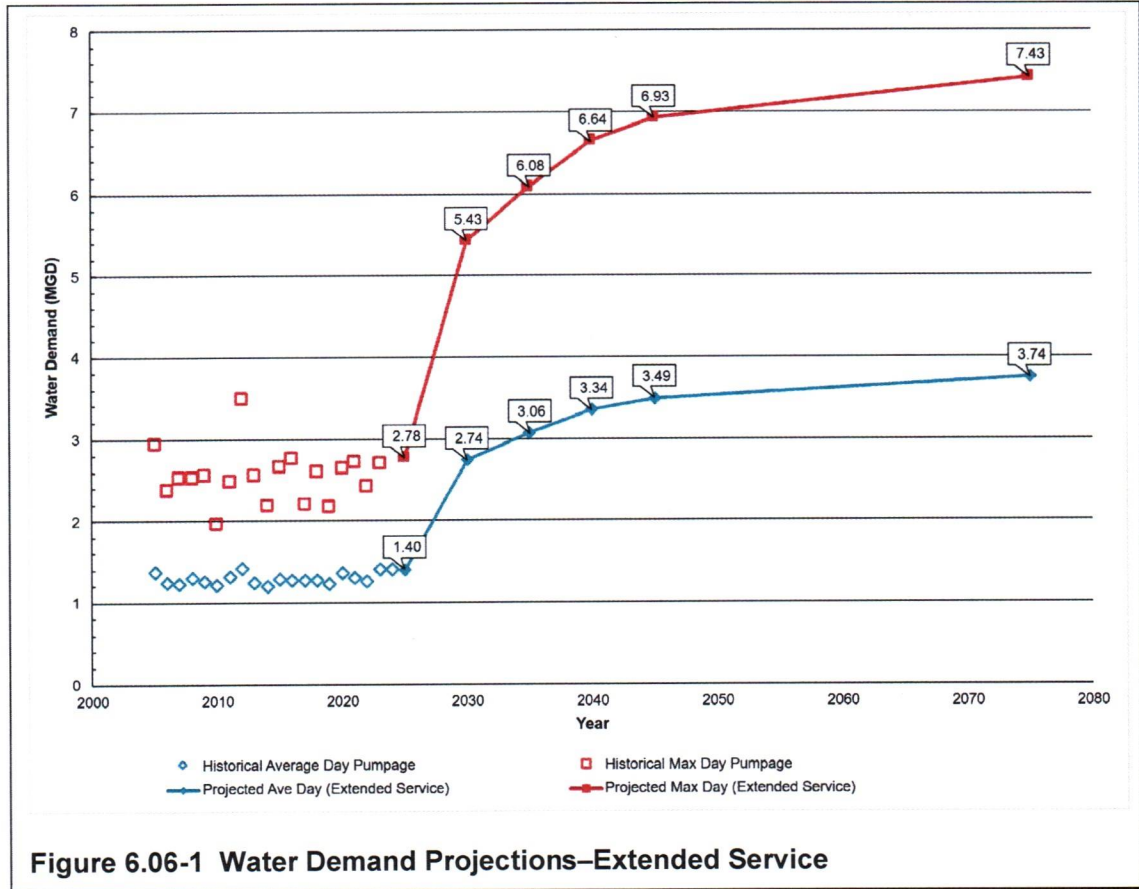
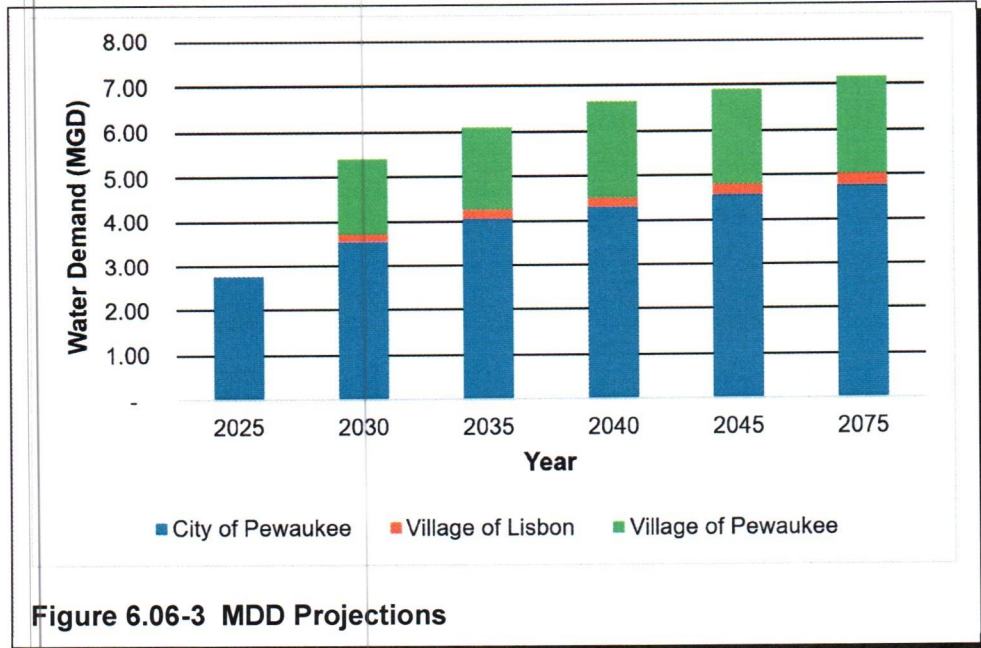
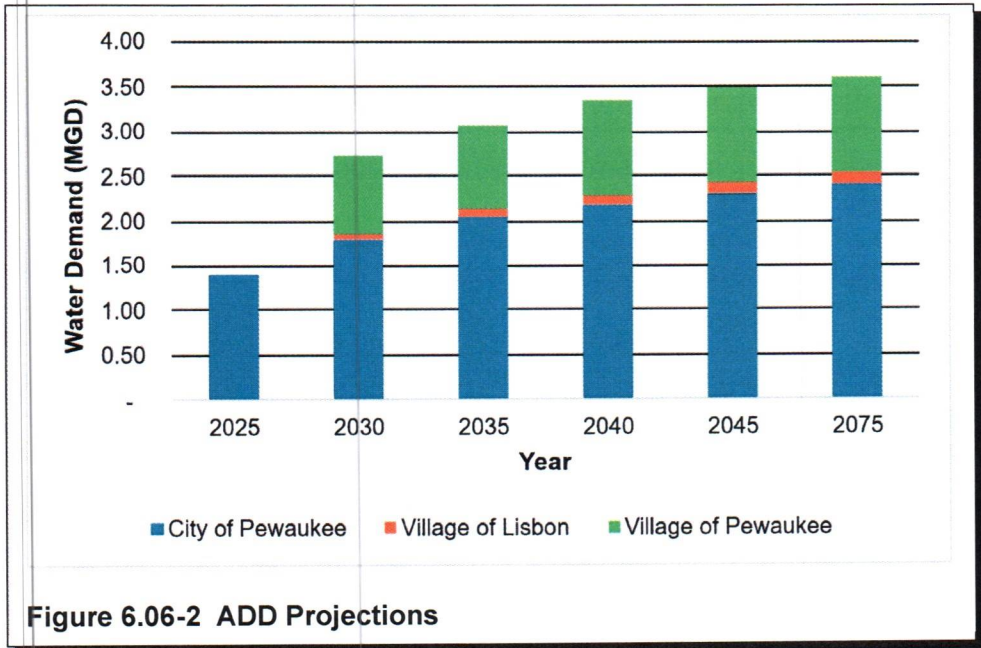


Figure 6.06-1 Water Demand Projections–Extended Service

Year	ADD (MGD)	ADD (gpm)	MDD (MGD)	MDD (gpm)
2025	1.40	970	2.78	1,930
2030	2.74	1,900	5.43	3,770
2035	3.06	2,130	6.08	4,230
2040	3.34	2,320	6.64	4,610
2045	3.49	2,420	6.93	4,810
2075	3.74	2,600	7.43	5,160

Table 6.06-1 Water Demand Projections–Extended Service

Figures 6.06-2 and 6.06-3 present the ADD and MDD associated with the City, Lisbon, and the Village of Pewaukee, respectively. In this scenario, by 2075, approximately 68 percent of demands are from the City, 29 percent of demands are from the Village of Pewaukee, and 3 percent of demands are from Lisbon.



## 6.07 WATER CONSERVATION OPPORTUNITIES

Water loss, also referred to as unaccounted for nonrevenue water, includes water loss due to reported and unreported leakage. Water loss is a portion of annual nonrevenue water, which does not include accounted for nonrevenue water. As presented in Table 5.03-1, annual water loss from 2014 to 2023 ranged from 2 to 8 percent. Pursuant to WAC § PSC 185.85 (2025), a public water utility that serves more than 4,000 customers must submit a water loss control plan if a water audit shows that the utility has a water loss percentage exceeding 15 percent. The City's water loss percentage has historically been less than the threshold for a water audit. Even so, water conservation efforts can be implemented with the goal of reducing water loss and efficiency further.

Water conservation and efficiency measures are outlined in WAC § NR 852 (2025). While not required of the City, NR 852 contains several practices that could help the City reduce pumpage if demands are approaching capacity. Conservation and efficiency measures can include water use audits, leak detection and repair programs, pressure reduction, informational and educational outreach programs, and source management. WDNR has typically focused on reasonable and feasible measures to incorporate water conservation by using the Alliance for Water Efficiency's online tools. Water conservation measures generally target a 10 percent reduction in pumpage. WDNR requires water conservation plans when a Great Lakes diversion is being considered.

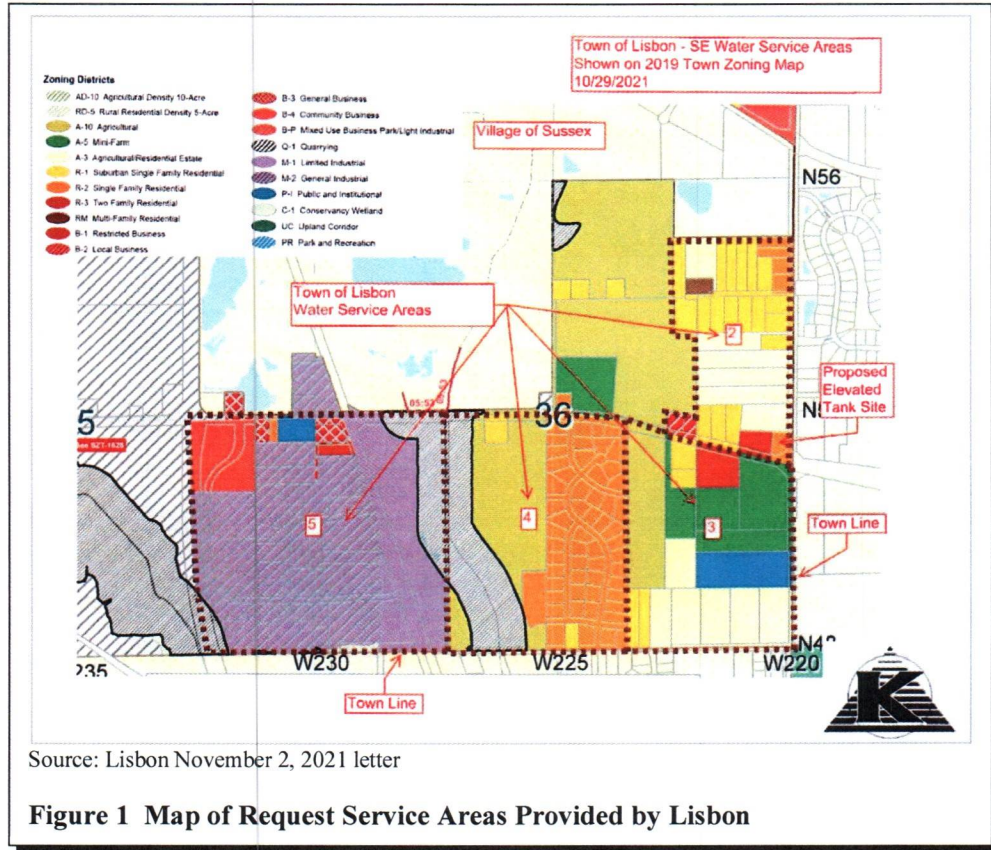
May 8, 2025

Ms. Maggie Wagner, City Engineer, Director of Public Works  
 City of Pewaukee  
 W240N3065 Pewaukee Road  
 Pewaukee, WI 53072

Re: Engineering Review of Municipal Water Service  
 City of Pewaukee, Wisconsin (City)

Dear Maggie,

The Village of Lisbon, Wisconsin (Lisbon) has requested retail water service from the City for a limited area. This letter summarizes Strand Associates, Inc.<sup>®</sup>'s (Strand) analysis of the capacity of the City's water system to supply the requested demands and the ability of the City's water system to deliver normal and emergency demands. The request is detailed in a letter from Lisbon dated November 2, 2021, which is enclosed. The requested service area is shown Figure 1. Lisbon has requested water service to Areas 2 through 5 shown on Figure 1.



Ms. Maggie Wagner, City Engineer, Director of Public Works  
City of Pewaukee  
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May 8, 2025

**Executive Summary**

The City is currently in a situation where it is meeting its own water demands due to operating some existing wells that are faced with water quality issues. The City is working to address these issues with ongoing capital projects that are expected to be completed in approximately 2 to 3 years. In the interim, the City would not have adequate supply capacity without operating the wells in question, and adding Lisbon demands only exacerbates the issue. The City is projected to have excess capacity after these issues are addressed. From that point onward, any capacity the City wishes to sell or reserve for Lisbon’s request could be accounted for when planning any future projects, as would be the case with any other existing customer demands.

**Requested Demand**

Demand projections were provided by Lisbon for the year of connection (current year) and an unspecified future year for each area. These projections are shown in Table 1. Lisbon determined the current year demand from the existing development. The future year demand was projected based on land use of vacant land within each service area. Lisbon added a 5 percent water loss to be compensated by additional pumping required.

The Lisbon demand methodology was reviewed and compared against the methodology used in the City’s 2023 *Water System Master Plan* (Master Plan) prepared by Strand. The Lisbon demand methodology was found to be reasonable and slightly conservative (slightly higher demand) than what would be projected with the City’s Master Plan methodology. For example, Lisbon used slightly higher density or gallon per acre per day water demand values, but the City’s Master Plan used a slightly higher water loss percentage. The methodology produced results close enough to the City’s Master Plan methodology that the Lisbon demands presented in the request letter will be evaluated as is.

Lisbon Development Area	Current ADD		Future Total ADD		Future Total Maximum Day	
	gpd	gpm	gpd	gpm	gpd	gpm
Area 2	8,322	5.78	10,534	7.32	21,805	15.14
Area 3	2,422	1.68	17,116	11.89	35,430	24.60
Area 4	8,848	6.14	20,540	14.26	42,518	29.53
Area 5	45,100	31.32	70,125	48.70	145,159	100.80
5% Loss	3,235	2.25	5,916	4.11	12,246	8.50
<b>Total</b>	<b>67,927</b>	<b>47.17</b>	<b>124,231</b>	<b>86.27</b>	<b>257,158</b>	<b>178.58</b>

Notes:  
gpd=gallons per day  
gpm=gallons per minute  
ADD=average day demand

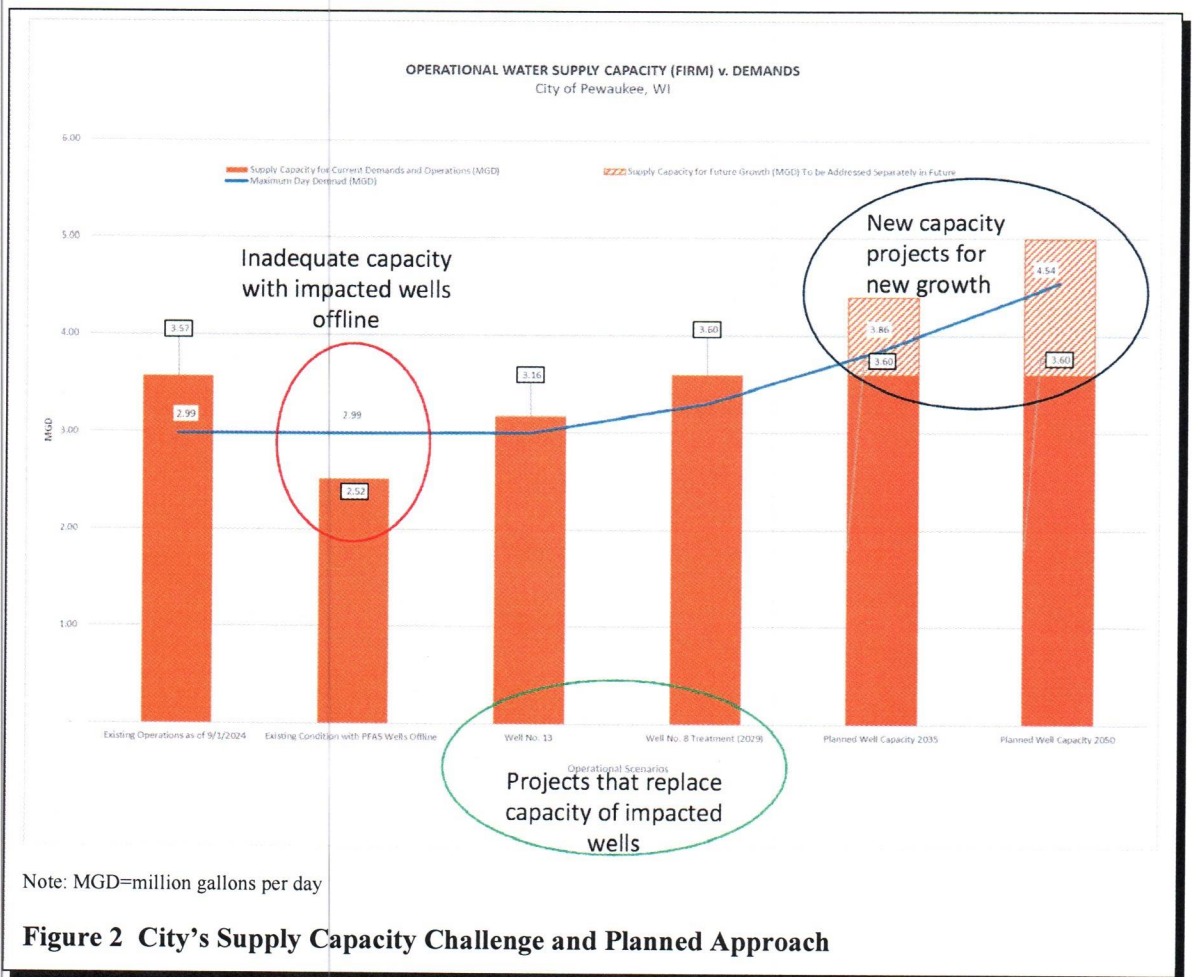
**Table 1 Lisbon Projected Demands**

Ms. Maggie Wagner, City Engineer, Director of Public Works  
City of Pewaukee  
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**Supply Capacity**

The City currently has source supply issues that impact its available supply capacity. Two wells have per- and polyfluoroalkyl substances (PFAS) contamination that is greater than the water quality standard and must be treated, abandoned, or replaced by 2029. Another well has partially collapsed and is under the Wisconsin Department of Natural Resources (WDNR) consent order to be abandoned due to radionuclide levels that have exceeded the standards.

Figure 2 demonstrates how various operational scenarios impact the City’s ability to meet its own demands. The City is currently operating all wells in question while improvement projects are planned and while awaiting further direction from the WDNR. The second bar from the left indicates that the City currently does not have enough capacity to meet its own maximum day demands (MDD) without the impacted wells in services. The third and fourth bars from the left indicate that the projects that will address the impacted wells will provide adequate capacity when they are online in approximately 2028. The two bars on the right indicate that, by 2035 and 2050, new supply sources will need to be added to meet the water demands of new growth.



Ms. Maggie Wagner, City Engineer, Director of Public Works  
City of Pewaukee  
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Table 2 demonstrates the City’s ability to meet Lisbon’s demand request in each operational scenario. The City will not have adequate capacity to meet the Lisbon demands until the projects are completed that will replace the capacity of the impacted wells in approximately 2028.

The City does not have enough capacity to meet its own projected demands for 2035 and 2050 and, therefore, will need to add new supply sources if the growth projections are realized. Any planned supply sources to meet growth in 2035 and beyond would have to be planned to continue to provide adequate capacity for any existing customers at the time (including Lisbon), if the City wishes to add the requested service area.

<b>Demand and Supply Scenario</b>	<b>Firm Well Capacity (MGD)</b>	<b>MDD (MGD)</b>	<b>Reserve Capacity (MGD)</b>
The City in 2025 without impacted wells	2.52	(2.99)	(0.48)
The City in 2025 with impacted wells	3.08	(2.99)	0.09
The City in 2025 and Lisbon demands, with impacted wells	3.08	(3.06)	0.02
The City in 2028 with source water replacement, and Lisbon current demands	3.60	(3.07)	0.53
The City in 2035 with additional supply and Lisbon future demands	4.40	(4.12)	0.28
The City in 2050 with additional supply and Lisbon future demands	5.00	(4.80)	0.20

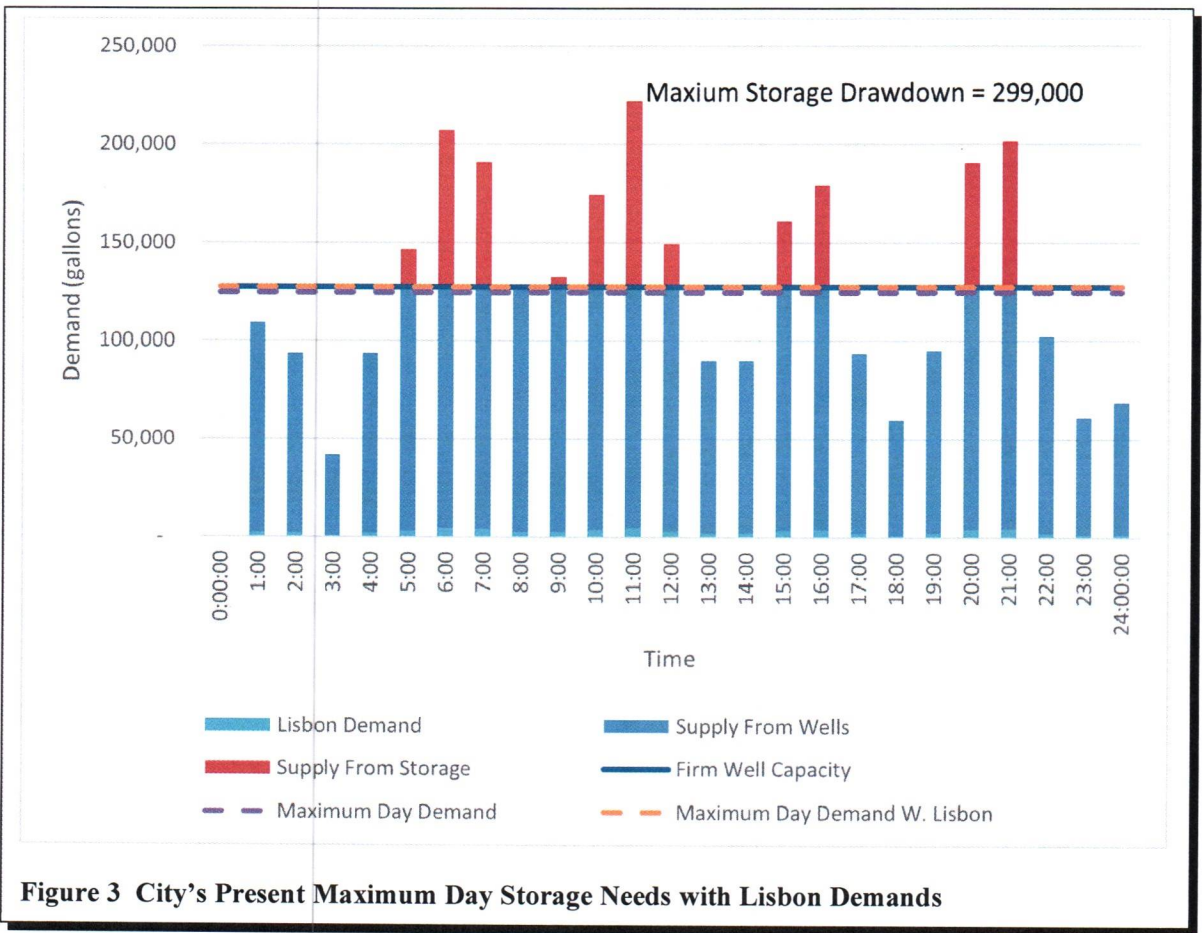
Note: Values within parentheses represent negative values.

**Table 2 City Well Capacity with Current and Future Lisbon Demands**

Ms. Maggie Wagner, City Engineer, Director of Public Works  
City of Pewaukee  
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**Storage Capacity**

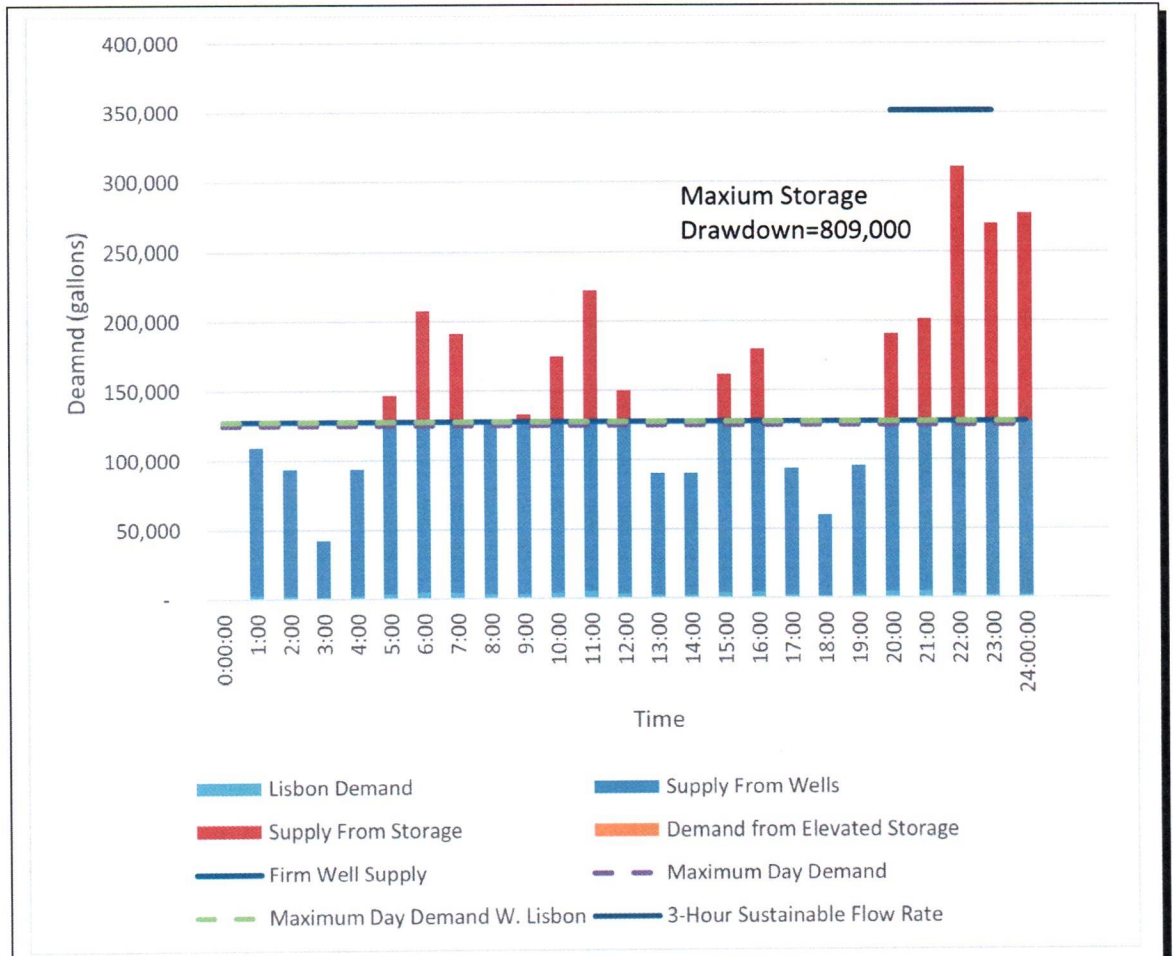
Figure 3 presents the hourly domestic demand throughout the current maximum day, including Lisbon demands, and assuming the impacted wells are offline. The storage drawdown would be approximately 299,000 gallons. However, because the City does not have adequate supply capacity to meet multiple maximum demand days in a row, the storage would decline over time. This volume of storage is within the City’s existing storage capacity.



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City of Pewaukee  
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**Capacity Analysis with Fire Flow**

Figure 4 shows the volume of water required from storage if the fire event were to start at the point of maximum storage drawdown in the system. The total volume required from storage would be 809,000 gallons. This is within the existing storage capacity of the system and within the City’s 3-hour sustainable pumping rate to satisfy emergency demands (when booster pumps at well facilities are running at firm capacity). Again, if the impacted wells are offline, the remaining wells will not be able to replenish storage.



**Figure 4 City’s Present Maximum Day Plus Fire Storage Needs with Lisbon Demands**

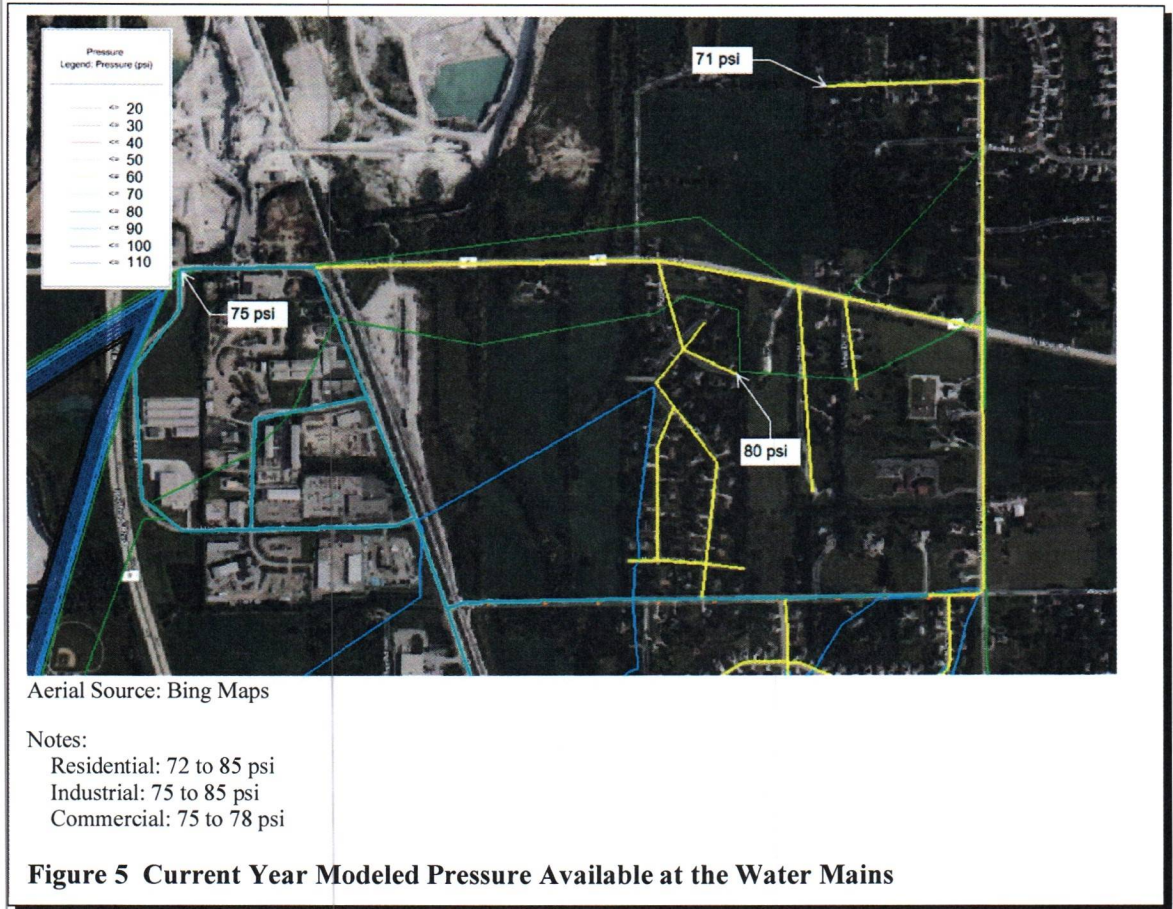
Ms. Maggie Wagner, City Engineer, Director of Public Works  
City of Pewaukee  
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### Water Main Sizes and Modeled Service Pressures

Proposed water mains within the Lisbon service areas were assumed to be 12-inch-diameter mains in Area 5 due to industrial land use and 8-inch-diameter mains in the remaining areas. A retail customer arrangement was assumed so that the water mains would be looped back into the City's system. A wholesale customer arrangement would require metering facilities and check valve stations.

The existing computer model was used to evaluate the distribution system's ability to supply present and future water demands throughout the City and Lisbon with the needed flow for firefighting. Modeled pressures are considered accurate to within  $\pm 5$  pounds per square inch (psi).

Figure 5 displays the pressure contours during the current year, MDDs for the Lisbon service area. Lisbon service area pressures range from approximately 72 to 85 psi.



### Modeled Fire Flow Availability

The City has provided target fire availability parameters in the system based on the general land use categories, as shown in Table 3, which exceed the WDNR minimum 500 gpm. Modeled fire flow availability less than the target may not mean that a capital improvement is necessary. Modeled fire flows

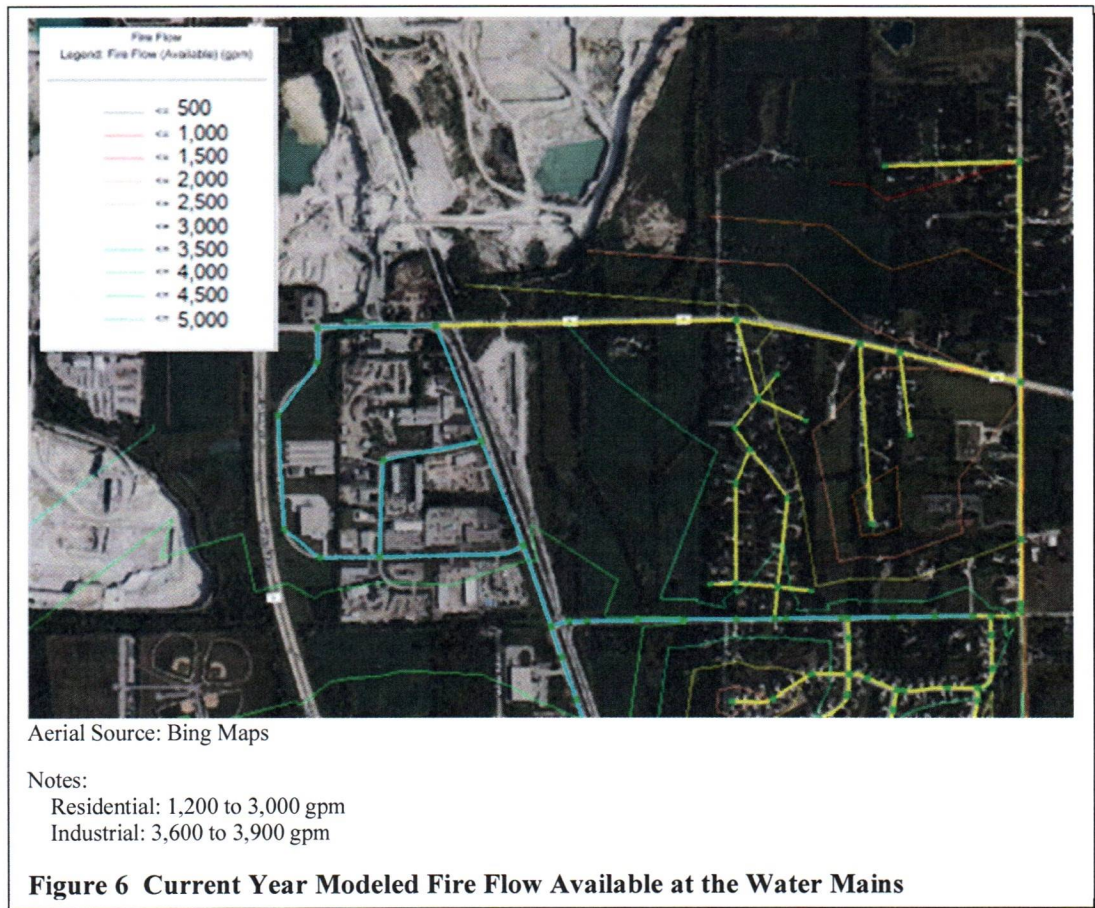
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Ms. Maggie Wagner, City Engineer, Director of Public Works  
City of Pewaukee  
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May 8, 2025

are generally considered accurate to within 10 percent and represent the flow available at the main while operating the firm supply facilities and maintaining 20 psi at all customer service locations in the City. Figure 6 displays the current year maximum day fire flow contours. The industrial area has approximately 3,600 gpm or more available, while other areas have approximately 1,200 gpm or higher available.

Land Use Type	City Target Fire Flow (gpm)
Industrial	4,000
Commercial	2,500
Governmental and Institutional	2,500
Low-Density Residential	1,500
Low- to Medium-Density Residential	1,500
Medium-Density Residential	1,500
High-Density Residential	3,500

**Table 3 Target Fire Flow Availability Parameters**



Ms. Maggie Wagner, City Engineer, Director of Public Works  
City of Pewaukee  
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May 8, 2025

**Conclusion**

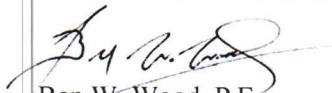
The City will have adequate capacity to serve the Lisbon requested demands by approximately 2029 after the City's planned projects are completed in approximately 2028. In the interim, the City would only be able to meet the demands while continuing to operate impacted wells.

Within the Lisbon service area, a combination of 12- and 8-inch-diameter water mains appears to provide adequate fire flow relative to WDNR standards and the City's target flows. Pressures in the service area would be approximately 72 to 85 psi. These results were produced in the distribution system model assuming that Lisbon would be a retail customer with multiple connection points to the City.

Please call 414-271-0771 with any questions.

Sincerely,

STRAND ASSOCIATES, INC.®

  
Ben W. Wood, P.E.

  
Brooke A. Larson

Enclosure



November 2, 2021

Re: Formal Request for Water

Dear Madeline Wagner,

Lisbon is looking for possible ways to deliver water service to properties located in the southeast portion of Lisbon. These are areas that Sussex is not able to service. Pewaukee is adjacent to the areas we would like served.

I am requesting Pewaukee water utility to review and consider providing water to Lisbon in areas 2, 4 and 5 of the attached map.

Thank you for taking the time to consider Lisbon's request. Please contact me by email or phone if you have any questions.

Regards,

Kathy Nickolaus  
Lisbon Administrator

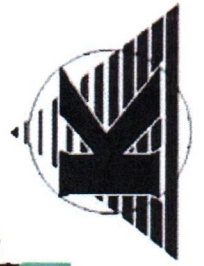
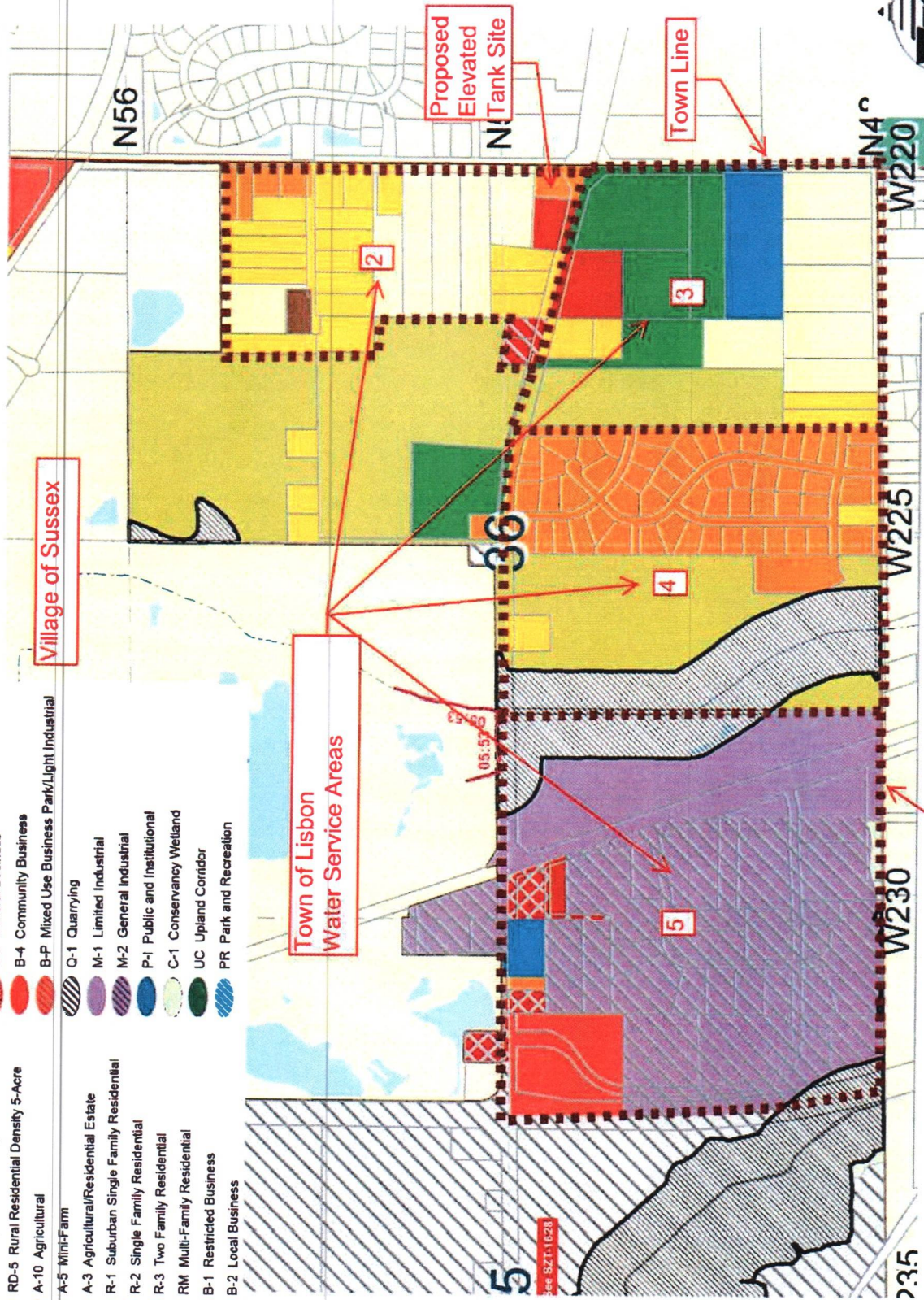
Town of Lisbon - SE Water Service Areas  
Shown on 2019 Town Zoning Map  
10/29/2021

Zoning Districts

- |  |  |  |  |
|--|--|--|--|
|  | AD-10 Agricultural Density 10-Acre     |  | B-3 General Business                         |
|  | RD-5 Rural Residential Density 5-Acre  |  | B-4 Community Business                       |
|  | A-10 Agricultural                      |  | B-P Mixed Use Business Park/Light Industrial |
|  | A-5 Mini-Farm                          |  | Q-1 Quarrying                                |
|  | A-3 Agricultural/Residential Estate    |  | M-1 Limited Industrial                       |
|  | R-1 Suburban Single Family Residential |  | M-2 General Industrial                       |
|  | R-2 Single Family Residential          |  | P-1 Public and Institutional                 |
|  | R-3 Two Family Residential             |  | C-1 Conservancy Wetland                      |
|  | RM Multi-Family Residential            |  | UC Upland Corridor                           |
|  | B-1 Restricted Business                |  | PR Park and Recreation                       |
|  | B-2 Local Business                     |  |  |

Village of Sussex

Town of Lisbon  
Water Service Areas





Town of Lisbon, Waukesha Co  
 SE Water Service Area  
 Map Areas 2, 3, 4, and 5  
 10/29/2021 by Basil Orechwa PE

**Estimated Water Service Demands**

	Current Development Demand avg gpd	Future Development Total Demand avg gpd	Future Peak Day Total Demand Max gpd
Area 2	8,322	10,534	21,805
Area 3	2,422	17,116	35,430
Area 4	8,848	20,540	42,518
Area 5	45,100	70,125	145,159
5% Loss	3,235	5,916	12,246
<b>Totals</b>	<b>67,927</b>	<b>124,231</b>	<b>257,158</b>

Current Demand is based on present development and build out  
 Future Demand is based on present + estimated future development  
 Max Day has peaking factor below applied  
 Water loss is added to be compensated by additional pumping req'd

**Basis for Water Demand Estimates**

158 gal/day/connection Residential Water Demand Used for Town of Lisbon Planning from PSC Summary Reports for vicinity
1100 gal/day/acre Commercial and Mixed Use Development Used by SEWRPC for vicinity demand estimates
1100 gal/day/acre Light Industrial (non-wet Process) 50% Parcel utilization factor is applied for storage & yard areas
Metcalf & Eddy references 800-1500 gal/day/acre 5% of total demand Acceptable Pumped Water Loss
2.07 Max Day / Avg Day typical for vicinity waterworks above estimating values used for 2021 Town of Lisbon Planning for Rt 164 Corridor Sewer & Watermain Service Area Extensions

**Map Area 2**

63 Acres Total	3.4 Acres Non-Residential
29 Current Residential Services	
4582 gpd average current residential demand	
3740 gpd average current non-residential demand	
8322 gpd total average current water demand	
1.4 Acres Typ Future Lot Size (Current smaller low density lots)	
43 Potential total future services by division of parcels	
6794 gal/day average potential residential water demand	
3740 gal/day average non-residential water demand	
10534 gal/day Estimated Average Daily Future Water Demand	

**Map Area 3**

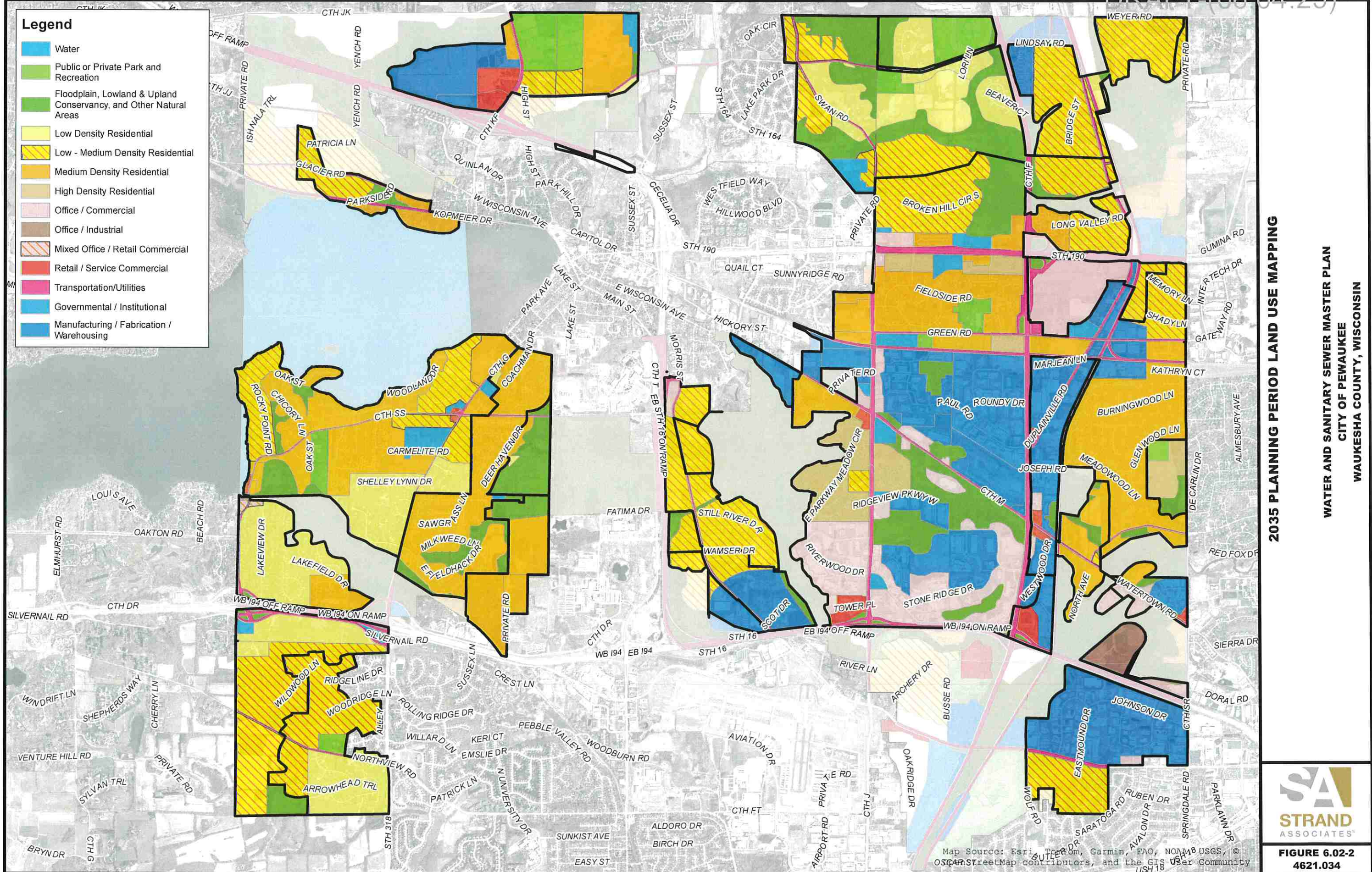
90 Acres Total	9.6 Acres Church Parcel
14 Current Residential Services	
2212 gpd average current residential demand	
210 gal/day average non-residential water demand (Church)	
2422 gpd total average current water demand	
0.75 Acres Typ Lot Size (using adjoining subdivision to west)	
107 Potential total future services by division of parcels	
16906 gal/day average potential residential water demand	
210 gal/day average non-residential water demand (Church)	
17116 gal/day Estimated Average Daily Future Water Demand	

**Map Area 4**

118 Acres Total	9.1 Acres Waterway Conservancy
56 Current Residential Services	
8848 gpd average current residential demand	
0.75 Acres Typ Lot Size (using currently subdivided lands)	
55.4 Acres currently undeveloped and zoned Ag, less conservancy	
74 Potential total future services by division of parcels	
11692 gal/day Potential Average Daily Future Water Demand	
20540 gal/day Estimated Average Daily Future Water Demand	

**Map Area 5**

158.9 Acres Total	Zoning is industrial w/ commercial parcel
50% Utilization of Industrial Parcels	
82.0 acres Currently Developed	
20.7 acres Stormwater Mgmt & Street R/W	
10.7 acres RR Right of Way	
45.5 acres Undeveloped	
45100 gpd current average water demand	
25025 gpd average remaining buildout water demand	
70125 gpd average full buildout water demand	



2035 PLANNING PERIOD LAND USE MAPPING

WATER AND SANITARY SEWER MASTER PLAN  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN

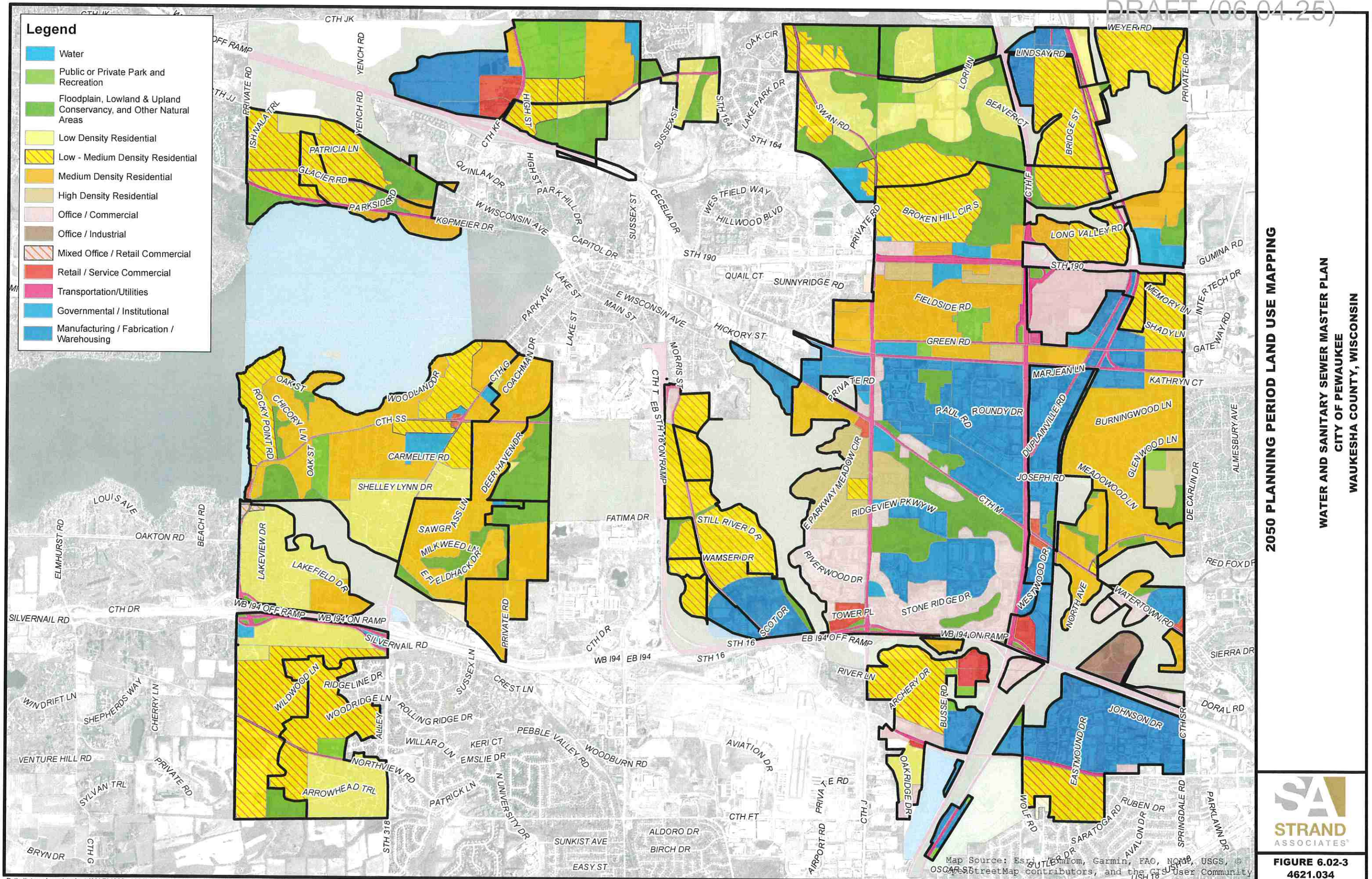


FIGURE 6.02-2  
4621.034

p54

**Legend**

- Water
- Public or Private Park and Recreation
- Floodplain, Lowland & Upland Conservancy, and Other Natural Areas
- Low Density Residential
- Low - Medium Density Residential
- Medium Density Residential
- High Density Residential
- Office / Commercial
- Office / Industrial
- Mixed Office / Retail Commercial
- Retail / Service Commercial
- Transportation/Utilities
- Governmental / Institutional
- Manufacturing / Fabrication / Warehousing



2050 PLANNING PERIOD LAND USE MAPPING

**WATER AND SANITARY SEWER MASTER PLAN**  
**CITY OF PEWAUKEE**  
**WAUKESHA COUNTY, WISCONSIN**



FIGURE 6.02-3  
4621.034

Table 5.03-1 Existing Water Use Summary

Year	Residential (gallons)	Commercial (gallons)	Industrial (gallons)	Public (gallons)	Total Water Sales (gallons)	Total Pumpage (gallons)	Sales to Pumpage Efficiency (%)	Maximum Day Pumpage (gallons)	Maximum to Average Day Ratio	Nonrevenue Water (gallons)	Unaccounted for Water (gallons)	Unaccounted for Water (%)
2014	188,593,000	168,974,000	26,469,000	695,000	384,731,000	435,997,000	88	2,185,000	1.83	47,771,000	22,546,000	5
2015	205,197,000	168,028,000	25,668,000	564,000	399,457,000	469,121,000	85	2,659,000	2.07	68,199,000	37,210,000	8
2016	263,523,000	125,631,000	28,313,000	591,000	418,058,000	464,851,000	90	2,761,000	2.17	45,490,000	19,178,000	4
2017	256,297,000	121,170,000	30,137,000	1,402,000	409,006,000	466,396,000	88	2,202,000	1.72	56,184,000	30,488,000	7
2018	251,418,000	121,884,000	28,470,000	601,000	402,373,000	465,552,000	86	2,608,000	2.05	61,775,000	35,546,000	8
2019	248,157,000	125,894,000	26,351,000	713,000	401,115,000	448,251,000	89	2,176,000	1.77	46,834,000	21,301,000	5
2020	281,809,000	131,847,000	24,828,000	916,000	439,400,000	495,653,000	89	2,646,000	1.95	55,896,000	25,846,000	5
2021	286,145,000	112,280,000	27,460,000	2,180,000	428,065,000	474,732,000	90	2,713,000	2.09	46,079,000	10,584,000	2
2022	271,650,000	102,279,000	30,376,000	2,403,000	406,708,000	461,503,000	88	2,422,000	1.92	54,399,000	29,533,000	6
2023	306,573,000	106,860,000	27,143,000	2,883,000	443,459,000	512,009,000	87	2,699,000	1.93	68,270,000	33,355,000	7
2024	279,229,000	109,774,000	23,373,000	975,000	413,351,000	512,018,408	81	2,993,000	2.14	TBA	TBA	TBA

TBA=To be added

Table 5.03-2 Annual Water Use (Thousand Gallons)

Customer	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Waukesha Memorial	1,954	3,641	1,676	2,368	9,387	8,695	5,394	5,470	4,313	4,484
Heart of America	5,631	3,436	3,392	3,249	3,990	3,038	4,679	2,800	4,189	6,131
Marriott Hotel	9,027	10,936	9,399	8,403	7,787	3,337	5,840	7,011	6,629	6,047
Aurora Health Center	2,752	2,872	3,076	2,663	2,343	8,210	3,303	2,436	2,646	2,246
A.L. Schutzman	2,218	2,101	2,874	2,739	2,825	4,746	2,894	3,623	3,414	3,372
Quad Graphics	3,369	2,269	2,575	2,465	2,195	1,588	1,873	1,710	1,352	1,548
GE Healthcare Institution	2,079	2,031	1,720	2,018	2,001	1,164	1,876	1,787	2,426	1,548
Zignego Ready Mix	1,361	1,251	3,682	1,134	1,021	895	975	4,851	1,646	1,798
CCC of Pewaukee	2,456	3,504	3,288	3,510	3,258	3,075	2,866	2,507	2,053	2,649
ITT Flygt	2,156	3,851	2,040	3,847	3,068	1,566	2,718	1,471	3,031	1,693

## City of Pewaukee - New Agenda Item

### Agenda Language:

Discussion and possible action regarding the Pewaukee Road Trail Extension Study and selection of 2 alternatives to move forward with detailed preliminary engineering.

### Sub Item Agenda Language:

### Background Provided By:

Michaelis Gabbey

### Background:

In April 2024, a resident submitted a petition to extend a trail along Pewaukee Road from its current termination at Pewaukee Road and Riverwood Drive North south to Tower Place. At the April 24, 2024 Public Works Committee meeting, a motion was passed directing staff to take the trail extension request to the Common Council to secure funds to initiate the project in 2024.

The Common Council discussed the petition at its May 6, 2024 meeting and approved a motion directing Staff to select a consultant for design services to evaluate the feasibility and cost of several trail locations to connect the proposed trail termini. Following this directive, City Staff selected RH Batterman as the Consultant to complete the preliminary design for the project.

City staff received the completed feasibility study from the Consultant outlining three primary route options for a multi-use trail along the Pewaukee Road (STH 164) corridor. All three routes achieve the objective of extending the trail past the existing healthcare facility and connecting to Tower Place.

### Fiscal Impact:

There is no current financial impact for this item. The cost of the multi-use path alternatives are listed below:

- Alternative #1 - \$733,900
- Alternative #2A - \$1,164,150
- Alternative #2B - \$1,87,500
- Alternative #3 - \$929,250

### Recommended Motion:

Public Works Committee selects two preferred alternatives to receive additional survey and modeling to refine the anticipated construction cost.

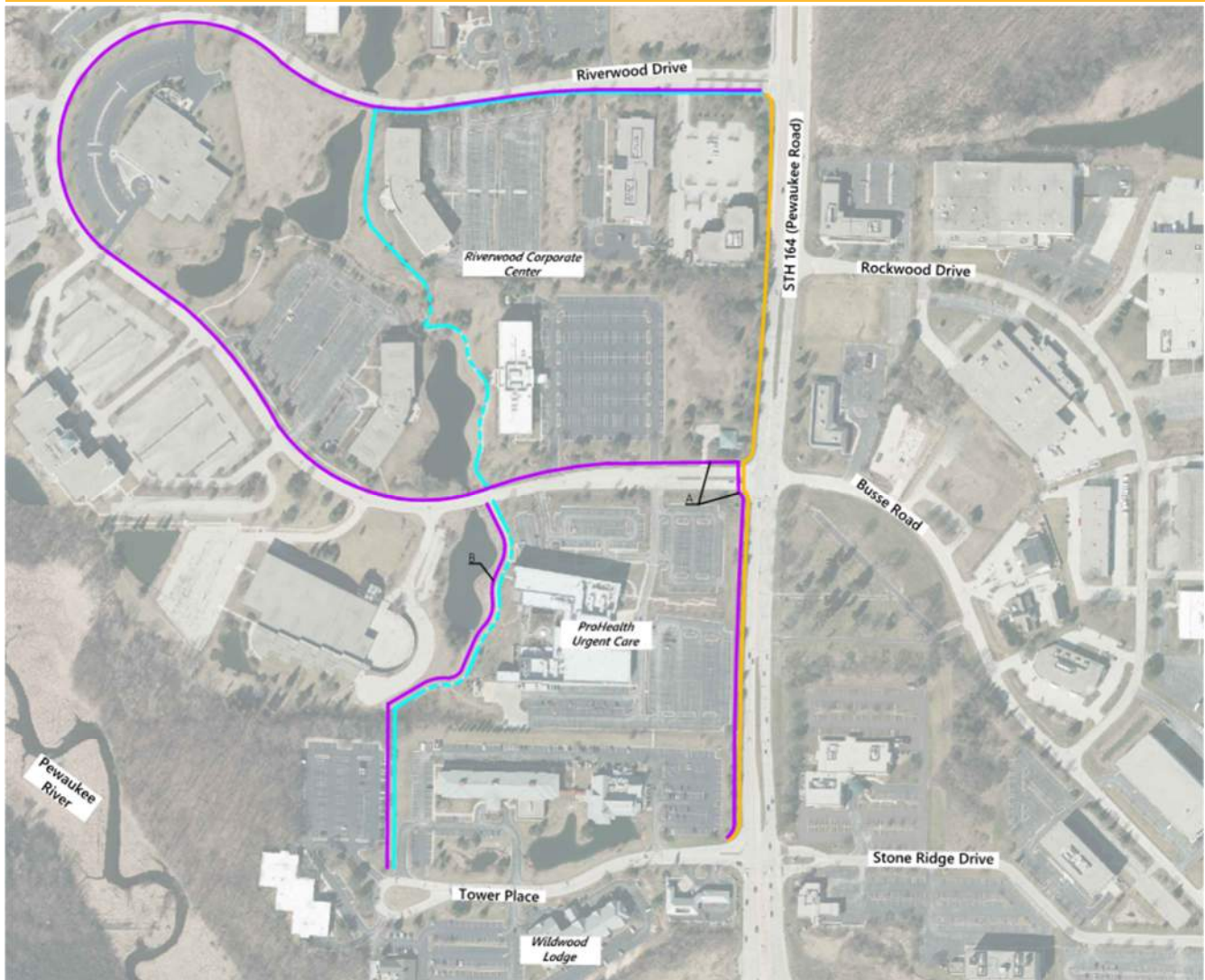
# MULTI-USE PATH FEASIBILITY STUDY

## STH 164/PEWAUKEE ROAD

City of Pewaukee, Waukesha County

### MULTI-USE PATH FEASIBILITY STUDY

/// July 2025 ///



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Preliminary Cost Estimates ..... F

## BACKGROUND & EXISTING CONDITIONS

The project is located in the City of Pewaukee along the west side of STH 164/Pewaukee Road and just north of the IH 94 corridor near the Riverwood Corporate Center, Waukesha County. An existing multi-use path runs south along Pewaukee Road and terminates at the north leg of Riverwood Drive. The city has proposed a future extension of the path. The purpose of the extension is to provide multi-modal access to the ProHealth healthcare campus south of S Riverwood Drive and to the various businesses and restaurants along Tower Place. The city would like three (3) alternatives developed with outlined challenges, costs, and overall constructability.

No existing pedestrian infrastructure is located along Pewaukee Road or Riverwood Drive. The north intersection at Riverwood Drive is stop controlled on Riverwood Drive only and the south intersection is signalized. There are existing interior private paths for pedestrians, however these are not ADA compliant, too narrow for bike path requirements, do not have curb ramp openings, and no crossings are marked along Riverwood Drive.

A field review was conducted on May 5th, 2025 to get a better understanding of current conditions, terrain, existing path connections, and potential challenges.

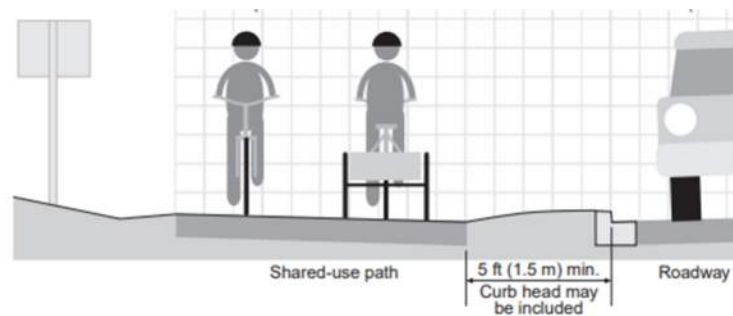


Project Location Map

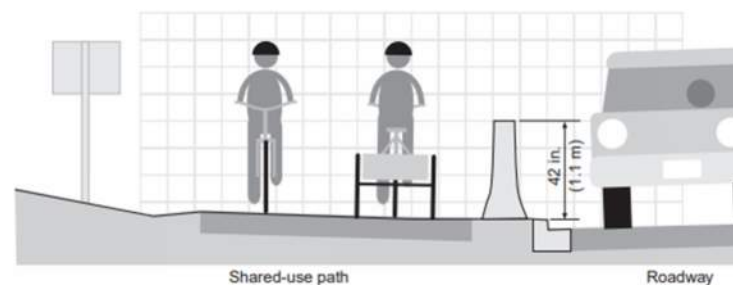
## BIKE PATH REQUIREMENTS

Per the Wisconsin Bicycle Facility Design Handbook (January 2004), preferred off street multi-use paths are 10-foot wide for proper passing and ease of use to all users. Shorter stretches of narrower 8-foot wide sections are allowed for locations that may have challenges such as limited right-of-way, structures, minimizing general impacts, or other site obstacles. Lower system demand or user type can warrant a narrower section as well.

Proper offsets from hazards and roadways are necessary for safety. Grass terraces between the road and path are typically 5-foot preferred width (allowable 3-foot minimum for short segments). Some instances allow for a narrower terrace or different type of offset barrier. Where constraints are identified, other safety measures can be used to protect users. Examples include but are not limited to railings, concrete barrier, raised medians or delineators. Keep in mind that some of these options can be mixed and matched throughout a project corridor, but all minimum requirements at a single location should not be used. This will maintain a certain level of safety, user comfortability, and overall system performance.



*Typical grass terrace width- Wisconsin Bicycle Facility Design Handbook (January 2004) p. 4-5*



*Concrete barrier option - Wisconsin Bicycle Facility Design Handbook (January 2004) p. 4-6*

Clearance should also be maintained to horizontal and vertical obstructions. No vertical issues are present along this corridor except for trees and branches. Horizontally, steep slopes and grading will need to be evaluated. Locations within the park near the ponds have significant slopes down toward the water. Locations along Pewaukee Road, Tower Place, and private path locations near wooded areas may require earth cuts and grading into the existing hills and berms. Based on the elevation difference, these can require larger earthwork quantities and temporary easements to grade. Landscaping walls could be used in some locations to minimize those impacts, however cost typically increases with these types of structures.

## FUTURE NEEDS

---

### Path Connections

According to the City of Pewaukee Comprehensive Plan for the year 2035, there is a proposed off-street bicycle way that would connect near the west side of the Riverwood Drive loop. The path is currently assumed to run along the Pewaukee River natural corridor and could potentially connect numerous businesses, residential developments and the Pewaukee Road corridor. This river trail may not be built in the immediate future; prioritizing that connection to this project may not be of the utmost importance at this time. However, an alternative for this project that extends farther west, making that future connection easier, is something to consider. See Attachment A for the comprehensive plan map.

### Change in Business Type

While many of the businesses within the Riverwood Corporate Center are currently vacant or for lease, future businesses would benefit from additional bike and pedestrian access through the park. These locations could be developed as more service-type businesses that would generate more foot traffic rather than the typical office buildings there now. Some of these more trafficked businesses could be food and beverage, daycare, scheduled classes (fitness, sports, arts, etc), additional healthcare or other appointment-based services. Many office buildings have more recently been converted to apartments due to lower demand for in-office workspaces. A multi-use area would have different demands and a path could be advantageous for both the businesses and users in the area.



*Business Park entrance at south  
Riverwood Drive intersection*

### Transit

According to Waukesha Metro, the closest transit line services Grandview Boulevard; a line parallel to Pewaukee Road approximately 1.3 miles west. If expansion of the bus system is anticipated in the future, a path could also aid in connectivity through the neighborhood, to these businesses, and to desirable transit lines. All demographics use the healthcare facility along this corridor, having another option to access the facility that is not by personal vehicle would likely be helpful to some users.

## CHALLENGES

Every project comes with challenges, especially in a built world. Proximity to the existing businesses, roadways, natural areas, main thoroughfare, freeway just to the south, and large traffic generators can complicate any project. But those can be mitigated or avoided with proper planning. Attachment B outlines some of the items noted during review.

### Existing Structures

As will be discussed further in Alternative 2, there are two large culvert crossings along the Riverwood Drive loop. The narrow terrace width does not allow for back-of-curb construction as the geometry currently sits. This can pose difficulties extending the path farther west within the park. Costs associated with altering the existing structure, building a new one, or modifying the roadway geometry may not be cost effective compared to other alternatives.



*Structure along south Riverwood Drive*

### Removals and Relocations



*Existing gas, water, fiber, and signals at the Riverwood Drive south and Pewaukee Road*

Utilities are located throughout the park and along Pewaukee Road. Typically utilities in the right of way must be relocated at the owner's expense when a project such as this is proposed. Relocation requirements along Pewaukee Road (STH 164) would need to be verified as this is state right of way and may also be compensable for a city project. Any utilities along the private paths would likely be compensable, requiring additional cost from the city for owner's to adjust or relocate. Since utilities are more often located within public right of way, there may potentially be fewer conflicts along the private paths. During the field review, many existing utilities were being marked already, however additional information will be available in the next phase of the project when mapping has been completed. This will determine more precise conflict points, public versus private parcel impacts, and any utility easements that may existing within the path limits.

There is evidence of previous lighting within the park. Numerous concrete light bases were noted during field review along the interior terrace of Riverwood Drive. Some more noticeable than others during review, sixteen (16) were identified at that time. Depending on the path alternatives selected for further investigation, it is assumed those would be removed when adjacent to the new path.

Trees are prevalent along all alternative routes. Typically preservation of mature trees is important for projects like these. They are located heavily along the back of curb along Riverwood Drive, many of which conflicting with a possible path or grading in that area. Similarly there are many trees along Pewaukee Road that may not be as close to the road but would be within the grading limits. A large berm with landscaping is located along the



*Abandoned light pole base*

corridor. With the addition of the path, significant cut and grading along that berm and tree line would be likely. The option along the private path and south to Tower Place would require clearing through the wooded area separating the Riverwood Drive and Tower Place properties. In order to stay under maximum grade thresholds on the path, additional cut through the hill and a larger project footprint would be needed.

### Archeological & Historical Boundaries

The Pilgrim's Rest Cemetery is located on the east side of Pewaukee Road. While the current alternatives do not cross the road, the archeological/historical database was consulted to determine preliminary boundaries, which do not extend past the median per the mapping. For the purposes of this memo, it is not assumed the alternatives will connect to the east side of Pewaukee Road and therefore the cemetery will not be affected. While investigating this parcel, another was determined to have significance. Another significant parcel was identified, approximately bounded by Tower Place, Pewaukee Road, River Lane and the Pewaukee River. It is noted the site consisted of a turtle effigy prior to 1850. While the site has been developed and cultural researchers conducted field reviews of the parcel in 2023 with no identification of cultural materials, burial features, or human remains, the site does require consultation with the Wisconsin Historical Society. Depending on the connection point of the path alternatives and possible extension along Tower Place, further investigation will be needed. See Attachment E for additional information.

### Right of Way and Grading

As noted previously, there is hilly terrain throughout the project area. Fitting proper terraces, path and tie-in slopes can be challenging in some areas. Depending on earthwork and the amount of cut and fill, excess can be removed or used in other areas of the project. The plan sheets in Attachment D show a very preliminary grading limit. Additional detailed modeling would be required to more accurately determine those quantities. And as grading widens, possible retaining wall structures could be implemented, or wider temporary property acquisitions can be used to complete final grading. If private owners are not in agreement with the project for use of their land, additional retaining wall length could be utilized to minimize those slopes and overall impacts. Walls would decrease grading limits, avoid some trees impacts, and reduce right of way needs, however associated cost may increase.



*Wooded area separating existing path and private property*

Secondly, utilizing the private path network that already exists is helpful in establishing a route and will be familiar to existing users. The path will need to be widened to meet standards, pushing the grading limits out. The terrain can vary greatly depending on the existing path location. These wind between ponds, buildings, near animal habitat, and will potentially clear a way through a wooded section of property. Many drainage structures flow under the paths and into the ponds as well. Widening the paths and grading to standard slopes will require moving soil and possibly impacting the existing pipes. This will need to be investigated further with survey and any as-built data.

The city will require agreement from all private parcel owners before the project can move forward, whether the path is fully on private property or within public right of way and only requiring temporary easements. Eminent domain is not applicable to multi-use paths. Any alternatives fully within private parcels will need permanent easement for maintenance of the new paths.



*One of many existing culvert outfalls at ponds*

## ALTERNATIVE ROUTES

This report outlines three distinct path options through the project limits. While these are currently shown, others could be mixed and matched to create a different connectivity to various businesses and resources. Initial alternative selection can be for current needs with sections of other alternatives constructed later when the river trail is completed, new traffic generators enter the park, or user demand increases. Attachment C shows the currently proposed routes.

### Alternative 1 – Pewaukee Road

The existing west side trail terminates on Pewaukee Road at the north Riverwood Drive intersection. This alternative would extend the trail south, continuing along the west side of Pewaukee Road. This is the shortest option, impacts fewer properties, and is a logical continuation of the current path. However it may be less comfortable for users along the high trafficked 4-lane roadway, does not have access to as many businesses within the office park, and will require grading at the existing berms or landscaping wall options. The city also noted that the berm was a requirement when building the ProHealth campus to separate the parking lots from Pewaukee Road. Maintaining this separation would be required.

As noted, Pewaukee Road is a high-volume road with no bike or pedestrian facilities within the project limits. The available space behind the curb is limited due to the berm just outside the public right of way. This narrows further with the development of right turns lanes for the side street. Large guide signs are located behind the curb for vehicular traffic. These would require relocation to the median or some type of overhead sign, also requiring coordination with the Wisconsin Department of Transportation (WisDOT). These conditions can make the environment harsher for those walking and cycling. Standard offsets, or more space where available, or some type of physical barrier can help with comfortability while using the facility.



Connections into the ProHealth facility are also challenging with three options to be investigated further: access from Pewaukee Road to the existing garden area, a connection along Riverwood Drive to the northwest parking lot, and a path extension to the private path and existing switchback ramp to the west. The grade separation and berm along Pewaukee Road create ADA concerns, the amount of traffic into the driveways along Riverwood Drive could

be difficult for path users to navigate, and extending the path along Riverwood Drive to the back private path and existing switchback ramp will increase length while utilizing an existing feature. The sidewalk through the ProHealth garden area is 6 feet wide, requiring bicycle riders to walk or add a bicycle rack area near the new connection. Steep slopes will require a new design and construction for a switchback ramp with retaining walls and pedestrian railing. Restriping a path through the parking lot connection off Riverwood Drive would eliminate a few parking spaces but safely move pedestrians through the lot to connect existing sidewalks, crosswalks, and building entrances. Utilizing some of this existing infrastructure would be cost effective and could minimize impacts in another location. Also terminating the path at the Tower Place intersection may not be the final destination for users. A terminus at the first driveway to Thunder Bay Grille may be more advantageous.



*Existing sidewalk and garden at ProHealth (looking west from Pewaukee Road berm)*



*Existing Ramp at west side of ProHealth*



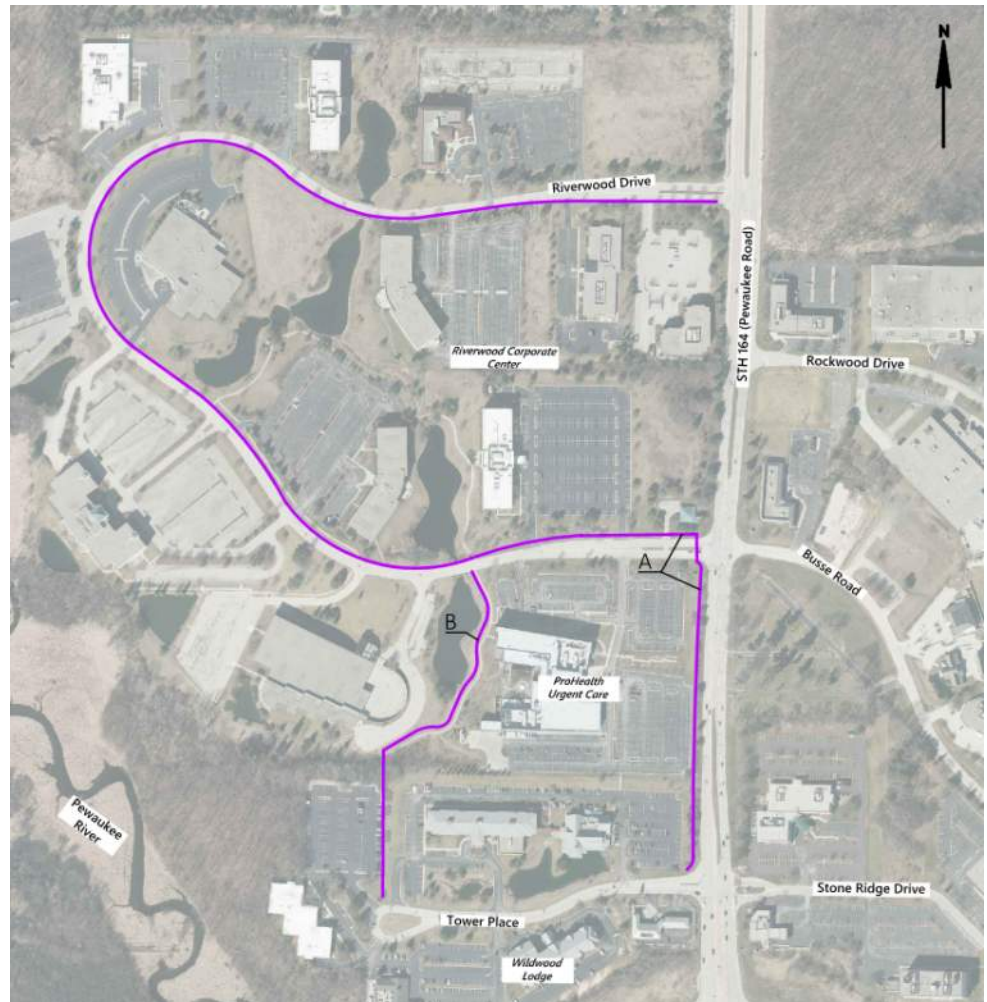
*Possible connection to Riverwood Drive*

While this option does connect to the two main destinations, overall connectivity within the office park is limited. Fewer adjacent properties may make coordination more swift, but users would then be required to use the street or walk in the grass along Riverwood Drive to make it to a destination within the park. This is also the furthest path option from the future river trail to the west.

## Alternative 2 – Riverwood Drive Loop

With this alternative, the path would continue west from the existing path terminus and loop around Riverwood Drive. From here two options are available: A) continue on Riverwood Drive to the Pewaukee Road/Busse Road intersection and then continue south along the west side of Pewaukee Road, similar to Alternative 1, or B) instead use the private path alignment between the south leg of Riverwood Drive and Tower Place.

Option 2A would stay along existing public right of way and connect back to Pewaukee Road, however this option is longer and would need to extend west on Tower Place as discussed in Alternative 1. Coordination with WisDOT would also be required compared to 2B. Option 2B is shorter, potentially more comfortable for users to avoid the high volume roadway, but would require access to private property.



In general, the option along Riverwood Drive would minimize private property coordination compared to Alternative 3 that will be discussed later. Temporary easements would likely be required with the majority of the path alignment along public right of way. The interior of Riverwood Drive is flatter terrain along the back of curb compared to the outer loop. The outside loop has larger slopes to parking lots and berms throughout the park. There is also a section of existing path running along Riverwood Drive that could be improved for a portion of the corridor.

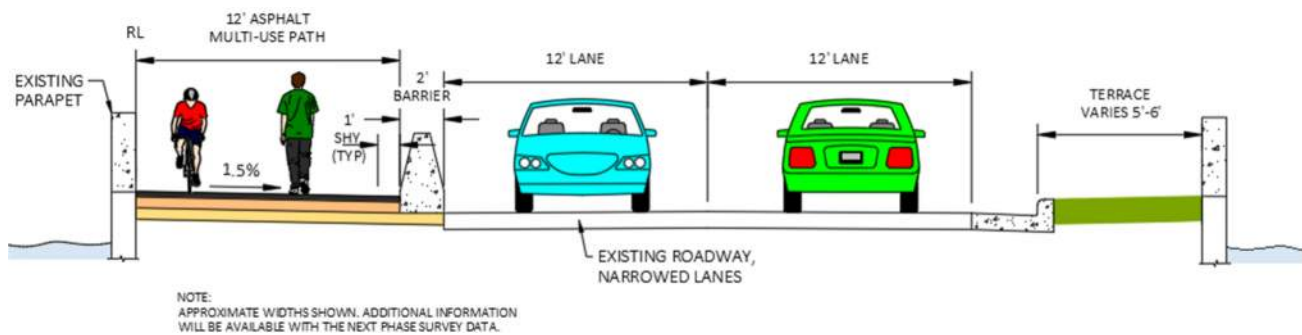
It was noted during the field review that the interior has existing light bases in the terrace; poles had been previously removed. Those bases may conflict with the new path location and are recommended to be removed during construction. Proposed lighting was not noted for investigation in this phase of the project. Most paths are assumed to be closed from dusk until dawn, similar to parks or other recreational facilities, and therefore do not require lighting. New lighting could be discussed in a future phase of the project if desired.

With this alternative extending farther west into the park, the two existing culvert structures and retaining walls over the ponds pose a challenge. Limited terrace width between back of curb and parapets is less than the 10-foot needed for the path plus either a narrow terrace or a vertical separation for safety. Potential options to navigate these two conflict points are:

- Lengthen the culvert and replace the wall on one side of Riverwood Drive at each culvert
  - Costly, but would keep the path along the roadway and maintain driving lanes
- Install a prefabricated pedestrian bridge over the pond and parallel to Riverwood Drive
  - Costly, maintains existing structures, and may bring charm to the area
- Remove curb on one side, narrow the roadway, and add barrier for separation
  - Would provide additional space for the path and avoid structure costs
  - Will change the roadway section and require additional markings and signage.



*Existing structure, terrace, and parapet at roadway*



*Potential Roadway Section with Path*

The path over the structure has multiple considerations. The bike manual notes 5' preferred terrace separation between path and road or 3' minimum in constrained environments. If a terrace is not feasible, a barrier separation is required and assumed for these alternatives as existing width does not permit a terrace. Although this is a low speed and low volume roadway, barrier is still desirable to maintain safety for all users. The approaches, at back of path, will also need to be protected with railing to shield the slope down to the water and avoid collisions with the end of parapet.

While this option is the longest of the three, it would have better connection to the future river trail location. Challenges are present to get farther west, however those would likely be similar in the future. Extending to the west side of the business park leaves a great setup for the final connection to the river and completing the vision for this area. It would also access more properties and businesses within the park and cross the existing path locations established on the interior and to the south side of the park.

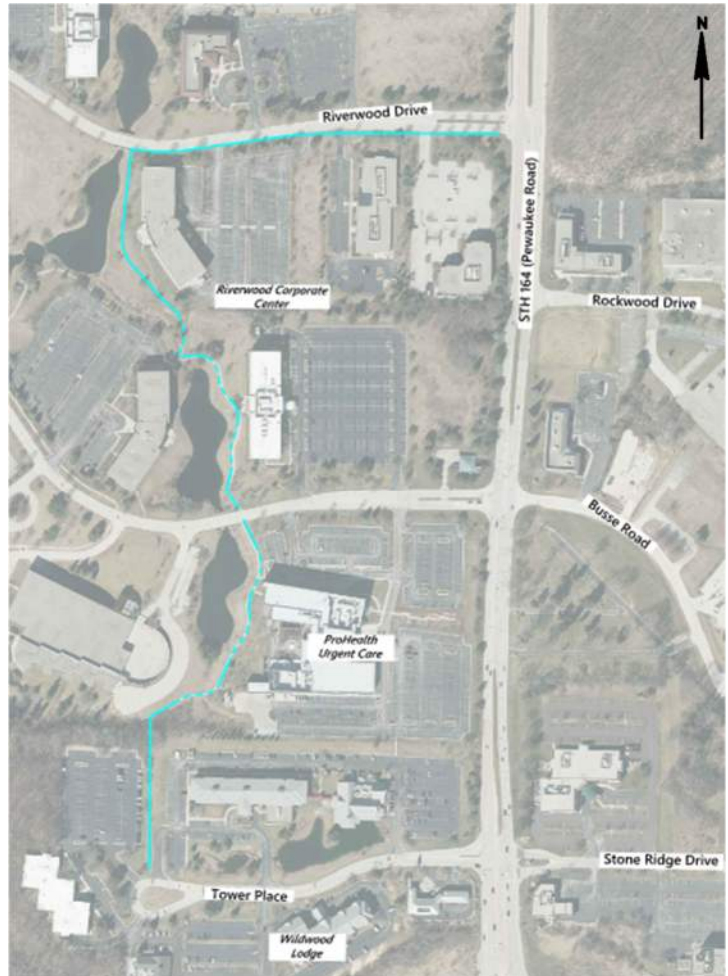
### Alternative 3 – Private Path Extensions

This alternative will utilize Riverwood Drive for approximately 1,100 feet and then turn south before the structure to connect to the existing path system through the park. The existing paths are roughly 6-foot wide asphalt and meander between the buildings. Alternative 3 would connect the north section of Riverwood Drive, construct a small section of new path, connect to existing paths in the interior, continue south and cross Riverwood Drive to connect to the path behind the hospital, and then cut through a wooded area to a new path to terminate at the Tower Place cul de sac. The network is quite large and does connect many of the properties, but not all. For a multi-use path, the route will need to be reconstructed to meet minimum width, ADA standards, and slopes.

And while these are established routes, the paths are located on private property. Coordination with owners will be essential to establish relationships, gather their feedback about the project, and agree to easements or right of way acquisition so the new paths can be built and maintained by the city.

The terrain varies along these existing paths. The wooded area will need to be cut and cleared, slopes evaluated, and environmental impacts identified. Drainage structures under the paths may be impacted during construction. Extending pipes, replacing, or updating endwalls may be necessary. This will need to be investigated further with survey and any as-built data.

This option does not go as far as Alternative 2 and therefore may not as easily connect to the future river trail. It does however create a more scenic and comfortable user experience, off the street and through nature, while sitting in the middle of the city.





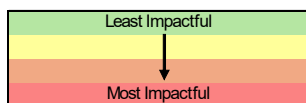
## MATRIX EVALUATION

### Key Requirements for Path Connections

The goal is to connect the existing path with the healthcare facility and businesses near Tower Place. In doing so, it's important to evaluate client, area, and future needs. These include length of alternatives, cost, property and utility impacts, connectivity, and comfortability. Many of these impacts are affected by length of the alternative and are relatively straightforward to quantify. For instance, cost and property impacts typically increase at a similar rate; as length increase the number of adjacent properties increases along with overall required materials.

Other considerations such as connectivity and comfortability do not have that same correlation and must be evaluated independently. Connecting to more properties and businesses can benefit the community. Future connections to the planned river trail as well as more connections to bike and pedestrian traffic generators create a more complex network of travel within the community. These connections can also help serve populations that do not have private vehicle transportation; helping get to work, healthcare facilities, restaurants, etc. For breakdowns of the cost estimates, refer to Attachment F.

Alt.	Description	Length (ft)	Cost	\$/LF	Adjacent Properties Impacted	Connectivity to Businesses	Utility Impacts	Coincides with Bike/ Ped Comp Plan	Safety	Comfortability	Tree Impacts	Constructability
1	Pewaukee Road	3100	\$734,000 (with ramp) \$647,000 (without ramp)	\$234 \$209	4	Limited Business Access	Existing ROW	Only connects to Pewaukee Road infrastructure	2 Road Crossings 0 Driveways	Along high speed 4 lane roadway	30	Intermediate access & more complex staging
2	Riverwood Drive Loop	5900	\$ 1,115,000	\$ 189	10	More businesses and more of overall park	Existing ROW	Easier connection to future river trail	2 Road Crossings 11 Driveways	Along low speed, low traffic roadway	60	Easy access & less complex staging
2B	Riverwood Drive & South Private Path	5300	\$ 1,190,000	\$ 225	10	More businesses and more of overall park	Existing ROW & Private	Easier connection to future river trail	2 Road Crossings 8 Driveways	Along low speed, low traffic roadway and partial private path	50	Intermediate access & less complex staging
3	Private Path Network	3700	\$ 930,000	\$ 251	9	Limited to east side of park	Private Property	Halfway point to river trail	2 Road Crossings 4 Driveways	Along private path with short local road connection	40	Access limitation, less complex staging, additional coordination with owners



*Note: Matrix based on high level estimates and preliminary model. Connections to ProHealth differ in Alt. 1, changing overall cost. Options to be investigated further in next phase*

## RECOMMENDATIONS

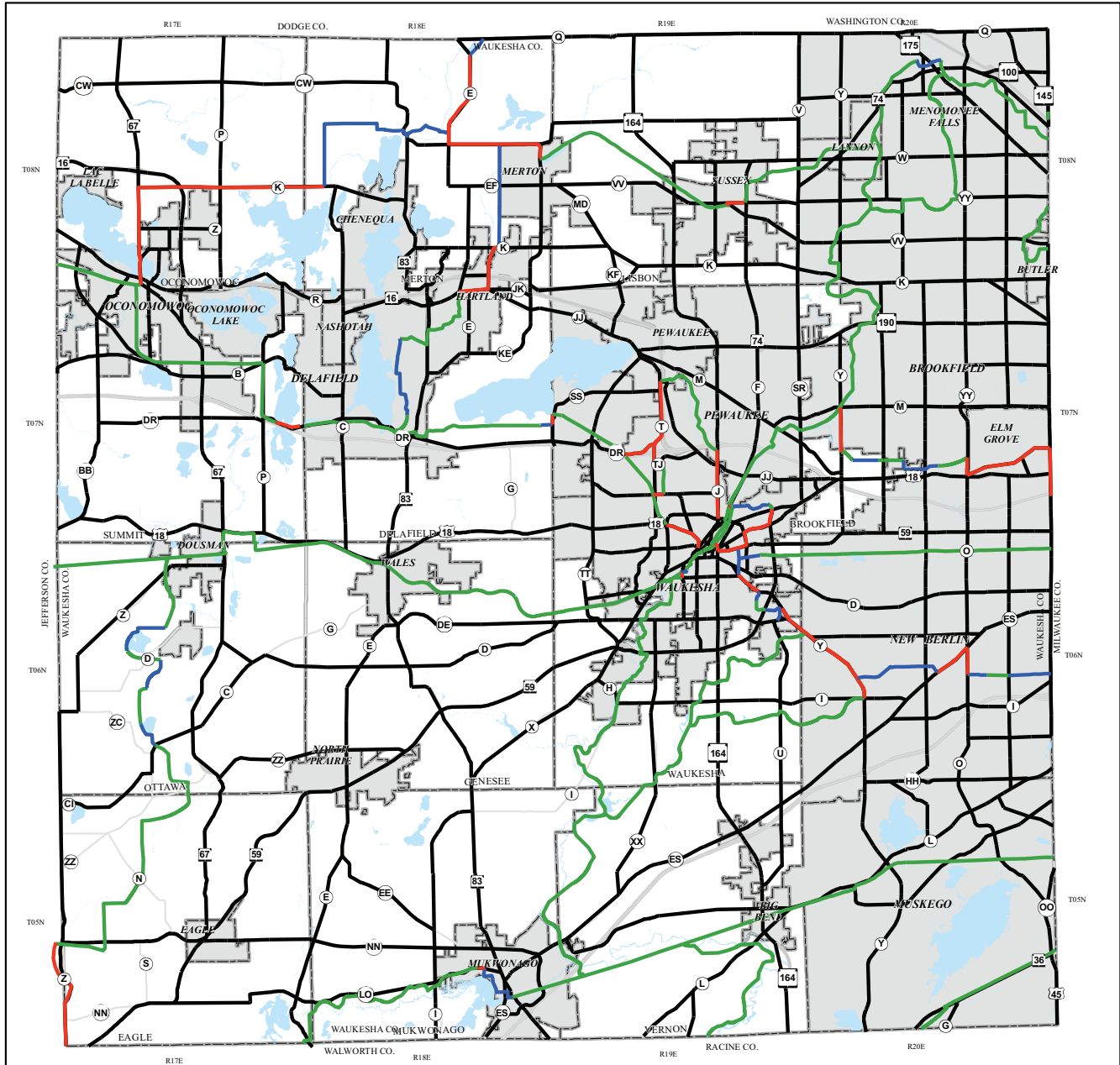
While all three options have their advantages, based on client feedback and the matrix determinations, it is advised to proceed with Alternatives 1 & 3 as they would most beneficially meet the goals of the project. Alternative 2 is the longest option, requires added expense for structure crossings, may not connect to the future trail if not built, and accesses more properties that are currently vacant. Alternative 1 & 3 will fulfill the connections needed for this phase and can be expanded at a later time when the demand is greater. The next phase will explore more detailed modeling and investigate access to ProHealth, ADA requirements, utilities, and overall impacts.

/// ATTACHMENT: A ///

# COMPREHENSIVE PLAN FUTURE BICYCLE FACILITIES

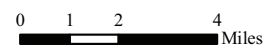
# Map VIII-1

## WAUKESHA COUNTY PROPOSED BICYCLE PLAN UNDER 2035 REGIONAL TRANSPORTATION SYSTEM PLAN



### Legend

- Off-street bicycle way in utility or natural resource corridor
- Non-arterial street connection to off-street bicycle way system
- Surface arterial street connection to off-street bicycle way system
- Town
- Major Water Body
- City or Village
- Surface arterial streets and highways where bicycle accommodations should be considered when facilities are resurfaced or reconstructed

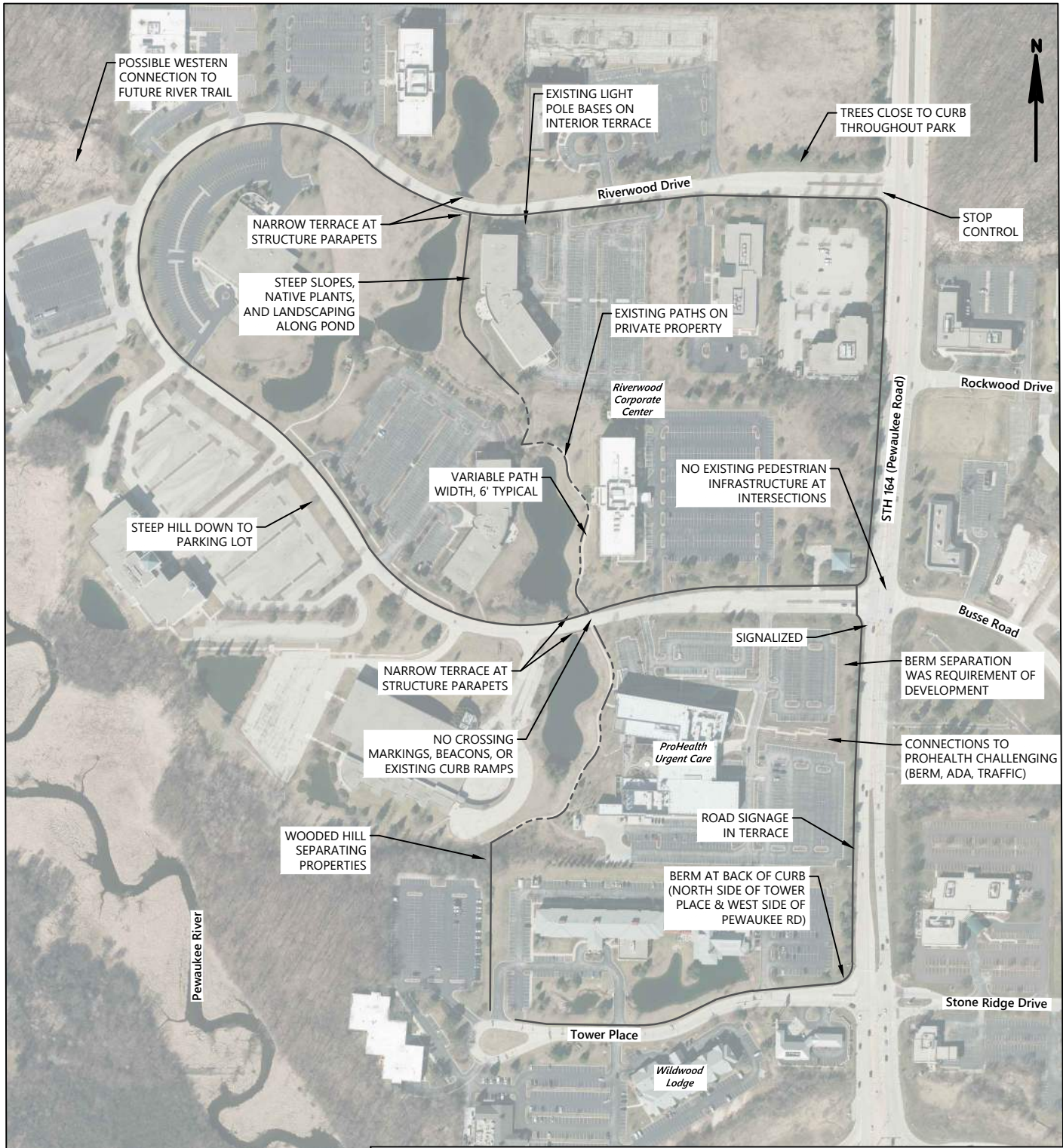


Source: SEWRPC

Civil Divisions as of 07/30/07  
Prepared by Waukesha Co.  
Dept. of Parks and Land Use

/// ATTACHMENT: B ///

**CHALLENGES MAP**



LEGEND	
	POSSIBLE NEW PATH CONNECTION
	UTILIZE EXISTING PATH

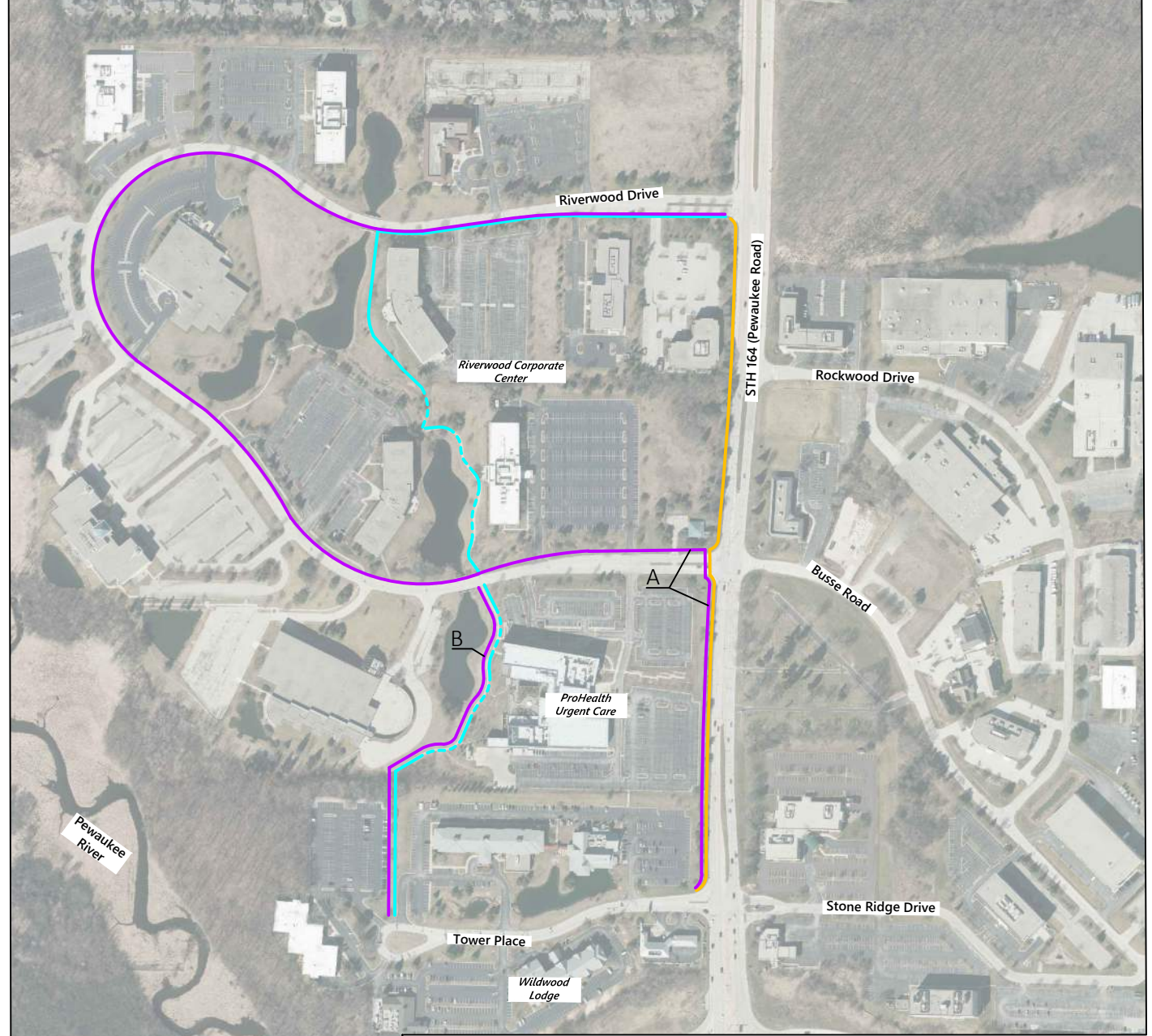
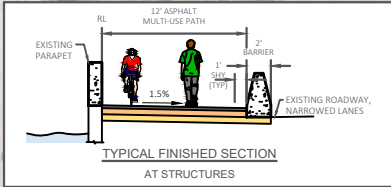
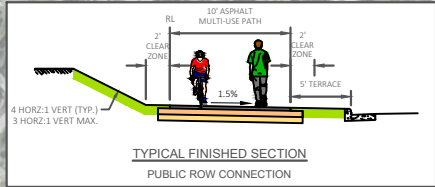
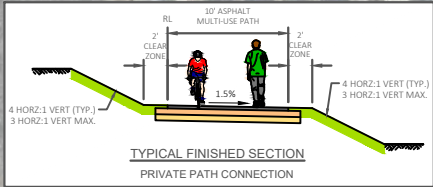
### Path Alternatives - Site Challenges

City of Pewaukee  
 STH 164 Multi-Use Path Feasibility Study  
 Waukesha County



/// ATTACHMENT: C ///

# ALTERNATIVES OVERVIEW MAP

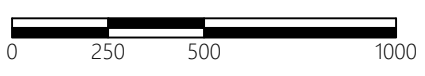


**LEGEND**

- NEW PATH CONNECTION
- - - - IMPROVE EXISTING PATH
- ALT 1 - PEWAUKEE ROAD
- ALT 2 - RIVERWOOD DRIVE
- ALT 3 - EXISTING PATH CONNECTIONS

## Path Alternatives Overview

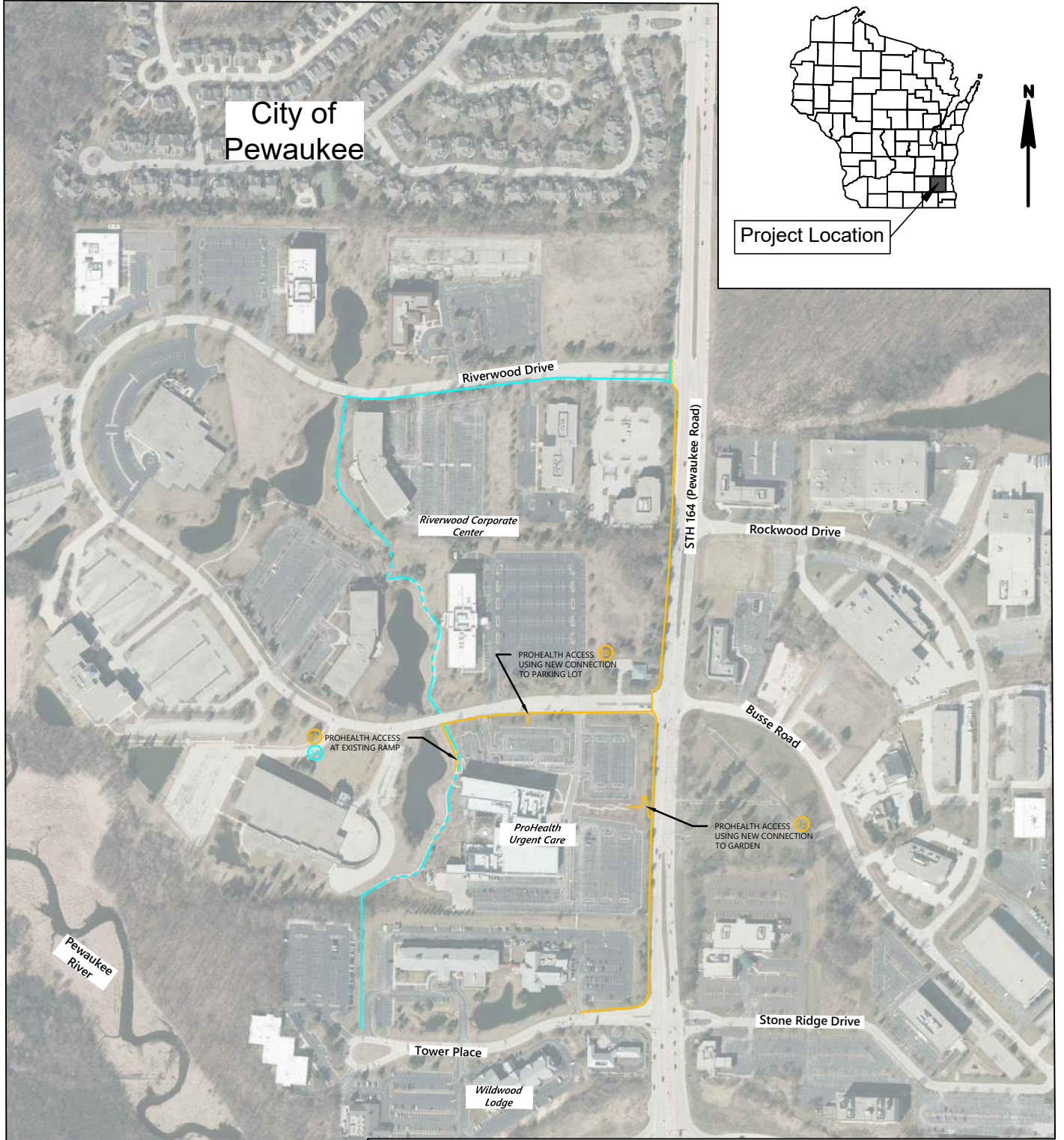
City of Pewaukee  
 STH 164 Multi-Use Path Feasibility Study  
 Waukesha County



City of Pewaukee



Project Location



**LEGEND**

- NEW PATH CONNECTION
- - - IMPROVE EXISTING PATH
- ALT 1 - PEWAUKEE ROAD
- - - ALT 3 - EXISTING PATH CONNECTIONS

### Preferred Alternatives

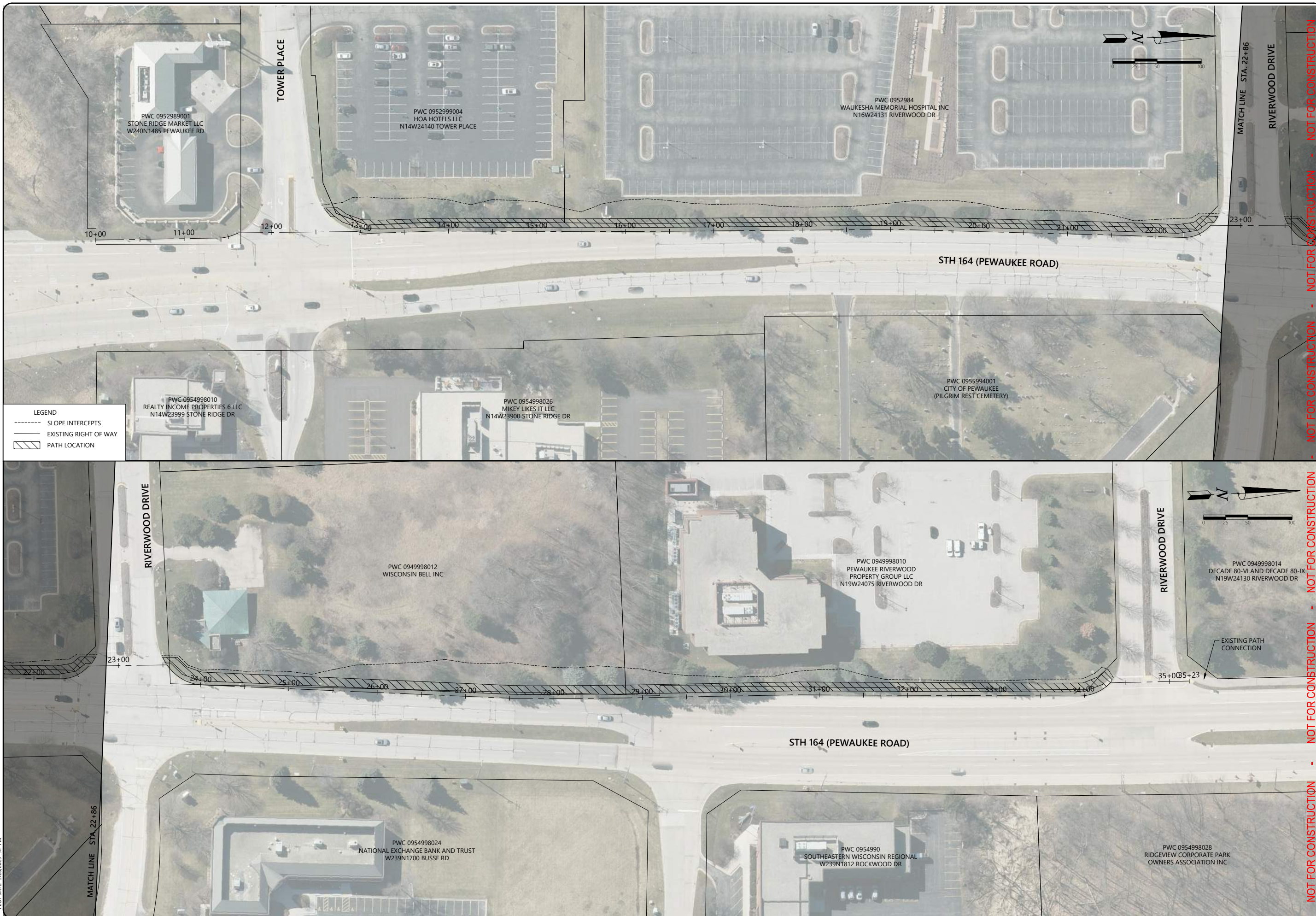
City of Pewaukee  
STH 164 Multi-Use Path Feasibility Study  
Waukesha County



/// ATTACHMENT: D ///

**ALTERNATIVE PLAN SHEETS**

PLOT DATE: 5/28/2025 1:47 PM



**LEGEND**

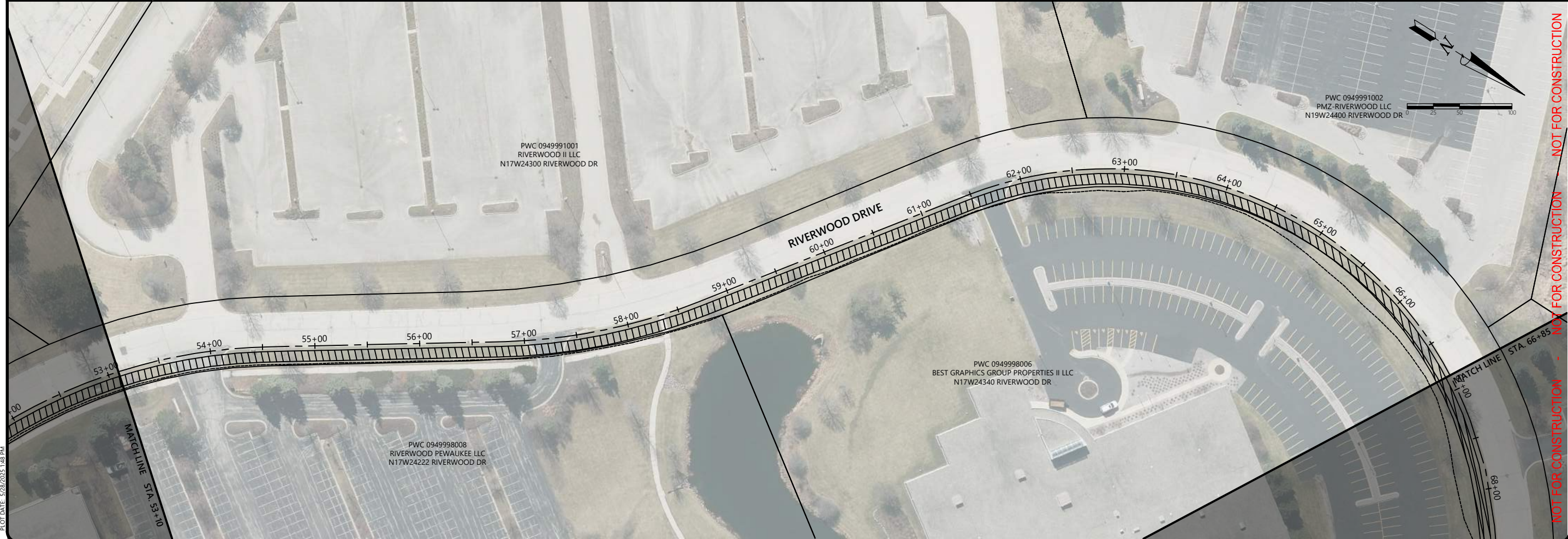
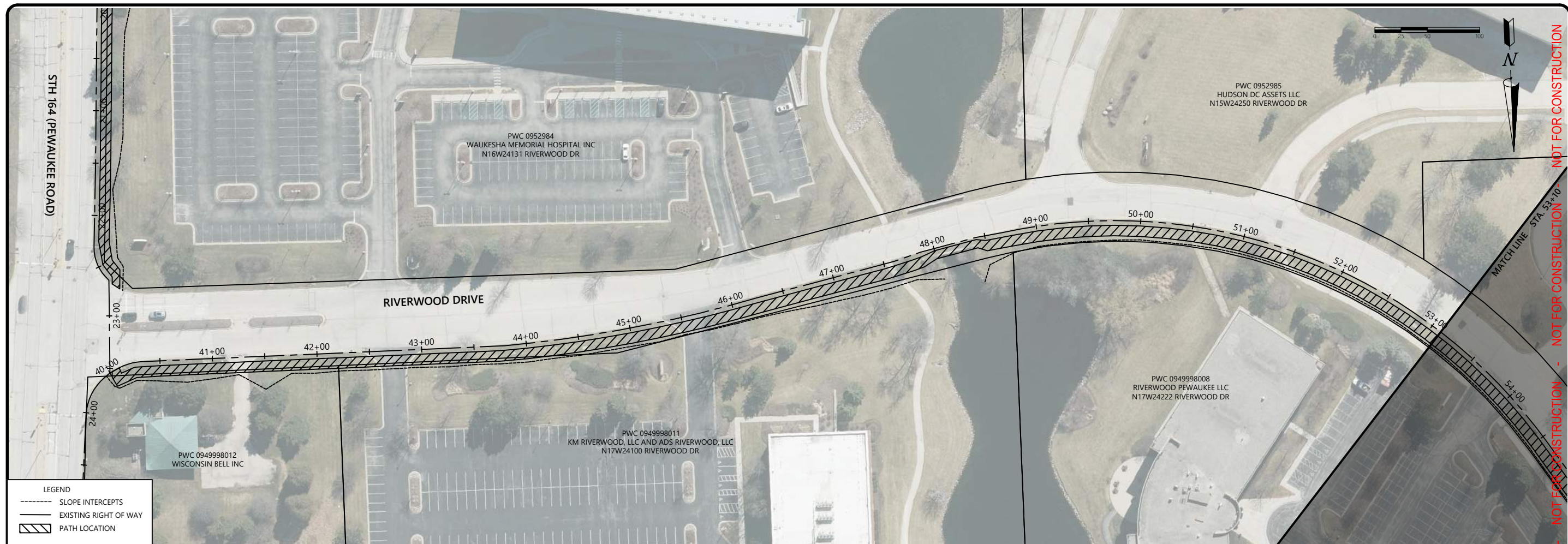
- SLOPE INTERCEPTS
- EXISTING RIGHT OF WAY
- ////// PATH LOCATION

**NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION - NOT FOR CONSTRUCTION**

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 <b>Batterman</b> engineers surveyors planners www.batterman.com	
2857 Barellis Drive Beloit, WI 53511 (608) 365-4464	1040 N Wisconsin St. Elkhorn, WI 53121 (262) 379-2250
ISSUANCE 2025-05-07	
CONCEPTS - - - -	
<b>ALTERNATIVE 1</b>	
STH 164/PEWAUKEE ROAD MULTI-USE PATH FEASIBILITY STUDY CITY OF PEWAUKEE WAUKESHA COUNTY, WISCONSIN ALTERNATIVE 1 PLAN/DWG	
DESIGNED BY: JL DRAWN BY: LC CHECKED BY: - APPROVED BY: - PROJECT NO: 35489	SHEET NO. <b>C4.01</b>





PLOT DATE: 5/28/2025 1:48 PM

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(608) 743-9350

2857 Barreille Drive  
Beloit, WI 53511  
(608) 365-4464

ISSUANCE

2025-05-07

CONCEPTS

**ALTERNATIVE 2**

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

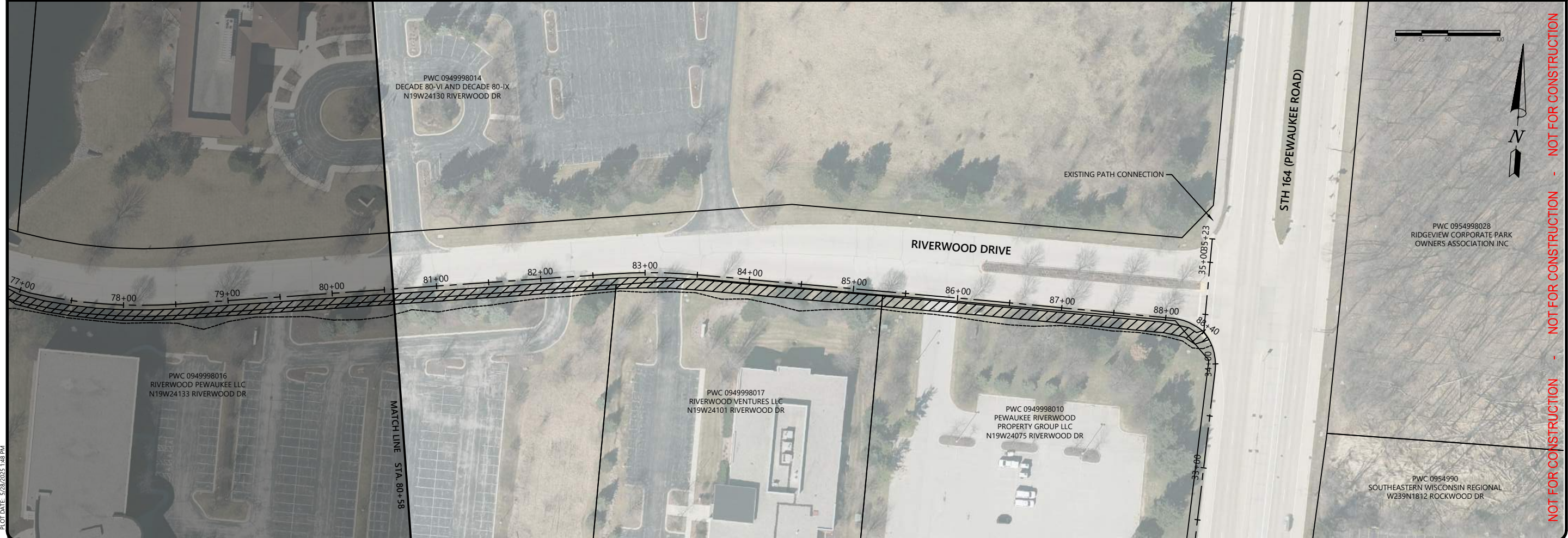
ALTERNATIVE 2 PLANNING

STH 164/PEWAUKEE ROAD  
MULTI-USE PATH FEASIBILITY STUDY  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN

DESIGNED BY:	JL
DRAWN BY:	LC
CHECKED BY:	
APPROVED BY:	
PROJECT NO.:	35489

SHEET NO.

**C4.02**



PLOT DATE: 5/28/2025 1:48 PM

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ISSUANCE	2025-05-07
CONCEPTS	-

ALTERNATIVE 2

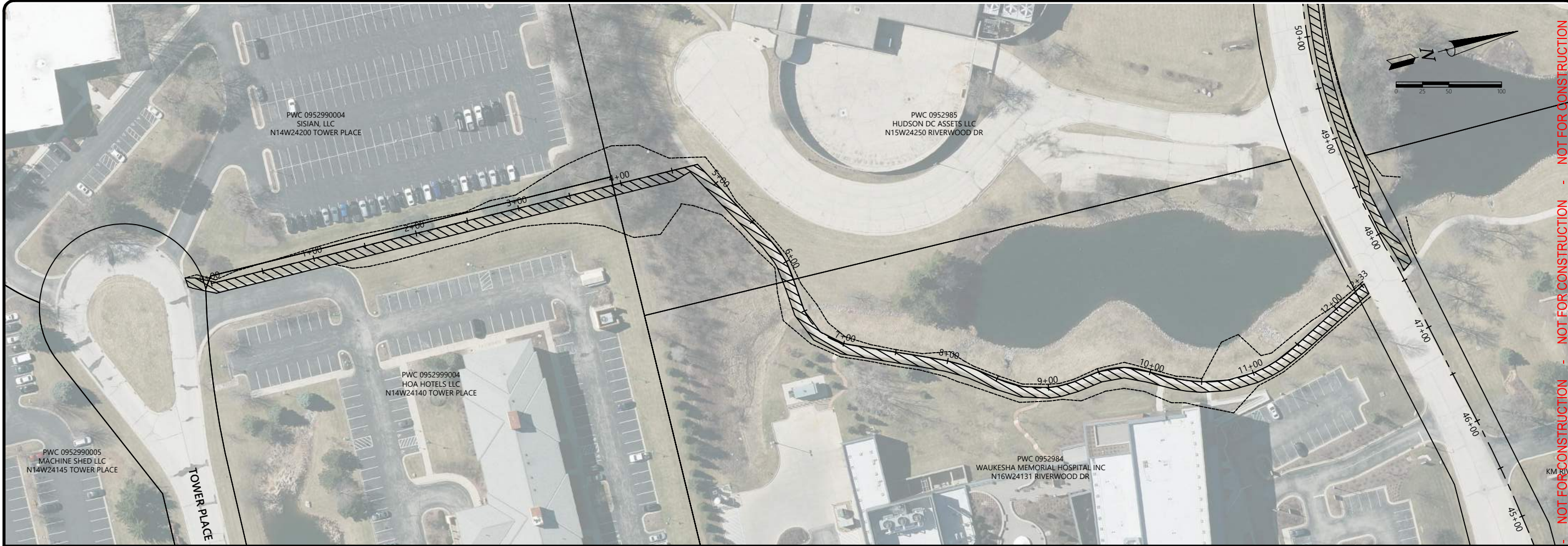
NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

STH 164/PEWAUKEE ROAD  
MULTI-USE PATH FEASIBILITY STUDY  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN  
ALTERNATIVE 2 PLANNING

DESIGNED BY:	JL
DRAWN BY:	LC
CHECKED BY:	-
APPROVED BY:	-
PROJECT NO.:	35489

SHEET NO.  
**C4.03**

PLOT DATE: 5/28/2025 1:49 PM



LEGEND

	SLOPE INTERCEPTS
	EXISTING RIGHT OF WAY
	PATH LOCATION

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DESIGNED BY:	JL
DRAWN BY:	LC
CHECKED BY:	-
APPROVED BY:	-
PROJECT NO.:	35489

STH 164/PEWAUKEE ROAD  
 MULTI-USE PATH FEASIBILITY STUDY  
 CITY OF PEWAUKEE  
 WAUKESHA COUNTY, WISCONSIN  
 ALTERNATIVE 2B PLAN/DWG

ALTERNATIVE 2B

ISSUANCE	2025-05-07
CONCEPTS	-
	-
	-
	-

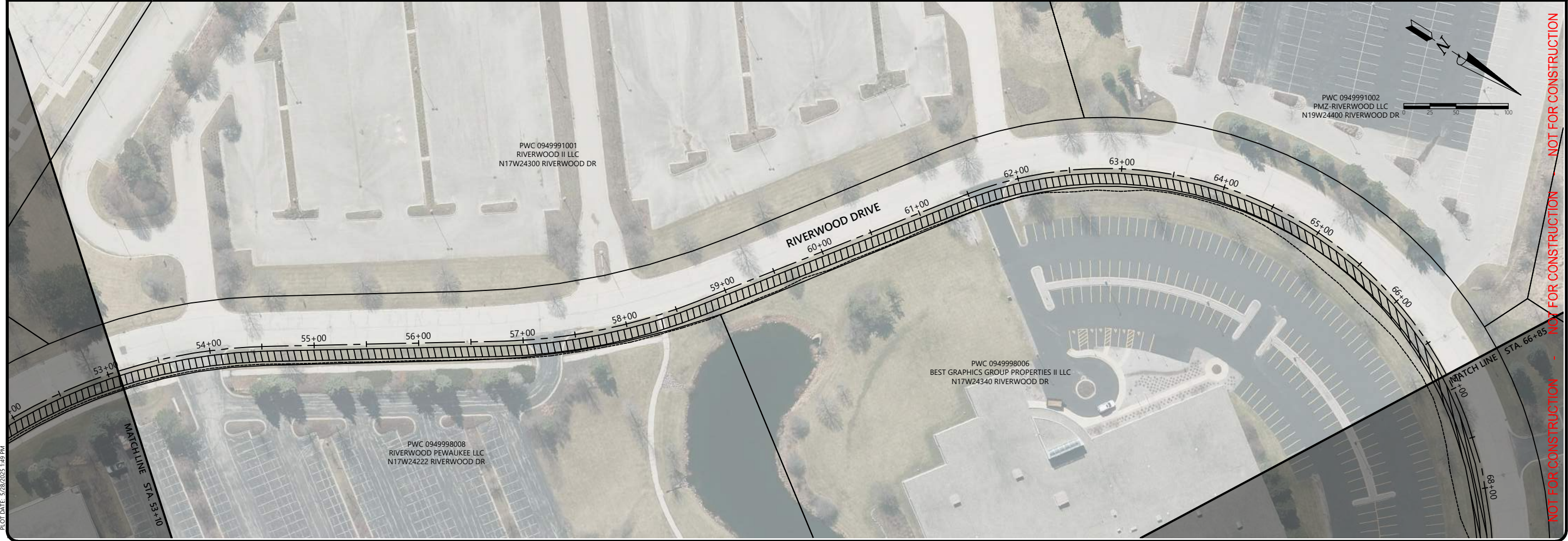
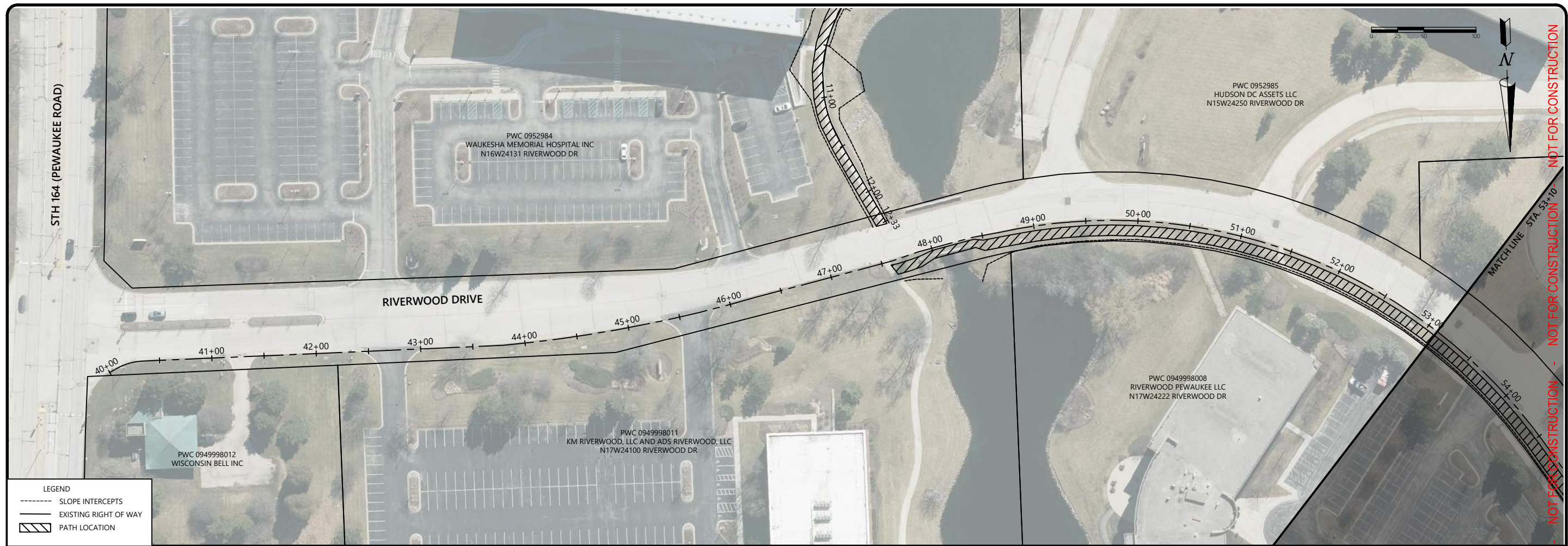
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SHEET NO.  
**C4.01**



PLOT DATE: 5/28/2025 1:49 PM

**LEGEND**

- SLOPE INTERCEPTS
- EXISTING RIGHT OF WAY
- ▨ PATH LOCATION

ISSUANCE

2025-05-07

CONCEPTS

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DESIGNED BY: JL

DRAWN BY: LC

CHECKED BY:

APPROVED BY:

PROJECT NO: 35489

ALTERNATIVE 2B

STH 164/PEWAUKEE ROAD  
MULTI-USE PATH FEASIBILITY STUDY  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN

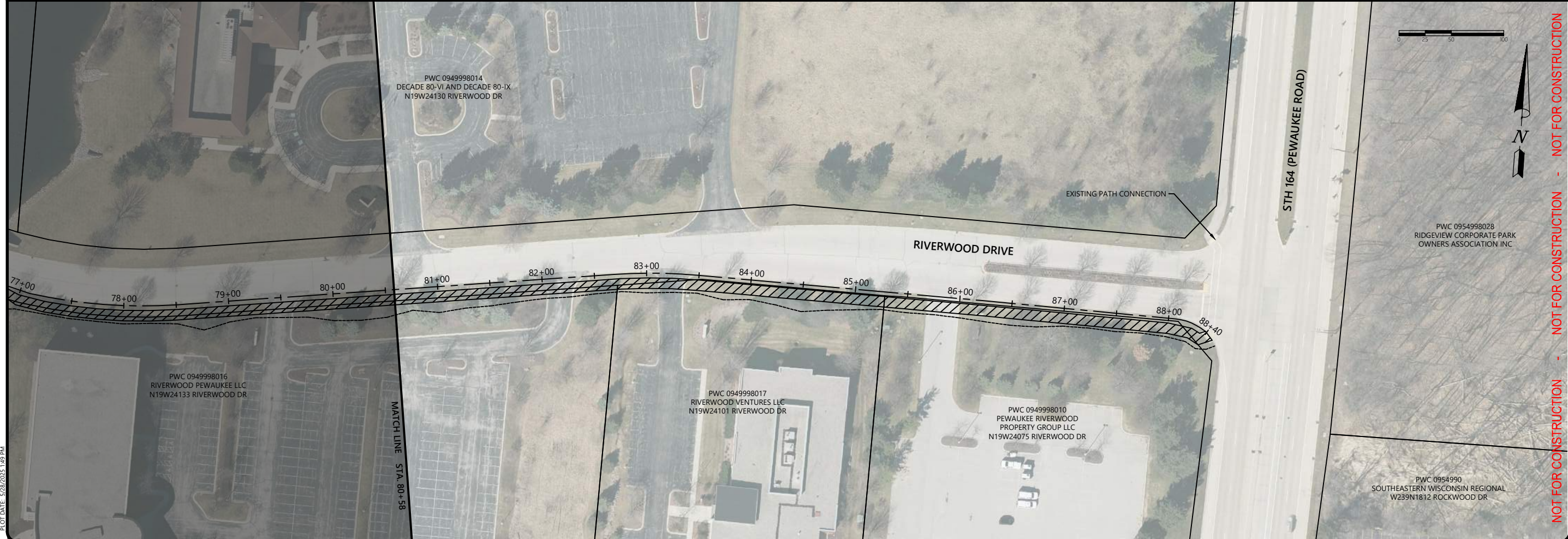
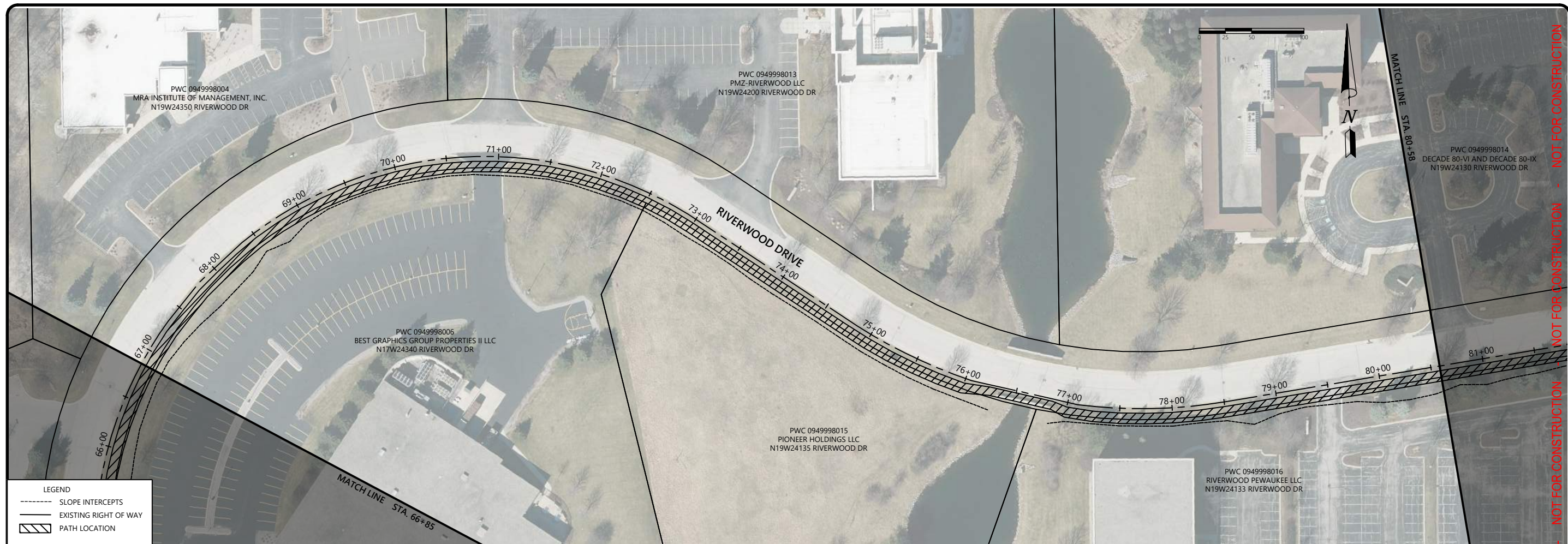
ALTERNATIVE 2B PLAN/DWG

SHEET NO.

**C4.02**

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

Page 90 of 114



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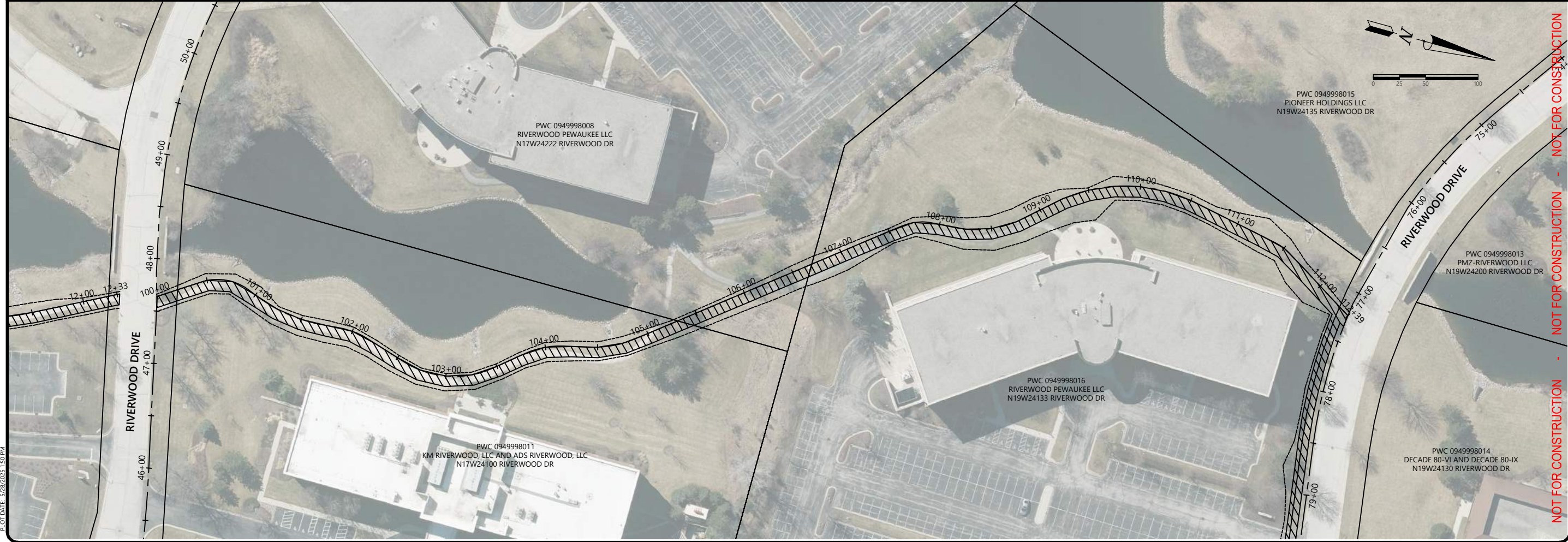
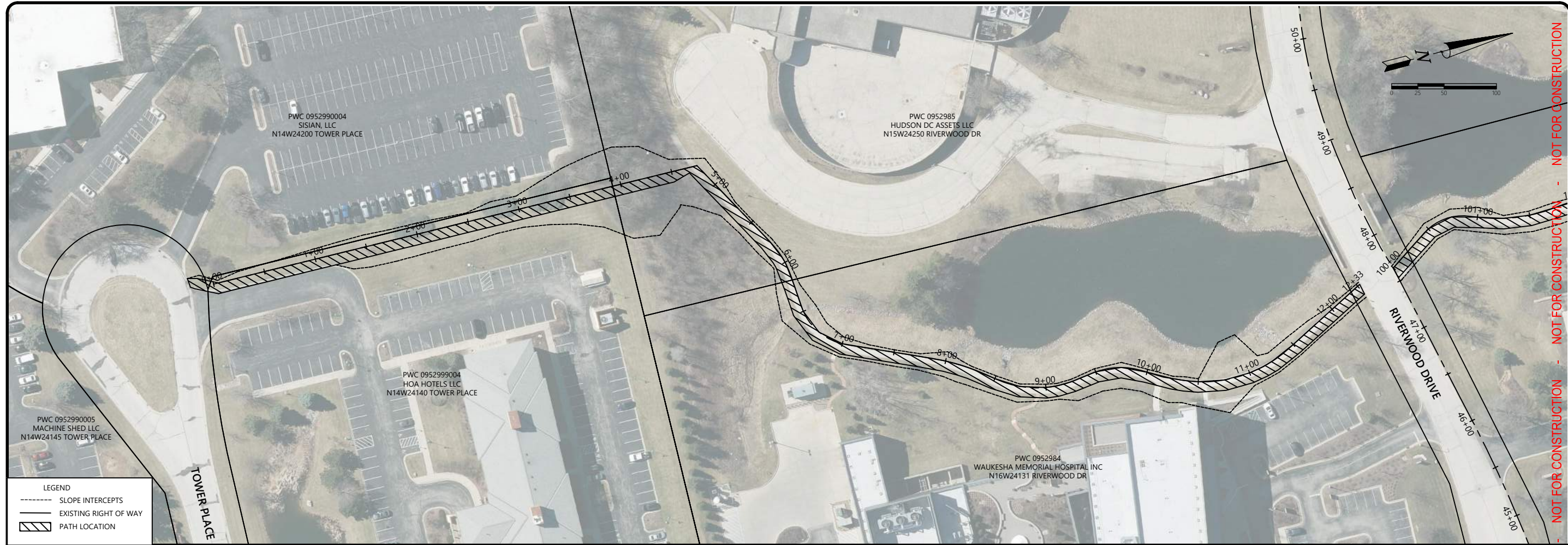
ISSUANCE	2025-05-07
CONCEPTS	-

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

ALTERNATIVE 2B  
STH 164/PEWAUKEE ROAD  
MULTI-USE PATH FEASIBILITY STUDY  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN  
ALTERNATIVE 2B PLAN/DWG

DESIGNED BY:	JL
DRAWN BY:	LC
CHECKED BY:	-
APPROVED BY:	-
PROJECT NO.:	35489

SHEET NO.  
**C4.03**



PLOT DATE: 5/28/2025 1:50 PM

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(262) 379-2250

ISSUANCE

CONCEPTS	2025-05-07

**ALTERNATIVE 3**

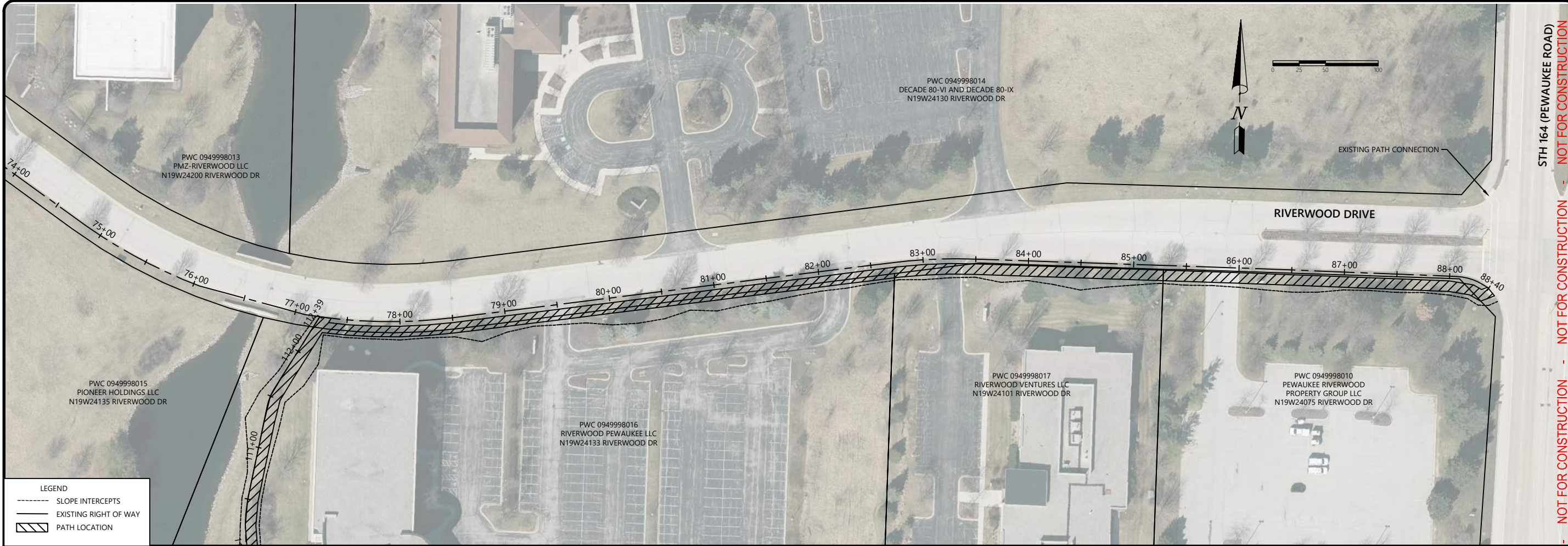
STH 164/PEWAUKEE ROAD  
MULTI-USE PATH FEASIBILITY STUDY  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN

DESIGNED BY:	JL
DRAWN BY:	LC
CHECKED BY:	
APPROVED BY:	
PROJECT NO.:	35489

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

SHEET NO.  
**C4.04**

PLOT DATE: 5/28/2025 1:50 PM

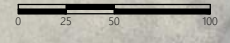


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**LEGEND**

- SLOPE INTERCEPTS
- EXISTING RIGHT OF WAY
- PATH LOCATION



EXISTING PATH CONNECTION

RIVERWOOD DRIVE

PWC 0949998014  
DECADE 80-VI AND DECADE 80-IX  
N19W24130 RIVERWOOD DR

PWC 0949998013  
PMZ-RIVERWOOD LLC  
N19W24200 RIVERWOOD DR

PWC 0949998015  
PIONEER HOLDINGS LLC  
N19W24135 RIVERWOOD DR

PWC 0949998016  
RIVERWOOD PEWAUKEE LLC  
N19W24133 RIVERWOOD DR

PWC 0949998017  
RIVERWOOD VENTURES LLC  
N19W24101 RIVERWOOD DR

PWC 0949998010  
PEWAUKEE RIVERWOOD  
PROPERTY GROUP LLC  
N19W24075 RIVERWOOD DR

DESIGNED BY:	JL
DRAWN BY:	LC
CHECKED BY:	-
APPROVED BY:	-
PROJECT NO.:	35489

SHEET NO.  
**C4.05**

STH 164/PEWAUKEE ROAD  
MULTI-USE PATH FEASIBILITY STUDY  
CITY OF PEWAUKEE  
WAUKESHA COUNTY, WISCONSIN  
ALTERNATIVE 3 PLANNING

ALTERNATIVE 3

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

ISSUANCE	2025-05-07
CONCEPTS	-
	-
	-
	-
	-

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Elkhorn, WI 53121  
(262) 379-2250

/// ATTACHMENT: E ///

**CULTURAL RESOURCE BOUNDARIES**

<u>Primary Info</u>	
State Site #	
Name	Pilgrim's Rest Cemetery
Other Name	
Field #	
ASI #	17684

<u>Location Information</u>																	
County	Waukesha																
Municipality	Pewaukee																
Civil Town																	
Location Description	This cemetery is located at the southeast corner of CTH "F" and Busse Road.																
PLSS	<table border="1"> <thead> <tr> <th>Township</th> <th>Range</th> <th>Direction</th> <th>Section</th> <th>QSection</th> <th>Grid Alignment</th> <th>French Lot</th> <th>Gov. Lot</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>19</td> <td>E</td> <td>23</td> <td>NW, NW, SW</td> <td>SW CORNER</td> <td></td> <td></td> </tr> </tbody> </table>	Township	Range	Direction	Section	QSection	Grid Alignment	French Lot	Gov. Lot	7	19	E	23	NW, NW, SW	SW CORNER		
Township	Range	Direction	Section	QSection	Grid Alignment	French Lot	Gov. Lot										
7	19	E	23	NW, NW, SW	SW CORNER												
UTM Info																	
USGS 7.5' Quad Info	WAUKESHA																
Parcel ID																	

<u>Site Description</u>					
Site Description	This cemetery is currently owned by the City of Pewaukee. It is sometimes called Busse Cemetery after Samuel Busse who had owned the land. Update 2020: An inadvertent discovery of an earlier burial confirms that there are unmarked burials within the cemetery grounds.				
Site Dimensions (feet)	Site Area (acres)				
Site Dimensions (meters)	Site Area (hectares)				
Site Type	Cemetery/burial				
Cultural Info	<table border="1"> <thead> <tr> <th>Culture</th> <th>Certainty</th> </tr> </thead> <tbody> <tr> <td>Historic Euro-American</td> <td>Definite</td> </tr> </tbody> </table>	Culture	Certainty	Historic Euro-American	Definite
Culture	Certainty				
Historic Euro-American	Definite				
Investigation Type	Historical research				
Archaeological Phase/Complex					
Tribe/Ethnic Group					
Site Status	This human burial site is protected under Wis. Stats 157.70. Consultation with the Wisconsin Historical Society is required. See burial page.				
Covenant	No - None of site				

<u>Site Characteristics</u>	
Modern Landuse	Marked cemetery
Degree of Disturbance	Unknown
Impacts to Sites	Defacing/Vandalism, Natural Threats

<u>Burial Site Info</u>			
Burial Number	BWK-0081	Burial Status	Not Catalogued
Date Catalogued		Cemetery Type	Active
Earliest Grave Date	1801-1850	Latest Grave Date	1950-2000
Disposition Activity		Date of Disposition	
Cataloging Comments			

<u>National Register Info</u>	

<u>Other Eligibility Evaluation</u>	
Individual Eligibility Evaluation	
Proposed Historic District	
Contributing	
Evaluation Date	
Eligibility Comments	

<u>Ownership</u>			
Owner	City of Pewaukee	Address 2	W240 N1798 CTH "F"
Chronology	Current Owner	City	Waukesha
Ownership Type	Private	State	WI
Year Determined	1995	Zip	53188 -
Address 1	Jerome E. Carey, Sexton		

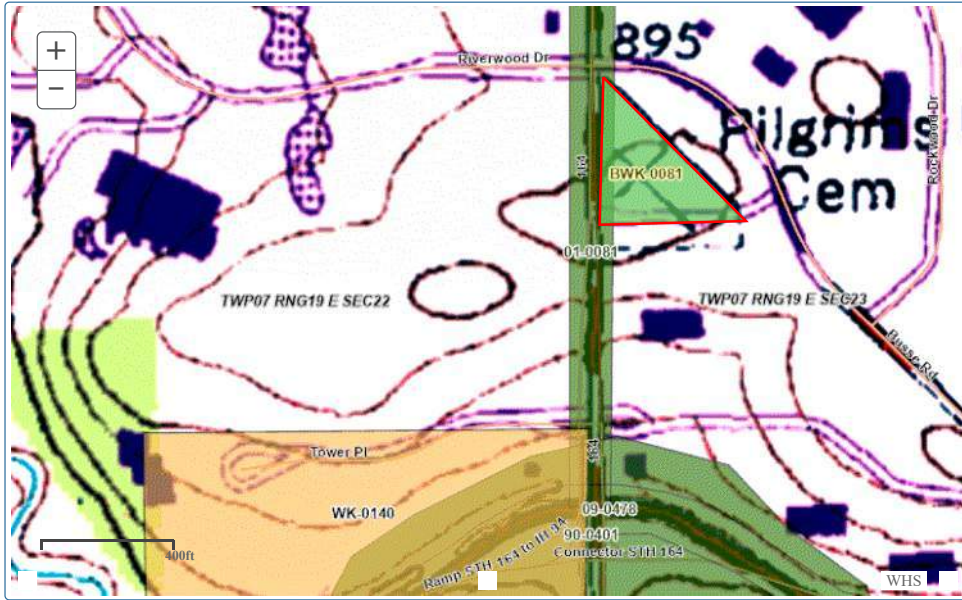
<u>Artifact Info</u>	
Artifact Repository	
Material Class	

<b>Artifact List</b>	
<b>Date of Site</b>	1843-present
<b>Dating Method</b>	Historic Records

<b>Investigator Info</b>			
Investigator	Organization	Date	Recommendation

<b>Site Reporter Info</b>	
Reporter	
Organization	
Date Reported	
Bibliography	Becker, Terry Biwer. 1988. Grave Sites: A Guide to Waukesha County Cemeteries.

<b>Tracking Info</b>		
WHS Project #	ARI #	Reason For Reporting



<b>Primary Info</b>	
State Site #	WK-0140
Name	I-94 Effigy
Other Name	
Field #	
ASI #	20170

<b>Location Information</b>																	
County	Waukesha																
Municipality	Pewaukee																
Civil Town																	
Location Description	This site is located on the west bank of the Pewaukee River, along the route of I-94, west of CTH 'F', including the west half of the I-94/CTH 'F' interchange.																
PLSS	<table border="1"> <thead> <tr> <th>Township</th> <th>Range</th> <th>Direction</th> <th>Section</th> <th>QSection</th> <th>Grid Alignment</th> <th>French Lot</th> <th>Gov. Lot</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>19</td> <td>E</td> <td>22</td> <td>SE, SE</td> <td>N, NE</td> <td></td> <td></td> </tr> </tbody> </table>	Township	Range	Direction	Section	QSection	Grid Alignment	French Lot	Gov. Lot	7	19	E	22	SE, SE	N, NE		
Township	Range	Direction	Section	QSection	Grid Alignment	French Lot	Gov. Lot										
7	19	E	22	SE, SE	N, NE												
UTM Info																	
USGS 7.5' Quad Info	WAUKESHA																
Parcel ID																	

<b>Site Description</b>					
Site Description	<p>This site consists of a turtle effigy, nearly destroyed by 1850. It was still present several decades later, and was described by T. H. Lewis as a 'ruined lizard, cultivated.' I-94 now runs through the approximate site location.</p> <p>Update 2023: CHG conducted archaeological investigations for the development in a parcel, utilizing appropriate limited subsurface testing and walk over/visual inspection, noting the project area was disturbed. No cultural materials, burial features, or human remains were identified.</p>				
Site Dimensions (feet)	1543 X 1342				
Site Dimensions (meters)					
Site Type	Mound(s) - Effigy				
Cultural Info	<table border="1"> <thead> <tr> <th>Culture</th> <th>Certainty</th> </tr> </thead> <tbody> <tr> <td>Late Woodland</td> <td>Definite</td> </tr> </tbody> </table>	Culture	Certainty	Late Woodland	Definite
Culture	Certainty				
Late Woodland	Definite				
Investigation Type	Avocational Survey, Shovel Testing/Probing, Walk Over/Visual Inspection				
Archaeological Phase/Complex	Effigy Mound complex				
Tribe/Ethnic Group					
Site Status	This human burial site is protected under Wis. Stats 157.70. Consultation with the Wisconsin Historical Society is required. See burial page.				
Covenant	No - None of site				

<b>Site Characteristics</b>	
Modern Landuse	Transportation Corridor
Degree of Disturbance	Heavy
Impacts to Sites	Transportation Corridor

<b>Burial Site Info</b>	
Burial Number	BWK-0160
Date Catalogued	
Earliest Grave Date	Precontact
Disposition Activity	
Cataloging Comments	

<b>National Register Info</b>	
Burial Status	Not Catalogued
Cemetery Type	Inactive/Unmarked
Latest Grave Date	Precontact
Date of Disposition	

<b>Other Eligibility Evaluation</b>	
Individual Eligibility Evaluation	
Proposed Historic District	
Contributing	
Evaluation Date	
Eligibility Comments	

<b>Ownership</b>	
	Add

<b>Artifact Info</b>	
Artifact Repository	
Material Class	
Artifact List	
Date of Site	
Dating Method	

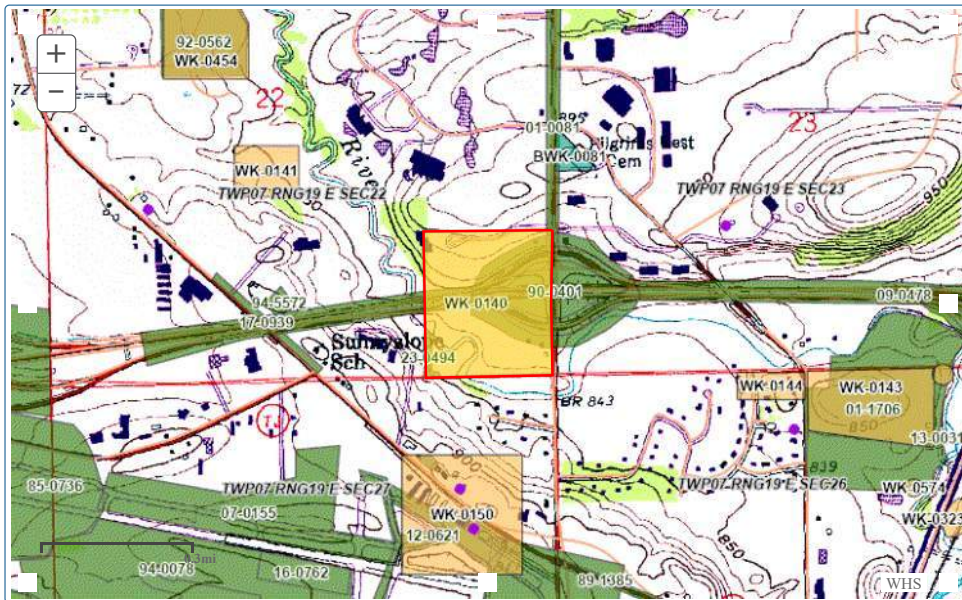
Investigator Info				
Investigator	Organization	Date	Recommendation	
Increase Lapham	Independent or not affiliated	1/1/1850		
T. H. Lewis	Independent or not affiliated			
David Strange	Commonwealth Heritage Group, Inc.	3/30/2023		

**Site Reporter Info**

<b>Reporter</b>	Charles E. Brown
<b>Organization</b>	Wisconsin Historical Society (unspecified)
<b>Date Reported</b>	1/1/1906
<b>Bibliography</b>	<p>Lapham, I.A. 1855. Antiquities of Wisconsin. Smithsonian Contributions to Knowledge No. 7: 30.</p> <p>Lewis, T. H., n.d., Supplemental Notebook 4: 59, on file WHS-BSPO.</p> <p>Brown, Charles E., 1906, Record of Wisconsin Antiquities, WA (OS) 5 (3-4):404.</p> <p>Strange, David, 2023, cultural Resources Investigations, Uncatalogued Burial Sites 47WK0140/BWK0160 and 47WK0150/BWK0164, Accurate Specialties Development Project, Waukesha County, Wisconsin, CHG ROI WR-2176, Milwaukee, WI.</p> <p>Correspondence related to request to disturb this site has been discarded. See BAR 09-0145.</p>

**Tracking**

WHS Project #	ARI #	Reason For Reporting	
09-0145	45829	Section 106/State Compliance	
23-0494	58879	Section 106/State Compliance	



/// ATTACHMENT: F ///

## PRELIMINARY COST ESTIMATES

**CONCEPTUAL COST ESTIMATE FOR:**  
**City of Pewaukee Multi-Use Feasibility Study**  
**Option 1 - Pewaukee Road**  
**WAUKESHA COUNTY**  
**July 1, 2025**

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
<b>STRUCTURE SECTIONS</b>					
1	CURB & GUTTER	LF	60	\$20.00	\$1,200.00
2	EXISTING ASPHALT PATH	SY	0	\$10.00	\$0.00
3	TREE REMOVAL	EACH	30	\$750.00	\$22,500.00
4	LIGHT BASE REMOVALS	EACH	0	\$400.00	\$0.00
<b>REMOVAL SUBTOTAL COST</b>					<b>\$23,700.00</b>
<b>EARTHWORK</b>					
5	COMMON EXCAVATION (1' DEPTH) (100 CY EBS)	CY	2,700	\$25.00	\$67,500.00
<b>EARTHWORK SUBTOTAL COST</b>					<b>\$67,500.00</b>
<b>PAVEMENT ITEMS</b>					
6	FULL DEPTH ASPHALT SAW CUT	LF	0	\$3.00	\$0.00
7	CONCRETE BARRIER	LF	0	\$400.00	\$0.00
8	CONCRETE CURB AND GUTTER	LF	60	\$60.00	\$3,600.00
9	CONCRETE SIDEWALK 6-INCH	SF	275	\$50.00	\$13,750.00
10	RETAINING WALL	LF	775	\$200.00	\$155,000.00
11	PIPE RAILING	LF	0	\$200.00	\$0.00
12	BASE AGGREGATE DENSE, 1 1/4-INCH (8" DEPTH)	TON	1,450	\$30.00	\$43,500.00
13	SELECT CRUSH MATERIAL	TON	150	\$40.00	\$6,000.00
14	HMA PAVEMENT	TON	450	\$120.00	\$54,000.00
<b>PAVEMENT ITEMS</b>					<b>\$275,850.00</b>
<b>ROADWAY SUBTOTAL COST</b>					<b>\$367,050.00</b>
<b>MISC ITEMS</b>					
15	PROHEALTH CONNECTIONS	LS	1	\$70,000.00	\$70,000.00
16	UTILITY RELOCATIONS	LS	1	\$50,000.00	\$50,000.00
17	PAVEMENT MARKING	LF	170	\$5.00	\$850.00
18	DRAINAGE / STORM SEWER	LS	1	\$3,500.00	\$3,500.00
19	TRAFFIC CONTROL / STAGING	LS	1	\$25,000.00	\$25,000.00
20	EROSION CONTROL / RESTORATION	LS	1	\$25,000.00	\$25,000.00
21	SIGNING	LS	1	\$10,000.00	\$10,000.00
22	MOBILIZATION	LS	1	\$15,000.00	\$15,000.00
<b>MISC ITEMS SUBTOTAL COST</b>					<b>\$199,350.00</b>
<b>TOTAL ROADWAY COST</b>					<b>\$566,400.00</b>
<b>DESIGN AND CONSTRUCTION</b>					
23	COST ESTIMATE CONTINGENCIES	LS	10	% OF ROADWAY	\$57,000.00
24	DESIGN AND CONSTRUCTION ENGINEERING	LS	15	% OF ROADWAY	\$85,000.00
<b>DESIGN AND CONSTRUCTION SUBTOTAL COST</b>					<b>\$142,000.00</b>
<b>TOTAL CONSTRUCTION COST</b>					<b>\$708,400.00</b>
<b>REAL ESTATE</b>					
25	ADJACENT PROPERTIES	EACH	4	-	-
26	PRIVATE TREE REPLACEMENT	EACH	20	\$750.00	\$15,000.00
27	REAL ESTATE ACQUISITION (TLE)	AC	1.5	\$7,000.00	\$10,500.00
28	REAL ESTATE ACQUISITION (FEE OR PLE)	AC	0	\$70,000.00	\$0.00
<b>REAL ESTATE SUBTOTAL COST</b>					<b>\$25,500.00</b>
<b>TOTAL PROJECT COST</b>					<b>\$733,900.00</b>
<i>NOTE: ESTIMATES ARE FOR CONCEPTUAL USE ONLY, AND ARE NOT BASED ON DETAILED FINAL DESIGNS</i>					

**CONCEPTUAL COST ESTIMATE FOR:**  
**City of Pewaukee Multi-Use Feasibility Study**  
**Option 2A - Riverwood Drive**  
**WAUKESHA COUNTY**  
**July 1, 2025**

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
<b>REMOVAL</b>					
1	CURB & GUTTER	LF	500	\$20.00	\$10,000.00
2	EXISTING ASPHALT PATH	SY	0	\$10.00	\$0.00
3	TREE REMOVAL	EACH	53	\$750.00	\$39,750.00
4	LIGHT BASE REMOVALS	EACH	20	\$400.00	\$8,000.00
<b>REMOVAL SUBTOTAL COST</b>					<b>\$57,750.00</b>
<b>EARTHWORK</b>					
5	COMMON EXCAVATION (1' DEPTH) (275 CY EBS)	CY	3,400	\$25.00	\$85,000.00
<b>EARTHWORK SUBTOTAL COST</b>					<b>\$85,000.00</b>
<b>PAVEMENT ITEMS</b>					
6	FULL DEPTH ASPHALT SAW CUT	LF	150	\$3.00	\$450.00
7	CONCRETE BARRIER	LF	200	\$400.00	\$80,000.00
8	CONCRETE CURB AND GUTTER	LF	500	\$40.00	\$20,000.00
9	CONCRETE SIDEWALK 6-INCH	SF	1,900	\$20.00	\$38,000.00
10	RETAINING WALL	LF	650	\$200.00	\$130,000.00
11	PIPE RAILING	LF	200	\$200.00	\$40,000.00
12	BASE AGGREGATE DENSE, 1 1/4-INCH (8" DEPTH)	TON	3,800	\$30.00	\$114,000.00
13	SELECT CRUSH MATERIAL	TON	300	\$40.00	\$12,000.00
14	HMA PAVEMENT	TON	1,200	\$120.00	\$144,000.00
<b>PAVEMENT ITEMS</b>					<b>\$578,450.00</b>
<b>ROADWAY SUBTOTAL COST</b>					<b>\$721,200.00</b>
<b>MISC ITEMS</b>					
15	PROHEALTH CONNECTIONS	LS	1	\$70,000.00	\$70,000.00
16	UTILITY RELOCATIONS	LS	1	\$25,000.00	\$25,000.00
17	PAVEMENT MARKING	LF	740	\$5.00	\$3,700.00
18	DRAINAGE / STORM SEWER EXTENSIONS	LS	1	\$8,000.00	\$8,000.00
19	TRAFFIC CONTROL / STAGING	LS	1	\$15,000.00	\$15,000.00
20	EROSION CONTROL / RESTORATION	LS	1	\$40,000.00	\$40,000.00
21	SIGNING	LS	1	\$7,500.00	\$7,500.00
22	MOBILIZATION	LS	1	\$20,000.00	\$20,000.00
<b>MISC ITEMS SUBTOTAL COST</b>					<b>\$189,200.00</b>
<b>TOTAL ROADWAY COST</b>					<b>\$910,400.00</b>
<b>DESIGN AND CONSTRUCTION</b>					
23	COST ESTIMATE CONTINGENCIES	LS	10	% OF ROADWAY	\$92,000.00
24	DESIGN AND CONSTRUCTION ENGINEERING	LS	15	% OF ROADWAY	\$137,000.00
<b>DESIGN AND CONSTRUCTION SUBTOTAL COST</b>					<b>\$229,000.00</b>
<b>TOTAL CONSTRUCTION COST</b>					<b>\$1,139,400.00</b>
<b>REAL ESTATE</b>					
25	ADJACENT PROPERTIES	EACH	4	-	-
26	PRIVATE TREE REPLACEMENT	EACH	5	\$750.00	\$3,750.00
27	REAL ESTATE ACQUISITION (TLE)	AC	3.0	\$7,000.00	\$21,000.00
28	REAL ESTATE ACQUISITION (FEE OR PLE)	AC	0	\$70,000.00	\$0.00
<b>REAL ESTATE SUBTOTAL COST</b>					<b>\$24,750.00</b>
<b>TOTAL PROJECT COST</b>					<b>\$1,164,150.00</b>
<i>NOTE: ESTIMATES ARE FOR CONCEPTUAL USE ONLY, AND ARE NOT BASED ON DETAILED FINAL DESIGNS</i>					

**CONCEPTUAL COST ESTIMATE FOR:**  
**City of Pewaukee Multi-Use Feasibility Study**  
**Option 2B - Riverwood Drive**  
**WAUKESHA COUNTY**  
**July 1, 2025**

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
<b>REMOVAL</b>					
1	CURB & GUTTER	LF	350	\$20.00	\$7,000.00
2	EXISTING ASPHALT PATH	SY	900	\$10.00	\$9,000.00
3	TREE REMOVAL	EACH	46	\$750.00	\$34,500.00
4	LIGHT BASE REMOVALS	EACH	20	\$400.00	\$8,000.00
<b>REMOVAL SUBTOTAL COST</b>					<b>\$58,500.00</b>
<b>EARTHWORK</b>					
5	COMMON EXCAVATION (1' DEPTH) (275 CY EBS)	CY	4,200	\$25.00	\$105,000.00
<b>EARTHWORK SUBTOTAL COST</b>					<b>\$105,000.00</b>
<b>PAVEMENT ITEMS</b>					
6	FULL DEPTH ASPHALT SAW CUT	LF	150	\$3.00	\$450.00
7	CONCRETE BARRIER	LF	200	\$400.00	\$80,000.00
8	CONCRETE CURB AND GUTTER	LF	350	\$40.00	\$14,000.00
9	CONCRETE SIDEWALK 6-INCH	SF	1,900	\$20.00	\$38,000.00
10	RETAINING WALL	LF	900	\$200.00	\$180,000.00
11	PIPE RAILING	LF	200	\$200.00	\$40,000.00
12	BASE AGGREGATE DENSE, 1 1/4-INCH (8" DEPTH)	TON	2,600	\$30.00	\$78,000.00
13	SELECT CRUSH MATERIAL	TON	250	\$40.00	\$10,000.00
14	HMA PAVEMENT	TON	1,100	\$120.00	\$132,000.00
<b>PAVEMENT ITEMS</b>					<b>\$572,450.00</b>
<b>ROADWAY SUBTOTAL COST</b>					<b>\$735,950.00</b>
<b>MISC ITEMS</b>					
15	PROHEALTH CONNECTIONS	LS	1	\$0.00	\$0.00
16	UTILITY RELOCATIONS	LS	1	\$10,000.00	\$10,000.00
17	PAVEMENT MARKING	LF	860	\$5.00	\$4,300.00
18	DRAINAGE / STORM SEWER EXTENSIONS	LS	1	\$19,500.00	\$19,500.00
19	TRAFFIC CONTROL / STAGING	LS	1	\$10,000.00	\$10,000.00
20	EROSION CONTROL / RESTORATION	LS	1	\$40,000.00	\$40,000.00
21	SIGNING	LS	1	\$5,500.00	\$5,500.00
22	MOBILIZATION	LS	1	\$20,000.00	\$20,000.00
<b>MISC ITEMS SUBTOTAL COST</b>					<b>\$109,300.00</b>
<b>TOTAL ROADWAY COST</b>					<b>\$845,250.00</b>
<b>DESIGN AND CONSTRUCTION</b>					
23	COST ESTIMATE CONTINGENCIES	LS	10	% OF ROADWAY	\$85,000.00
24	DESIGN AND CONSTRUCTION ENGINEERING	LS	15	% OF ROADWAY	\$127,000.00
<b>DESIGN AND CONSTRUCTION SUBTOTAL COST</b>					<b>\$212,000.00</b>
<b>TOTAL CONSTRUCTION COST</b>					<b>\$1,057,250.00</b>
<b>REAL ESTATE</b>					
25	ADJACENT PROPERTIES	EACH	10	-	-
26	PRIVATE TREE REPLACEMENT	EACH	15	\$750.00	\$11,250.00
27	REAL ESTATE ACQUISITION (TLE)	AC	2.0	\$7,000.00	\$14,000.00
28	REAL ESTATE ACQUISITION (FEE OR PLE)	AC	1.5	\$70,000.00	\$105,000.00
<b>REAL ESTATE SUBTOTAL COST</b>					<b>\$130,250.00</b>
<b>TOTAL PROJECT COST</b>					<b>\$1,187,500.00</b>
<i>NOTE: ESTIMATES ARE FOR CONCEPTUAL USE ONLY, AND ARE NOT BASED ON DETAILED FINAL DESIGNS</i>					

**CONCEPTUAL COST ESTIMATE FOR:**  
**City of Pewaukee Multi-Use Feasibility Study**  
**Option 3 - Existing Path Connections**  
**WAUKESHA COUNTY**  
**July 1, 2025**

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
<b>REMOVAL</b>					
1	CURB & GUTTER	LF	200	\$20.00	\$4,000.00
2	EXISTING ASPHALT PATH	SY	1,100	\$10.00	\$11,000.00
3	TREE REMOVAL	EACH	40	\$750.00	\$30,000.00
4	LIGHT BASE REMOVALS	EACH	0	\$400.00	\$0.00
<b>REMOVAL SUBTOTAL COST</b>					<b>\$45,000.00</b>
<b>EARTHWORK</b>					
5	COMMON EXCAVATION (1' DEPTH) (330 CY EBS)	CY	3,800	\$25.00	\$95,000.00
<b>EARTHWORK SUBTOTAL COST</b>					<b>\$95,000.00</b>
<b>PAVEMENT ITEMS</b>					
6	FULL DEPTH ASPHALT SAW CUT	LF	150	\$3.00	\$450.00
7	CONCRETE BARRIER	LF	0	\$400.00	\$0.00
8	CONCRETE CURB AND GUTTER	LF	200	\$40.00	\$8,000.00
9	CONCRETE SIDEWALK 6-INCH	SF	900	\$20.00	\$18,000.00
10	RETAINING WALL	LF	500	\$200.00	\$100,000.00
11	PIPE RAILING	LF	0	\$200.00	\$0.00
12	BASE AGGREGATE DENSE, 1 1/4-INCH (8" DEPTH)	TON	2,500	\$30.00	\$75,000.00
13	SELECT CRUSH MATERIAL	TON	200	\$40.00	\$8,000.00
14	HMA PAVEMENT	TON	750	\$120.00	\$90,000.00
<b>PAVEMENT ITEMS</b>					<b>\$299,450.00</b>
<b>ROADWAY SUBTOTAL COST</b>					<b>\$439,450.00</b>
<b>MISC ITEMS</b>					
15	PROHEALTH CONNECTIONS	LS	1	\$0.00	\$0.00
16	UTILITY RELOCATIONS	LS	1	\$25,000.00	\$25,000.00
17	PAVEMENT MARKING	LF	60	\$5.00	\$300.00
18	DRAINAGE / STORM SEWER	LS	1	\$30,000.00	\$30,000.00
19	TRAFFIC CONTROL / STAGING	LS	1	\$8,000.00	\$8,000.00
20	EROSION CONTROL / RESTORATION	LS	1	\$45,000.00	\$45,000.00
21	SIGNING	LS	1	\$5,500.00	\$5,500.00
22	MOBILIZATION	LS	1	\$25,000.00	\$25,000.00
<b>MISC ITEMS SUBTOTAL COST</b>					<b>\$138,800.00</b>
<b>TOTAL ROADWAY COST</b>					<b>\$578,250.00</b>
<b>DESIGN AND CONSTRUCTION</b>					
23	COST ESTIMATE CONTINGENCIES	LS	10	% OF ROADWAY	\$58,000.00
24	DESIGN AND CONSTRUCTION ENGINEERING	LS	15	% OF ROADWAY	\$87,000.00
<b>DESIGN AND CONSTRUCTION SUBTOTAL COST</b>					<b>\$145,000.00</b>
<b>TOTAL CONSTRUCTION COST</b>					<b>\$723,250.00</b>
<b>REAL ESTATE</b>					
25	ADJACENT PROPERTIES	EACH	9	-	-
26	PRIVATE TREE REPLACEMENT	EACH	32	\$750.00	\$24,000.00
27	REAL ESTATE ACQUISITION (TLE)	AC	1.0	\$7,000.00	\$7,000.00
28	REAL ESTATE ACQUISITION (FEE OR PLE)	AC	2.5	\$70,000.00	\$175,000.00
<b>REAL ESTATE SUBTOTAL COST</b>					<b>\$206,000.00</b>
<b>TOTAL PROJECT COST</b>					<b>\$929,250.00</b>
<i>NOTE: ESTIMATES ARE FOR CONCEPTUAL USE ONLY, AND ARE NOT BASED ON DETAILED FINAL DESIGNS</i>					

## City of Pewaukee - New Agenda Item

### Agenda Language:

Discussion and possible action regarding a multi-use trail along Redford Boulevard (CTH F) and the City support for WisDOT to add accommodations on the proposed diverging diamond interchange over I94.

### Sub Item Agenda Language:

### Background Provided By:

Magdelene Wagner

### Background:

Waukesha County is planning a reconstruction project along Redford Boulevard (CTH F). In addition, Wisconsin Department of Transportation (WisDOT) is planning a diverging diamond at the interchange of CTH F and I94. The County has and will continue to request the WisDOT, as part of the diverging diamond interchange construction, provide bike and pedestrian accommodations across the interchange.

Providing this accommodations allows for a connection with the City of Waukesha and the City of Brookfield through the City of Pewaukee. This would assist in the County connecting its new Fox River Trail to Frame Park.

The City of Pewaukee is currently studying a trail extension along Watertown Road from the Village of Pewaukee (Forest Grove Road) to Springdale Road (CTH SR) which also provides a connection to the Fox River Trail.

The connection of these trails is supported in the City's Bike & Pedestrian Plan and Southeast Wisconsin Regional Planning Commission (SEWRPC). The plans show the trail crossing at the railroad crossing that is currently under I94 just east of CTH F.

However, County discussions with the Railroad have been unsuccessful in finding a way to use a portion of the railroad crossing to accommodate a trail. The diverging diamond interchange at CTH F and I94 provides a safe means for traverse over I94 for these trail connections.

The County will be working with WisDOT to provide the accommodation as part of the diverging diamond construction and has asked the City to provide letters of support of the project. In addition, the County, as part of their reconstruction of CTH F, is seeking to accommodate a multi-use trail to connect the Fox River Trail and Frame Park. Both of these projects would provide additional connections with the City's Watertown Road trail.

Staff recommends providing the requested letters of support for the overall connections of trails throughout Pewaukee.

Fiscal Impact:  
Unknown at this time.

Recommended Motion:  
Public Works Committee recommends the Common Council approve a letter of support for the County to use in its request to WisDOT for Bike/Pedestrian accommodations as part of their project.



**Waukesha County**  
*Department of Public Works*

October 1, 2024

**Subject: WisDOT-Waukesha County Cooperation for IH 94, CTH F and Fox River Trail**

Secretary Kristina Boardman,

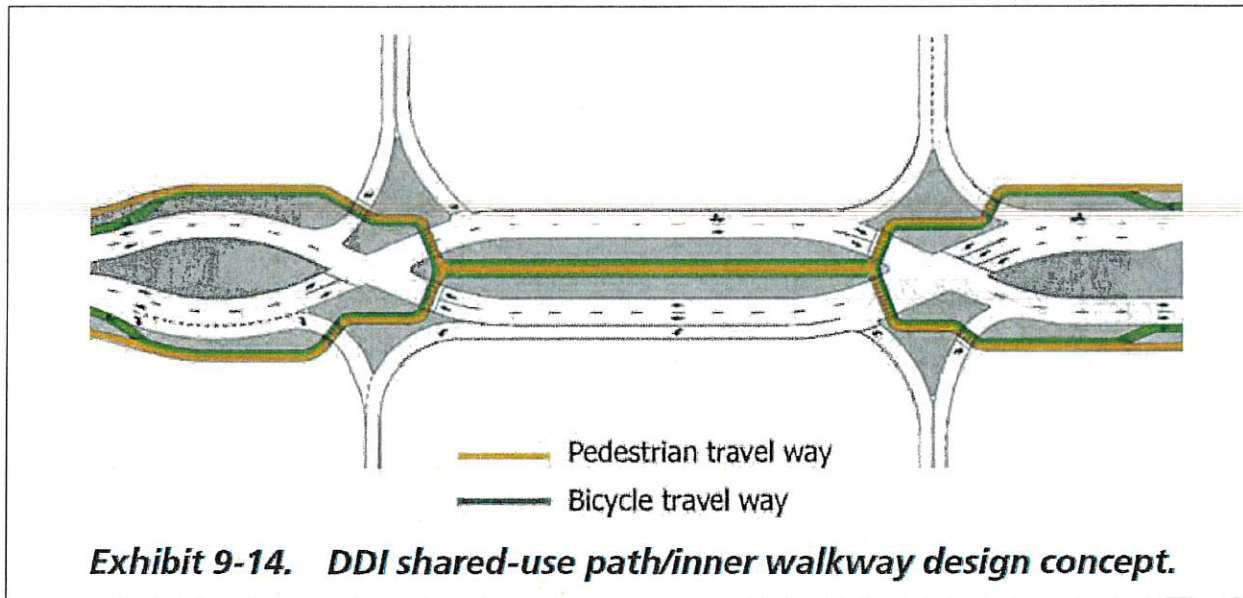
I am writing to request effective government cooperation between WisDOT and Waukesha County to ensure that the many multi-modal transportation demands, and planned improvements on CTH F at IH 94 are well coordinated and effectively delivered with public benefits maximized and traffic, business and transportation user conflicts minimized.

The transportation demands and improvement plans that require effective government cooperation are as follows:

1. The Waukesha County Board of Supervisors just approved the County Executive's 2025-2029 Capital Projects Plan. Included in the plan are two new Priority Corridor Projects on CTH F between W. Moreland Blvd. and Duplainville Road. Waukesha County is planning to reconstruct this important corridor between 2030 and 2035 through county and federal funding. The construction schedule will be dependent on approval of STP funding in the next program cycle.
2. Waukesha County has also recently completed an extension of the Fox River Trail between the City of Brookfield and City of Pewaukee. The next planned extension will connect Frame Park in the City of Waukesha to the South Trailhead in the City of Pewaukee at Watertown Road. Waukesha County intends to make this connection with a new trail built along the CTH F Corridor as part of the new CTH F Priority Corridor Projects between W. Moreland Blvd. and Duplainville Road.
3. The City of Pewaukee is planning a new Watertown Road Trail that will construct a multi-use path in the Watertown Road right-of-way from the North Avenue intersection to the Pewaukee City limit near Single Tree Drive. This project will include pedestrian crossing improvements at the Canadian National railroad, CTH F, and STH 164. The Watertown Road Trail will complete the connection between CTH F and South Trailhead along CTH M and Watertown Road.
4. The City of Waukesha is an important coordination partner with Waukesha County for the CTH F Priority Corridor Project and the planned improvements between W.

Moreland Blvd. and IH 94 as CTH F has multi-jurisdictional segments and the W. Moreland Blvd./Redford Blvd. intersection may require safety and 'City Gateway' improvements. The City of Waukesha will also be an important partner in completing the Fox River Trail extension to the City's Frame Park.

5. WisDOT is planning to convert the IH 94/CTH F Interchange to a Diverging Diamond Interchange (DDI). The DDI conversion will require significant public outreach and will impact traffic and commerce along the CTH F Priority Corridor. Due to the complexity involved in proper and safe bike and pedestrian design through a DDI, future or planned bike and pedestrian facilities should be designed into WisDOT's DDI conversion plans. Moreover, to maximize the crash reduction and safety benefits of a DDI conversion, it is critical to include deep consideration, coordination and accommodation of future or planned bike and pedestrian facilities and not allow the DDI conversion to have an inequitable impact on non-motorized users.
6. As part of WisDOT's IH 94/CTH F Interchange DDI conversion, the existing northbound bridge deck (over IH 94) will be replaced, and the southbound bridge deck will have new joints and maintenance completed. According to the NCHRP Research Report 948 *Guide for Pedestrian and Bicyclist Safety at Alternative and Other Intersections and Interchanges (Chapter 9: Diverging Diamond Interchanges)*:
  - a. Pedestrian improvements at DDIs can either be on the inside of (between) travel lanes or the outside of (perimeter), with crossings being signalized or uncontrolled. Bicycle movements traditionally have been accommodated with shared use of the travel lane or through a shared-use path (e.g. Fox River Trail) facility, but DDI design features can pose safety challenges for nonmotorized modes and need to be evaluated carefully as part of the design process.
  - b. For an overpass DDI, pedestrian facilities in the center of the interchange (within the median) may be preferable so as to minimize conflicts with left-turning traffic to and from the freeway and allow crossing the interchange in all directions.
  - c. With the overpass DDI having inner walkways, pedestrian facilities to cross into the center can be co-located with vehicle signals at crossover movements, and a pedestrian crossing phase can be provided with the concurrent vehicle phase. The right-turns may be unsignalized or signalized crossings and, in either case, can be configured to promote low vehicle speeds and good sight distance to the crosswalks.
  - d. An alternative to providing bicycle lanes through a DDI is to provide separated facilities, where an inner path is possible, the "inner walkway" may instead be an inner shared-use path (e.g. Fox River Trail). See Exhibit 9-14.



The replacement of the northbound CTH F bridge deck over IH 94 creates the opportunity to provide adequate bridge width to accommodate a DDI shared-use path/inner walkway design concept.

Based on the aforementioned transportation demands and improvement plans, Waukesha County requests effective government cooperation between WisDOT and Waukesha County and the following specific commitments from WisDOT:

1. WisDOT coordinate bike and pedestrian design including Fox River Trail accommodations with Waukesha County as part of WisDOT's IH 94/CTH F DDI conversion project.
2. WisDOT design and construct adequate bridge and roadway width to accommodate Waukesha County's Fox River Trail crossing of IH 94 between the Park and Ride access south of IH 94 and Westwood Drive north of IH 94.
3. WisDOT coordinate and consolidate construction schedules for the IH 94/CTH F DDI conversion and Waukesha County's two new Priority Corridor Projects on CTH F between W. Moreland Blvd. and Duplainville Road with a goal to minimize negative traffic and commerce impacts along CTH F.
4. WisDOT coordinate public communication and project outreach for the IH 94/CTH F DDI conversion and Waukesha County's two new Priority Corridor Projects on CTH F between W. Moreland Blvd. and Duplainville Road with a goal to provide effective and consistent public communications about the projects scope, schedules and impacts.
5. WisDOT support future Waukesha County state and federal funding requests (STP-Urban, RAISE, small INFRA, TAP, Congressional and Budget Directed Spending) for the CTH F Priority Corridor Projects.

The transportation demands and planned improvements ahead of us create an opportunity for state, county and local-municipal governments and transportation professionals to demonstrate excellent government cooperation in the delivery of important multi-modal transportation

improvements that have the potential to provide significant and lasting safety, operational, environmental and recreational benefits to the residents of Wisconsin, Waukesha County, City of Pewaukee and City of Waukesha.

Best Regards,

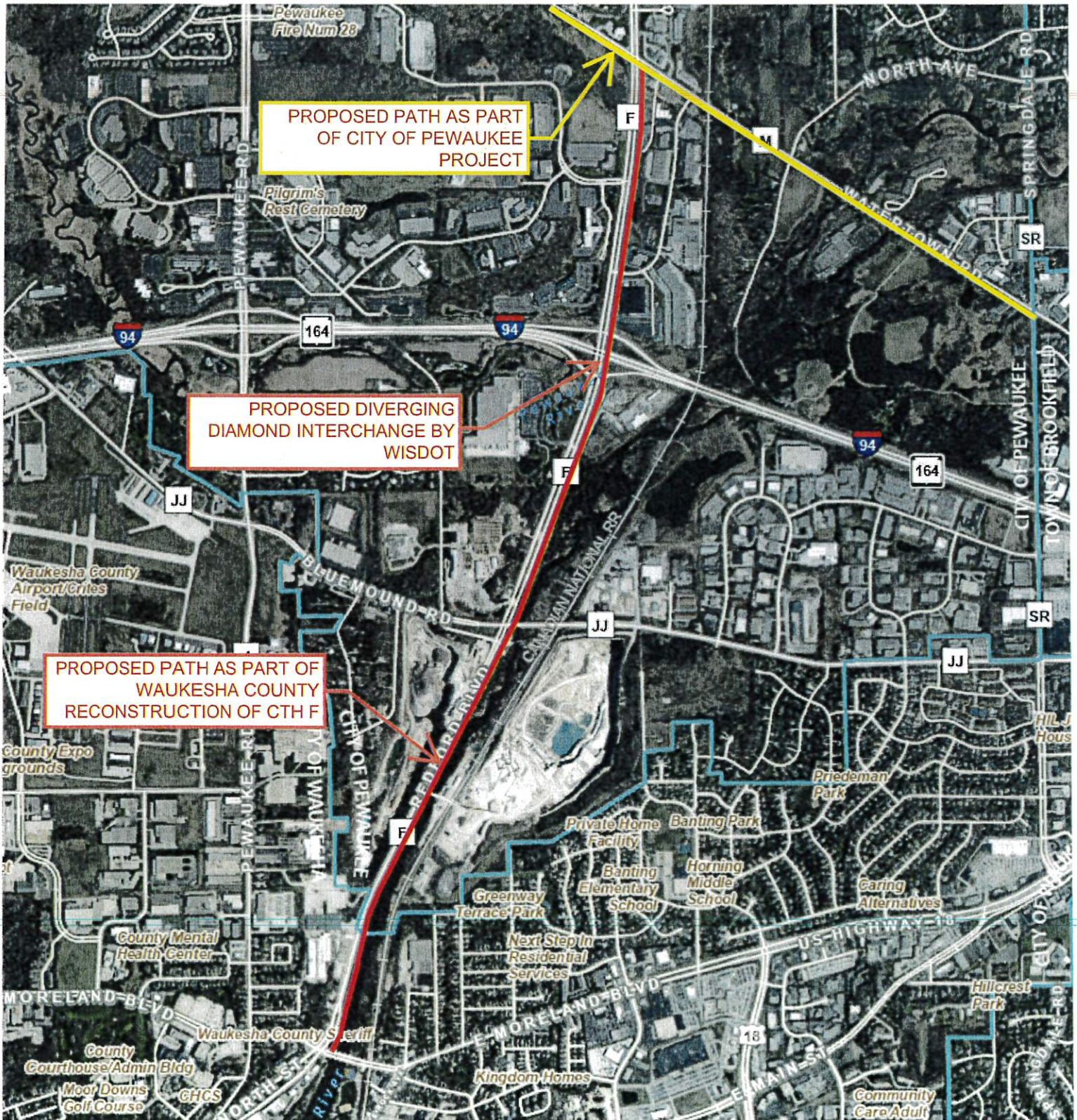


Allison Bussler, Waukesha County Public Works Director

Cc: Dale Shaver, Waukesha County PLU Director  
Magdelene Wagner, City of Pewaukee Public Works Director/City Engineer  
Melissa Lipske, City of Waukesha Parks & Forestry Operations Manager  
Alex Damien, City of Waukesha Director of Public Works  
Roberto Gutierrez, WisDOT Southeast Region Director  
Joel Nilsestuen, WisDOT Assistant Deputy Secretary

# Redford Boulevard (CTH F) Reconstruction

Moreland Road to  
CTH M (Watertown Road)



# I-94 Interchange with Redford Blvd (County F) Public Involvement Meeting



## YOU'RE INVITED!

COUNTY F

Point Burger Bar

Aurora Health Center

94

94

Waukesha Park and Ride

COUNTY F

Steinhafels

**August 5  
5 - 7 P.M.**

**141 NW Barstow St  
Room 151  
Waukesha, WI 53187**



<https://wisconsin.gov/Pages/projects/by-region/se/94ddi/default.aspx>



## Department of Public Works

W240N3065 Pewaukee Road

Pewaukee, WI 53072

Phone: (262) 691-0804 • Fax: (262) 691-5729

Email: publicworks@pewaukee.wi.us

### MEMORANDUM

**TO:** Steven Brunner, Waukesha County Park System Manager  
Brett Wallace, Waukesha County Engineering Services Manager

**FROM:** Magdelene Wagner, Director of Public Works  
Michaelis Gabbey, Chief Engineer – Streets and Development

**DATE:** August 20, 2024

**RE:** City of Pewaukee Planned Bicycle/Pedestrian Improvements

Staff from the City of Pewaukee (City) Engineering Department (Magdelene Wagner and Michaelis Gabbey) met with staff from the Waukesha County Parks and Land Use and Public Works Departments on July 17, 2024, to discuss upcoming trail projects within the City of Pewaukee. During these discussions it was determined that three City projects align with upcoming Waukesha County projects. These projects are the Meadowbrook Road/Prospect Avenue Multi-Use Trail, the Watertown Road Multi-Use Trail, and the Watertown Road (Springdale Road to North Avenue) Reconstruction. General information for each of these upcoming projects is outlined below.

#### **Meadowbrook Road/Prospect Avenue Multi-Use Trail**

The Meadowbrook Road/Prospect Avenue Multi-Use Trail will construct a 10-foot-wide multi-use path in the Meadowbrook Road right-of-way from the Lake Country Recreational Trail to the College Avenue intersection. From this location the path will then be constructed within the Prospect Avenue right-of-way to its termination at Pirate’s Pass in the Village of Pewaukee. This project is federally funded via the Transportation Alternatives Program (TAP). It is scheduled to begin construction in 2026.

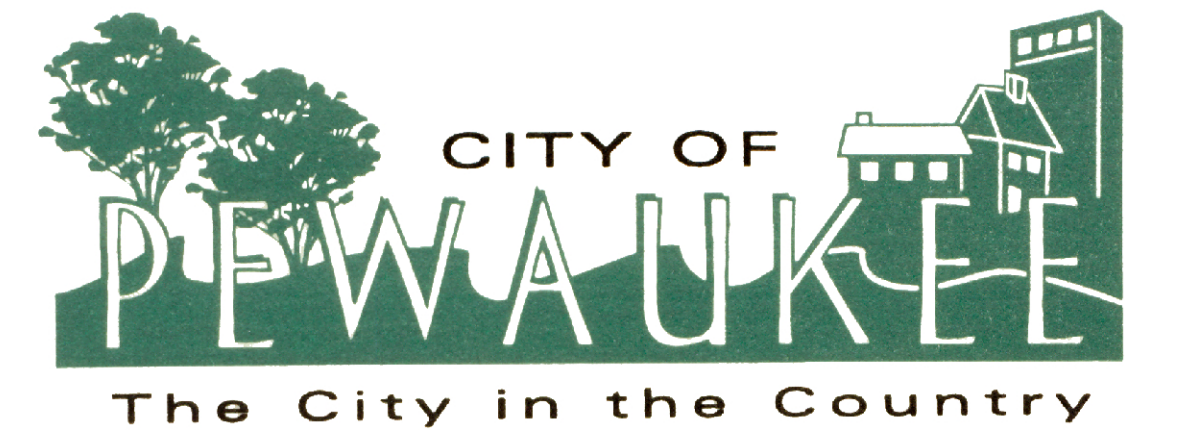
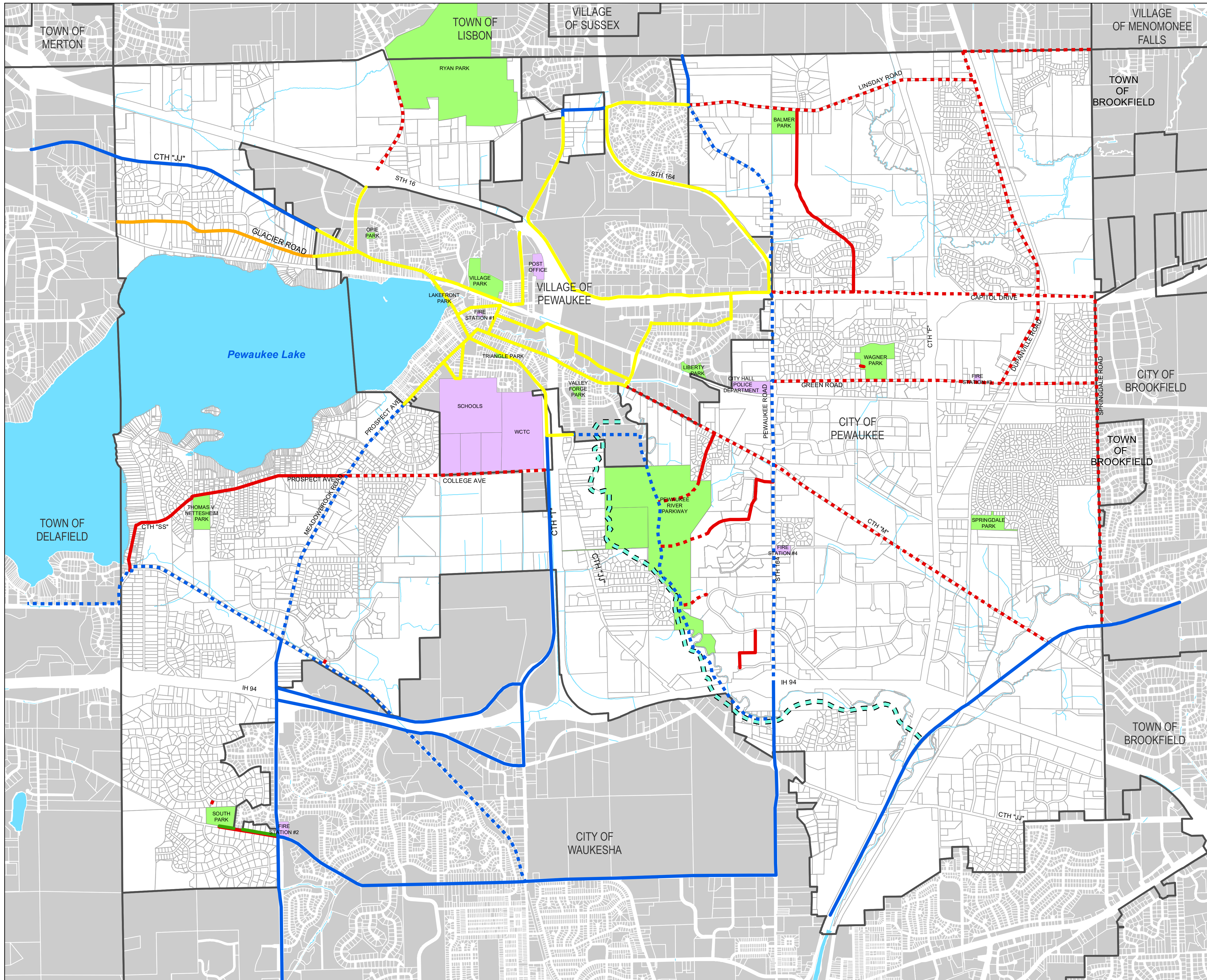
#### **Watertown Road Multi-Use Trail**

The Watertown Road Multi-Use Trail will construct a 10-foot-wide multi-use path in the Watertown Road right-of-way from the North Avenue intersection to the Pewaukee City limit near Single Tree Drive. This project will include pedestrian crossing improvements at the Canadian National railroad, County Highway F (Redford Boulevard), and State Highway 164 (Pewaukee Road). It is locally funded with construction anticipated in 2026.

**Watertown Road Reconstruction**

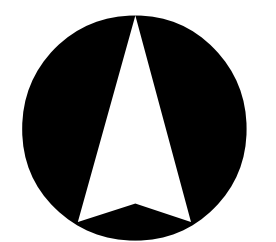
The Watertown Road Reconstruction project will reconstruct Watertown Road from Springdale Road to North Avenue. The City will incorporate a separated 10-foot-wide, multi-use path into the corridor design of this project. The pathway portion of this project would connect to existing Waukesha County trail facilities along Watertown Road, as well as the Watertown Road multi-use trail which the City plans to construct as part of a separate project. This project is locally funded and scheduled for construction in 2026.

The City of Pewaukee is aware that the projects listed above align with Waukesha County's vision for regional trail system connectivity. The timelines for these projects are flexible and can be coordinated with Waukesha County to align with other proposed improvements. We look forward to partnering with Waukesha County to propel these conceptual improvements toward successful construction projects.



# City of Pewaukee Bike Plan

- Village of Pewaukee Bike Plan
- SEWRPC 2010 Bike & Pedestrian Plan Off Road Facility
- SEWRPC 2010 Bike & Pedestrian Plan On Road Facility
- Proposed City Of Pewaukee Bike Plan Off Road Facility
- Proposed City Of Pewaukee Bike Plan On Road Facility
- Proposed City Of Pewaukee Bike Plan Alternate
- Proposed Sidewalk
- Proposed Waukesha County Greenway Corridor
- Civic/School Building
- Park/Parkway
- City of Pewaukee
- Adjacent Municipality



0 900 1,800 3,600  
Scale in Feet



Updated March 11, 2019

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