THE CITY OF WATERTOWN

COMMON COUNCIL MEETING - AMENDED AGENDA

TUESDAY, DECEMBER 17, 2024 AT 7:00 PM

MUNICIPAL BUILDING COUNCIL CHAMBERS – 106 JONES STREET, WATERTOWN, WI 53094

Virtual Meeting Info: https://us06web.zoom.us/join Meeting ID: 282 485 6600 Passcode: 53098 One tap mobile +16469313860

All public participants' phones will be muted during the meeting except during the public comment period. This meeting will be streamed live on YouTube at: https://www.youtube.com/c/WatertownTV

1. **CALL TO ORDER**
2. **ROLL CALL**
3. **PLEDGE OF ALLEGIANCE**
4. **MINUTES OF COUNCIL MEETING HELD**
   - A. Meeting minutes from December 3, 2024
5. **COMMENTS AND SUGGESTIONS FROM CITIZENS PRESENT**

   Members of the public who wish to address the Council must register their request in writing before the meeting begins. Each individual who requests to address the Council will be permitted up to three minutes for their comments.
6. **PUBLIC HEARING**
   - A. Wastewater Treatment Plant Facilities Plan as required by s. NR 110.09(4), Wis. Adm. Code
7. **REPORTS**
   - A. Licensing Board minutes from November 13, 2024
   - B. Tourism minutes from November 14, 2024
   - C. Park, Recreation, and Forestry minutes from November 18, 2024
   - D. Park, Recreation, and Forestry minutes from November 22, 2024
   - E. Site Plan Review minutes from November 25, 2024
   - F. Plan Commission minutes from November 25, 2024
   - G. Finance Committee minutes from November 25, 2024
   - H. Public Safety minutes from December 4, 2024
   - I. Site Plan Review Minutes from December 9, 2024
8. **COMMUNICATION & RECOMMENDATIONS**
   - A. Employee Recognitions
   - B. Watertown Fire Department October Monthly Report
   - C. Bridge Update
9. **ACCOUNTS PAYABLE**
   - A. Accounts Payable
10. **MISCELLANEOUS BUSINESS**
    - A. Payroll Summary - November 11, 2024 to November 26, 2024
11. **LICENSES**
    - A. Licensing Memo to Council

B. Review and take action: application for operator's license from Ashley E Grimm

12. ORDINANCES

A. Ord. 24-33 - Amend Chapter 550 Official Zoning Map of the City of Watertown through the amendments of language to Sections §550-38, §550-39, §550-40, §550-41; §550-42, §550-43, and §550-150, and §550-152 and to Chapter 532: Flood Plain and Shoreland-Wetland Zoning Code (Sponsor: Mayor McFarland From: Plan Commission, First Reading)

B. Ord. 24-34 - Amend Chapter 500-3(B), Stop Intersections of the City of Watertown General Ordinances (Sponsor: Ald. Davis From: Public Safety & Welfare Committee, First Reading)

13. RESOLUTIONS

A. Exh. 9687 - Resolution to authorize Joint Powers Agreement with Dodge County (Sponsor: Mayor McFarland)

B. Exh. 9688 - Resolution to authorize Joint Powers Agreement with Jefferson County (Sponsor: Mayor McFarland)

C. Exh. 9689 - Resolution to approve the Preliminary Plat for Hunter Oaks Enclave Subdivision (Sponsor: Mayor McFarland From: Plan Commission)

D. Exh. 9690 - Resolution to approve the Preliminary Plat for Edge Field Subdivision (Sponsor: Mayor McFarland From: Plan Commission)

E. Exh. 9691 - Resolution to enter into agreement with Mead Hunt for engineering design and construction services for Wastewater Biosolids Dryer project (Sponsor: Ald. Board From: Public Works Commission)

F. Exh. 9692 - Resolution to approve US Cellular equipment upgrades on City Hall Tower (Sponsor: Ald. Board From: Public Works Commission)

G. Exh. 9693 - Resolution for the purchase of a Combination Sewer Cleaner Truck to be used by the City of Watertown DPW - Water Systems (Sponsor: Ald. Board From: Public Works Commission)

H. Exh. 9694 - Resolution to establish pay for the Office of Alderperson for terms beginning on or after April 15, 2026 (Sponsor: Mayor McFarland From: Finance Committee)

I. Exh. 9695 - Resolution to establish pay for the Municipal Judge for the terms beginning on or after May 1, 2025 (Sponsor: Mayor McFarland From: Finance Committee)

J. Exh. 9696 - Resolution to establish pay for the Office of Mayor for terms beginning on or after April 15, 2025 (Sponsor: Ald. Bartz From: Finance Committee)

K. Exh. 9697 - 2025 Payroll Resolution (Sponsor: Mayor McFarland From: Finance Committee)

L. Exh. 9698 - Resolution to enter into construction easement agreement with AbleLight (Sponsor: Mayor McFarland From: Finance Committee)

14. COMMENTS AND SUGGESTIONS FROM CITIZENS PRESENT

Each individual who requests to address the Council will be permitted up to three minutes for their comments and must fill out the sign in sheet provided.

15. ADJOURNMENT

Persons requiring other reasonable accommodations for any of the above meetings, may contact the office of the City Clerk at cityclerk@watertownwi.gov phone 920-262-4000

Any invocation that may be offered before the official start of the Council meeting shall be the voluntary offering of a private citizen, to and for the benefit of the Council. The views or beliefs expressed by the invocation speaker have not been previously reviewed or approved by the Council, and the Council does not endorse the religious beliefs or views of this, or any other speaker.

Common Council Minutes
Tuesday December 3, 2024

Mayor McFarland called the regular meeting of the City of Watertown Common Council to order at 7:00 p.m. on Tuesday, December 3, 2024. This meeting was open for attendance in the council chambers as well as virtually.

ROLL CALL

Roll call indicated the following Alderpersons present: Ald. Davis, Lampe, Board, Bartz, Blanke, Smith, Schmid (arrived at 7:05), Wetzel and Moldenhauer. City staff present were City Attorney Steven T. Chesebro, Fire Chief Tanya Reynen, Police Chief David Brower, Finance Director Mark Stevens, and City Clerk Megan Dunneisen.

PLEDGE OF ALLEGIANCE

The Council recited the Pledge of Allegiance to the American Flag.

MINUTES OF PRECEDING MEETING

Mayor McFarland inquired if there were additions or corrections to minutes of the Common Council meeting held Tuesday, November 19, 2024. There being none, minutes were accepted as presented.

COMMENTS & SUGGESTIONS FROM CITIZENS PRESENT

No comments were received.

PUBLIC HEARING

Mayor McFarland opened the public hearing for Belmont Drive Discontinuance of Public Way at 7:03 p.m., there being no comment, Mayor McFarland closed the public hearing at 7:04 p.m.

Mayor McFarland opened the public hearing for Amendments to several overlay zoning districts - Project 05 at 7:04 p.m., there be no comment Mayor McFarland closed the public hearing at 7:04 p.m.

REPORTS

(Complete minutes are open for public inspection in the Finance Department.)

The following reports were received and filed: Transit Commission minutes from September 23, 2024, Board of Health Minutes from October 15, 2024, Finance Committee minutes from October 21, 2024, Joint Review Board minutes of November 8, 2024, Plan Commission Minutes from November 12, 2024, Public Works minutes from November 12, 2024, Public Safety minutes from November 13, 2024, Finance Committee minutes from November 19, 2024, Downtown Mainstreet Task Force minutes for November 19, 2024, Public Works minutes from November 20, 2024, RDA Minutes from November 20, 2024 were presented.

MISCELLANEOUS BUSINESS

Payroll Summary - October 30, 2024, through November 11, 2024 was presented.

ORDINANCES

Ord. 24-30 - Adopt Chapter 550 Official Zoning Map of the City of Watertown to Rezone 1911 Gateway Drive from a Mixed Zoning to MR-10, Multi-Family Residential (Sponsor: Mayor McFarland From: Plan Commission, Second Reading). Ald. Smith moved for adoption of ordinance 24-30 on the second reading, seconded by Ald. Wetzel and carried by roll call vote: Yes-8; No-0; Abstain-1 (Schmid).

Ord. 24-31 - Adopt Chapter 550 Official Zoning Map of the City of Watertown (Sponsor: Mayor McFarland From: Plan Commission, Second Reading). Ald. Smith moved for adoption of ordinance 24-31 on the second reading, seconded by Ald. Bartz and carried by roll call vote: Yes-9; No-0; Abstain-0.

Ord. 24-32 - Adopt Amendments to the 2019 City of Watertown Comprehensive Plan (Sponsor: Mayor McFarland From: Plan Commission, Second Reading). Ald. Blanke moved for adoption of

ordinance 24-32 on the second reading, seconded by Ald. Board and carried by roll ca
Yes-9; No-0; Abstain-0.

RESOLUTIONS

Resolutions below are listed in order of the agenda but may not be the order by which they were taken up at the Council meeting.

Exh. 9680 - Resolution to apply for capital grant from the Department of Transportation for fleet purchases for Shared-Ride Taxi Service (Sponsor: Ald. Schmid, From: Transit Commission). Ald. Schmid moved to adopt resolution 9680, seconded by Ald. Moldenhauer and carried by unanimous voice vote.

Exh. 9681 - Resolution to apply for operating grant from the Department of Transportation for Shared-Ride Taxi Service (Sponsor: Ald. Schmid, From: Transit Commission). Ald. Schmid moved to adopt resolution 9681, seconded by Ald. Wetzel and carried by unanimous voice vote.

Ald. Moldenhauer moved to convene into closed session per § 19.85(c) considering employment, promotion, compensation or performance evaluation data of any public employee over which the governmental body has jurisdiction or exercises responsibility (Amending Union Contract with IAFF Local 877 Re: Vacation Scheduling), seconded by Ald. Schmid and carried by roll call vote: Yes-9 (Moldenhauer, Davis, Lampe, Board, Bartz, Blanke, Smith, Schmid, Wetzel); No-0; Abstain-0.

Ald. Board made a motion to reconvene into open session, seconded by Ald. Schmid and carried by unanimous voice vote.

Exh. 9682 - Resolution to amend the Fire Department Union Agreement (Sponsor: Mayor McFarland From: Finance). Ald. Schmid moved to adopt resolution 9682, seconded by Ald. Moldenhauer and carried by roll call vote: Yes-9; No-0; Abstain-0.

Exh. 9683 - Resolution to enter into an agreement with Mayville EMS Training Center (Sponsor: Mayor McFarland From: Finance Committee). Ald. Schmid moved to adopt resolution 9683, seconded by Ald. Moldenhauer and carried by unanimous voice vote.

Exh. 9684 - Resolution to apply for AFG Grant (Sponsor: Mayor McFarland From: Finance Committee). Ald. Moldenhauer moved to adopt resolution 9684, seconded by Ald. Davis and carried by unanimous voice vote.

Exh. 9685 - Resolution to enter into an MOU with WI DNR (Sponsor: Mayor McFarland From: Finance Committee). Ald. Schmid moved to adopt resolution 9685, seconded by Ald. Blanke and carried by unanimous voice vote.

Exh. 9686 - Resolution to Discontinue Public Way - Belmont Drive (Request withdrawn from applicant). Ald. Board moved to adopt resolution 9686, seconded by Ald. Davis and failed by roll call vote: Yes-0; No-9 (Board, Bartz, Blanke, Smith, Schmid, Wetzel, Moldenhauer, Davis, Lampe); Abstain-0.

COMMENTS AND SUGGESTIONS FROM CITIZENS PRESENT

No comments were received.

ADJOURNMENT

There being no further business to come before the Council at this time, Ald. Moldenhauer moved to adjourn, seconded by Ald. Board, and carried by unanimous voice vote at 7:19 p.m.

Respectfully Submitted,

Megan Dunneisen, City Clerk

DISCLAIMER: These minutes are uncorrected; any corrections will be noted in the proceedings at which these minutes are approved. Complete minutes are open for public inspection in the Clerk's Office. Video recording available at Watertown TV's YouTube page: https://www.youtube.com/c/WatertownTV

NOTICE OF PUBLIC HEARING

Pursuant to Wisconsin Department of Natural Resources NR 110.09(4), notice is hereby given by the Common Council of the City of Watertown, Wisconsin, that a public hearing will be held on the 17th day of December, 2024, in the Council Chambers of the Municipal Building, 106 Jones Street, Watertown, Wisconsin, at 7:00 p.m., or shortly thereafter, to consider the adoption of a facility plan for the City of Watertown Wastewater Treatment Plant. The proposed facility plan outlines potential improvements to the Wastewater Treatment Plant to occur over the next several years.

A copy of the facility plan is available for public review during normal business hours, Monday through Friday, between 8:00 a.m. and 4:30 p.m. in the Finance Department of City Hall, 106 Jones Street, Watertown, WI 53094. A copy of the facility plan will also be available at the public hearing. All persons wishing to be heard are invited to attend. Written comments may be submitted to the City of Watertown Wastewater Division at phartz@watertownwi.gov.

CITY OF WATERTOWN
Andrew Beyer, P.E.
Director of Public Works/City Engineer

PUBLISH:

December 3, 2024
and
December 10, 2024

(BLOCK AD)

Chapter 1
EXECUTIVE SUMMARY

The City of Watertown owns and operates a 5.2 million gallon per day (mgd) advanced wastewater treatment plant (WWTP) that serves all property within the City limits and discharges treated effluent to the Rock River. The WWTP's previous Facility Plan was completed in 2000, and a new wastewater treatment plant was constructed in 2004. The City is currently meeting its permitted discharge standards; however, plant loadings have begun to exceed design values outlined in the previous Facility Plan. The City authorized this Facility Plan to evaluate wastewater treatment alternatives for the planning area over a 20-year period (2027 through 2047) for the following reasons:

1. Influent loadings to the WWTP are exceeding the plant's rated capacity.
2. Existing treatment plant components are becoming obsolete due to age and condition.
3. The existing plant has reached the end of its 20-year design life.
4. To provide a plan for adequate capacity for future growth over the next 20 years.

The population of the City of Watertown was 24,357 in 2022 and is projected to grow to 27,492 by the year 2047. Waste load projections were developed based on the population growth and waste loads from major industrial dischargers. Figure 1-1 through Figure 1-5 present the existing and projected flows and pollutant loadings at the WWTP. These figures show that the existing plant is currently at 90-110% of rated plant capacity for BOD, TSS and TKN loading and will increase to 110-130% of its design capacity by the year 2047.

The WWTP has consistently met current effluent limits in its discharge permit. This excellent treatment performance is due to the diligence and hard work of the plant's operating staff. However, as the existing facilities and equipment age, it will be difficult to meet increasingly stringent discharge limits in the future.

An analysis of infiltration and inflow (I/I) indicated that the Watertown WWTP is experiencing excessive inflow. The City is drafting a new ordinance to require disconnection of drain tiles, and the WWTP will continue its current regime for handling and repairing I/I sources.

FIGURE 1-1
Annual Average Plant Flows

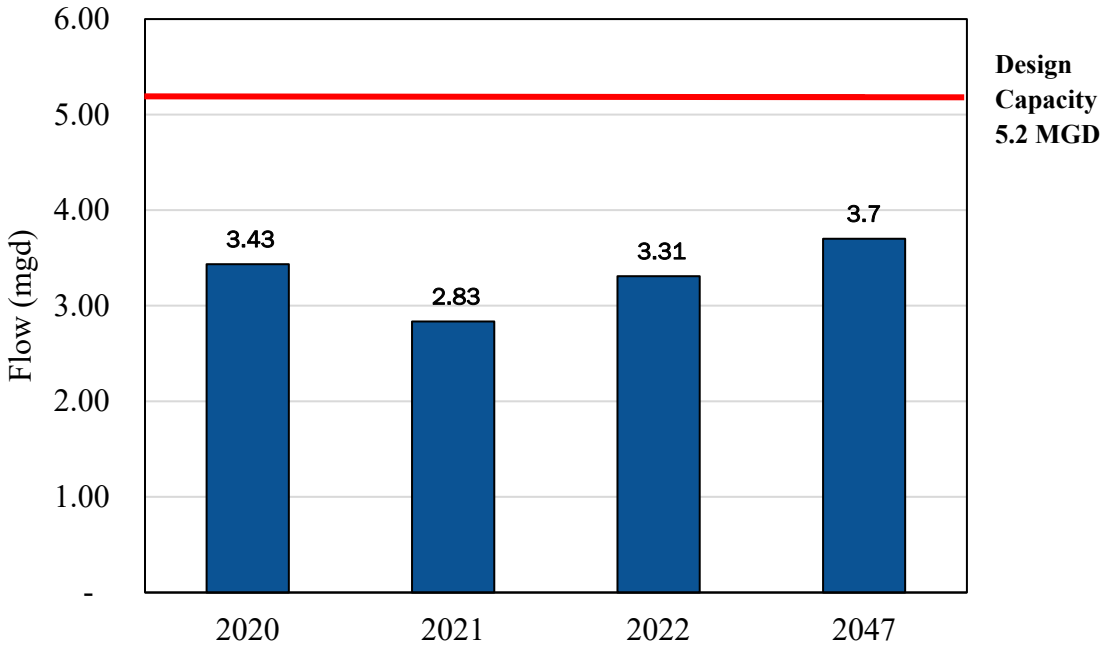


FIGURE 1-2
Annual Average BOD Loading

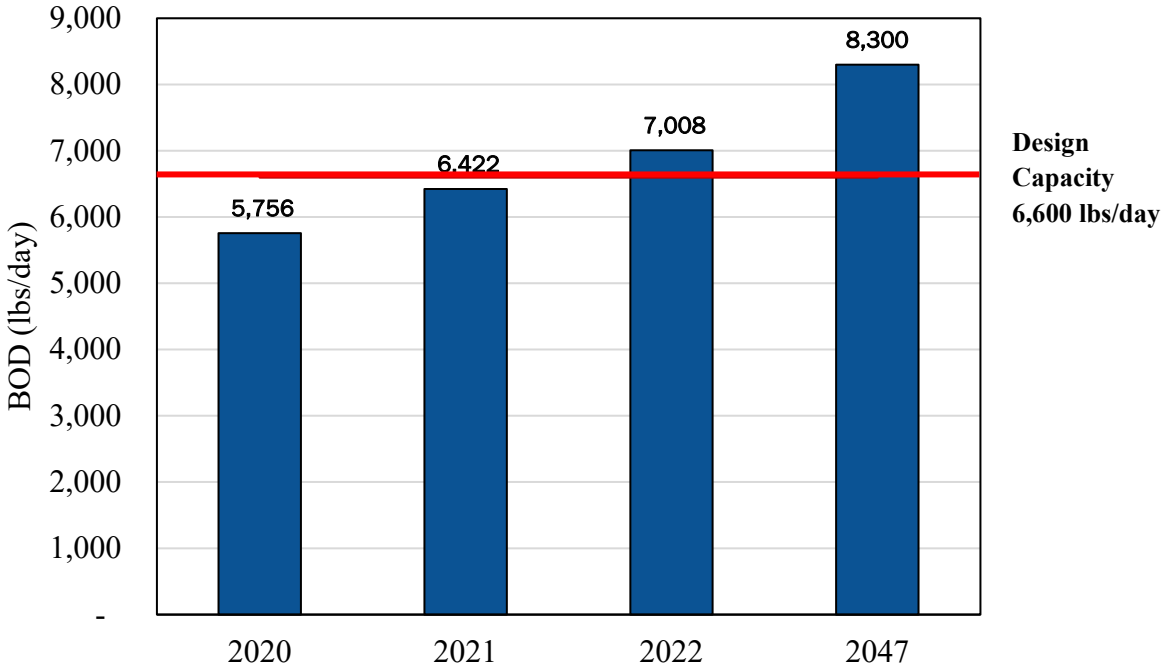


FIGURE 1-3
Annual Average TSS Loading

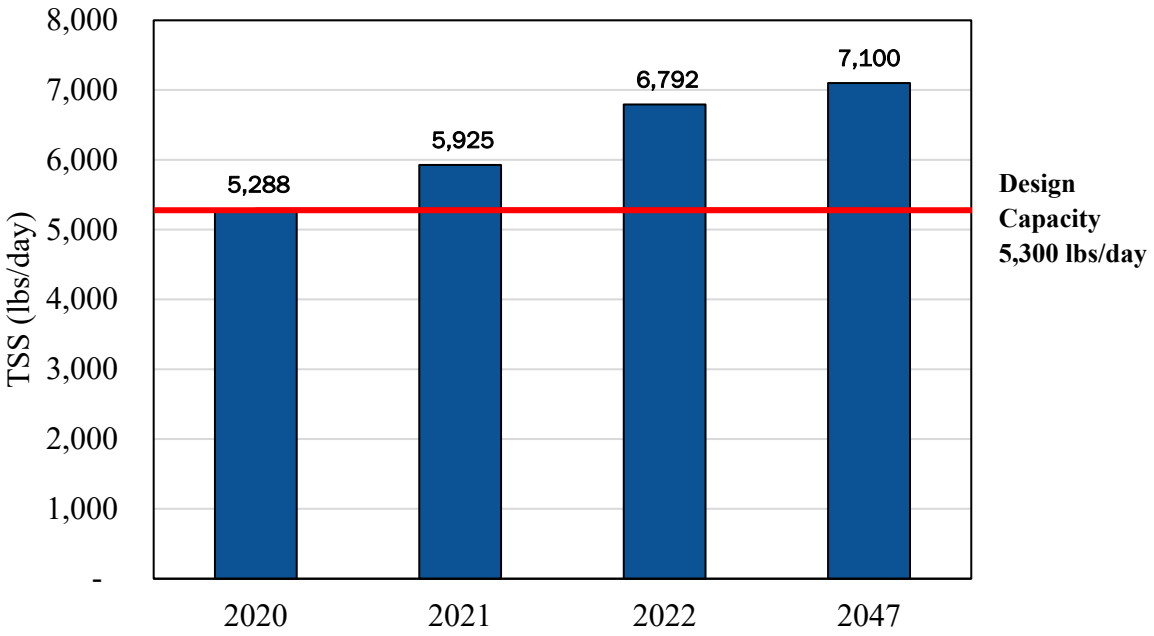


FIGURE 1-4
Annual Average TKN Loading

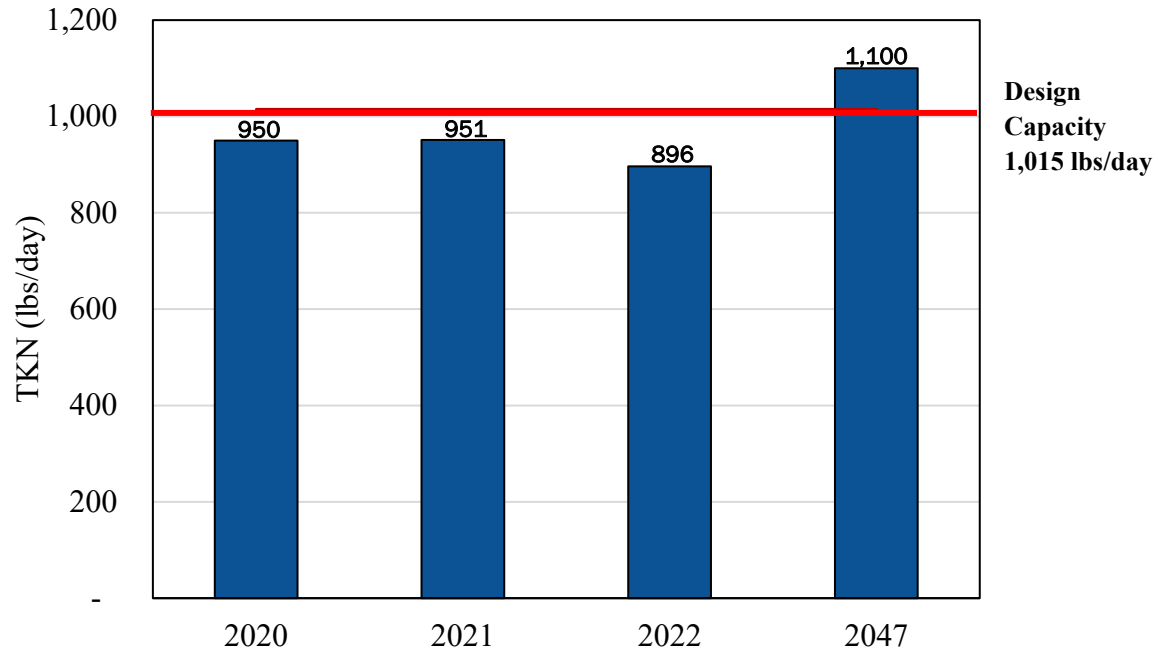
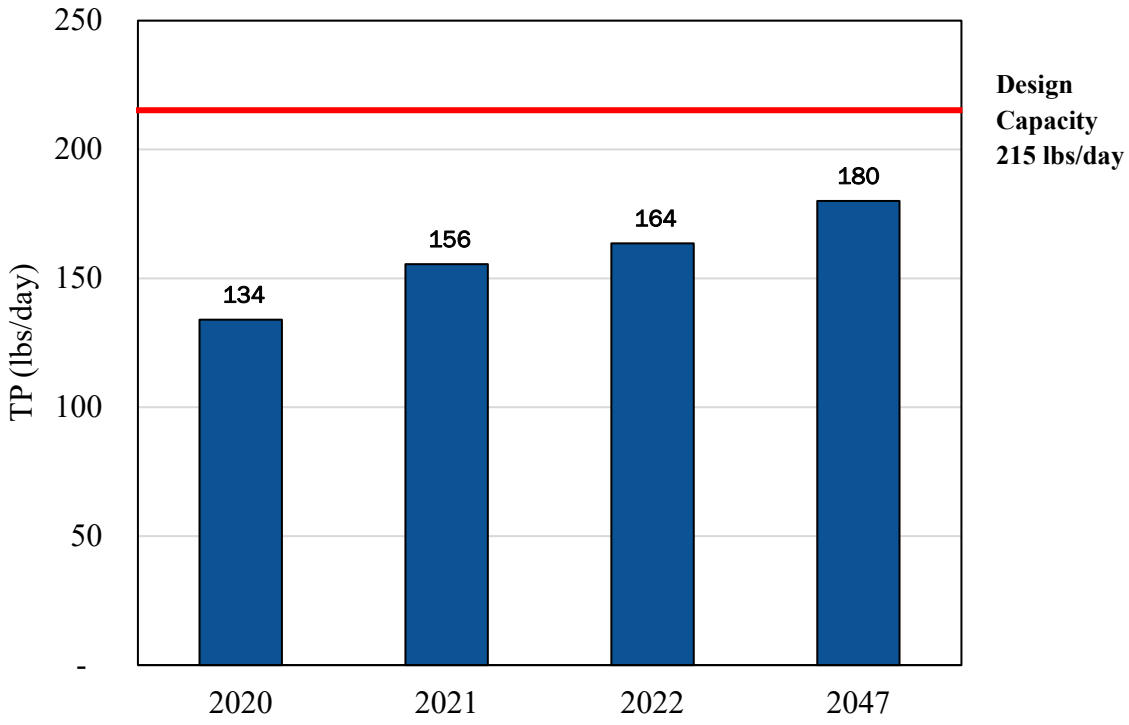


FIGURE 1-5
Annual Average TP Loading



Annual average design flows and loadings for the year 2047 were calculated by estimating residential and industrial flows and loadings. Design year flows were determined to remain less than the rated capacity of the WWTP. Therefore, the existing design flows will be used for capacity analysis and equipment sizing. Current peaking factors were used to calculate design maximum month, peak week, and peak day loadings. Results are summarized in Table 1-1.

Table 1-1
Influent Flows and Loadings, Design Year 2047

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	5.2	8,300	7,100	750	1,100	180
Maximum Month	8.8	13,900	15,000	1,000	1,400	400
Peak Week	10.4	16,300	19,500	1,300	1,900	550
Peak Day	24	29,100	44,500	2,000	2,800	710
Peak Hour	27	-	-	-	-	-

Evaluations of selected facilities at the Watertown WWTP were performed, focusing on the areas identified at the Facility Plan Kickoff meeting and subsequent update meetings. The capacities of the facilities were compared to the current wasteloads and projected design year 2047 waste loads. Deficiencies and shortfalls were discussed, and alternatives for upgrading the existing facilities were identified and evaluated via present worth economic analyses.

A majority of the recommended plan includes replacing in kind the aging equipment that has reached the end of its 20-year design life. Upgrades to select treatment process will be completed to allow the Watertown WWTP to handle the projected flows and loadings for the design year 2047. The plan is outlined in a phased approach, with required upgrades being separated into near-term (0-2 years), mid-term (3-5 years), or long-term (5-10 years) improvements. These improvements are described below and summarized in Table 1-2 through Table 1-4. The phase timelines and specific unit process improvements can be modified by the City based on facility needs and equipment condition.

Mid-term improvements will be made to the Raw Sewage Pump Station with provisions to operate a sixth raw sewage pump using a portable standby generator. The primary influent force mains will be equipped with electrically actuated valves for remote flushing of grit buildup in either pipe. Long-term improvements include the replacement of the raw sewage pumps in kind.

The Preliminary Treatment facilities will be upgraded in the near term with replacement fine screens, grit removal and grit washing equipment rated for the same hydraulic capacity as the existing systems.

Near-term Primary Treatment improvements include replacement of the primary sludge and scum pumps. Mid-term improvements include the addition of primary sludge line cleanouts to control vivianite buildup in the pipelines, and replacement of the mixers. The primary scum well will also be modified to reroute the subnatant to the headworks of the WWTP to avoid the buildup of fats, oils, and grease downstream of the Primary Clarifiers. Long-term improvements include replacing the primary clarifier mechanisms and drives.

The Secondary Treatment facilities will continue utilizing the existing activated sludge system, but the aging blowers and fine bubble diffusers will be upgraded in the mid-term to accommodate the increase in waste loads at the plant and maintain compliance with effluent limits. The Secondary Splitter Structure will be upgraded with isolation gate valves to allow the two treatment trains to operate in parallel, and the aging chemical feed system will be replaced. Chemical phosphorus removal will continue to be the primary system used to meet effluent total phosphorus limits throughout the planning period. Long-term improvements include replacing the secondary sludge pumps, mixers, and final clarifier mechanisms and drives.

The ultraviolet disinfection system will be replaced in the near term to match the disinfection capacity with the 27 mgd hydraulic capacity of the existing system. A structural analysis of the cascade aerator and effluent outfall will be completed as part of the mid-term improvements to ensure the structures remain in good condition throughout the planning period.

Mid- and long-term improvements to the Biosolids Handling facilities will include replacing the aging boiler, centrifuges, sludge grinders, polymer system, and sludge discharge conveyors. The anaerobic digesters date from the 1970s, so a structural assessment of the digesters and digester covers will be completed to ensure they will remain in good condition through the planning period. Other improvements include replacing the anaerobic digester mixers, waste gas burner and ancillary gas safety equipment.

Several miscellaneous upgrades will be made throughout the wastewater treatment facilities, including the near-term replacement of the transformer near the Raw Sewage Pump Station, standby power generator and automatic transfer switch, instrumentation and control systems, fire alarm, gas monitoring system, and HVAC systems. The site's storm water pumps will be replaced in kind within the planning period.

TABLE 1-2
Summary of Near-Term Plant Improvements

Unit Process	No.	Size/Capacity
Preliminary Treatment		
Fine Screens	2	13.5 mgd, each
Grit Removal System Upgrades	1	18-ft Dia, 20-ft depth
Primary Treatment		
Primary Sludge and Scum Pumps	4	54 gpm, each
Disinfection		
UV Disinfection System	1	27 mgd
Biosolids Treatment		
Polymer System	2	94 lb/hr, each
Miscellaneous Improvements		
Transformers/Electrical Service Upgrade	1	N/A
SCADA Improvements	1	N/A
Gas Monitoring System Replacement	1	N/A
Fire Alarm System Replacement	1	N/A

TABLE 1-3
Summary of Mid-Term Plant Improvements

Unit Process	No.	Size/Capacity
Raw Sewage Pumping		
Auxiliary Generator Upgrades	1	N/A
Primary Treatment		
Scum Well Upgrades	1	N/A
Scum Well Pump	1	250 gpm
Scum Well Mixer	1	N/A
Secondary Treatment		
Secondary Splitter Upgrades	1	N/A
Aeration Basin Concrete Rehabilitation	1	N/A
Aeration Blowers*	3	3,000 scfm, each
Fine Bubble Diffusers*	1	N/A
Chemical Feed Pumps	3	5-30 gpm, each
Chemical Storage Tank	1	10,000 gal
Biosolids Treatment		
Primary Sludge Line Cleanout Improvements	1	N/A
Anaerobic Digester Structural Assessment	1	N/A
Centrifuges	2	1,500 lb/hr, each
Sludge Grinders	2	170 gpm, each
Sludge Discharge Conveyor	1	N/A
Miscellaneous Improvements		
Cascade Aeration Assessment	1	N/A
Effluent Outfall Assessment	1	N/A
Generator/ATS	1	N/A
HVAC System Improvements*	1	N/A

TABLE 1-4
Summary of Long-Term Plant Improvements

Unit Process	No.	Size/Capacity
Raw Sewage Pumping		
Raw Sewage Pumps	5	4,700 gpm, each
Primary Treatment		
Primary Clarifier Mechanisms/Drives	2	85-ft Dia, 12-ft SWD
Secondary Treatment		
Anoxic Mixers	3	1,500 gpm, each
Mixed Liquor Recycle Pumps	3	2,600 gpm, each
Return Sludge Pumps	3	2,300 gpm, each
Waste Sludge Pumps	2	380 gpm, each
Final Scum Pump	1	150 gpm, each
Final Clarifier Mechanisms/Drives	2	90-ft Dia, 16-ft SWD
Biosolids Treatment		
Anaerobic Digester Mixers	5	9,000 gpm, each
Dual Fueled Boiler	1	3,400 MBh
Waste Gas Burner	1	7,900 scf/hr
Miscellaneous Improvements		
Storm Water Pumps	2	1,670 gpm, each

The estimated capital costs and debt service for the three projects are shown in Table 1-5, with the debt service estimated using the September 2024 Clean Water Fund (CWF) interest rate of 2.365%.

Table 1-5
Debt Service Estimate

Project	Project Cost	Loan Amount	Annual Principal and Interest Payment
Near-Term Improvements	$9,098,000	$8,188,000	$519,000
Mid-Term Improvements	$10,261,000	$9,235,000	$585,000
Long-Term Improvements	$14,063,000	$12,657,000	$802,000

It is estimated that the current utility rates are sufficient for the additional revenue requirements for the proposed Near-Term project. The final cost allocation and user charge rates will be determined from a user charge study after final project costs, CWFP impacts, and method of financing are determined

The steps and anticipated schedule for implementing the recommended plant are outlined below:

- Conduct Public Hearing ..... December 2024
- Submit Facility Plan to DNR ..... December 2024
- DNR Approval of Facility Plan ..... March 2025
- Near-Term Improvements
  - Begin Design ..... January 2025
  - Submit Plans and Specifications to the DNR ..... September 2025
  - Bidding ..... November 2025
  - DNR Approval of Plans and Specifications ..... December 2025
  - Submit Clean Water Fund Application ..... December 2025
  - Award of Contract ..... January 2026
  - Begin Construction ..... March 2026
  - Final Completion/Startup of Facilities ..... May 2027
- Mid-Term Improvements ..... January 2028
- Long-Term Improvements ..... January 2030

November 2024

ENGINEERING REPORT

THE CITY OF WATERTOWN

Wastewater Treatment Plant Facility Plan

Applied Technologies
Engineers - Architects

PN6573

Engineering Report

City of Watertown

WASTEWATER TREATMENT PLANT FACILITY PLAN

November 2024

Prepared by:
Applied Technologies, Inc.
13400 Bishop's Lane, Suite 270
Brookfield, WI 53005
(262) 784-7690

PN6573

Table of Contents

CHAPTER 7 – RECOMMENDED PLAN AND IMPLEMENTATION

Chapter 1
EXECUTIVE SUMMARY

The City of Watertown owns and operates a 5.2 million gallon per day (mgd) advanced wastewater treatment plant (WWTP) that serves all property within the City limits and discharges treated effluent to the Rock River. The WWTP's previous Facility Plan was completed in 2000, and a new wastewater treatment plant was constructed in 2004. The City is currently meeting its permitted discharge standards; however, plant loadings have begun to exceed design values outlined in the previous Facility Plan. The City authorized this Facility Plan to evaluate wastewater treatment alternatives for the planning area over a 20-year period (2027 through 2047) for the following reasons:

1. Influent loadings to the WWTP are exceeding the plant's rated capacity.
2. Existing treatment plant components are becoming obsolete due to age and condition.
3. The existing plant has reached the end of its 20-year design life.
4. To provide a plan for adequate capacity for future growth over the next 20 years.

The population of the City of Watertown was 24,357 in 2022 and is projected to grow to 27,492 by the year 2047. Waste load projections were developed based on the population growth and waste loads from major industrial dischargers. Figure 1-1 through Figure 1-5 present the existing and projected flows and pollutant loadings at the WWTP. These figures show that the existing plant is currently at 90-110% of rated plant capacity for BOD, TSS and TKN loading and will increase to 110-130% of its design capacity by the year 2047.

The WWTP has consistently met current effluent limits in its discharge permit. This excellent treatment performance is due to the diligence and hard work of the plant's operating staff. However, as the existing facilities and equipment age, it will be difficult to meet increasingly stringent discharge limits in the future.

An analysis of infiltration and inflow (I/I) indicated that the Watertown WWTP is experiencing excessive inflow. The City is drafting a new ordinance to require disconnection of drain tiles, and the WWTP will continue its current regime for handling and repairing I/I sources.

FIGURE 1-1
Annual Average Plant Flows

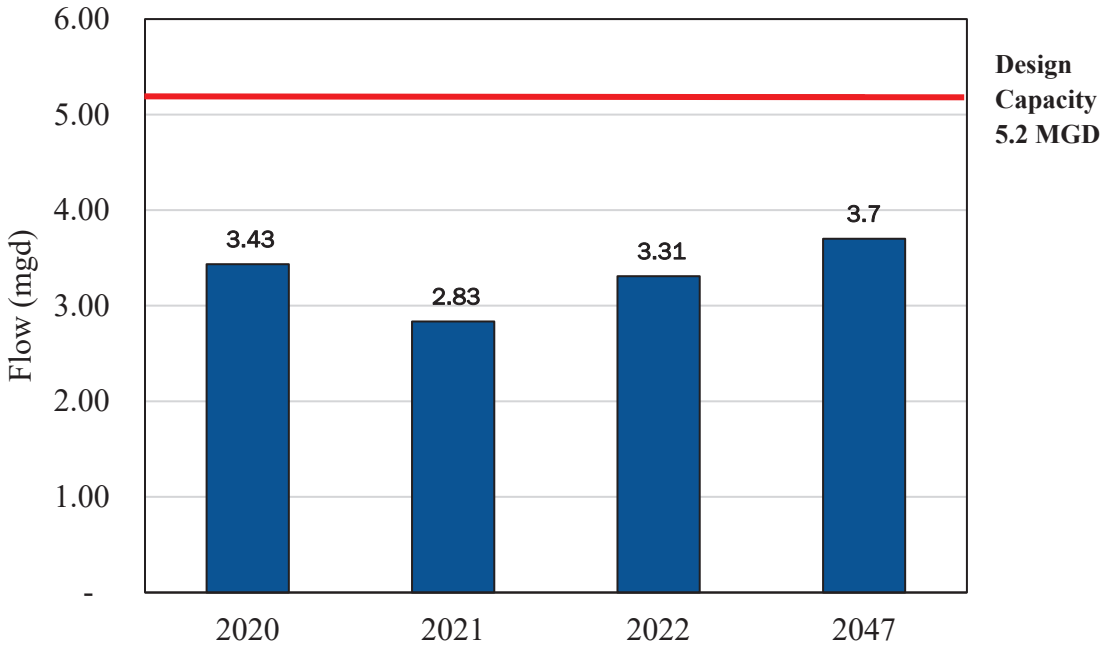


FIGURE 1-2
Annual Average BOD Loading

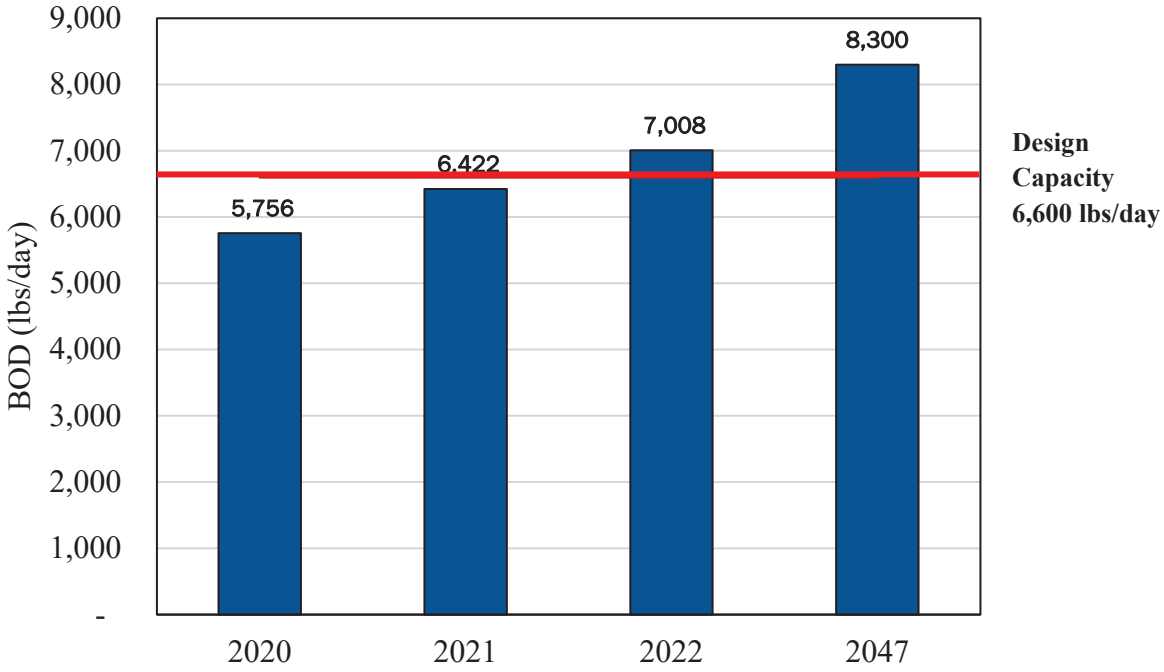


FIGURE 1-3
Annual Average TSS Loading

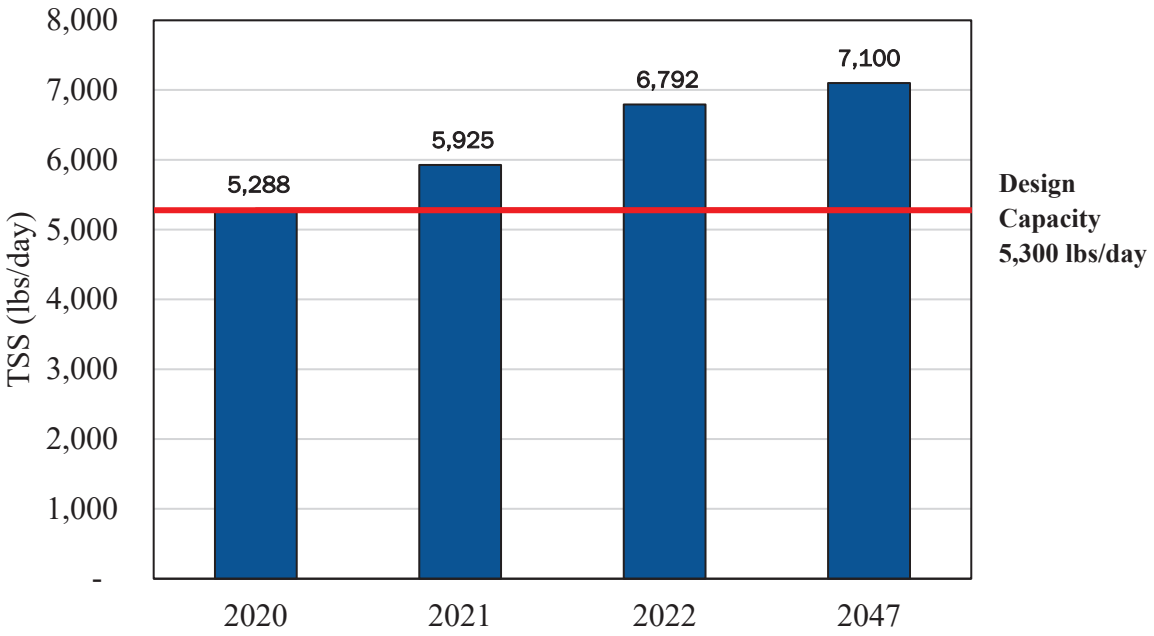


FIGURE 1-4
Annual Average TKN Loading

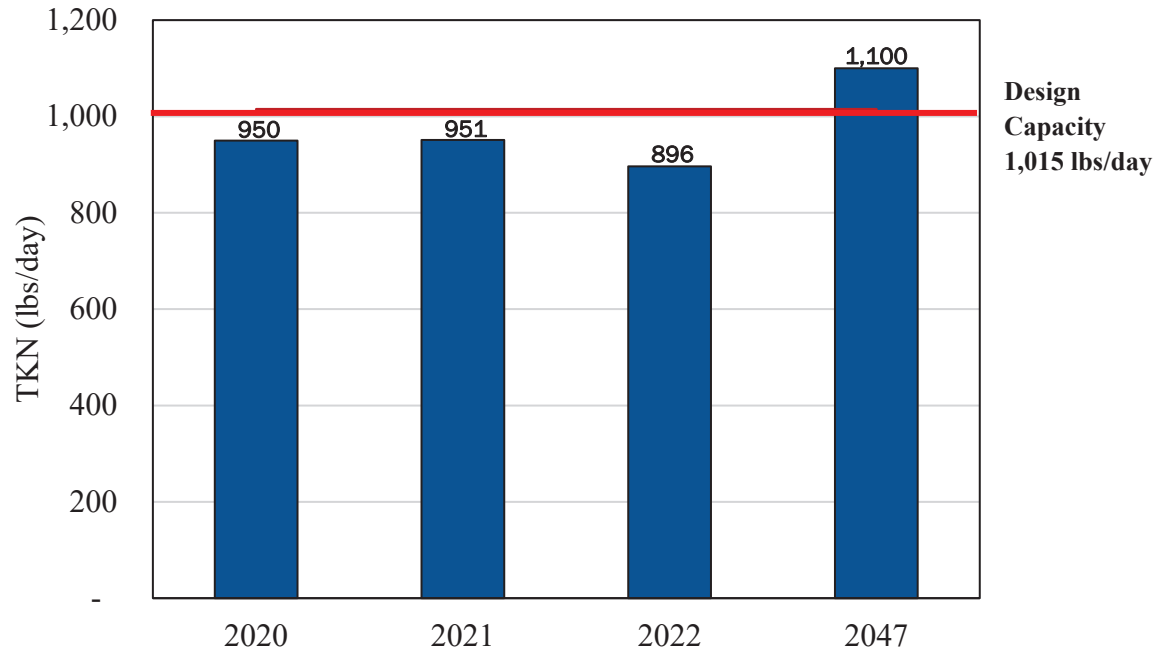
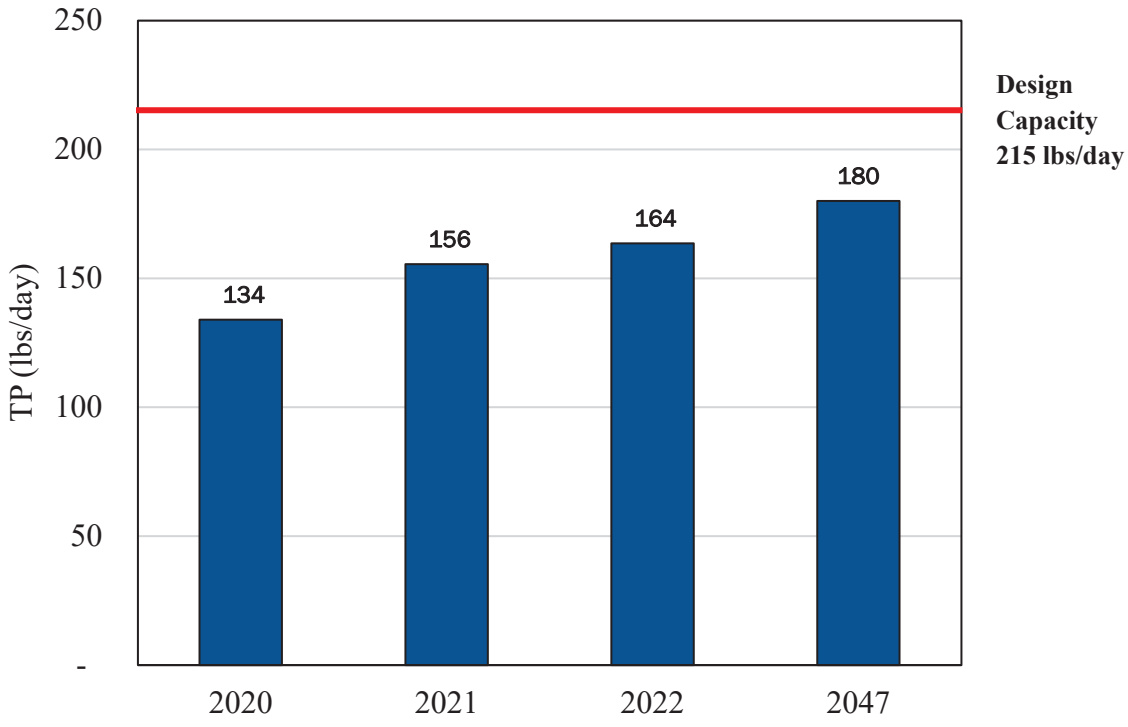


FIGURE 1-5
Annual Average TP Loading



Annual average design flows and loadings for the year 2047 were calculated by estimating residential and industrial flows and loadings. Design year flows were determined to remain less than the rated capacity of the WWTP. Therefore, the existing design flows will be used for capacity analysis and equipment sizing. Current peaking factors were used to calculate design maximum month, peak week, and peak day loadings. Results are summarized in Table 1-1.

Table 1-1
Influent Flows and Loadings, Design Year 2047

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	5.2	8,300	7,100	750	1,100	180
Maximum Month	8.8	13,900	15,000	1,000	1,400	400
Peak Week	10.4	16,300	19,500	1,300	1,900	550
Peak Day	24	29,100	44,500	2,000	2,800	710
Peak Hour	27	-	-	-	-	-

Evaluations of selected facilities at the Watertown WWTP were performed, focusing on the areas identified at the Facility Plan Kickoff meeting and subsequent update meetings. The capacities of the facilities were compared to the current wasteloads and projected design year 2047 waste loads. Deficiencies and shortfalls were discussed, and alternatives for upgrading the existing facilities were identified and evaluated via present worth economic analyses.

A majority of the recommended plan includes replacing in kind the aging equipment that has reached the end of its 20-year design life. Upgrades to select treatment process will be completed to allow the Watertown WWTP to handle the projected flows and loadings for the design year 2047. The plan is outlined in a phased approach, with required upgrades being separated into near-term (0-2 years), mid-term (3-5 years), or long-term (5-10 years) improvements. These improvements are described below and summarized in Table 1-2 through Table 1-4. The phase timelines and specific unit process improvements can be modified by the City based on facility needs and equipment condition.

Mid-term improvements will be made to the Raw Sewage Pump Station with provisions to operate a sixth raw sewage pump using a portable standby generator. The primary influent force mains will be equipped with electrically actuated valves for remote flushing of grit buildup in either pipe. Long-term improvements include the replacement of the raw sewage pumps in kind.

The Preliminary Treatment facilities will be upgraded in the near term with replacement fine screens, grit removal and grit washing equipment rated for the same hydraulic capacity as the existing systems.

Near-term Primary Treatment improvements include replacement of the primary sludge and scum pumps. Mid-term improvements include the addition of primary sludge line cleanouts to control vivianite buildup in the pipelines, and replacement of the mixers. The primary scum well will also be modified to reroute the subnatant to the headworks of the WWTP to avoid the buildup of fats, oils, and grease downstream of the Primary Clarifiers. Long-term improvements include replacing the primary clarifier mechanisms and drives.

The Secondary Treatment facilities will continue utilizing the existing activated sludge system, but the aging blowers and fine bubble diffusers will be upgraded in the mid-term to accommodate the increase in waste loads at the plant and maintain compliance with effluent limits. The Secondary Splitter Structure will be upgraded with isolation gate valves to allow the two treatment trains to operate in parallel, and the aging chemical feed system will be replaced. Chemical phosphorus removal will continue to be the primary system used to meet effluent total phosphorus limits throughout the planning period. Long-term improvements include replacing the secondary sludge pumps, mixers, and final clarifier mechanisms and drives.

The ultraviolet disinfection system will be replaced in the near term to match the disinfection capacity with the 27 mgd hydraulic capacity of the existing system. A structural analysis of the cascade aerator and effluent outfall will be completed as part of the mid-term improvements to ensure the structures remain in good condition throughout the planning period.

Mid- and long-term improvements to the Biosolids Handling facilities will include replacing the aging boiler, centrifuges, sludge grinders, polymer system, and sludge discharge conveyors. The anaerobic digesters date from the 1970s, so a structural assessment of the digesters and digester covers will be completed to ensure they will remain in good condition through the planning period. Other improvements include replacing the anaerobic digester mixers, waste gas burner and ancillary gas safety equipment.

Several miscellaneous upgrades will be made throughout the wastewater treatment facilities, including the near-term replacement of the transformer near the Raw Sewage Pump Station, standby power generator and automatic transfer switch, instrumentation and control systems, fire alarm, gas monitoring system, and HVAC systems. The site's storm water pumps will be replaced in kind within the planning period.

TABLE 1-2
Summary of Near-Term Plant Improvements

Unit Process	No.	Size/Capacity
Preliminary Treatment		
Fine Screens	2	13.5 mgd, each
Grit Removal System Upgrades	1	18-ft Dia, 20-ft depth
Primary Treatment		
Primary Sludge and Scum Pumps	4	54 gpm, each
Disinfection		
UV Disinfection System	1	27 mgd
Biosolids Treatment		
Polymer System	2	94 lb/hr, each
Miscellaneous Improvements		
Transformers/Electrical Service Upgrade	1	N/A
SCADA Improvements	1	N/A
Gas Monitoring System Replacement	1	N/A
Fire Alarm System Replacement	1	N/A

TABLE 1-3
Summary of Mid-Term Plant Improvements

Unit Process	No.	Size/Capacity
Raw Sewage Pumping		
Auxiliary Generator Upgrades	1	N/A
Primary Treatment		
Scum Well Upgrades	1	N/A
Scum Well Pump	1	250 gpm
Scum Well Mixer	1	N/A
Secondary Treatment		
Secondary Splitter Upgrades	1	N/A
Aeration Basin Concrete Rehabilitation	1	N/A
Aeration Blowers*	3	3,000 scfm, each
Fine Bubble Diffusers*	1	N/A
Chemical Feed Pumps	3	5-30 gpm, each
Chemical Storage Tank	1	10,000 gal
Biosolids Treatment		
Primary Sludge Line Cleanout Improvements	1	N/A
Anaerobic Digester Structural Assessment	1	N/A
Centrifuges	2	1,500 lb/hr, each
Sludge Grinders	2	170 gpm, each
Sludge Discharge Conveyor	1	N/A
Miscellaneous Improvements		
Cascade Aeration Assessment	1	N/A
Effluent Outfall Assessment	1	N/A
Generator/ATS	1	N/A
HVAC System Improvements*	1	N/A

TABLE 1-4
Summary of Long-Term Plant Improvements

Unit Process	No.	Size/Capacity
Raw Sewage Pumping		
Raw Sewage Pumps	5	4,700 gpm, each
Primary Treatment		
Primary Clarifier Mechanisms/Drives	2	85-ft Dia, 12-ft SWD
Secondary Treatment		
Anoxic Mixers	3	1,500 gpm, each
Mixed Liquor Recycle Pumps	3	2,600 gpm, each
Return Sludge Pumps	3	2,300 gpm, each
Waste Sludge Pumps	2	380 gpm, each
Final Scum Pump	1	150 gpm, each
Final Clarifier Mechanisms/Drives	2	90-ft Dia, 16-ft SWD
Biosolids Treatment		
Anaerobic Digester Mixers	5	9,000 gpm, each
Dual Fueled Boiler	1	3,400 MBh
Waste Gas Burner	1	7,900 scf/hr
Miscellaneous Improvements		
Storm Water Pumps	2	1,670 gpm, each

The estimated capital costs and debt service for the three projects are shown in Table 1-5, with the debt service estimated using the September 2024 Clean Water Fund (CWF) interest rate of 2.365%.

Table 1-5
Debt Service Estimate

Project	Project Cost	Loan Amount	Annual Principal and Interest Payment
Near-Term Improvements	$9,098,000	$8,188,000	$519,000
Mid-Term Improvements	$10,261,000	$9,235,000	$585,000
Long-Term Improvements	$14,063,000	$12,657,000	$802,000

It is estimated that the current utility rates are sufficient for the additional revenue requirements for the proposed Near-Term project. The final cost allocation and user charge rates will be determined from a user charge study after final project costs, CWFP impacts, and method of financing are determined

The steps and anticipated schedule for implementing the recommended plant are outlined below:

- Conduct Public Hearing ..... December 2024
- Submit Facility Plan to DNR ..... December 2024
- DNR Approval of Facility Plan ..... March 2025
- Near-Term Improvements
  - Begin Design ..... January 2025
  - Submit Plans and Specifications to the DNR ..... September 2025
  - Bidding ..... November 2025
  - DNR Approval of Plans and Specifications ..... December 2025
  - Submit Clean Water Fund Application ..... December 2025
  - Award of Contract ..... January 2026
  - Begin Construction ..... March 2026
  - Final Completion/Startup of Facilities ..... May 2027
- Mid-Term Improvements ..... January 2028
- Long-Term Improvements ..... January 2030

Chapter 2
INTRODUCTION

This report presents the conclusions and recommendations of the Wastewater Facility Plan for the City of Watertown (City) Wastewater Treatment Plant (WWTP) in Jefferson County, Wisconsin. The planning area includes the City of Watertown and adjacent portions of the Towns of Watertown, Ixonia, and Milford in Jefferson County, and the Towns of Emmet, Lebanon and Shields in Dodge County. This project was undertaken by the City to evaluate wastewater treatment alternatives for the planning area over the next 20 years.

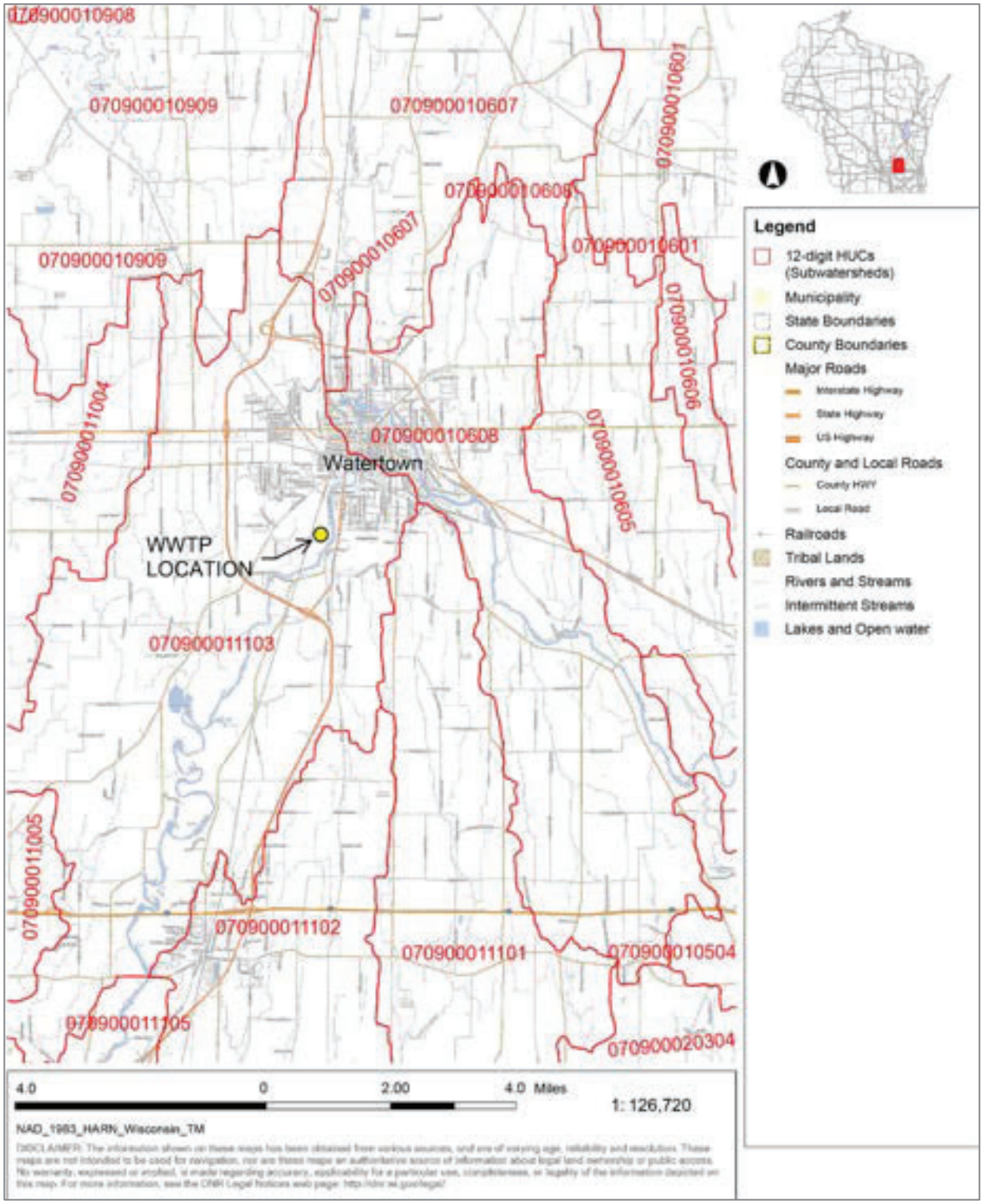
The facility planning process is required by the Wisconsin Department of Natural Resources (WDNR) and U.S. Environmental Protection Agency (EPA) prior to the expansion or modification of a wastewater treatment plant or to receive any grant money for the construction of wastewater treatment facilities. The planning process is a systematic, economic, technical, and environmental evaluation of alternatives for wastewater treatment and disposal. The recommended wastewater treatment alternative must meet the required effluent limitations and be cost effective. The facility planning procedure assures the public and all levels of government that decisions regarding the facilities are soundly made and consider all relevant factors.

PROJECT BACKGROUND

The City of Watertown owns and operates a 5.2 mgd conventional activated sludge WWTP that serves all property within the City limits. The WWTP's previous Facility Plan was completed in 2000, and a new wastewater treatment plant was constructed in 2004. The WWTP upgrade increased the loading capacity to 6,600 lb/day of BOD and maintained the 5.2 mgd design flow. The WWTP upgrade included raw sewage pumping, fine screening and grit removal, primary clarification, activated sludge treatment, chemical phosphorus removal, final clarification, UV disinfection, anaerobic digestion, sludge dewatering and cake sludge storage.

The WWTP discharges to the Rock River (Middle Rock River Watershed, UR01 – Upper Rock River Basin) in Jefferson County. The WWTP is located within the Hahns Lake-Rock River subwatershed of the Middle Rock River, defined by defined by its 12-digit hydrological unit code (HUC-12) 070900011103 and shown in Figure 2-1. The WWTP site is located outside of the Federal Emergency Management Agency (FEMA) 100-year floodplain as shown in Figure 2-2.

FIGURE 2-1
HUC-12 Watersheds



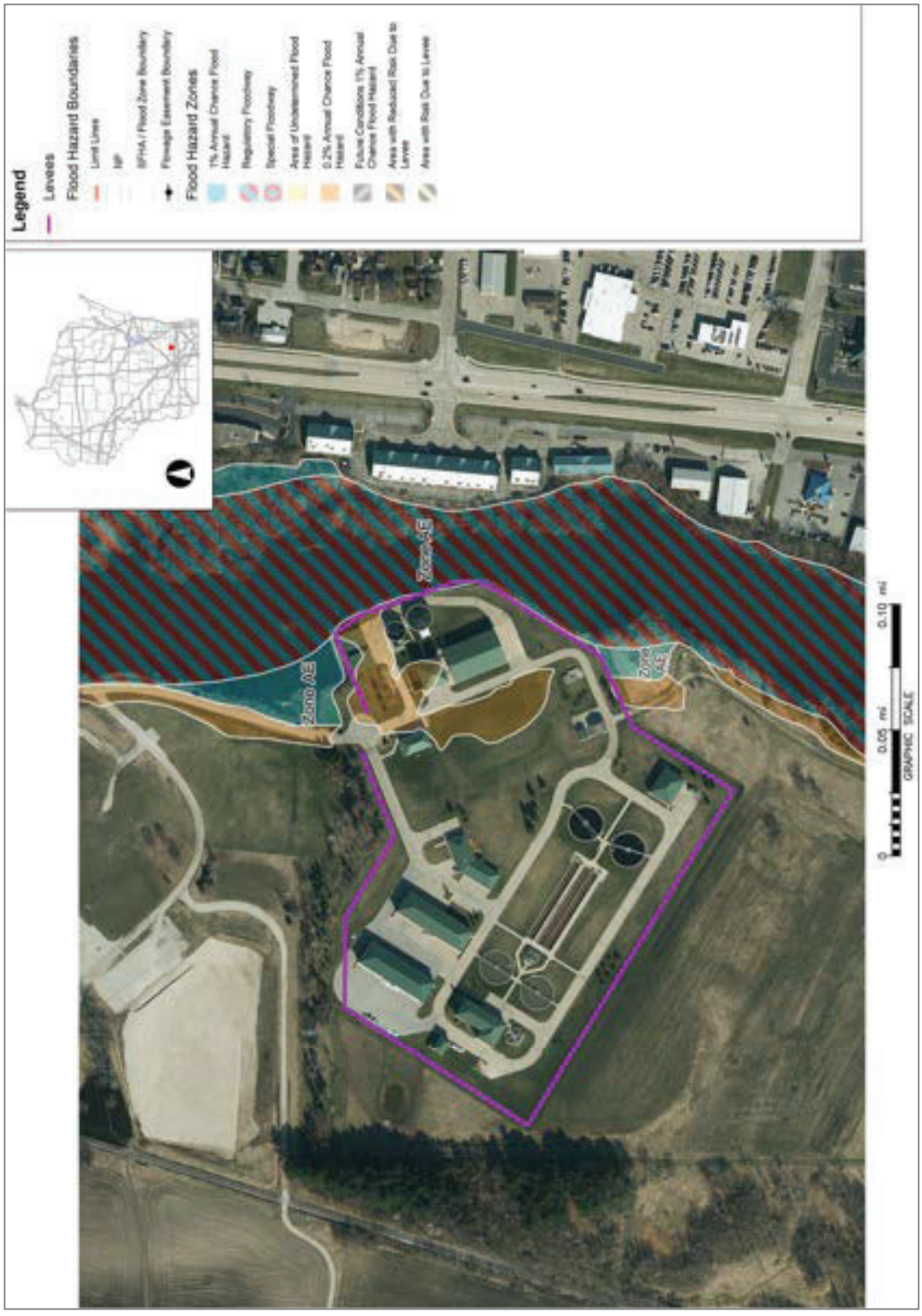


FIGURE 2-2
Flood Hazard Zones

The City of Watertown WWTP is currently meeting its permitted discharge standards. Effluent quality in 2020-2022 averaged 4.5 mg/L BOD, 4.5 mg/L total suspended solids (TSS), 0.12 mg/L ammonia nitrogen (NH3-N) and 0.44 mg/L total phosphorus (TP). However, influent plant loadings have begun to exceed design values outlined in the 2000 Facility Plan. Waste loadings for BOD, TSS, TKN, and TP are in the range of 90-110% of rated plant capacity. Future effluent limitations will also place greater demands on the existing plant infrastructure.

The City decided to undertake this Facility plan for the following reasons:

1. Influent loadings to the WWTP are exceeding the plant's rated capacity.
2. Existing treatment plant components are becoming obsolete due to age and condition.
3. The existing plant has reached the end of its 20-year design life.
4. To provide a plan for adequate capacity for future growth over the next 20 years.

PURPOSE AND SCOPE

A Facilities Plan develops the most cost-effective and environmentally sound plan for wastewater management to abate existing sources of pollution, provide adequate treatment capacity for future growth in the planning area, and meet area wide water quality standards and water management goals issues by the WDNR. The most current planning guidelines and regulations distributed by the U.S. EPA and WDNR were used to prepare this report.

The scope of work for this Facility Plan included the following activities:

1. Review and develop project goals and objectives by conducting a meeting with the City. The meeting will include discussion of items such as the City's objectives, scope of services, schedule, key project personnel, and project concerns.
2. Review existing data and facilities including the following tasks:
   A. Obtain influent, effluent, and biosolids data for a minimum of three years.
   B. Acquire previous reports.
   C. Analyze the performance of the existing plant and individual plant operations.
   D. Visit the facilities to identify items that will require upgrade or replacement.
3. Prepare an infiltration/inflow (I/I) analysis to determine the amount and type of I/I. Perform a cost-effectiveness analysis to evaluate the cost of additional plant hydraulic capacity to convey and treat I/I versus typical I/I reduction measures. Determine cost-

effective approach and whether I/I is “non excessive” according to EPA and DNR guidelines.

4. Prepare a 10- and 20-year population and flow projections using existing wastewater and population data and population projections from the Southeast Wisconsin Regional Planning Committee (SEWRPC) and Wisconsin Department of Administration (DOA).
5. Prepare and send industrial surveys to determine future capacity needs. Review existing industrial monitoring test results as provided by the Cit to obtain current baseline loading levels. Revise loading projections with information obtained from the industrial survey.
6. Correspond with the WDNR to develop effluent limits as appropriate for the projected wastewater flows.
7. Summarize condition and performance of existing facilities based on the current and projected flows and loadings, the stated design capacities from previous reports, and an updated condition assessment.
8. Identify, develop, and evaluate viable alternative that address the needs of the City. Conduct a brainstorming meeting with City staff to obtain their input and screen the alternatives.
9. Prepare sizing and layouts for the viable alternatives. Identify unit process dimensions and potential arrangements on the present facility sites.
10. Prepare a cost-effectiveness analysis and evaluate the non-monetary advantages and disadvantages of the viable alternatives. Estimate capital costs and operations and maintenance costs for each. Compile and submit this information to City staff for their review and input. After obtaining the City’s input, meet with City staff and recommend a preferred alternative.
11. Estimate the impact of the selected alternative on the City’s sewer user charge system and the average residential homeowner.
12. Develop an implementation plan and schedule for the selected alternative.
13. Prepare a draft Wastewater Treatment Facility Plan for review and input by City staff. Revise the draft Plan, if necessary, and present it at a City meeting.
14. Assist the City in conducting a public hearing on the City-approved draft Wastewater Treatment Facility Plan.
15. Finalize the Wastewater Treatment Facility Plan, incorporating comments from the City, and submit it to the WDNR. Review WDNR comments and respond.

PLANNING AREA AND STUDY PERIOD

The planning area for the Facility Plan was developed based on the City's Comprehensive Master Plan. The Comprehensive Master Plan was finalized in December 2019 and presents a plan for the short- and long-range growth and development of the City of Watertown. The general planning area is considered to be the City of Watertown 3-mile Extraterritorial Jurisdiction Limit (ETJ). The planning area encompasses the current Urban Service Area, which is the area where the City expects to be able to provide municipal services within the next 20 years. The planning area is located in southeast central Wisconsin, approximately 45 miles west of Milwaukee and 35 miles east of Madison. A map of the planning area for the Facility Plan is provided in the Appendix.

In accordance with NR 110 of the Wisconsin Administrative Code, the planning period for the Facility Plan will be 20 years. The planning period begins with the start-up of the proposed facilities, which should occur in 2027. Therefore, the planning period encompasses the years 2027 through 2047.

Chapter 3
EFFLUENT LIMITATIONS

Effluent limitations are based on the water use objectives and water quality standards that are developed to achieve the desired results. In Wisconsin, these objectives and standards are established by Federal, State, and regional agencies and are administered through the Wisconsin Pollutant Discharge Elimination System (WPDES). Under this system, the Wisconsin Department of Natural Resources (WDNR) issues WPDES permits to each discharger in the state, setting forth the effluent limitations that must be met.

This chapter briefly reviews Federal and State water use objectives and water quality standards, the water quality of the receiving stream, and the proposed WPDES permits and related effluent limitations.

WATER QUALITY STANDARDS

Recognizing the need for a nationwide approach to water quality, the U.S. Congress, through the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), declared its objective to restore and maintain the chemical, physical and biological integrity of the nation's waters. Congress also required the establishment of water quality standards for all waters consistent with the applicable requirements of the Act.

The Wisconsin Legislature, in Chapter 281 of the Wisconsin Statues, recognized that different standards should be required for different waters. Wisconsin water use objectives and water quality standards have been identified and cited in Chapters NR 102 through NR 106 of the Wisconsin Administrative Code with amendments and revisions created as needed.

The Watertown WWTP discharges to the Rock River within the Middle Rock River Watershed in the Upper Rock River Basin in Jefferson County. The Rock River is classified by the WDNR to meet the water quality standards for Warm Water Sport Fish community, in accordance with NR102 and 104. The City is required to meet Water Quality Based Effluent Limits (WQBELs) based on chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code. The City is also required to meet additional mass limitations for total phosphorus (TP) and total suspended solids (TSS) in accordance with the Rock River Basin Total Maximum Daily Loads (TMDL).

DISCHARGE PERMIT REQUIREMENTS

Public Law 92-500 requires a National Pollutant Discharge Elimination System (NPDES) permit for any point sources discharge of pollutants into the nation's navigable waters. Chapter 283 of the Wisconsin Statues authorizes the DNR to "establish, administer, and maintain a state pollutant discharge elimination system." This permit system, known as WPDES, conforms to the objectives and requirements of Public Law 92-500. The State of Wisconsin has expanded the permit system beyond the navigable waters concept by applying it to all of the State's receiving waters.

The Watertown WWTP operates under WPDES Permit No. WI-0028541-09-3, for discharging effluent to the Rock River within the Middle Rock River Watershed in the Upper Rock River Basin in Jefferson County. A copy of the current permit is included in the Appendix. The permit was issued in September 2020 and expires on September 30th, 2025. Several permit modifications have been authorized during the permit term:

- The permit was initially modified to authorize blending and to modify flow and metals sampling frequency.
- The permit was modified on October 1, 2022, to authorize Water Quality Trading for phosphorus, remove the Multi Discharger Variance, and remove bacteria monitoring requirements for fecal coliform. Fecal coliform limits were replaced with requirements for E. coli monitoring and limitations.
- The permit was modified on March 13, 2024, to authorize Water Quality Trading for TSS.

Planning effluent discharge limits were requested from the WDNR during the facility planning effort. The effluent limits request was based on the proposed 20-year design flows and loadings for the wastewater treatment plant. The WDNR provided an WQBEL memorandum that described recommended effluent limitations for the 20-year planning period. A copy of the WQBEL memorandum is provided in the Appendix, and a summary of recommended effluent limitations is provided in Table 3-1.

Additional TP and TSS mass limitations are required in accordance with the waste load allocations specified in the Rock River TMDL. The mass limitations are summarized in Table 3-2.

TABLE 3-1
WDNR Recommended Effluent Limitations

Parameter		Average		Daily	
		Weekly	Monthly	Maximum	Minimum
BOD_5	January	31 mg/L (1,400 lbs/d)	30 mg/L		
	February	35 mg/L (1,500 lbs/d)	30 mg/L		
	March – May	45 mg/L	30 mg/L		
	June	16 mg/L (690 lb/d)	16 mg/L		
	July and October	12 mg/L (530 lb/d)	12 mg/L		
	August – September	10 mg/L (450 lb/d)	10 mg/L		
	November	25 mg/L (1,100 lb/d)	25 mg/L		
	December	29 mg/L (1,300 lb/d)	29 mg/L		
TSS	January	31 mg/L	30 mg/L		
	February	35 mg/L	30 mg/L		
	March – May	45 mg/L	30 mg/L		
	June	16 mg/L	16 mg/L		
	July and October	12 mg/L	12 mg/L		
	August – September	10 mg/L	10 mg/L		
	November	25 mg/L	25 mg/L		
	December	29 mg/L	29 mg/L		
Ammonia Nitrogen	November – March	20 mg/L	20 mg/L	20 mg/L	
	April – May	No Limit	No Limit	No Limit	
	June	17 mg/L	17 mg/L	No Limit	
	July	9.0 mg/L	9.0 mg/L	No Limit	
	August	6.4 mg/L	6.4 mg/L	No Limit	
	September	8.9 mg/L	8.9 mg/L	No Limit	
	October	13 mg/L	9.3 mg/L	No Limit	
Phosphorus[1,3]	July – March, May			1.0 mg/L	
	April – June			0.8 mg/L	
Bacteria[2] (*E. coli*)			126 #/100 mL		
pH				9.0 s.u.	6.0 s.u.
Dissolved Oxygen					6.0 mg/L

1. Geometric mean. Bacteria limits apply during the disinfection season of May through September. Additional limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100mL.
2. If water quality trading is used as compliance option for phosphorus, the concentration limits shown in Table 3-1 would be required to continue as minimum control levels.

TABLE 3-2
Total Phosphorus and Total Suspended Solids Mass Limitations

Month	Weekly Average TSS Effluent Limit (lbs/day)[1]	Monthly Average TSS Effluent Limit (lbs/day)	Monthly Average TP Effluent Limit (lbs/day)
January	1,400	1,270	13.7
February	1,500	1,410	19.5
March	2,270	1,270	18.4
April	2,340	1,310	18.3
May	2,270	1,270	16.5
June	690	700	17.6
July	530	510	17.7
August	450	430	16.2
September	440	440	14.8
October	530	510	12.3
November	1,100	1,100	12.3
December	1,300	1,230	11.9

1. The TMDL-derived weekly average TSS limits are superseded by more stringent TSS limits for the months of June through February that were included in the permit prior to the TMDL. The most restrictive limits are presented in the table above.

Chapter 4
CURRENT SITUATION

This chapter presents an analysis of the existing collection system's infiltration/inflow and the current flows and waste loadings received at the Watertown WWTP. The examined wasteloads include residential, commercial, institutional, and industrial sources.

INFILTRATION AND INFLOW ANALYSIS

Sanitary sewer systems are designed to transport the wastewater of a community to the wastewater treatment plant. Rainfall, snowmelt, or high groundwater conditions can cause clearwater to enter the sewer system through system defects or illegal connections. This clearwater is called infiltration/inflow (I/I). I/I uses the capacity of the sanitary sewers and treatment plant and increases the cost of transporting and treating the wastewater. I/I can also affect the performance of the sewer system and treatment plant.

Infiltration is defined as clearwater entering the sewer system from the ground through defective pipes, joints, connections, or manholes. Inflow is defined as clearwater discharged into a sewer system from sources such as roof drains, foundation drains, manhole covers, cross connections from storm sewers, surface runoff, and cellar, yard, and area drains.

The WDNR uses the following parameters as general indicators of possibly "excessive" I/I (i.e., potentially cost-effective to remove) for sanitary sewer systems:

- **Infiltration:** The infiltration threshold criterion is whether the dry weather flow (the highest base flow plus infiltration occurring for a seven- to 14-day dry weather period during a year) is less than or equal to 120 gallons per capita per day (gpcd).
- **Inflow:** The inflow threshold criterion is whether the maximum daily flow during a storm is less than or equal to 275 gpcd.

An evaluation was made to determine if the Watertown collection system is experiencing excessive I/I. Table 4-1 provides an analysis of the amount of I/I based on the 7-day rolling average of influent flow to the WWTP during the years 2020-2022 as it relates to the total average daily per capita flow. For the purposes of this analysis, population data from 2022 was used for determining total average daily per capita flow.

TABLE 4-1
Inflow and Infiltration Analysis, 2020-2022

Parameter	Value
Population of Watertown, 2022	24,357
Dry Weather Flow (Infiltration Threshold), gpcd	90
Maximum Wet Weather Flow (Inflow Threshold), gpcd	320

The table shows dry weather flow at approximately 90 gpcd, and maximum daily flow during a storm at approximately 320 gpcd. Therefore, the Watertown collection system can be identified as experiencing excessive inflow. According to the Wisconsin Department of Natural Resources (WDNR), separate studies for an "Infiltration/Inflow Analysis" and a "Sewer System Evaluation Survey" (SSES) may be required depending on the extent of additional clear water flows.

The City is aware of the excessive inflow to the WWTP, which is primarily caused by drain tile and sump pump connections to the sanitary sewer. An ordinance is currently being drafted for new City projects to include drain tile disconnections, and public/private partnerships are being developed encourage replacing privately owned laterals and disconnecting sump pumps from the sanitary sewer.

WASTEWATER TREATMENT PLANT INFLUENT FLOWS AND LOADINGS

Flows and loadings from January 2020 through December 2022 were analyzed to determine current annual average, maximum month, peak week, and peak day influent flows and loadings. This includes residential and non-residential loadings, including those from industrial contributors. Influent TKN data was not available and was estimated by assuming ammonia-nitrogen was 70% the TKN value. Results are summarized in Table 4-2.

TABLE 4-2
Current Influent Flows and Loadings

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	3.2	6,400	6,000	650	930	150
Maximum Month	5.1	10,700	12,600	860	1230	340
Peak Week	7.7	12,500	16,400	1,140	1630	460
Peak Day	13.1	22,400	37,300	1,670	2400	600
Outlier (removed)	2.9	47,625	100,756	1,728	2,468	880

As shown Table 4-2, significant influent BOD and TSS loadings were observed on December 21, 2021. Peak day loadings have a significant impact on plant capacity evaluation and sizing equipment. To avoid oversizing facility equipment, further statistical analysis of the data was completed to establish whether the data point could be removed from the set. Dixon's Q-Test was completed utilizing a 99% confidence interval, *and it was determined that the data point was an outlier and was eliminated.*

The WWTP effluent quality remained consistent in the days following the extreme loading event, and constituent concentrations and loadings remained within the limits set by the WPDES permit. Figure 4-1 through Figure 4-4 show BOD and TSS influent and effluent loadings for December 2021 through January 2022.

FIGURE 4-1
Influent and Effluent BOD Loading, December 21, 2021

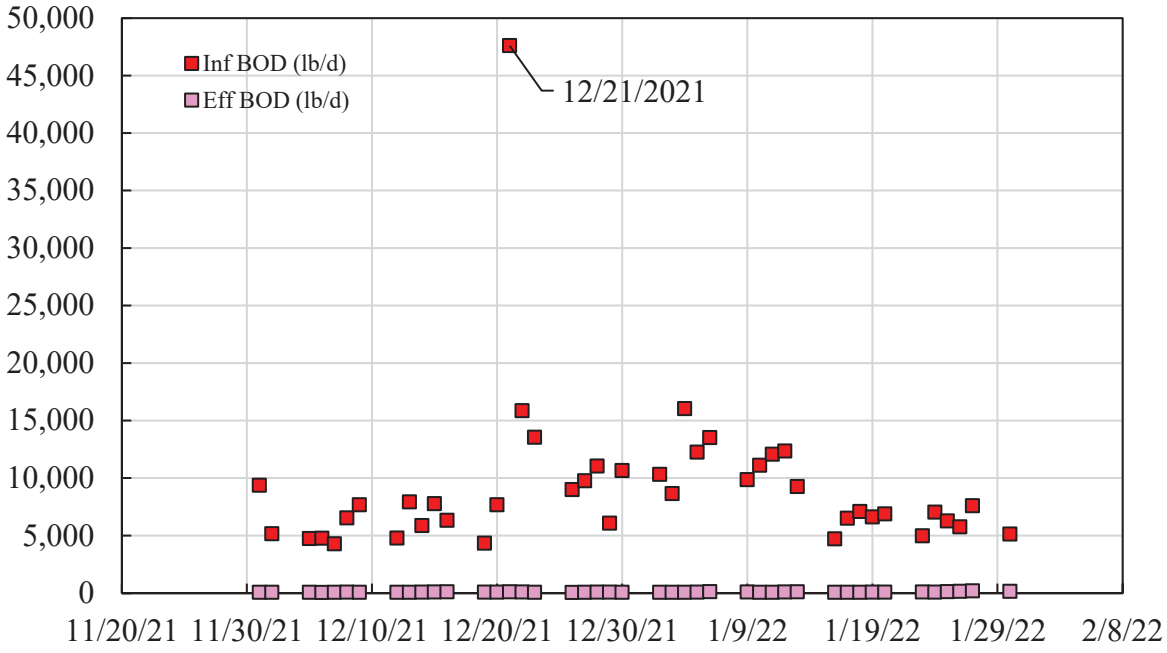


FIGURE 4-2
Effluent BOD Concentration, December 21, 2021

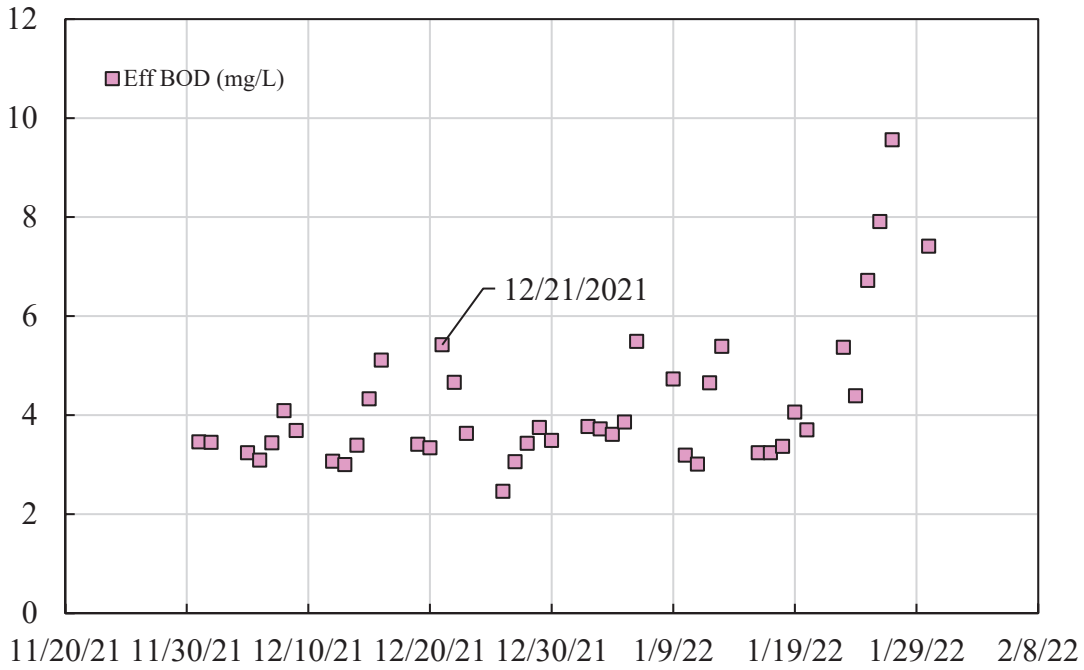


FIGURE 4-3
Influent and Effluent TSS Loading, December 21, 2021

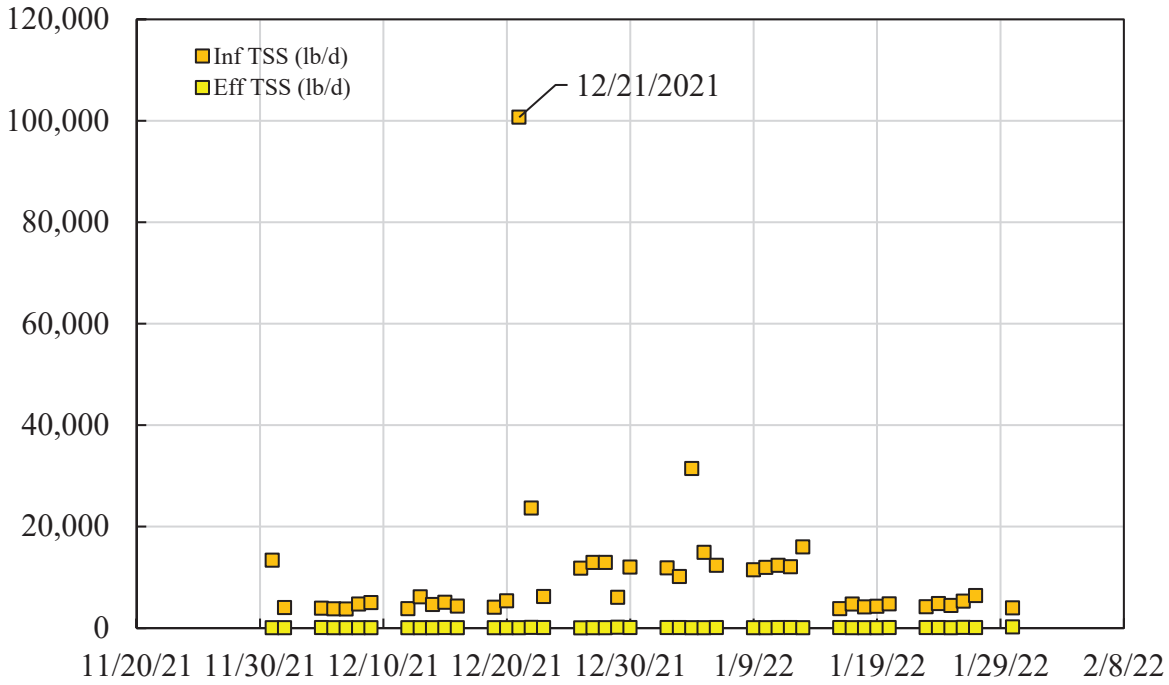
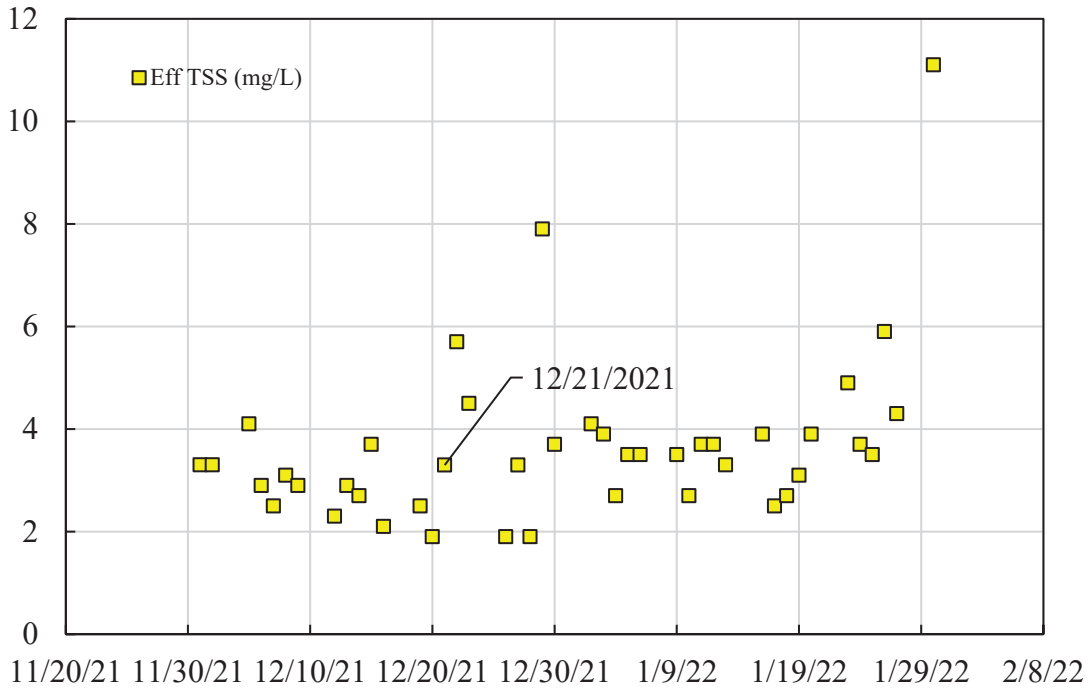


FIGURE 4-4
Effluent TSS Concentration, December 21, 2021



Industrial Flows and Loadings

A number of industries discharge to the City's sewerage system; however, only the following industries were determined to be significant users:

- Johnsonville Sausage LLC
- Clasen Quality Chocolate
- Wis-Pak, Inc.
- Ad-Tech Industries, Inc.
- Watertown Hops
- Wisconsin Investcast
- Specialty Ingredients
- Diversey, Inc.

A survey was sent to each industry to identify current and projected wastewater contributions. Johnsonville Sausage was the only significant contributor that returned the survey. The remainder of the current loading estimates were based on City data. The City completes industrial sampling annually, and flows were estimated based on monthly water usage data. Data from 2020 – 2022 was analyzed to determine the estimated annual average flows and loadings for current industrial users. Results are summarized in Table 4-3.

TABLE 4-3
Current Industrial Flows and Loadings

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	0.317	4,300	1,300	100	150	40

Wasteload contributions from other industrial users were determined to be similar in strength to residential wastewater based on the annual sampling results provided by the City[1].

Non-Industrial Flows and Loadings

Current annual average non-industrial flows and loadings were calculated by subtracting the average influent flows and loadings in Table 4-2 from the average influent flows and loadings in Table 4-3. Non-industrial flows include the contributions from residential and commercial sources, as well as I/I. Results are summarized in Table 4-4.

TABLE 4-4
Current Non-Industrial Flows and Loadings

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	2.88	2,080	4,700	550	790	110

Peaking Factors

Peaking factors were determined for the wasteloads shown in Table 4-2 by dividing each maximum month, peak week, and peak day value by the corresponding annual average value. These peaking factors will be used in projecting the maximum loadings for future design capacity. Results are summarized in Table 4-5.

[1] Contributions from Fisher Barton Blades Inc., Baso Holdings LLC, and Glory Global Solutions Inc. were determined to be similar in strength to typical residential wastewater.

TABLE 4-5
Current Influent Peaking Factors

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Maximum Month	1.58	1.67	2.10	1.32	1.32	2.24
Peak Week	2.42	1.96	2.74	1.75	1.75	3.08
Peak Day	4.11	3.51	6.23	2.57	2.57	3.95

WASTEWATER TREATMENT PLANT PERFORMANCE

In its 2021 and 2022 CMAR report, the WWTP received grades of 'C' and 'F', respectively, for Influent Flows and Loadings. Influent BOD loading had consistently exceeded 90% of rated design capacity outlined in the 2000 Facility Plan. The rated design capacity is provided in Table 4-6.

TABLE 4-6
Rated Influent Design Capacities

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	5.2	6,600	5,300	-	1,015	215
Maximum Month	8.8	7,700	6,400	-	1,250	260
Peak Week	10.4	10,300	8,300	-	1,460	-
Peak Day	24.0	17,000	23,000	-	1,840	500
Peak Hour	27.0	-	-	-	-	-

Figure 4-5 through Figure 4-9 present the annual average flow and BOD, TSS, TKN, and TP loadings for the years 2020 through 2022, as well as the plant's annual average design capacity provided in Table 4-6. These figures show that while there is adequate capacity for flow and TP, loadings for BOD, TSS and TKN have approached or exceeded rated design capacities. Annual average influent loadings for BOD, TSS and TKN have ranged between 90-130% of rated plant capacity between 2020-2022.

FIGURE 4-5
Annual Average Plant Flows

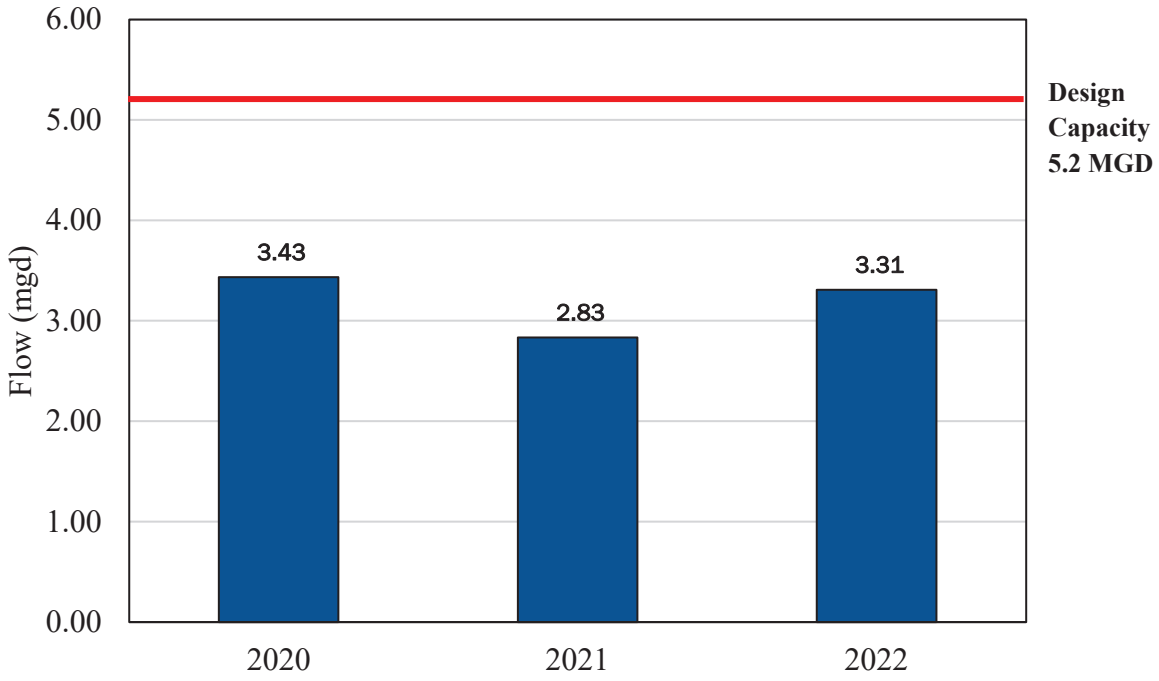


FIGURE 4-6
Annual Average Plant BOD Loadings

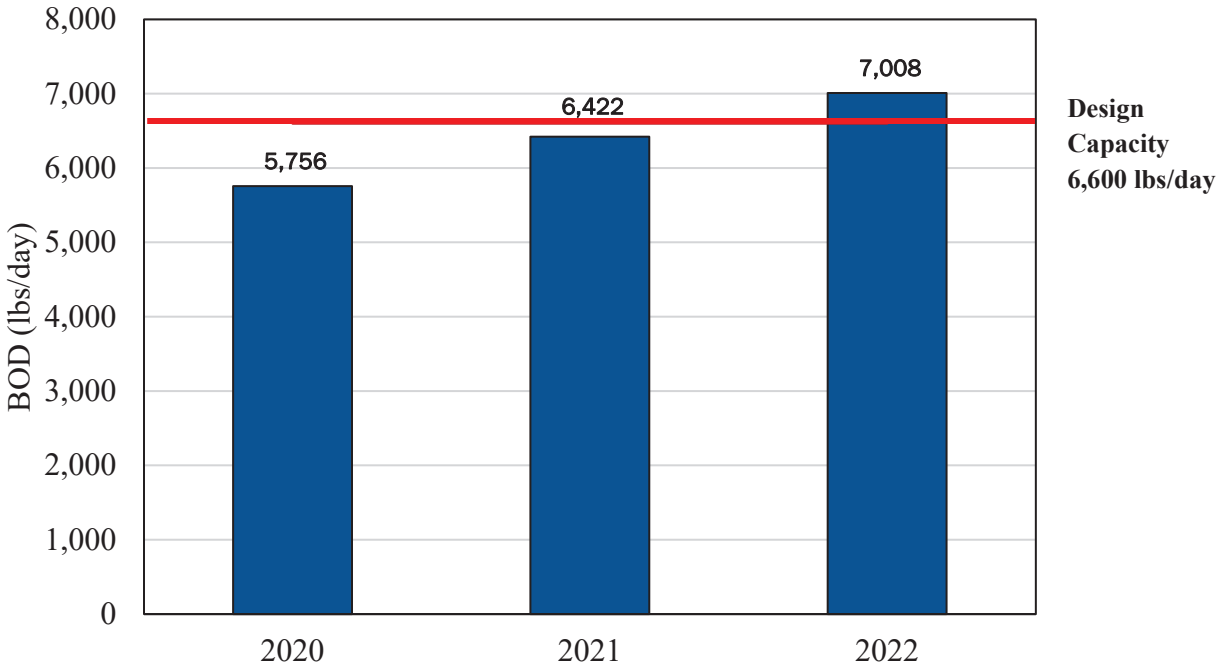


FIGURE 4-7
Annual Average Plant TSS Loadings

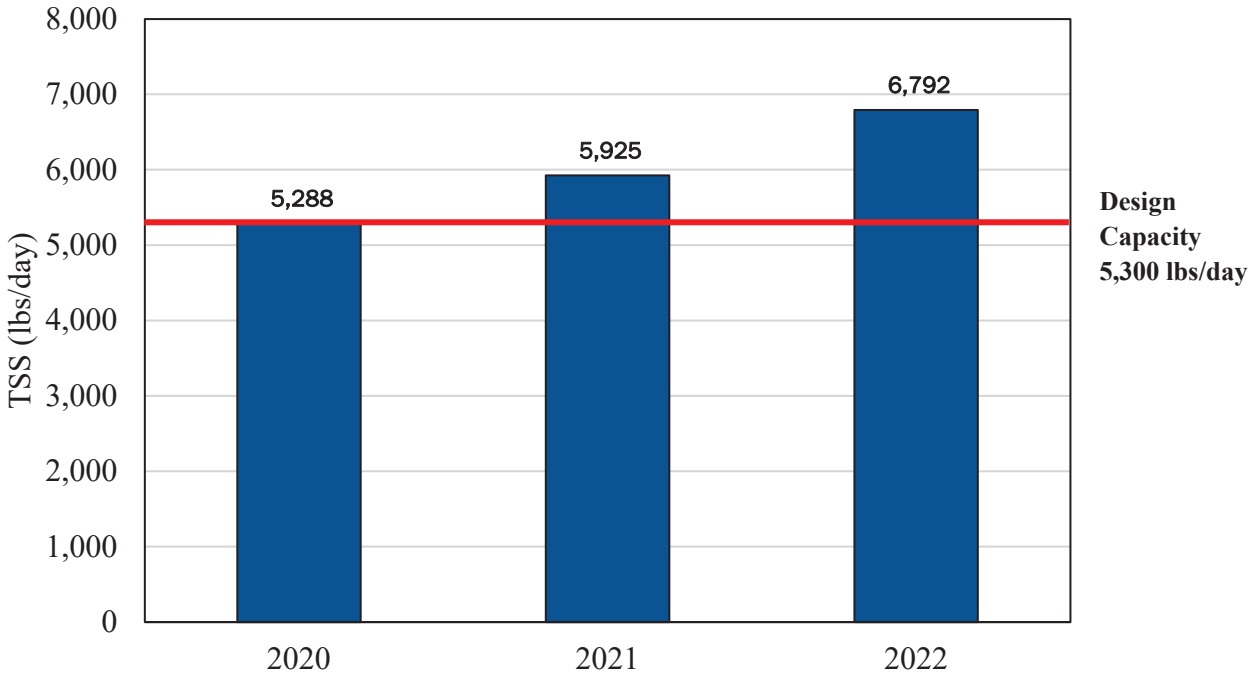


FIGURE 4-8
Annual Average Plant TKN Loadings

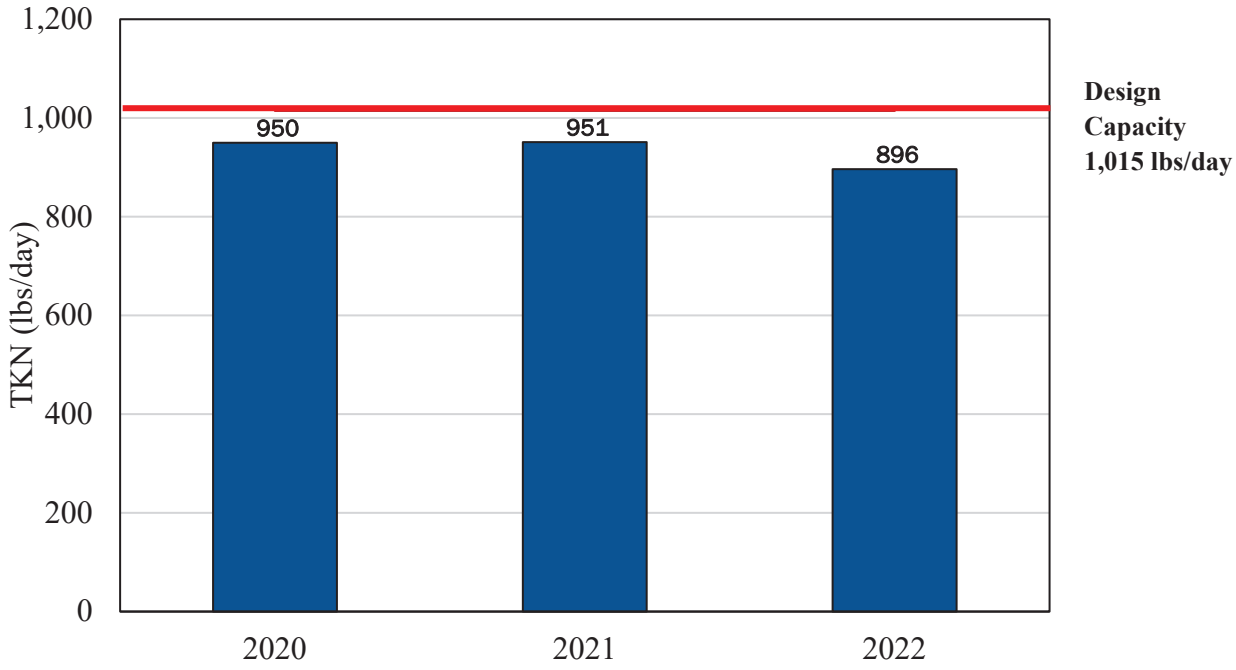
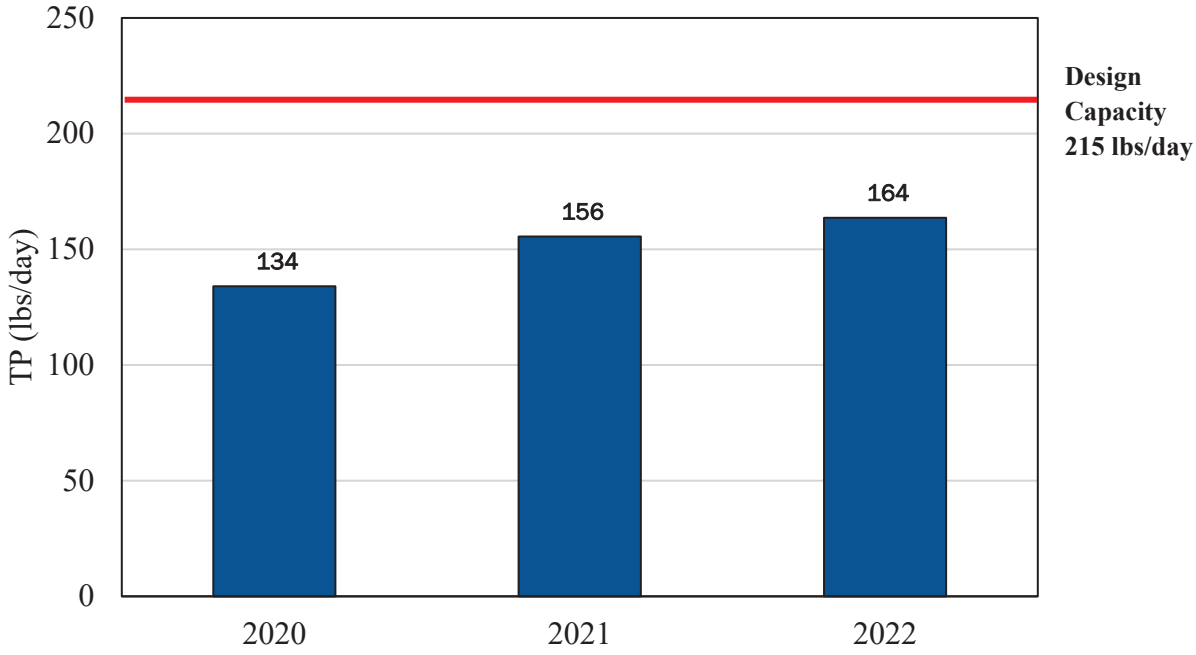


FIGURE 4-9
Annual Average Plant TP Loadings



Although the WWTP has approached or exceeded its rated capacity for BOD, TSS, and TKN, the City is consistently meeting its effluent limits outlined in the WPDES discharge permit. Figure 4-10 through Figure 4-21 show the performance of the treatment plant for BOD, TSS and NH_3-N and TP from 2020 through 2022 by comparing weekly and monthly limits set by the WPDES discharge permit to the corresponding 7- and 30-day rolling averages of each constituent concentration and load. From 2020 – 2022, there have been no monthly or weekly average effluent violations. Rolling averages results in a conservative estimate of treatment plant performance and are not identical to values reported to the WDNR. Therefore, some values in the figures may appear as limit exceedances.

FIGURE 4-10
Weekly Average Effluent BOD Concentration, 2020-2022

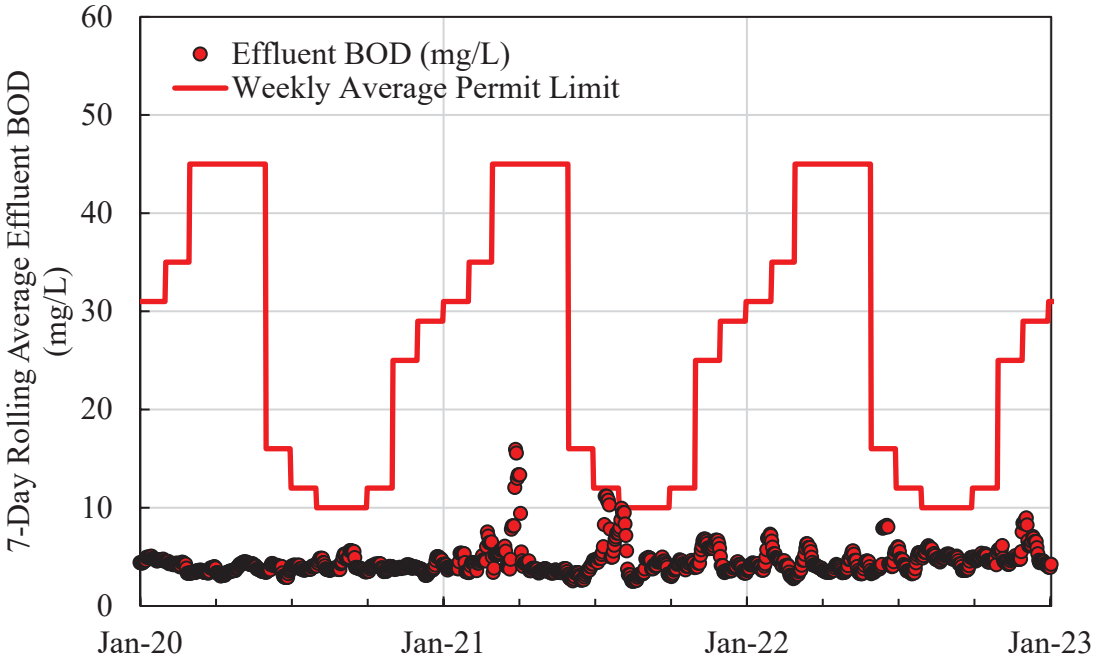


FIGURE 4-11
Monthly Average Effluent BOD Concentration, 2020-2022

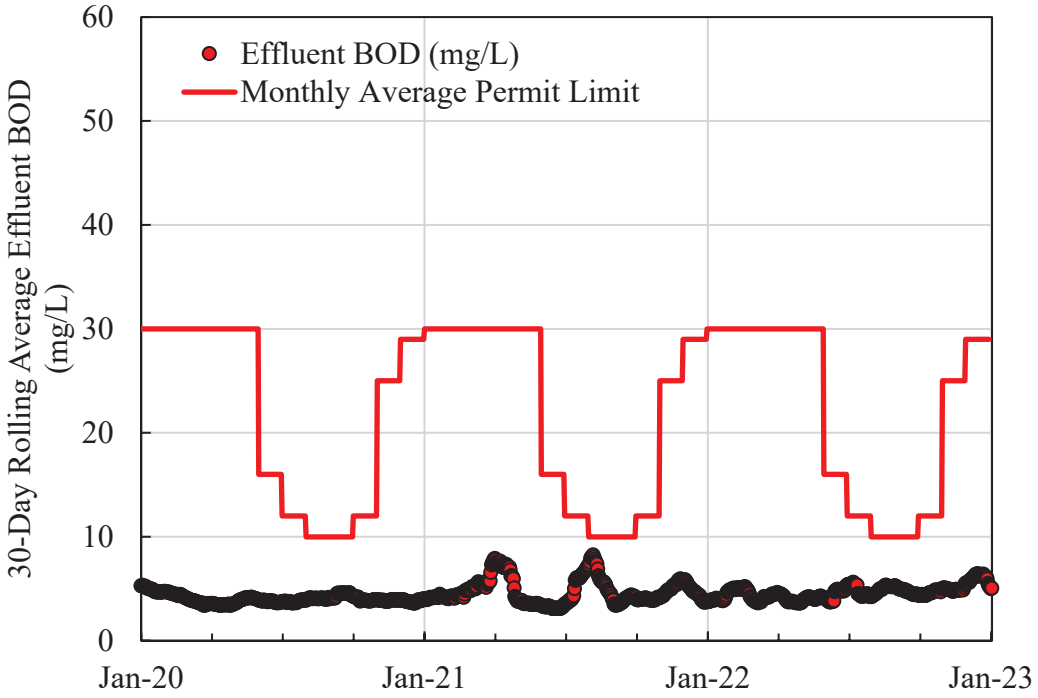


FIGURE 4-12
Weekly Average Effluent BOD Loading, 2020-2022

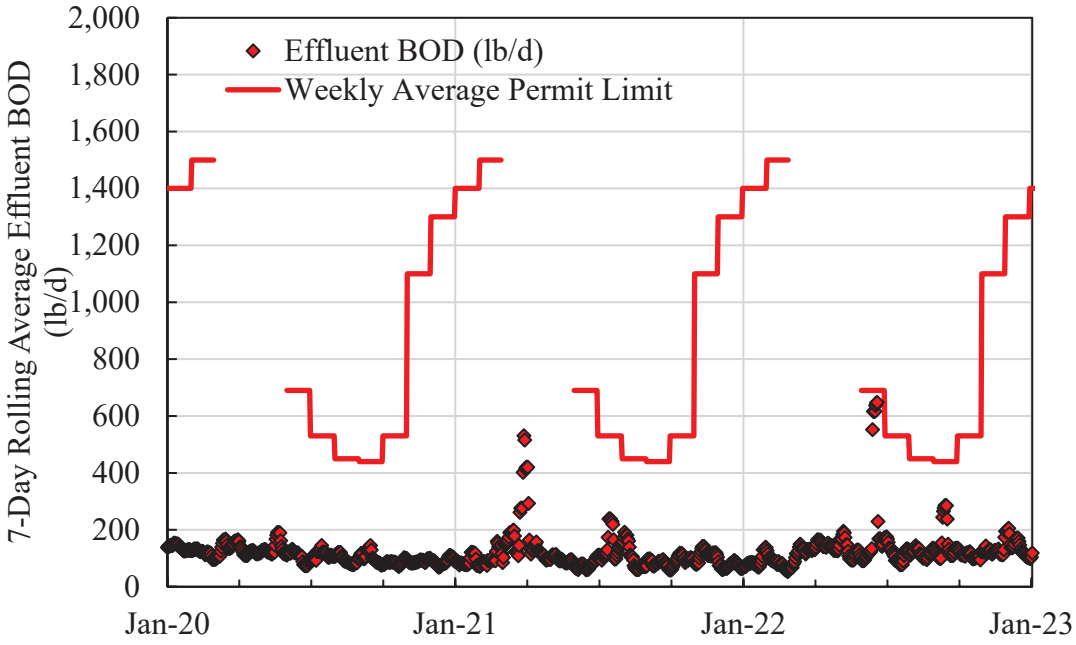


FIGURE 4-13
Weekly Average Effluent TSS Concentration, 2020-2022

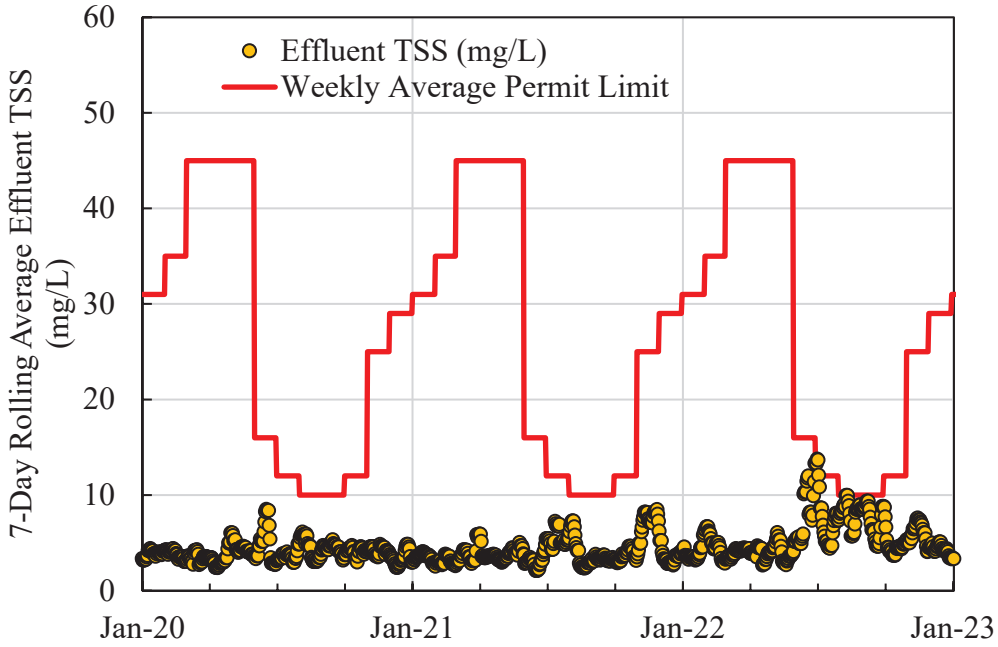


FIGURE 4-14
Monthly Average Effluent TSS Concentration, 2020-2022

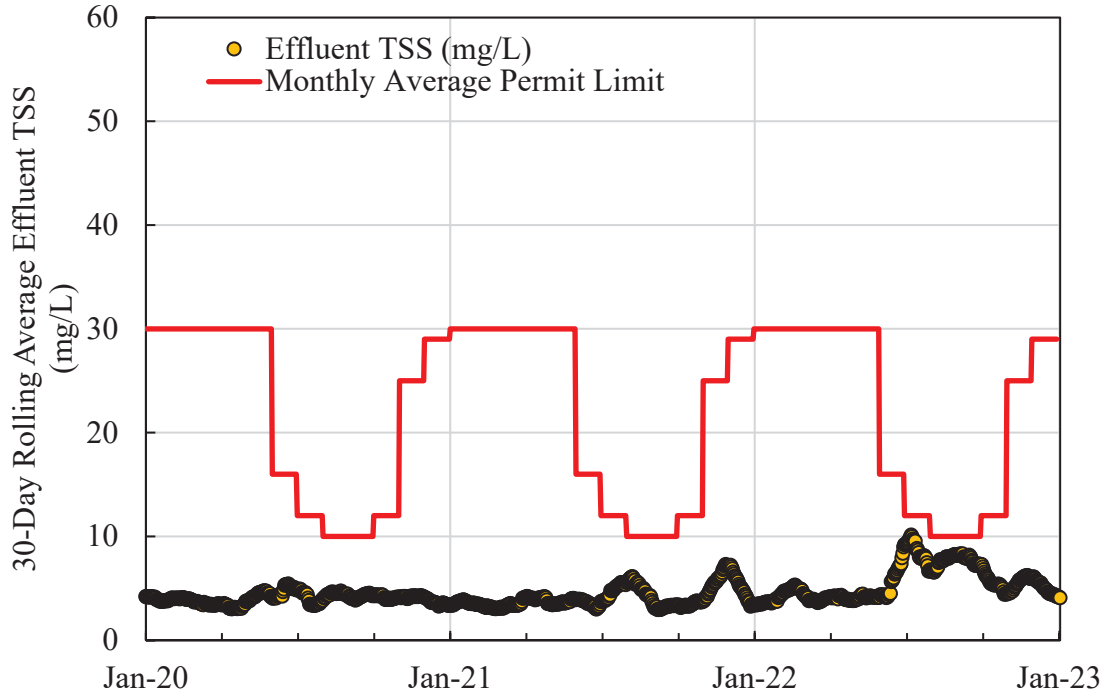


FIGURE 4-15
Weekly Average Effluent TSS Loading, 2020-2022

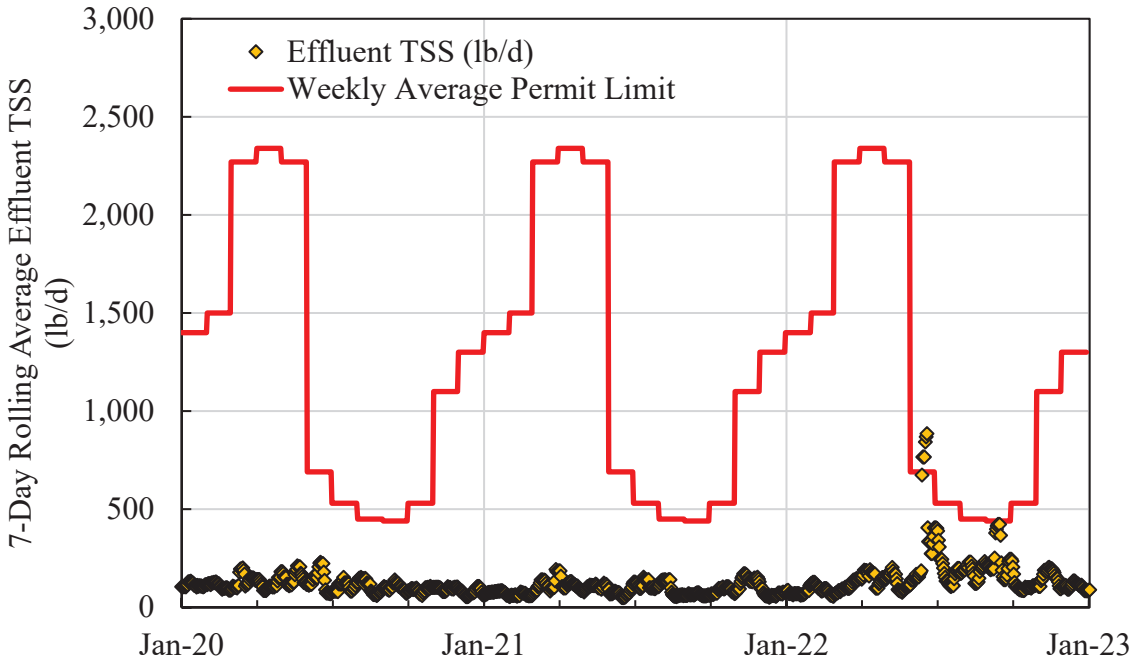


FIGURE 4-16
Monthly Average Effluent TSS Loading, 2020-2022

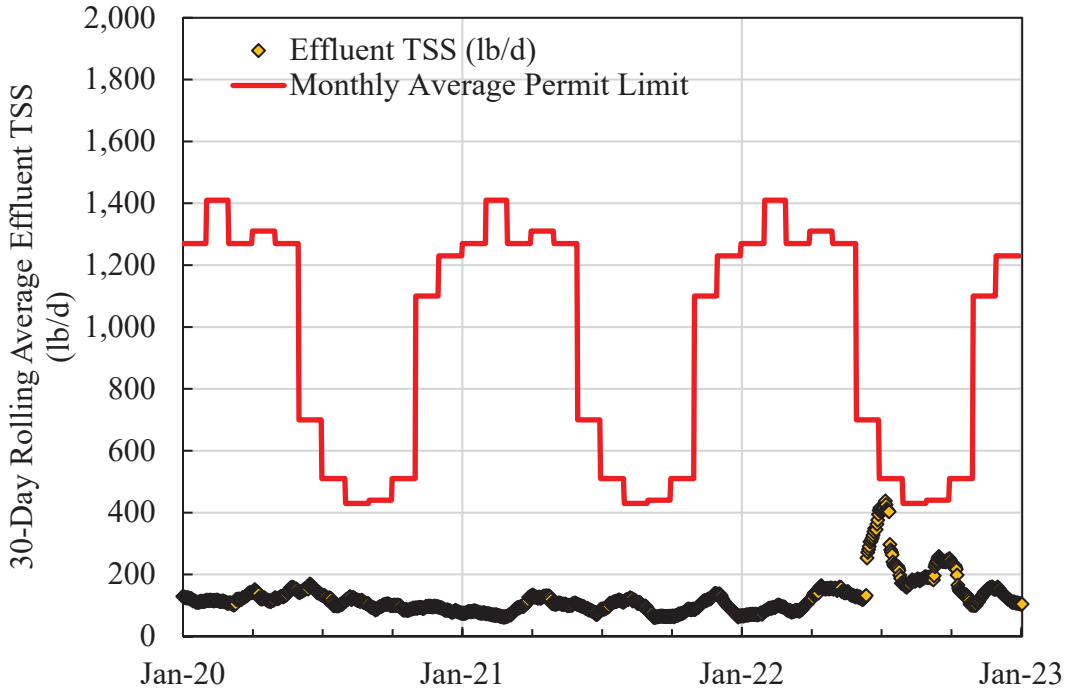


FIGURE 4-17
Daily Effluent Ammonia-N Concentration, 2020-2022

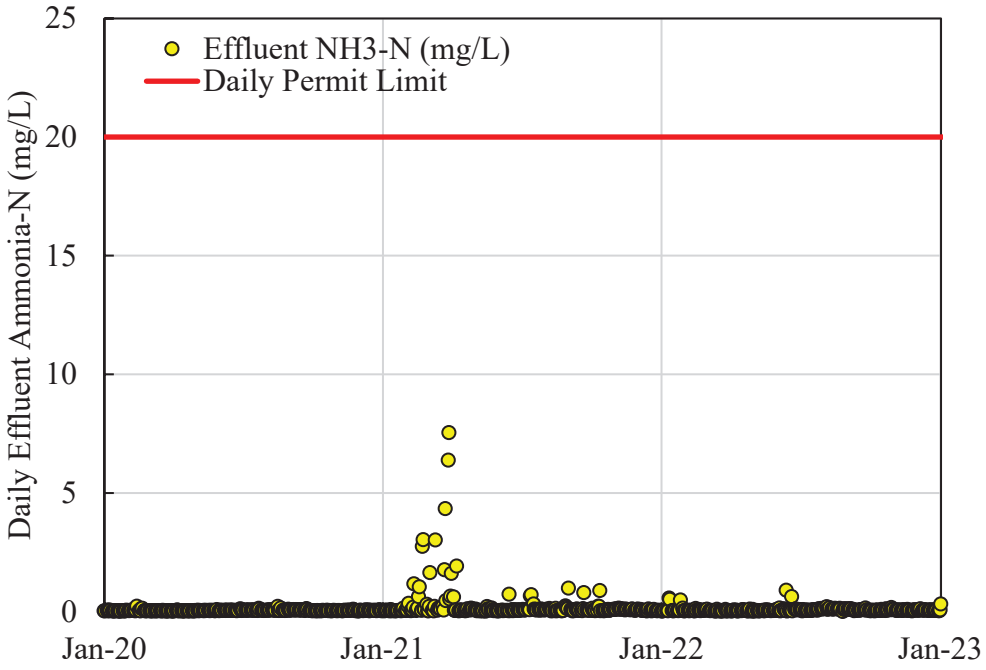


FIGURE 4-18
Weekly Average Effluent Ammonia-N Concentration, 2020-2022

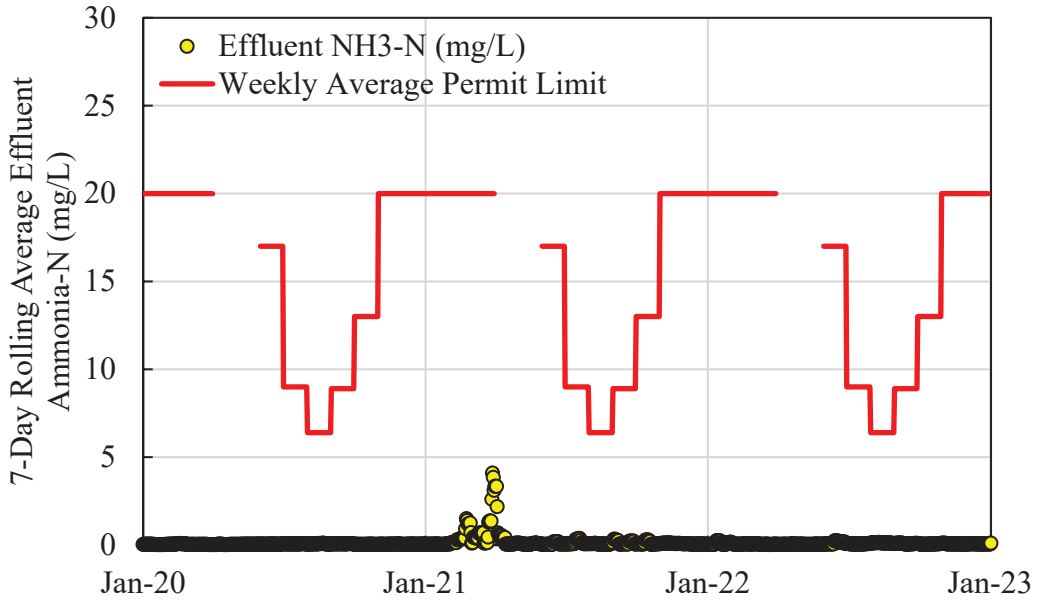


FIGURE 4-19
Monthly Average Effluent Ammonia-N Concentration, 2020-2022

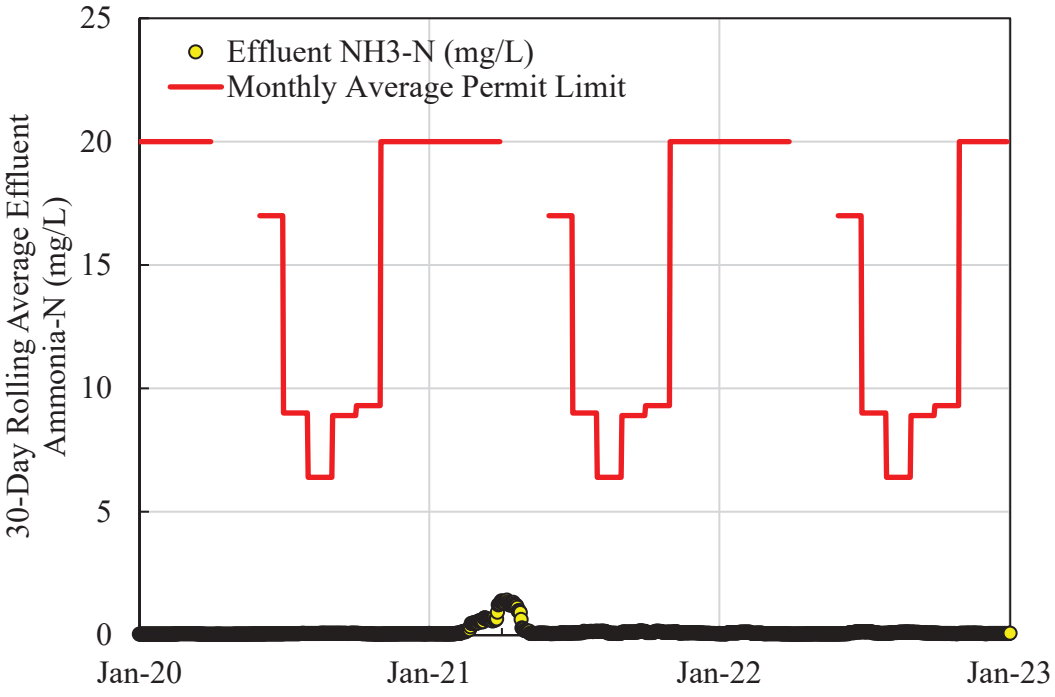


FIGURE 4-20
Monthly Average Effluent Total Phosphorus Concentration, 2020-2022

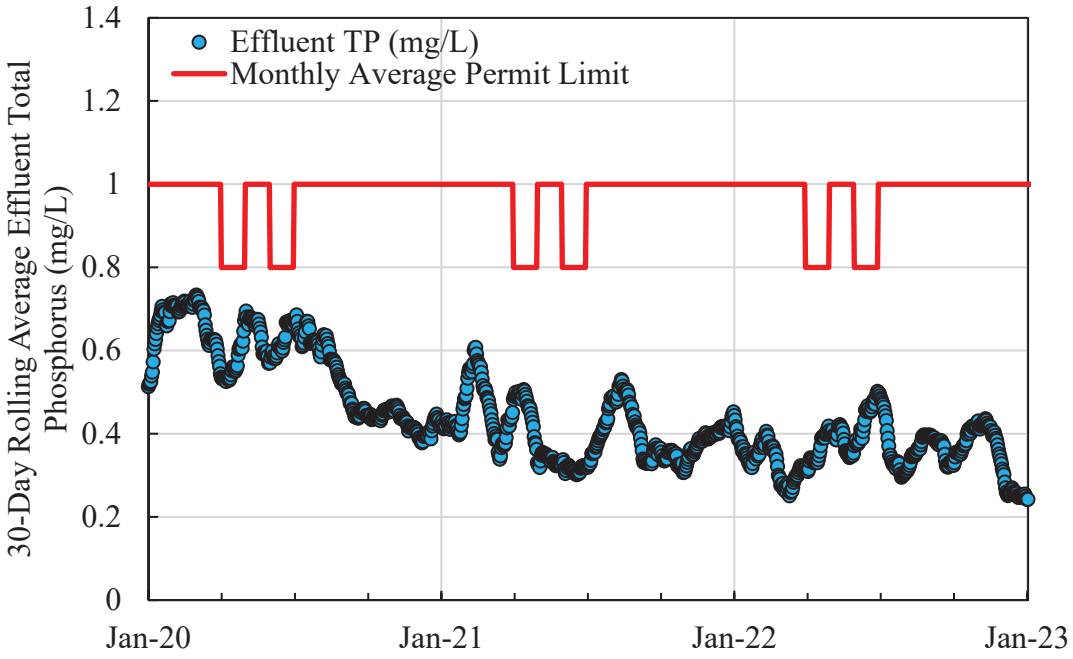
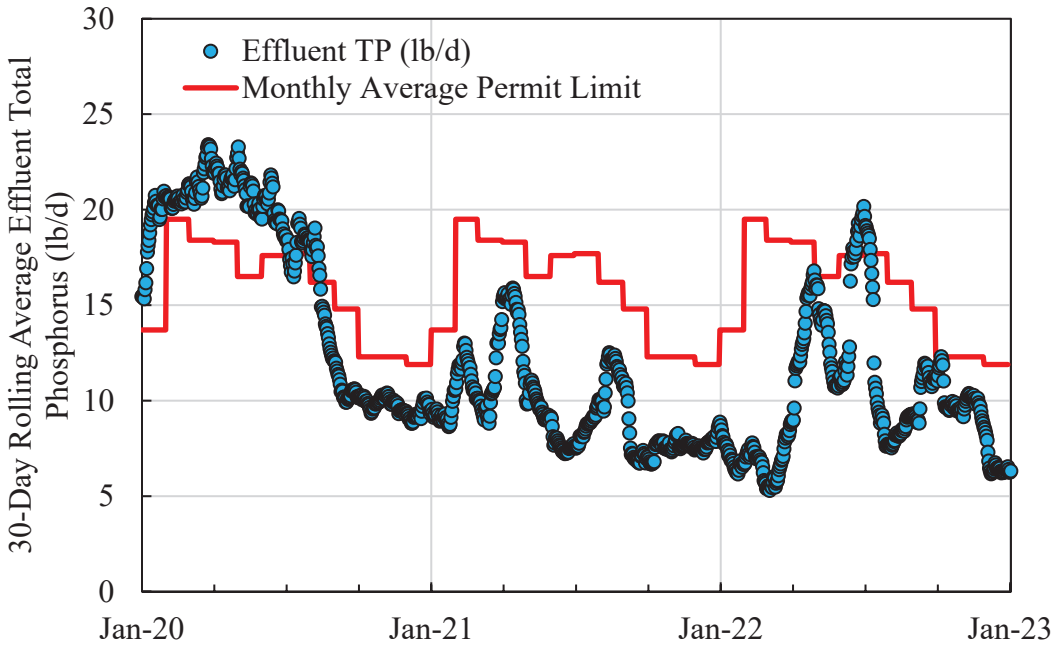


FIGURE 4-21
Monthly Average Effluent Total Phosphorus Loading, 2020-2022



Note: Effluent TP loading exceedances are offset by the City's phosphorus water quality trading credits.

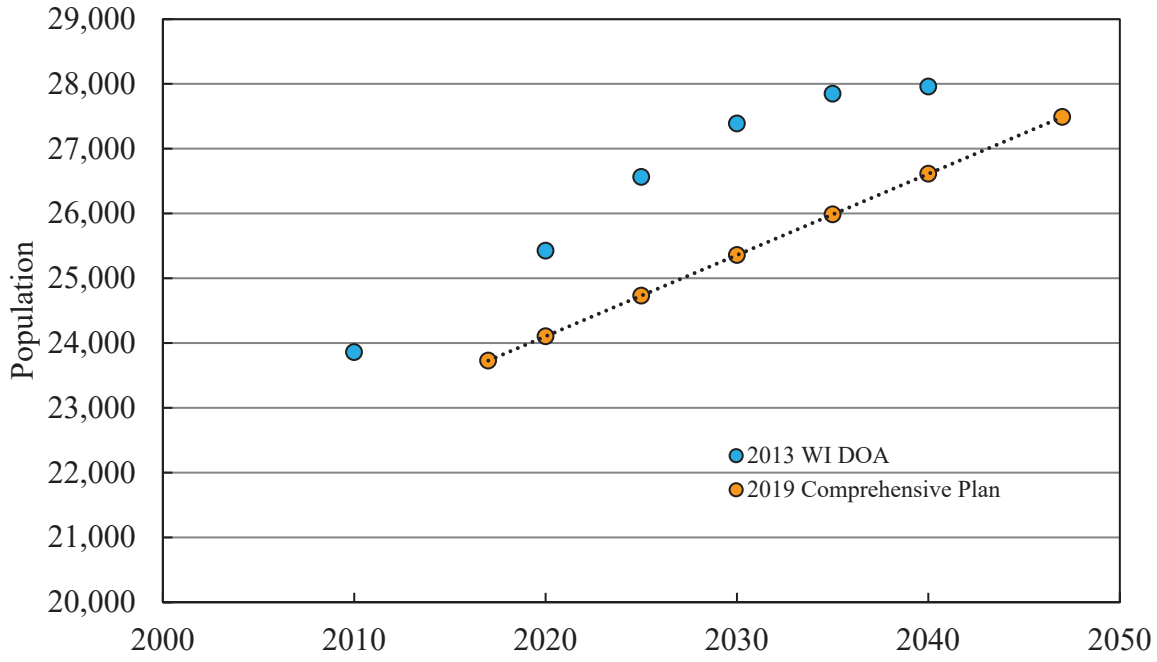
Chapter 5
PROJECTED FLOWS AND LOADINGS

This chapter contains information on population and wasteload projections for the planning area. As presented in Chapter 2, the planning period is 20 years and encompasses the years 2027 through 2047. Population and wasteload projections are used to evaluate the existing facilities at the Watertown WWTP and then develop wastewater treatment alternatives for the plant.

POPULATION PROJECTION

Population projections for the City of Watertown are shown in Figure 5-1. These projections are based on information from the 2013 Wisconsin Department of Administration (DOA) municipal projections for 2020-2040, and the linear population projection model in the 2019 City of Watertown Comprehensive Plan. The 2019 Comprehensive Plan population model was used in developing future flows and loadings for the WWTP. The City's population is expected to grow 13% from 24,357 in 2022 to 27,492 by 2047, an increase of 3,135 people.

FIGURE 5-1
Population Projections, Design Year 2047



DESIGN FLOWS AND LOADINGS

The influent flows and loadings to the treatment plant are comprised of residential, commercial, and industrial flows and loadings, plus infiltration/inflow (I/I). To project flows and loadings to the year 2047, it is necessary to project the annual average loadings and then use the historical peaking factors to estimate the maximum month, peak day, and peak hour loadings. The 2047 annual average loadings are based on the current non-industrial and industrial flows and loadings, including annual average I/I.

Non-Industrial Flows and Loadings

The increase in non-industrial flows and loadings are based on per capita unit loads for the expected 3,135 person increase. Per capita unit loads were determined based on current non-industrial flows and loadings provided in Table 4-4 and population projections provided in Figure 5-1. Results are summarized in Table 5-1.

TABLE 5-1
Non-Industrial Flows and Loadings, Design Year 2047

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Population Growth	3,135					
Per Capita	100 gpcd	0.1 ppcd	0.2 ppcd	0.02 ppcd	0.03 ppcd	0.004 ppcd
Total	0.314	270	600	70	100	15
Current Annual Avg	2.88	2,080	4,700	550	790	110
Design Year Annual Avg	**3.19**	**2,350**	**5,300**	**620**	**890**	**120**

Note: Both current and design year non-industrial flows include contributions from inflow and infiltration (I/I).

Industrial Flows and Loadings

In accordance with NR 110.09(2)(j)(3), flow projections for industrial contributions may include a nominal flow allowance for future unplanned industrial expansions. This allowance should normally not exceed 5% of the total non-industrial design flow or 25% of the total industrial flow, whichever is greater. It was presumed that loadings from future unplanned industrial expansions could be estimated based on the same allowances for unplanned industrial flows, per NR110.09(2)(j)(3). Similar to the 2000 Facility Plan, a 5% increase in flow and a 25% increase in loadings is assumed for projected industrial growth for the design year 2047 conditions.

Staff at Johnsonville Sausage stated that production was estimated to increase by 100% over current levels within the planning period. Consequently, it was projected that flows and loadings

from Johnsonville will increase by 100% over current levels summarized in the industrial survey. Average annual industrial contributions are summarized in Table 5-2.

TABLE 5-2
Industrial Flows and Loadings, Design Year 2047

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	0.461	6,000	1,800	130	180	60

Design Year 2047 Flows and Loadings

Non-industrial and industrial flows and loadings were summed to calculate the average design year flows and loadings to the WWTP. Design year flows were determined to remain less than the rated capacity of the WWTP. Therefore, the existing design flows will be used for capacity analysis and equipment sizing. Current peaking factors from Table 4-5 were used to calculate design maximum month, peak week, and peak day loadings. Results are summarized in Table 5-3.

TABLE 5-3
Influent Flows and Loadings, Design Year 2047

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	NH3-N (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	5.2	8,300	7,100	750	1,100	180
Maximum Month	8.8	13,900	15,000	1,000	1,400	400
Peak Week	10.4	16,300	19,500	1,300	1,900	550
Peak Day	24	29,100	44,500	2,000	2,800	710
Peak Hour	27	-	-	-	-	-

Chapter 6
EXISTING FACILITIES EVALUATION AND ALTERNATIVE ANALYSIS

This chapter presents an evaluation of the existing facilities and unit processes at the City of Watertown WWTP. The capacities of the facilities are compared to the current flows and loadings and project year 2047 design flows and loadings. Deficiencies and shortfalls are identified, and alternatives for upgrading or expanding the existing facilities are then identified and evaluated.

GENERAL DESCRIPTION

The Watertown WWTP is an advanced wastewater treatment plant that treats wastewater generated within the City limits and discharges treated effluent to the Rock River. The majority of the plant was constructed in 2004. The current rated design capacities of the plant, based on the 2004 upgrade, are presented in Table 6-1.

TABLE 6-1
Rated Influent Design Capacities

	Flow (mgd)	BOD (lb/d)	TSS (lb/d)	TKN (lb/d)	TP (lb/d)
Annual Average	5.2	6,600	5,300	1,015	215
Maximum Month	8.8	7,700	6,400	1,250	260
Peak Week	10.4	10,300	8,300	1,460	-
Peak Day	24.0	17,000	23,000	1,840	500
Peak Hour	27.0	-	-	-	-

Figure 6-1 presents a process flow diagram of the existing Watertown WWTP. Raw sewage enters the Raw Sewage Pump Station through a 60-inch gravity sewer. Raw sewage is pumped to the Preliminary Treatment Building, where fine screening and influent sampling occur. Fine screens are compacted and landfilled, and flow continues to outdoor grit removal. Grit is settled out in vortex settling tanks, washed, and is sent to a dumpster for landfill disposal.

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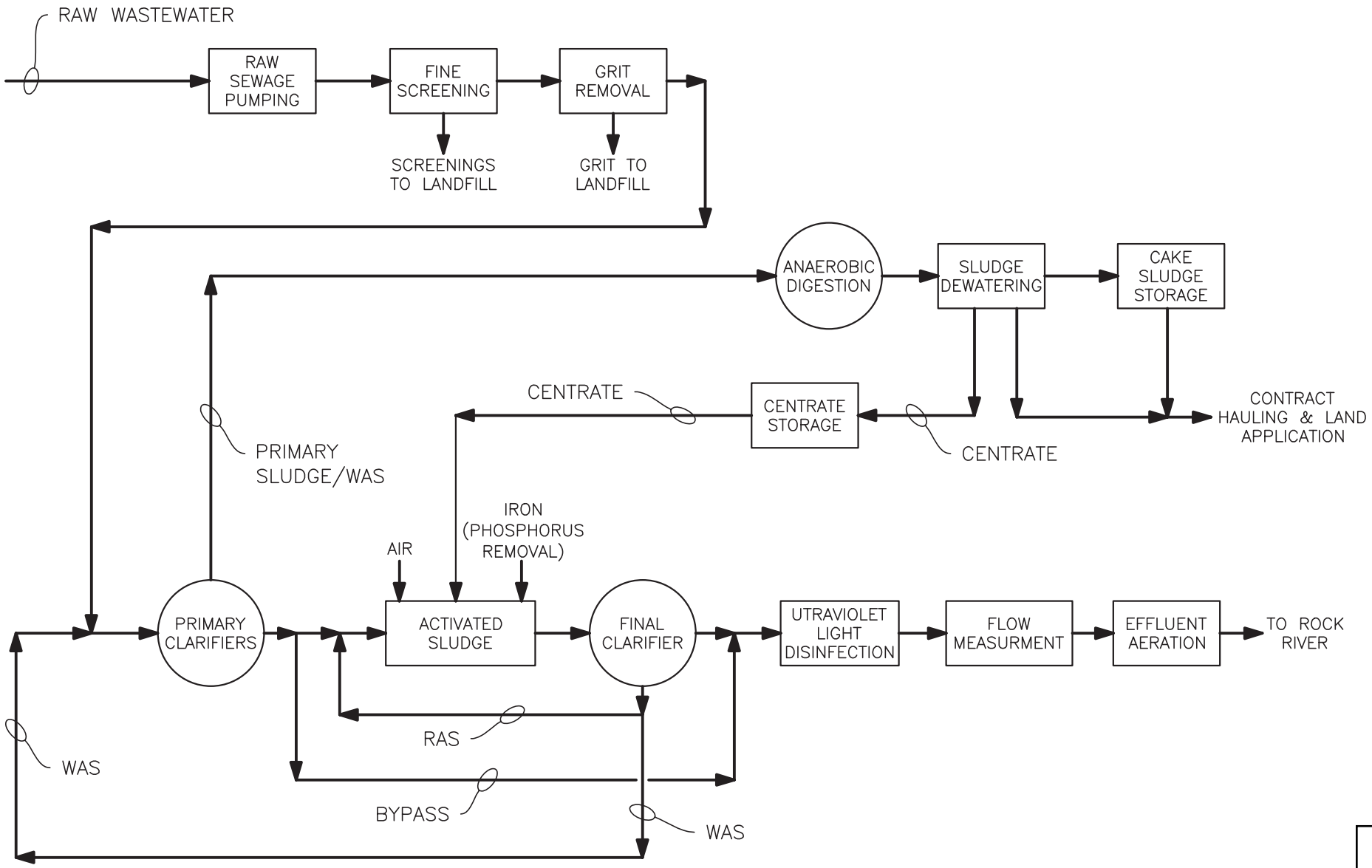

FIGURE
PROCESS FLOW DIAG
Watertown, W

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After grit removal, flow is split between two Primary Clarifiers. Solids settle out of the waste stream in the clarifiers, and scum is skimmed off the clarifier surface and sent to the Primary Scum Well. Settled solids are wasted to the Digester Complex for anaerobic digestion. Fats, oils, and grease that build up in the Primary Scum Well are hauled away for landfill disposal, and subnatant is conveyed to the aeration basins for secondary treatment.

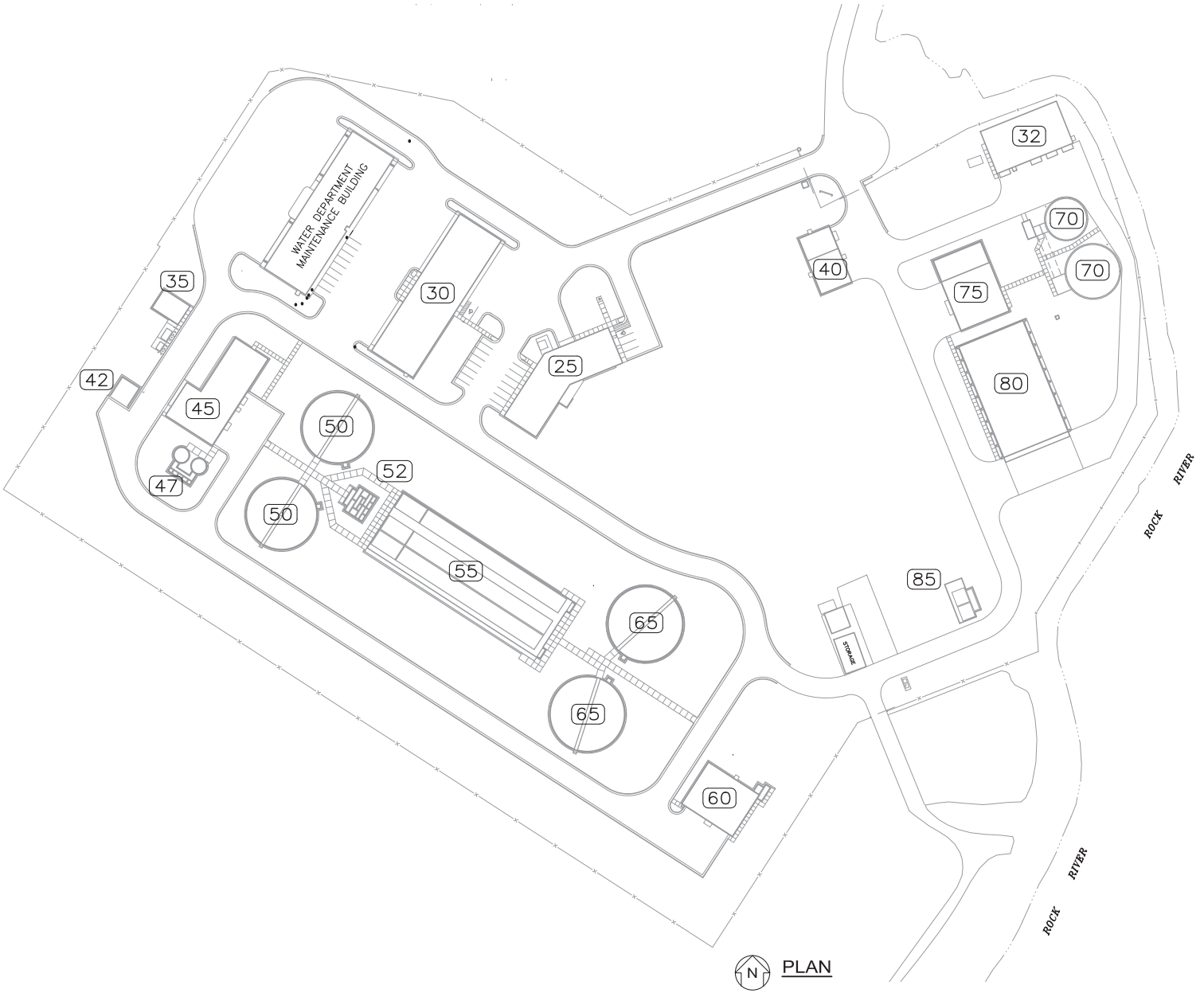
Primary effluent flows to the Secondary Splitter Box, which combines return activated sludge (RAS) with the primary effluent, and splits flow between Aeration Basin 1, 2 and 3 to provide secondary treatment through single stage nitrification. Ferric chloride is dosed in the effluent stream of the aeration basins to achieve chemical phosphorus removal.

The mixed liquor flows to the Final Clarifiers, where solids are settled out of the waste stream. Final Clarifier effluent flows to UV Disinfection, consisting of an open channel with two banks of lamps. Disinfected effluent then flows to the cascade aeration before it is discharged to the Rock River.

Settled sludge in the Final Clarifiers is either returned to the aeration basins or wasted to co-settle in the Primary Clarifiers and pumped to the Digester Complex. The Digester Complex consists of two mesophilic anaerobic digesters connected by a pipe tunnel, which are used to stabilize the primary and secondary sludge. The digesters also collect and store biogas generated from the digestion process for use as a fuel for heating and provides short term storage of sludge for periodic dewatering.

Stabilized biosolids are then sent to the Solids Handling Building, where biosolids are dewatered using centrifuges, creating sludge cake. Sludge cake is then conveyed to the Sludge Cake Storage Building before it is hauled and land applied. The centrate from dewatered sludge is sent to the Centrate Storage Tank and is eventually returned to the Aeration Basins.

Figure 6-2 shows a site plan of the existing facilities at the wastewater treatment plant.



WWTP STRUCTURE LEGEND	
STRUCTURE NUMBER	STRUCTURE NAME
25	ADMINISTRATION BUILDING
30	NEW MAINTENANCE BUILDING
32	EXISTING MAINTENANCE BUILDING
35	GENERATOR BUILDING
40	RAW SEWAGE PUMP STATION
42	DUMP STATION
45	PRIMARY BUILDING
47	GRIT CHAMBERS
50	PRIMARY CLARIFIERS
52	SECONDARY SPLITTER STRUCTURE
55	AERATION TANKS
60	SECONDARY BUILDING
65	FINAL CLARIFIERS
70	EXISTING DIGESTER COMPLEX
75	SOLIDS HANDLING BUILDING
80	SLUDGE STORAGE BUILDING
85	EFFLUENT AERATION STRUCTURE

N

PLAN

0 60' 120' 180' 240'

GRAPHIC SCALE

R:\SHARED FOLDERS\PROJECTS\6573 – WATERTOWN FP\11.0 GRAPHICS\11.1 FIGURES\FIGURE 6-2.DWG

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EXISTING
Water

6-2
AN
TP

Section 6, Item A.

UNIT PROCESS EVALUATION AND ALTERNATIVE ANALYSIS

The unit process evaluation presents the design and capacity of each existing unit process at the Watertown WWTP. Select unit processes that were identified at the Facility Plan kickoff and subsequent update meetings are discussed in further detail and the basis of design is compared to current and future loads. Alternatives for upgrading or expanding the selected unit processes are identified and evaluated.

Raw Sewage Pumping

The Raw Sewage Pump Station is equipped with five 4,700 gpm pumps split between two influent wet wells. Three pumps draw raw sewage from one well and two draw from the other. Both wells are mechanically mixed. Sewage is pumped through two 20-inch force mains that discharge to the screening channels in the Primary Building. The two force mains are equipped with flow meters to monitor and totalize flow, and manually actuated shut off valves to isolate flow to either screening channel. During normal operation, both force mains discharge sewage to the screening channels. The City has identified the continual buildup of grit within the 20" elbow of both force mains just before the screening channel while both force mains are in operation. The grit buildup is occasionally flushed by manually isolating flow through each pipe. Table 6-2 summarizes the existing equipment and its design criteria.

TABLE 6-2
Raw Sewage Pumping Equipment

Equipment	Design Criteria
Raw Sewage Pumps	
No. of Units	5
Type	Submersible
Design Capacity	4,700 gpm @ 100 ft TDH
Wet Well Mixers	
No. of Units	2
Type	Submersible Direct Drive Axial Flow
Design Capacity	1,700 gpm @ 1660 rpm
Influent Flow Measurement	
No. of Units	2
Type	Magnetic
Size	18-inch

All five raw sewage pumps have been rehabilitated within the last five years, and the mechanical mixers have been recently replaced. Although the pumps have adequate capacity to handle peak hour flow, the equipment is original and has reached the end of its 20-year design life.

Because of the age of the existing equipment, five new raw sewage pumps each with the same capacity as the existing equipment (4,700 gpm) will be provided to allow the WWTP to pump peak hour flows with one pump out of service. Additional space is provided in the wet well for a future sixth pump to be installed, and provisions will be included for the future pump to be operated by a portable standby generator. The manually actuated shut off valves will be replaced with electrically actuated valves to allow for remote flushing of grit buildup in either force main.

Preliminary Treatment

Preliminary treatment consists of fine screening and grit removal systems. Table 6-3 lists the existing equipment and its design criteria.

TABLE 6-3
Preliminary Treatment Equipment

Equipment	Design Criteria
Fine Screens	
No. of Units	2
Type	Continuous self-cleaning fine screens
Design Capacity	13.5 mgd
Bar Spacing	0.25-inch
Channel Dimensions	4.0 ft W x 5.5 ft D
Grit Chamber	
No. of Units	2
Type	Vortex Separator
Dimensions	18-ft Diameter, 20-ft Depth
Removal Efficiency	95% of 150 micron and larger grit
Grit Washer	
No. of Units	2
Capacity	7-ft^3/hr
Design Flow	200 gpm
Grit Pumps	
No. of Units	2
Type	Dry-pit Centrifugal
Capacity, each	200 gpm @ 32-ft TDH

Screening

Fine screening is performed by two Parkson AquaGuard continuous self-cleaning fine screens each rated for 13.5 mgd. Each screen is installed in a 4.0-foot wide by 5.5-foot deep channel and utilizes plastic rake elements with 0.25-inch bar spacing to screen material from the wastewater. Screenings drop from the discharge chute to a compactor, which compresses screenings and transports them to a dumpster for disposal in a landfill.

The City has reported that the solids removal rate of the existing fine screens are inadequate under average flow conditions and the equipment must be raised from the channel during high flow events. Furthermore, the screens are original and have reached the end of their 20-year design life. A replacement fine screen rated for 13.5 mgd will be installed in each of the existing channels and will be designed to provide a higher solids removal rate than the existing screens. Headloss through the screens will be no greater than 1.9 feet to allow for adequate freeboard on the upstream side of the channel. The screens will have pivoting supports for equipment removal and access during maintenance periods.

Grit Removal

Grit removal is performed by two Grit King 18-foot vortex settling tanks with internal stainless-steel baffles to direct flow within each unit. Grit settles by gravity within into the collection hopper, while wastewater exits at the top of the unit through an open channel to the Primary Splitter Structure. Grit is fluidized with plant effluent water and the slurry is pumped to cyclones to reduce the flow rate into the TruGrit grit washers. The grit washers wash, dewater, and discharge grit to a dumpster for disposal in a landfill.

The City has reported no concerns with grit removal performance, and the grit pumps have been recently rebuilt; however, the grit washer system has not been performing adequately, and the equipment has reached the end of its 20-year design life. Due to the age and condition of the existing equipment, it is recommended a replacement grit handling system be installed. The Grit King settling tanks will remain in place, and mechanical equipment including the stainless-steel baffles, grit pumps, cyclones, and TruGrit grit washers will be replaced.

Primary Treatment

Primary treatment is provided by two Primary Clarifiers that receive effluent from Preliminary Treatment. The system includes the Primary Splitter Structure, the Primary Clarifiers, and primary sludge and scum pumps. Table 6-4 lists the existing equipment and its design criteria.

TABLE 6-4
Primary Treatment Equipment

Equipment	Design Criteria
Primary Clarifiers	
No. of Units	2
Clarifier Mechanism	Suction
Dimensions	85-ft Diameter, 12-ft SWD
Total Volume	1.02 MG
Total Surface Area	11,350-ft^2
Total Weir Length	534-ft
Primary Sludge and Scum Pumps	
Number of Units	4
Type	Air Operated Diaphragm
Capacity, each	54 gpm @ 12 strokes/min
Scum Well Decant Pump	
No. of Units	1
Type	Submersible
Capacity	250 gpm @ 7-ft TDH
Scum Well Mixer	
No. of Units	1
Type	Submersible Mixer
Capacity	860 rpm

Primary Splitter Structure

The Primary Splitter Structure is a concrete structure that receives flow from the grit chambers and waste activated sludge (WAS) from the final clarifiers. Stainless steel weir plates equally split flow through open channels to two Primary Clarifiers. Manually actuated slide gates are installed upstream of the weir plates to shut off flow to the clarifiers. The structure contains a third channel to accommodate the construction of a future clarifier.

The City reports no operational concerns with the splitter structure or equipment, but it is recommended that the condition of each be assessed. It is recommended that the slide gates be replaced within the planning period due to exceeding their 20-year design life.

Primary Clarifiers

Two center-feed type Primary Clarifiers are used to remove the readily settleable solids and floating material from the wastewater. The settled sludge is removed from the Primary Clarifiers by scraper-type sludge removal mechanisms that transport sludge to a central collection hopper.

Mechanical drive units that power the sludge collection mechanisms are mounted on the central pier of the clarifiers. A beach and scraper style skimmer arm removes scum from the clarifier surface.

The City reports no concerns with the operation of the Primary Clarifiers. Table 6-5 summarizes hydraulic loading to the clarifiers for current and design year 2047 conditions. The Appendix shows the mass balance calculations for the WWTP.

TABLE 6-5
Primary Clarifier Loading Conditions

Condition	Surface Settling Rate (gpd/ft^2)	Weir Overflow Rate (gpd/ft)
Current Average Day	285	6,064
Design Average Day	462	9,825
Design Peak Hour	2,398	-
NR 110 Code, Annual Average	**1,000**	**10,000**
NR 110 Code, Peak Hour	**1,500**	**-**

The surface settling rates and weir overflow rates for the current and design average conditions are below the NR 110 limit. However, the peak hour settling rate of 2,398 gpd/ft^2 exceeds the code requirement of 1,500 gpd/ft^2. The primary clarifiers were constructed in 2004, and the design year hydraulic loadings have not changed since the previous planning period. Conforming to NR 110 code would have required two 110-foot diameter clarifiers or three 90-foot diameter clarifiers, leading to excessively long detention times during average flows and high capital costs. Due to the infrequency of peak hour flow occurrences and the City's capability of meeting required effluent limits during peak flow events, the high peak hour settling rate will not have a significant impact on the activated sludge process and overall plant performance. Additional primary clarification capacity is therefore not recommended.

Both clarifiers' mechanisms and drives are original and have been rehabilitated within the last ten years. Due to the age of the equipment, it is recommended they be assessed and rehabilitated or replaced within the planning period.

Primary Sludge and Scum Pumping

Four air-operated diaphragm (AOD) sludge and scum pumps are utilized to transfer sludge from the Primary Clarifiers to the Digester Complex. A decant pump in the Primary Scum Well is utilized for pumping scum subnatant to the Aeration Basins, and a submersible mixer was

provided with the intention of homogenizing scum prior to being pumped to the Digester Complex.

The four primary sludge and scum pumps have reached the end of their 20-year design life. The City is interested in replacing the pumps with an alternative technology to remove the need for air compressors, replacing antiquated parts, and reducing noise. The AOD pumps will be replaced with an alternate type of positive displacement pump.

The Primary Scum Well was designed to mix and transfer scum to the anaerobic digesters; however, the excessive buildup of FOG through the pipe prevents contents from being pumped. Instead, scum builds up in the tank and is occasionally vacuumed out and hauled away for disposal. Subnatant continues to be decanted to the aeration basins, sending scum through the remainder of the WWTP. To avoid FOG buildup downstream, it is recommended that the scum well decant line be rerouted to recycle flow to the head of the WWTP to retain scum in the Primary Scum Well.

Additionally, one of the two primary sludge lines that convey sludge from the Primary Clarifiers to the Digester Complex has a significant buildup of vivianite. The line is approximately 1,500 feet in length and is constructed out of 6-inch high-density polyethylene pipe. It is recommended that both lines be jetted to remove the vivianite. Pipe cleanouts will be constructed for accessible buildup removal in the future.

Secondary Treatment

Secondary treatment is provided by an activated sludge system that is designed for BOD_5 removal and single stage nitrification. The system includes the secondary splitter box, aeration basins, aeration system, final clarifiers, return sludge pumping, mixed liquor recycle pumping, waste sludge pumping, and a chemical phosphorus removal system. Table 6-6 lists the existing equipment and its design capacities.

TABLE 6-6
Secondary Treatment Equipment

Equipment	Design Criteria
Anoxic Selectors	
No. of Basins	3
Dimensions	25-ft W x 35-ft L x 16-ft SWD
Total Volume	314,100 MG
Aeration Basins	
No. of Basins	3
Dimensions	25-ft W x 236-ft L x 16-ft SWD
Total Volume	2.1 MG
Aeration Diffusers	Fine Bubble
Aeration Blowers	
No. of Units	5
Type	(2) Turbo Blowers, (3) Rotary Lobe Positive Displacement
Capacity, each	Turbo Blowers, 2,200 scfm Rotary Lobe PD, 2,363 scfm @ 8.2 psi
Anoxic Mixers	
Number of Units	3
Type	Submersible Mixer
Capacity, each	1,500 gpm @ 860 rpm
Return Sludge Pumps	
No. of Units	2 Duty, 2 Backup
Type	Screw Impeller Dry-pit Centrifugal
Capacity, each	2,300 gpm @ 42 ft TDH

Equipment	Design Criteria
Waste Sludge Pumps	
No. of Units	2
Type	Screw Impeller Dry-pit Centrifugal
Capacity, each	380 gpm @ 46-ft TDH
Mixed Liquor Recycle Pumps	
No. of Units	3
ype	Submersible Axial Flow Pump
Capacity, each	2,600 gpm @ 1-ft TDH
Secondary Scum Pump	
No. of Units	1
Type	Submersible
Capacity	150 gpm @ 71-ft TDH
Ferric Chloride Pumps	
No. of Units	3
Type	Chemical Metering Pump
Capacity, each	5-30 gpm @ 50 psig
Chemical Storage Tank	
No. of Units	1
Capacity	10,000 gallons
Final Clarifiers	
No. of Units	2
Clarifier Mechanism	Suction
Dimensions	90-ft Diameter, 16-ft SWD
Total Volume	1.523 MG
Total Surface area	12,700-ft^2
Total Weir Length	530

Secondary Splitter Structure

The Secondary Splitter Structure is a concrete structure that receives flow from the Primary Clarifiers, where it is mixed with return activated sludge (RAS) from the Final Clarifiers. The splitter structure equally splits flow between the three aeration basins, and provisions have been made for a future fourth aeration basin. Due to the RAS piping configuration, the splitter box is unable to allow the plant to run as two parallel treatment trains. The Secondary Splitter Structure will be modified with additional isolation gate valves to allow for either treatment train to run independently.

Aeration Basins

The three aeration basins each include a mechanically mixed anoxic selector to promote growth of floc-forming organisms and an aerobic zone to provide BOD_5 removal and nitrification. Each aeration basin is equipped with ceramic fine bubble diffusers and aeration blowers. Mixed liquor recycle pumps are used to supply adequate nitrate to the anoxic selector.

Table 6-7 summarizes mass balances for current and design year 2047 loading conditions using the existing aeration basins. The Appendix shows the mass balance calculations for the current and design year conditions.

TABLE 6-7
Aeration Basin Loading Conditions

Condition	WWTP Influent BOD_5 (lb/day)	Aeration Basin BOD_5 (lb/day)	Volumetric BOD_5 Loading (lb/day/kcf)	F/M (lb BOD_5/day per lb MLVSS)
Current Average Day	6,400	4,500	16	0.15
Design Year 2047 Average Day	8,300	5,800	21	0.20
NR 110 Code (Conventional)	**-**	**-**	**40**	**0.2 – 0.5**

Table 6-8 shows that all loading conditions are less than the NR 110 limit of 40 lbs BOD_5/kcf and within the F/M ratio range of 0.2 to 0.5. Therefore, the existing aeration basin volume will be adequate to effectively treat the design average day BOD_5 loading.

The aeration basins are equipped with three 2,363 scfm positive displacement blowers and two 2,200 scfm high speed turbo blowers to provide oxygen for the aerobic zone. Oxygen requirements are determined based on 1.1 pounds of oxygen per pound of BOD_5 removed and 4.6 pounds of oxygen per pound of TKN removed, per NR 110. Oxygen requirements and corresponding air flow requirements for the design year loadings are described in Table 6-8.

TABLE 6-8
Aeration Basin Air Requirements

Parameter	Current Average	Design Average	Design Peak Hour
Oxygen Required (lb/d)	8,200	10,200	25,900
Air Demand (scfm)	2,800	3,500	8,800

Note: Air required based on alpha = 0.6, beta = 0.98, theta = 1.024, DO = 2.0 mg/L, T = 20°C, SOTE 32% (2% per ft SWD)

Per NR 110.21(6)(a), "*The blowers shall be sized to meet the maximum air demand with the largest blower out of service…Diffusers and air piping shall be capable of supplying the peak hour air demand or 200% of the design average air demand, whichever is larger.*"

The City has the capability to bypass flow around the activated sludge system during high flow events. Bypassing occurs when a preset influent flow rate is exceeded, which opens gates in the secondary splitter box. The preset flow rate values were determined based on actual performance of the activated sludge system during high flow events. The City bypasses around the activated sludge system when flow exceeds 20.16 mgd. Therefore, design peak hour oxygen air demand was calculated based on 20.16 mgd, rather than the stated 27 mgd peak hour flow.

To meet NR 110 air demand requirements, a firm capacity of 8,800 scfm must be maintained in the aeration basins with the largest unit out of service. The current system has a firm capacity of 9,126 scfm. The positive displacement blowers have reached the end of their 20-year design life, so it is recommended they be replaced with three 2,200 scfm high speed turbo blowers within the planning period to maintain the required firm capacity. The ceramic fine bubble diffusers and low-pressure air piping are original, but the City completes routine maintenance, and the equipment is in good condition. Due to age, it is recommended that diffusers and piping be replaced within the planning period.

The City reports spalling and cracking of aeration basin concrete, and it is recommended the deficiencies be inspected and repaired. There are no operational concerns with the anoxic mixers or mixed liquor recycle pumps. The units are 20 years old and have been recently rehabilitated. Due to age, it is recommended they be replaced within the planning period.

Final Clarifiers

The two center-feed type Final Clarifiers are used to separate activated sludge from the treated wastewater using rotating sludge collection mechanisms. Mechanical drive units that power the mechanisms are mounted on the central pier of the clarifiers. Settled sludge is returned to the Aeration Basins by the two RAS pumps or wasted to the Primary Clarifiers by the three WAS

pumps. Scum is collected from the clarifiers a skimmer arm on each mechanism, which is then pumped into the waste sludge line.

The City reports no concerns with the operation of the Final Clarifiers. Table 6-9 summarizes hydraulic and solids loading to the clarifiers for current and design year 2047 conditions. The Appendix shows the mass balance calculations for the WWTP.

TABLE 6-9
Final Clarifier Loading Conditions

Condition	Surface Settling Rate (gpd/ft²)	Solids Loading Rate (lb/ft²–hr)	Weir Overflow Rate (gpd/ft)
Current Average Day	251	0.25	5,639
Design Average Day	408	0.51	9,171
Design Peak Hour	2,117	2.3	51,000
NR 110 Code, Annual Average	**-**	**1.4**	**10,000**
NR 110 Code, Peak Hour	**1,200**	**2.0**	**-**

The surface settling rates, solids overflow rates, and weir overflow rates for the current and design average conditions are below the NR 110 limit. However, the design peak hour solids loading rate of 2.3 lb/ft^2-hr exceeds the code requirement of 2.0 lb/ft^2-hr. The peak hour solids loading rate was calculated based on the design concentration of 3,000 mg/L of mixed liquor suspended solids under aeration and a maximum day design flow of 24 mgd plus the maximum design return sludge rate requirement of 3.9 mgd (75% of average design flow for conventional activated sludge systems), per NR 110.

It is expected that MLSS concentrations will be less than 3,000 mg/L during peak flow conditions, decreasing the peak hour solids loading to a rate that is within the NR 110 code requirement. Furthermore, the City has the ability to divert primary effluent around the secondary treatment process to prevent overloading of the final clarifiers and ensure the secondary treatment process maintains operation during high flow events.

Due to the infrequency of peak hour flow occurrences and the City's capability of meeting required effluent limits during peak flow events, the high peak hour solids loading rate will not have a significant impact on overall plant performance. Additional final clarifier capacity may lead to stagnation and denitrification in the final clarifiers during average flow conditions. Therefore, additional final clarifier capacity is not recommended.

The mechanisms and drives of both clarifiers, as well as the RAS, WAS, and Scum Pumps, are 20 years old and have been rehabilitated within the last ten years. Due to the age of the

equipment, it is recommended the equipment be rehabilitated or replaced within the planning period.

Phosphorus Removal

The City of Watertown has phosphorus limits based on the Rock River Total Maximum Daily Load (TMDL) allocations, which result in more restrictive limits than in previous permits. The City currently achieves phosphorus removal at the WWTP through the addition of ferric chloride at the effluent end of the aeration basins

To supplement chemical phosphorus removal at the plant, a Water Quality Trading (WQT) plan was developed and approved by the Wisconsin Department of Natural Resources (WDNR) in June 2022 to comply with the TMDL limits. The nonpoint-to-point trade includes wetland restoration and perennial vegetation best management practices (BMPs) to generate nonpoint source credits on City-owned fields. Beginning in 2023, the City has 102 lbs/yr of available TP credits to demonstrate compliance as long as the approved WQT Plan BMPs are maintained.

Chemical Phosphorus Removal

Phosphorus removal is performed through chemical addition using ferric chloride, with two dosing points located at the end of the aeration basins. The chemical metering pumps are controlled using an ortho-phosphate analyzer, which measures ortho-phosphate levels in the plant effluent by taking a sample every 15 minutes. A 10,000-gallon chemical storage tank is located in the Secondary Treatment Building, near the final clarifiers.

Both the chemical pumps and chemical storage tank have reached the end of their 20-year design life. Due to the corrosive nature of ferric chloride and the age and condition of the equipment, new chemical metering pumps and a storage tank sized for 30-days of chemical storage are recommended.

Tertiary Treatment/Filtration

Alternatively, the installation of a tertiary treatment system could be used to meet TMDL limits. The WWTP's effluent concentrations at average day and maximum month flows are in a range that can typically be treated using conventional filtration systems. Therefore, a 10.4 mgd disc filter system would be installed to receive flow from the Final Clarifiers. Per NR 110, the system would be sized to treat 200% the design annual average flow and achieve an average effluent phosphorus concentration of 0.2 mg/L. Construction, operation and maintenance, and present worth cost estimates comparing the disc filtration system and chemical treatment is summarized in Table 6-10. Further details are provided in the Appendix.

TABLE 6-10
Tertiary Treatment 20-Year Present Worth Comparison

Item	Alternative 1 Disc Filter	Alternative 2 Chemical Treatment
Capital Cost	$7,266,000	-
Salvage Value	$460,000	-
Present Worth O&M	$2,684,000	$2,226,000
Total Present Worth	**$9,491,000**	**$2,226,000**

Given the large present worth cost of the disc filter installation, it is recommended the City continues using a combination of ferric chloride treatment and WQT credits to achieve their phosphorus limits through the planning period.

Ultraviolet Disinfection

Disinfection is currently performed by an ultraviolet (UV) system that consists of two medium pressure, high intensity submerged lamp banks located in a concrete channel in the Secondary Building. The system disinfects secondary effluent from the Final Clarifiers. The disinfected effluent flow is measured by the effluent flow meter before it is aerated and discharged to the Rock River. The system has a treatment capacity of 24 mgd and a hydraulic capacity of 27 mgd. Table 6-11lists the existing equipment and its design criteria.

TABLE 6-11
Disinfection Equipment

Equipment	Design Criteria
UV Disinfection	
No. of Units	1
No. of Banks	2
Modules per Bank	3
Lamps per Module	10
Total No. of Lamps	60
Channel Dimensions	4.5-ft W x 32-ft L x 9.5-ft D
Number of Channels	1, with bypass
Peak Capacity	24 mgd, Disinfection; 27 mgd, Hydraulic
Effluent Flow Monitoring	
Number of Units	1
Type	Parshall Flume
Size	36-inch

The UV disinfection system is nearing the end of its 20-year design life and the manufacturer will no longer provide parts or support for the system. It is recommended that a new UV disinfection system rated for a disinfection capacity of 27 mgd be installed to match the existing hydraulic capacity. The new system will be a low pressure, high intensity submerged lamp bank system that will be installed inside of the existing UV channel.

Cascade Aeration and Effluent Outfall

Disinfected effluent flows through a channel and down the existing cascade aerator to a 42-inch pipe that discharges to the Rock River. The cascade aerator is used to provide sufficient aeration to meet the effluent dissolved oxygen requirement of 6.0 mg/L. The existing cascade aerator has sufficient capacity to meet the dissolved oxygen requirement through the planning period.

The City reports no concerns with the cascade aerator but has noted erosion around the wing walls of the outfall. It is recommended a structural analysis of both structures be completed to ensure they remain in good condition throughout the planning period.

Biosolids Treatment

Biosolids Treatment consists of anaerobic digestion, biosolids dewatering, and dewatered sludge storage. Table 6-12 lists the existing equipment and its design capacities.

TABLE 6-12
Biosolids Treatment Equipment

Equipment	Design Criteria
Anaerobic Digesters	
No. of Units	2
Dimensions	Primary Digester: 65-ft Diameter x 24-ft D Secondary Digester: 50-ft Diameter, 24-ft D
Total Volume	79,600-ft^3
Operation Temperature	Mesophilic, 95°F +/- 2°F
Hydraulic Regime	Completely Mixed
Digester Mixers	
No. of Units	5, (3) Primary, (2) Secondary
Type	Roof Mounted Draft Tube
Design Capacity	9,000 gpm
Sludge Recirculation Pumps	
No. of Units	3
Type	Rotary Lobe Positive Displacement
Design Capacity	360 gpm, 30 psi, 230 rpm
Sludge Grinders	
No. of Units	2
Type	In-line Grinder
Design Capacity	170 gpm sludge, 400 gpm clean water
Maximum Solids Content	3%
Passing Solid Size	0.25-inch
Boilers	
No. of Units	2
Type	Three-pass wetback firebox
Design Capacity	3,400 MBh

Equipment	Design Criteria
Boiler Recirculation Pumps	
No. of Units	2
Type	Centrifugal
Design Capacity	300 gpm @ 60-ft TDH
Heat Exchangers	
No. of Units	2
Type	Spiral
Design Capacity	355,000 BTU/hr
Exchanger Recirculation Pumps	
No. of Units	3
Type	Centrifugal
Design Capacity	120 gpm @ 60-ft TDH
Centrifuges	
No. of Units	2
Sludge Feed Rate	40-150 gpm
Design Capacity	1,500 lb/hr
Centrifuge Feed Pumps	
No. of Units	2
Type	Rotary Lobe Positive Displacement
Design Capacity	150 gpm, 50 psi, 260 rpm
Polymer Mixing System	
No. of Units	2
Capacity	94 lb/hr
Sludge Storage Building	
No. of Units	1
Capacity	52,600-ft^3
Waste Gas Burner (Gas Safety Equipment)	
No. of Units	1
Capacity	7,900 scf/hr @ 0.5-in W.C.

Anaerobic Digestion

Primary sludge and WAS is co-settled in the Primary Clarifiers and pumped to the Digester Complex for stabilization using anaerobic digestion. The Digester Complex consists of a primary mesophilic digester operated at 95°F, followed by a secondary digester used to store digested sludge and digester gas. Both digesters are mixed and heated, so the secondary digester can be operated as the primary digester during periods of shutdown or maintenance.

The two digesters were originally constructed in the 1930s and were modified/rehabilitated in the 1980s and in 2004. The 2004 upgrade included new covers, new mechanical mixers on both digesters, and new sludge heating and recirculation equipment. The volatile solids loadings and solids retention times for the existing digesters are presented in the mass balance calculations in the Appendix and are summarized in Table 6-13.

TABLE 6-13
Anaerobic Digester Loading Conditions

Condition	Volatile Solids Mass (lbs VS/day)	Sludge Volume (gpd)	Volatile Solids Loading (lbs VSS/day/kcf)	Solids Retention Time (days)
Current Average Day	4,600	24,800	58	24
Design Average Day	5,700	30,000	71	20
NR 110 Code	**-**	**-**	**80**	**15**

The volatile solids loading rate and solids retention time (SRT) for the digesters meet the NR 110 requirements through the planning period. The existing digester volume will be adequate to effectively stabilize the design average primary sludge and WAS loading.

Digester Structures

The Anaerobic Digester structures date from the 1930s and new covers were installed in the 2004 WWTP upgrade. The Primary Digester has a floating cover, and the Secondary Digester has a gas holding cover. The Primary Digester was cleaned and visually inspected in 2023; however, a complete structural analysis of both digester concrete structures and covers should be completed to ensure they will remain in good condition throughout the planning period.

Digester Mixing

Sludge mixing in each digester is accomplished using roof-mounted draft tube mixers. Three mixers are installed on the Primary Digester, and two mixers are installed on the Secondary Digester. The mixers were recently rehabilitated but are 20 years old and continually exposed to corrosive environments. Due to age and condition, it is recommended they be replaced within the planning period to maintain digester operation and performance.

Digester Heating

The heating system for the anaerobic digesters is composed of two (2) three-pass wetback fire-box hot water boilers, two boiler recirculation water pumps, two spiral heat exchangers, three exchanger recirculation pumps, and three rotary lobe sludge recirculation pumps. A blend of digester gas and natural gas is used to heat the digesters, and any excess gas is sent to the waste gas burner.

The spiral heat exchangers, one boiler, sludge, boiler and exchanger recirculation have been recently replaced. The Hurst dual-fueled boiler and the waste gas burner have exceeded their 20-year design lives and should be replaced within the planning period.

Biosolids Dewatering

The City currently dewaters its digested sludge with two centrifuges that can be operated together or separately. Separate sludge grinders, feed pumps, polymer systems, and discharge conveyors are provided for each centrifuge unit. Dewatered biosolids are discharged to the Biosolids Storage Building, and centrate from the dewatering process is sent to a centrate storage tank and eventually returned to the Aeration Basins for treatment.

The City reports no operational issues with the centrifuges. The centrifuge gearboxes and sludge feed pumps have recently been replaced on both systems, and liners on the conveyance systems were recently replaced. The City reports that parts and controls for the centrifuges are becoming antiquated and difficult to maintain. The centrifuges, polymer systems, sludge grinders, and discharge conveyors were installed during the 2004 upgrade and have reached the end of their 20-year design life. It is recommended they be replaced due to age and condition.

Biosolids Storage

Dewatered sludge is stored in the Sludge Storage Building that was constructed during the 2004 upgrade. The building is approximately 83.5 ft by 141.5 ft and was designed to store 52,600 ft^3 of sludge cake. The building was sized based on the NR 110 requirement for 180 days of sludge storage capacity. Current and design year sludge storage requirements are provided in Table 6-14.

TABLE 6-14
Sludge Storage Requirements

Condition	Dewatered Sludge Production (lbs/day)	180 Day Storage Requirements (lbs)	Estimated Storage Volume (ft^3)
Current Average Day	4,700	841,000	52,500
Design Average Day	5,600	1,008,000	63,000
Rated Storage Capacity	4,751	855,180	52,600
Actual Storage Capacity	9,500	1,710,400	105,200

Note: Based on dewatering sludge to 25% TS.

The design average day loading for dewatered sludge exceeds the rated capacity of the Sludge Storage Building. However, the City has made operational changes to allow storage capacity in the building to be greater than its original rated capacity. The City has achieved up to a year of storage at current loading conditions, providing an actual capacity of 105,200 ft^3. When necessary, concrete blocks are stacked on the south side of the building to allow for additional sludge to be stored. Additionally, the City has a significant amount of available acreage for land application of sludge, which allows more opportunities for sludge hauling through the year. For these reasons, the Sludge Storage Building is expected to have adequate capacity to maintain the required 180-days of storage through the planning period. No improvements are recommended.

Miscellaneous Modifications

Electrical System

The WWTP Electrical System has not been updated since its initial construction in 2004 and has reached the end of its 20-year design life. The transformer near the Raw Sewage Pump Station is not sealed properly, causing water to leak through the conduit into the basement of the building. The City reports no concerns with the transformer near the Generator Building or Primary Building. Power will need to be shut down to the WWTP to replace the equipment, so bypass pumping around the Raw Sewage Pump Station will be required to keep the plant in operation during the installation. Bypass pumping will be equipped to handle the peak hour flow of the WWTP.

The City reports no operational concerns with the generator or automatic transfer switch (ATS), but the equipment has exceeded their typical design lives. It is recommended the generator and ATS be replaced within the planning period.

HVAC System

The existing HVAC at the WWTP is 20 years old and has reached the end of its design life. It is recommended the HVAC system be upgraded to continue operating effectively through the planning period.

Instrumentation and Controls System

The existing instrumentation and control (I&C) system at the WWTP is 20 years old and has reached the end of its design life. The City has reported that PLC components and replacement parts are difficult to obtain. The SCADA network software, LCPs and PLCs should be upgraded to continue operating effectively through the planning period.

Fire Alarm System

The Fire Alarm system for the WWTP is currently out of service. A new monitoring system installation is currently being planned.

Gas Monitoring System

The gas monitoring system in the Raw Sewage Pump Station, Primary Building and Solids Handling Building are currently out of service. The City has been using portable gas monitors while occupying these spaces, but the monitoring system is recommended to be replaced to ensure operator safety when working in these spaces.

Storm Water Pumping

The WWTP has a storm sewer system design to collect the storm water from the plant site and convey it to the river. The storm water pump station structure contains two submersible storm water pumps each rated for 1,670 gpm. The pumps have been recently rehabilitated but have reached the end of their 20-year design life. It is recommended they be replaced within the planning period.

Chapter 7
RECOMMENDED PLAN AND IMPLEMENTATION

This chapter summarizes the recommendations in the preceding chapter to upgrade and expand the Watertown WWTP to accommodate wastewater flows and loadings over the next 20 years. This chapter also includes an environmental/resources impact summary, detailed project capital costs, funding availability, impacts on sewer user charge rate, and an implementation schedule.

PRELIMINARY SCREENING OF ALTERNATIVES

No Action Alternative

The current Watertown WWTP has an average design capacity of 5.2 mgd, 6,600 lbs BOD_5/day, 5,300 lbs TSS/day, 1,015 lbs TKN/day, and 215 lbs TP/day. The current BOD_5, TSS, and TKN loadings have ranged between 90-130% of rated plant capacity and will consistently exceed rated plant capacity by design year 2047. The majority of the plant dates to 2004, and much of the facility equipment has or will have exceeded their useful lives by the end of the planning period.

The “No Action” alternative represents continued operation of the existing facilities with no additions to the facilities and no changes to present operation and maintenance procedures. This alternative recognizes the fact that the present facilities and staff are producing effluent that is generally in compliance with permit requirements.

However, the “No Action” alternative does not address multiple key issues. First, the treatment plant does not possess adequate capacity to handle the increasing loads over the 20-year planning period. Second, much of the mechanical equipment in the plant is aging and will exceed its useful lifespan during the planning period. Decreased efficiency and aging of the equipment could lead to short-term permit violations and increased costs to repair and maintain the equipment.

The “No Action” alternative would likely lead to future effluent permit violations, which could subject the City to stringent fines. The WDNR could then impose a schedule to comply with effluent limits, which would mean the City would still have to upgrade and expand its treatment plant. However, once a community is in violation of its discharge permit, they are no longer eligible for a low interest loan from the Clean Water Fund, and a moratorium on new sewer construction is imposed.

The Rock River is classified by the WDNR for fish and aquatic life and warm water sport fishery. Permit violations would cause stream degradation because of the discharge of additional

quantities of suspended solids and oxygen consuming material (BOD_5). The negative effect on fish and aquatic life would also affect other downstream recreational uses in the Rock River. Due to the eventual possibility of WDNR prosecution, environmental damage, and negative economic impact, the "No Action" alternative is eliminated from further consideration.

Upgrade Operation and Maintenance Alternative

This alternative includes improvements to the methods of operating and maintaining the present facilities, along with minor facilities improvements. No areas have been identified where changes in operations and maintenance would have a significant impact on the treatment capacity of the facility. Operations personnel have already optimized the facilities' treatment capabilities in order to meet permit limits.

The "Upgrade O&M" alternative fails to address the same key problems noted in the "No Action" alternative: projected increases in loads and equipment age. The same problems of future WDNR prosecution, environmental damage, and negative economic impact could potentially occur. Therefore, the "Upgrade O&M" alternative is eliminated from further consideration.

RECOMMENDED PLAN

The current Watertown WWTP capacity for BOD_5, TSS, NH_3-N, TKN, and TP will be exceeded due to projected increases in wasteloads by the year 2047. To provide adequate capacity through the planning period, it is recommended that the existing wastewater treatment plant be upgraded.

The recommended plan includes the major plant improvements presented in Table 7-1 through Table 7-3. The recommended plan is outlined in a phased approach, with required upgrades being separated into either near-term (0-2 years), mid-term (3-5 years), or long-term (5-10 years) improvements. The phase timelines and specific unit process improvements can be modified by the City based on facility needs and equipment condition. Upon completion of construction, these improvements will allow the Watertown WWTP to handle the projected flows and loadings through the year 2047. Mass balance calculations for the upgraded treatment plant are contained in the Appendix.

The majority of the equipment recommended for replacement will be improvements that will not affect the quality or quantity of WWTP effluent. These projects are considered by the WDNR to be "maintenance projects" and not "reviewable projects" and may not require plan approval, unless the project is financed through the Clean Water Fund (CWF). According to the WDNR, *"a reviewable project may also consist of modifications that do not directly have potential effects on the quality or quantity of effluent but are subject to design requirements in ch. NR 110, Wis.*

Adm. Code.", such as ventilation requirements for chemical storage facilities. Additional information on reviewable projects are listed in NR 108.02 and NR 281.41, as well as the WNDR website.

Table 7-1 and Table 7-2 indicate which of the proposed improvements may be considered reviewable. No proposed improvements in Table 7-3 are considered reviewable.

TABLE 7-1
Summary of Near-Term Plant Improvements

Unit Process	No.	Size/Capacity
Preliminary Treatment		
Fine Screens	2	13.5 mgd, each
Grit Removal System Upgrades	1	18-ft Dia, 20-ft depth
Primary Treatment		
Primary Sludge and Scum Pumps	4	54 gpm, each
Disinfection		
UV Disinfection System*	1	27 mgd
Biosolids Treatment		
Polymer System	2	94 lb/hr, each
Miscellaneous Improvements		
Transformers/Electrical Service Upgrade	1	N/A
SCADA Improvements	1	N/A
Gas Monitoring System Replacement	1	N/A
Fire Alarm System Replacement	1	N/A

* Indicates a potentially reviewable project.

TABLE 7-2
Summary of Mid-Term Plant Improvements

Unit Process	No.	Size/Capacity
Raw Sewage Pumping		
Auxiliary Generator Upgrades	1	N/A
Primary Treatment		
Scum Well Upgrades	1	N/A
Scum Well Pump	1	250 gpm
Scum Well Mixer	1	N/A
Secondary Treatment		
Secondary Splitter Upgrades	1	N/A
Aeration Basin Concrete Rehabilitation	1	N/A
Aeration Blowers*	3	3,000 scfm, each
Fine Bubble Diffusers*	1	N/A
Chemical Feed Pumps	3	5-30 gpm, each
Chemical Storage Tank	1	10,000 gal
Biosolids Treatment		
Primary Sludge Line Cleanout Improvements	1	N/A
Anaerobic Digester Structural Assessment	1	N/A
Centrifuges	2	1,500 lb/hr, each
Sludge Grinders	2	170 gpm, each
Sludge Discharge Conveyor	1	N/A
Miscellaneous Improvements		
Cascade Aeration Assessment	1	N/A
Effluent Outfall Assessment	1	N/A
Generator/ATS	1	N/A
HVAC System Improvements*	1	N/A

* Indicates a potentially reviewable project.

TABLE 7-3
Summary of Long-Term Plant Improvements

Unit Process	No.	Size/Capacity
Raw Sewage Pumping		
Raw Sewage Pumps	5	4,700 gpm, each
Primary Treatment		
Primary Clarifier Mechanisms/Drives	2	85-ft Dia, 12-ft SWD
Secondary Treatment		
Anoxic Mixers	3	1,500 gpm, each
Mixed Liquor Recycle Pumps	3	2,600 gpm, each
Return Sludge Pumps	3	2,300 gpm, each
Waste Sludge Pumps	2	380 gpm, each
Final Scum Pump	1	150 gpm, each
Final Clarifier Mechanisms/Drives	2	90-ft Dia, 16-ft SWD
Biosolids Treatment		
Anaerobic Digester Mixers	5	9,000 gpm, each
Dual Fueled Boiler	1	3,400 MBh
Waste Gas Burner	1	7,900 scf/hr
Miscellaneous Improvements		
Storm Water Pumps	2	1,670 gpm, each

ENVIRONMENTAL/RESOURCES IMPACT SUMMARY

The recommended plan will upgrade and increase the capacity of the existing Watertown WWTP. It will have an overall positive impact on the surrounding environment including the Rock River and the entire Watertown community. This is in contrast to the negative impacts of the "No Action" and "Improved O&M" alternatives.

Water Quality

The recommended plan will provide the WWTP with a greater capacity for removing BOD, TSS, NH_3-N, TKN, and TP than the existing facilities. These improvements will allow the plant to consistently produce an effluent that achieves the required effluent quality through the 20-year planning period.

Soil erosion and sedimentation occurring during construction of the recommended plan should be minimal. The construction plans and specifications will contain provisions for the installation of erosion control measures to protect adjacent areas from run-off and siltation.

Air Quality

The recommended plan may improve air quality since the overloaded treatment plant will be upgraded to accommodate current and future waste loads. Portions of the existing wastewater treatment plant site are within 500 feet of some commercial establishments. While the plant has not received any odor complaints, an overloaded treatment facility is susceptible to periodic odors.

Plant staff may notice temporary dust from any excavation equipment used during construction. However, the construction specifications will require that fugitive dust control measures be implemented. Furthermore, no additional structures are recommended to be constructed for the proposed upgrade, which will limit the use of excavation equipment.

Historical and Archeological Sites

The proposed treatment plant upgrade will take place on the existing plant site, which has been the subject of archeological investigations dating back to the 1980s. Investigations have taken place throughout the previous treatment plant upgrade to recover archeological features and determine the location of burial sites on the treatment plant site. The recommended plan is not expected to disrupt any existing archeological features or burial sites.

Floodplains and Environmentally Significant Lands

The recommended plan involves construction on the existing plant site. The site is not located adjacent to any environmentally sensitive lands. The existing plant site is located within the 100-year flood elevation; however, the existing site has been flood proofed to prevent flooding of the site.

Public Health

The recommended plan will provide substantial benefits to public health, including upgrading pumping to prevent sewer backups into basements, proper wastewater treatment prior to discharge to the Rock River, and sludge stabilization to reduce the likelihood of pathogens in the environment and exposure to the public.

CAPITAL COST OF RECOMMENDED PLAN

The estimated capital cost for the recommended near-term, mid-term, and long-term plan is $9,098,000, $10,261,000 and $14,063,000, respectively, as summarized in Table 7-4 through Table 7-6. This capital cost includes construction, engineering, legal, and administrative costs.

TABLE 7-4
Summary of Near-Term Project Costs

Item	Unit	Unit Cost	Quantity	Total Cost
Preliminary Treatment				
Fine Screens	Ea	$317,000	2	$634,000
Grit Removal System Upgrades	Lot	$778,000	1	$778,000
Primary Treatment				
Primary Sludge and Scum Pumps	Ea	$47,000	4	$188,000
Disinfection				
UV Disinfection System	Ea	$1,136,000	1	$1,136,000
Biosolids Treatment				
Polymer System	Ea	$175,000	2	$350,000
Miscellaneous Improvements				
SCADA Improvements	Lot	$500,000	1	$500,000
Transformers and Electrical Service Upgrades	Lot	$200,000	1	$200,000
Fire Alarm System	Lot	$120,000	1	$120,000
Gas Monitoring System	Ea	$52,000	3	$156,000
Instrumentation and Control	Lot	18%		605,000
Electrical	Lot	20%		712,000
Mechanical	Lot	15%		481,000
Subtotal				5,860,000
Contingencies @ 25%				1,465,000
Subtotal Construction Cost				7,325,000
General Conditions, Bonds and Insurance @ 8%				586,000
Construction Cost				7,911,000
Engineering and Administration Fees @ 15%				1,187,000
Total Project Cost				**9,098,000**

TABLE 7-5
Summary of Mid-Term Project Costs

Item	Unit	Unit Cost	Quantity	Total Cost
Raw Sewage Pumping				
Auxiliary Generator Upgrades	Lot	$250,000	1	$250,000
Primary Treatment				
Scum Well Upgrades	Lot	$125,000	1	$125,000
Scum Well Pump	Ea	$25,000	1	$25,000
Scum Well Mixer	Ea	$25,000	1	$25,000
Secondary Treatment				
Secondary Splitter Upgrades	Lot	$63,000	1	$63,000
Aeration Basin Concrete Rehabilitation	Lot	$25,000	1	25,000
Aeration Blowers	Ea	$168,000	3	$504,000
Fine Bubble Diffusers	Lot	$475,000	1	$475,000
Chemical Feed Pumps	Ea	$15,000	3	$45,000
Chemical Storage Tank	Ea	$108,000	1	$108,000
Biosolids Treatment				
Primary Sludge Line Cleanout Improvements	Lot	$40,000	1	$40,000
Anaerobic Digester Assessment	Lot	$50,000	1	$50,000
Centrifuges	Ea	$569,000	2	$1,138,000
Sludge Grinders	Ea	$23,000	2	$46,000
Sludge Discharge Conveyor	Lot	$159,000	1	$159,000
Miscellaneous Improvements				
Cascade Aeration Assessment	Lot	$8,000	1	$8,000
Effluent Outfall Assessment	Lot	$140,000	1	$8,000
HVAC System Improvements	Lot	$1,100,000	1	1,143,000
Generator/ATS	Lot	691,000	1	$691,000
Instrumentation and Control	Lot	18%		$535,000
Electrical	Lot	20%		$595,000
Mechanical	Lot	15%		$565,000
Subtotal				$6,623,000
Contingencies @ 25%				$1,639,000

Item	Unit	Unit Cost	Quantity	Total Cost
Subtotal Construction Cost				$8,262,000
General Conditions, Bonds and Insurance @ 8%				$661,000
Construction Cost				$8,923,000
Engineering and Administration Fees @ 15%				$1,338,000
Total Project Cost				**$10,261,000**

TABLE 7-6
Summary of Long-Term Project Costs

Item	Unit	Unit Cost	Quantity	Total Cost
Raw Sewage Pumping				
Raw Sewage Pumps	Ea	$194,000	5	$970,000
Primary Treatment				
Primary Clarifier Mechanisms and Drives	Ea	$537,000	2	$1,074,000
Secondary Treatment				
Anoxic Mixers	Ea	$140,000	3	$420,000
Mixed Liquor Recycle Pumps	Ea	$82,000	3	$246,000
Return Sludge Pumps	Ea	$131,000	3	$393,000
Waste Sludge Pumps	Ea	$35,000	2	$70,000
Final Scum Pump	Ea	$25,000	1	$25,000
Final Clarifier Mechanisms and Drives	Ea	$556,000	2	$1,112,000
Biosolids Treatment				
Anaerobic Digester Mixers	Ea	$181,000	5	$905,000
Dual Fueled Boiler	Ea	$207,000	1	$207,000
Waste Gas Burner	Lot	$290,000	1	$290,000
Miscellaneous Improvements				
Stormwater Pumps	Ea	$104,000	2	$208,000
Instrumentation and Control	Lot	18%		$1,066,000
Electrical	Lot	20%		$1,184,000
Mechanical	Lot	15%		$888,000
Subtotal				$9,058,000
Contingencies @ 25%				$2,265,000
Subtotal Construction Cost				$11,323,000
General Conditions, Bonds and Insurance @ 8%				$906,000
Construction Cost				$12,229,000
Engineering and Administration Fees @ 15%				$1,834,000
Total Project Cost				**$14,063,000**

FINANCING AND RATE IMPACTS

One source of funds for these projects is the plant's Equipment Replacement Fund. An additional funding source is a low interest loan from the Clean Water Fund Program. The DNR Bureau of Environmental Loans administers the Clean Water Fund Program that provides reduced interest rate loans for eligible wastewater projects. The current interest rate for eligible projects is 2.365%, as of September 2024 (55% of market rate). Flows from industrial dischargers and reserve capacity at the treatment plant for flows beyond 10 years from the time of the project completion are not eligible for the low-interest rate financing. The costs associated with facilities to treat these flows would be financed at the current market interest rate of 4.3%.

It is estimated that the annual operational and maintenance (O&M) costs for the wastewater treatment plant will be similar to the current annual O&M costs of $2.6 million, per the City's 2023 financial audit.

Assuming that the three proposed projects are 90 percent eligible for a reduced interest rate loan (assumed to be 2.365%) with the remaining amounts financed with the equipment replacement fund, the debt retirement for a 20-year bond to finance the outstanding capital costs for the recommended alternatives is shown in Table 7-7.

TABLE 7-7
Debt Service Estimate

Project	Project Cost	Loan Amount	Annual Principal and Interest Payment
Near-Term Improvements	$9,098,000	$8,188,000	$519,000
Mid-Term Improvements	$10,261,000	$9,235,000	$585,000
Long-Term Improvements	$14,063,000	$12,657,000	$802,000

The impact on user charge rates is dependent on the exact method of allocating the annual revenue requirement for capital and annual operating costs over the various user categories and will require a detailed user charge study. The new user charge rates will have to generate sufficient revenue to pay for the annual debt services for the new loans.

Based on the estimated operating income from the 2023 audit, it is estimated that the current utility rates are sufficient for the additional revenue requirements for the proposed Near-Term project. It should be noted that the final cost allocation and user charge rates will be determined from a user charge study after final project costs, CWFP impacts, and method of financing are determined.

IMPLEMENTATION SCHEDULE

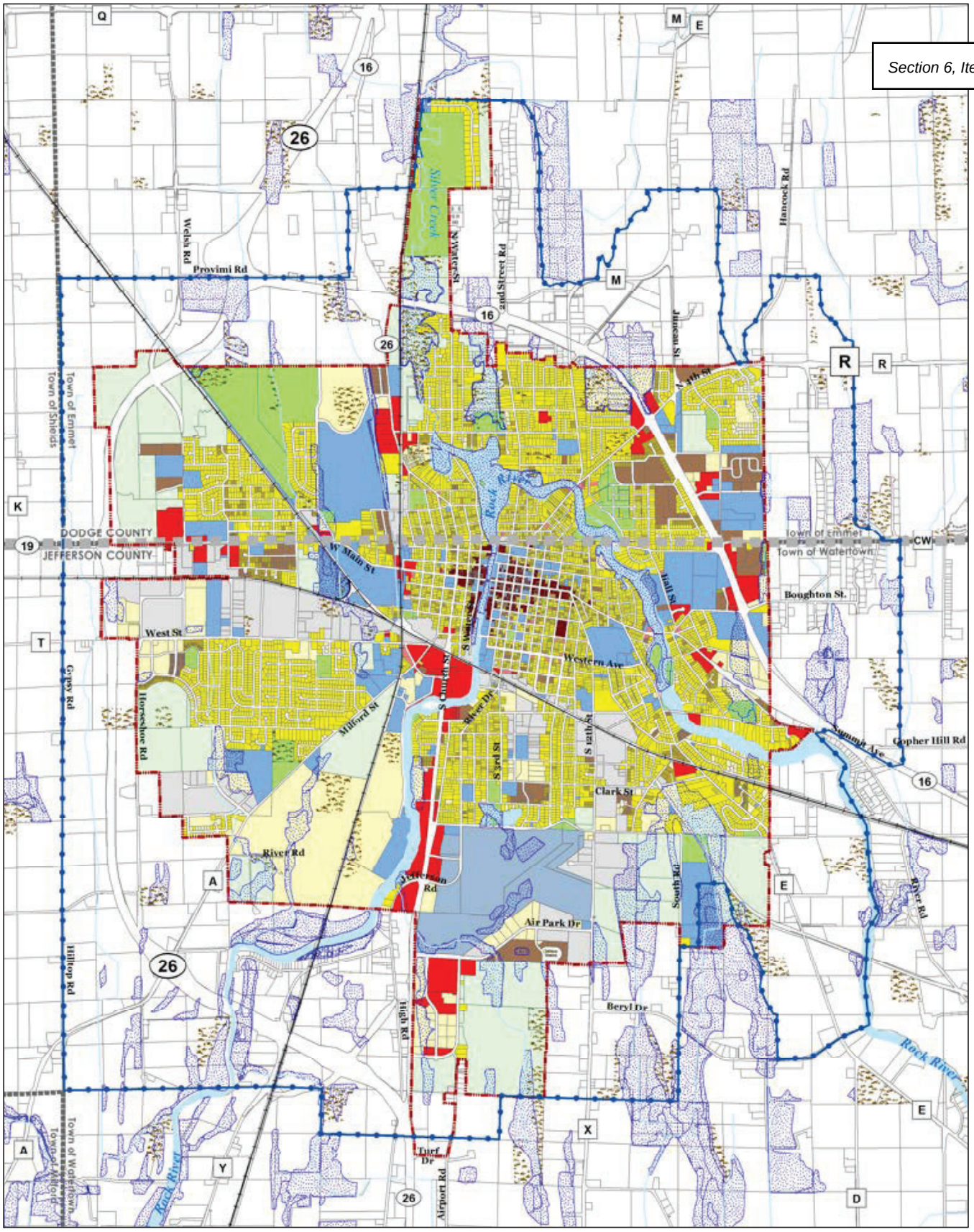
The steps and anticipated schedule for implementing the recommended plant are outlined below:

- Conduct Public Hearing ..... December 2024
- Submit Facility Plan to DNR ..... December 2024
- DNR Approval of Facility Plan ..... March 2025
- Near-Term Improvements
  - Begin Design ..... January 2025
  - Submit Plans and Specifications to the DNR ..... September 2025
  - Bidding ..... November 2025
  - DNR Approval of Plans and Specifications ..... December 2025
  - Submit Clean Water Fund Application ..... December 2025
  - Award of Contract ..... January 2026
  - Begin Construction ..... March 2026
  - Final Completion/Startup of Facilities ..... May 2027
- Mid-Term Improvements ..... January 2028
- Long-Term Improvements ..... January 2030

PUBLIC HEARING

Per Wisconsin Administrative code NR 110.09(4), municipalities must conduct at least one public hearing prior to the facility plan being adopted. A copy of the facility plan report will be available for public review before the meeting and at the meeting. The City will schedule a public hearing to present the Facility Planning report and solicit questions and comments from regulatory and governmental agencies and the general public. A ten (10) day comment period will be provided following the hearing to allow submission of written comments regarding the Facility Plan. A copy of the public hearing notice, transcripts from the hearing, and written comments received during the comment period will be included in an Appendix in the final Facility Plan.

APPENDIX A
Facility Planning Area



Existing Land Use

Map 5

THE CITY OF WATERTOWN
Opportunity runs through it.

City of Watertown Comprehensive Plan

- City of Watertown
- County Boundary
- Town Boundary
- Parcels
- Urban Service Area Boundary
- Railroad

Land Use Categories

- Agriculture
- Single Family Residential - Unsewered
- Single Family Residential - Sewered
- Two-Family Residential
- Multi-Family Residential
- Vacant
- Airport
- Institutional
- Neighborhood Mixed Use
- Business
- Central Mixed Use
- Mixed Industrial
- Parks & Recreation
- Rights-of-Way
- Surface Water
- Wetland
- Woodland

Draft: July 1, 2019
Source: WisDNR, FEMA, City of Watertown, Dodge Co. LIO & Jefferson Co. LIO, V&A

0 0.3 0.6 1.2 Miles

VANDEWALLE & ASSOCIATES INC.
Shaping places, shaping change

APPENDIX B
WPDES Permit

WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

CITY OF WATERTOWN

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility located at

800 HOFFMAN DRIVE, WATERTOWN, WISCONSIN

to

Rock River (Middle Rock River Watershed, UR01 – Upper Rock River Basin) in Jefferson County

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis. Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By _____
Thomas Bauman
Wastewater Field Supervisor

March 13, 2024
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - October 01, 2020 **EXPIRATION DATE - September 30, 2025**
Modification Date Effective – October 1, 2022
Modification -3 Date Effective – April 1, 2024

TABLE OF CONTENTS

1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
701	Influent: 24-Hr flow proportional sampler located after raw influent screening. Flow meter located after raw wastewater pumps.

1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Point 701 - INFLUENT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD_5, Total		mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	5/Week	24-Hr Flow Prop Comp	
Cadmium, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Chromium, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Copper, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Lead, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Nickel, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Zinc, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Quarterly	24-Hr Flow Prop Comp	See Mercury Monitoring section

1.2.1.1 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

1.2.1.2 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit, unless not possible using the most sensitive approved method.

1.2.1.3 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

2 In-Plant Requirements

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
102	Collect the mercury field blank using sample handling procedures specified in NR 106.145(9), Wisconsin Administrative Code.
103	Sample point for reporting diverted flow from the primary clarifiers during high flow events. Flow bypasses the aeration basins and final clarifiers but receives disinfection prior to discharge. Department approval for blending shall be obtained prior to use of this sample point. Any flow diverted prior to blending approval shall be considered to be a bypass, is prohibited, and should be reported to the Department as such. The permittee shall notify the Department when blending occurs. See Blending requirements in the Standard Requirements section of the permit.

2.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

2.2.1 Sampling Point 102 - GEN PLANT (Hg blank)

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Quarterly	Blank	See Mercury Monitoring section

2.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

2.2.2 Sampling Point 103 - BLENDING

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Per Occurrence	Continuous	See Blending Flow permit section.
Time		hours	Per Occurrence	Calculated	Report the total duration of blending within a given day (12:00 am - 11:59 pm) in which blending occurs. See Blending Flow permit

					section.

2.2.2.1 Blending Flow

Flow measurement shall start at the commencement of blending operations and shall be maintained for the duration of the blending operation. Measure flow in daily increments until operation ends and report daily flow on the eDMR. The permittee shall report the volume of wastewater that is diverted around secondary treatment processes whenever in-plant diversion (blending) occurs. See “Blending” requirements in the Standard Requirements section for additional requirements.

3 Surface Water Requirements

3.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
001	Effluent: 24-Hr flow proportional sampler located prior to UV disinfection. Grab samples taken post aeration prior to discharge to the Rock River.

3.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

3.2.1 Sampling Point (Outfall) 001 - EFFLUENT

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD_5, Total	Monthly Avg	30 mg/L	5/Week	24-Hr Flow Prop Comp	Effective January through May
BOD_5, Total	Monthly Avg	16 mg/L	5/Week	24-Hr Flow Prop Comp	Effective June
BOD_5, Total	Monthly Avg	12 mg/L	5/Week	24-Hr Flow Prop Comp	Effective July and October
BOD_5, Total	Monthly Avg	10 mg/L	5/Week	24-Hr Flow Prop Comp	Effective August and September
BOD_5, Total	Monthly Avg	25 mg/L	5/Week	24-Hr Flow Prop Comp	Effective November
BOD_5, Total	Monthly Avg	29 mg/L	5/Week	24-Hr Flow Prop Comp	Effective December
BOD_5, Total	Weekly Avg	31 mg/L	5/Week	24-Hr Flow Prop Comp	Effective January
BOD_5, Total	Weekly Avg	35 mg/L	5/Week	24-Hr Flow Prop Comp	Effective February
BOD_5, Total	Weekly Avg	45 mg/L	5/Week	24-Hr Flow Prop Comp	Effective March through May
BOD_5, Total	Weekly Avg	16 mg/L	5/Week	24-Hr Flow Prop Comp	Effective June
BOD_5, Total	Weekly Avg	12 mg/L	5/Week	24-Hr Flow Prop Comp	Effective July and October
BOD_5, Total	Weekly Avg	10 mg/L	5/Week	24-Hr Flow Prop Comp	Effective August and September

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
BOD_5, Total	Weekly Avg	25 mg/L	5/Week	24-Hr Flow Prop Comp	Effective November
BOD_5, Total	Weekly Avg	29 mg/L	5/Week	24-Hr Flow Prop Comp	Effective December
BOD_5, Total	Weekly Avg	1,400 lbs/day	5/Week	Calculated	Effective January
BOD_5, Total	Weekly Avg	1,500 lbs/day	5/Week	Calculated	Effective February
BOD_5, Total	Weekly Avg	690 lbs/day	5/Week	Calculated	Effective June
BOD_5, Total	Weekly Avg	530 lbs/day	5/Week	Calculated	Effective July and October
BOD_5, Total	Weekly Avg	450 lbs/day	5/Week	Calculated	Effective August
BOD_5, Total	Weekly Avg	440 lbs/day	5/Week	Calculated	Effective September
BOD_5, Total	Weekly Avg	1,100 lbs/day	5/Week	Calculated	Effective November
BOD_5, Total	Weekly Avg	1,300 lbs/day	5/Week	Calculated	Effective December
Suspended Solids, Total	Monthly Avg	30 mg/L	5/Week	24-Hr Flow Prop Comp	Effective January through May
Suspended Solids, Total	Monthly Avg	16 mg/L	5/Week	24-Hr Flow Prop Comp	Effective June
Suspended Solids, Total	Monthly Avg	12 mg/L	5/Week	24-Hr Flow Prop Comp	Effective July and October
Suspended Solids, Total	Monthly Avg	10 mg/L	5/Week	24-Hr Flow Prop Comp	Effective August and September
Suspended Solids, Total	Monthly Avg	25 mg/L	5/Week	24-Hr Flow Prop Comp	Effective November
Suspended Solids, Total	Monthly Avg	29 mg/L	5/Week	24-Hr Flow Prop Comp	Effective December
Suspended Solids, Total	Weekly Avg	31 mg/L	5/Week	24-Hr Flow Prop Comp	Effective January
Suspended Solids, Total	Weekly Avg	35 mg/L	5/Week	24-Hr Flow Prop Comp	Effective February
Suspended Solids, Total	Weekly Avg	45 mg/L	5/Week	24-Hr Flow Prop Comp	Effective March through May
Suspended Solids, Total	Weekly Avg	16 mg/L	5/Week	24-Hr Flow Prop Comp	Effective June
Suspended Solids, Total	Weekly Avg	12 mg/L	5/Week	24-Hr Flow Prop Comp	Effective July and October
Suspended Solids, Total	Weekly Avg	10 mg/L	5/Week	24-Hr Flow Prop Comp	Effective August and September
Suspended Solids, Total	Weekly Avg	25 mg/L	5/Week	24-Hr Flow Prop Comp	Effective November
Suspended Solids, Total	Weekly Avg	29 mg/L	5/Week	24-Hr Flow Prop Comp	Effective December
Suspended Solids, Total		lbs/day	5/Week	Calculated	Report daily mass discharged using Equation 1a. in the "Water Quality Trading (WQT)" section.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
WQT Credits Used (TSS)		lbs/month	Monthly	Calculated	Report WQT TSS Credits used per month using Equation 3c. in the Water Quality Trading (WQT) section. Available TSS Credits are specified in Table 3 and in the approved Water Quality Trading Plan.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	1,270 lbs/day	Monthly	Calculated	Effective January, March, and May. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	1,410 lbs/day	Monthly	Calculated	Effective February. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	1,310 lbs/day	Monthly	Calculated	Effective April. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	700 lbs/day	Monthly	Calculated	Effective June. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	510 lbs/day	Monthly	Calculated	Effective July and October. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	430 lbs/day	Monthly	Calculated	Effective August. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	440 lbs/day	Monthly	Calculated	Effective September. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	1,100 lbs/day	Monthly	Calculated	Effective November. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Monthly Avg	Monthly Avg	1,230 lbs/day	Monthly	Calculated	Effective December. Report the WQT TSS Computed Compliance value using Equation 5a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	1,400 lbs/day	Weekly	Calculated	Effective January. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	1,500 lbs/day	Weekly	Calculated	Effective February. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	2,270 lbs/day	Weekly	Calculated	Effective March and May. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	2,340 lbs/day	Weekly	Calculated	Effective April. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	690 lbs/day	Weekly	Calculated	Effective June. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	530 lbs/day	Weekly	Calculated	Effective July and October. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	450 lbs/day	Weekly	Calculated	Effective August. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	440 lbs/day	Weekly	Calculated	Effective September. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	1,100 lbs/day	Weekly	Calculated	Effective November. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT Computed Compliance (TSS) – Weekly Avg	Weekly Avg	1,300 lbs/day	Weekly	Calculated	Effective December. Report the WQT TSS Computed Compliance value using Equation 5b. in the "Water Quality Trading (WQT)" section. Values entered on the last day of each week.
WQT TSS Annual Credits Used	Annual Total	3,200 lbs/yr	Annual	Calculated	The sum of total monthly credits used may not exceed Table 3 values listed below.
Nitrogen, Ammonia (NH_3-N) Total	Daily Max	20 mg/L	5/Week	24-Hr Flow Prop Comp	Effective November through March
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	20 mg/L	5/Week	24-Hr Flow Prop Comp	Effective November through March
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	17 mg/L	5/Week	24-Hr Flow Prop Comp	Effective June
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	9.0 mg/L	5/Week	24-Hr Flow Prop Comp	Effective July
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	6.4 mg/L	5/Week	24-Hr Flow Prop Comp	Effective August
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	8.9 mg/L	5/Week	24-Hr Flow Prop Comp	Effective September
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	13 mg/L	5/Week	24-Hr Flow Prop Comp	Effective October
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	20 mg/L	5/Week	24-Hr Flow Prop Comp	Effective November through March
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	17 mg/L	5/Week	24-Hr Flow Prop Comp	Effective June
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	9.0 mg/L	5/Week	24-Hr Flow Prop Comp	Effective July
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	6.4 mg/L	5/Week	24-Hr Flow Prop Comp	Effective August
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	8.9 mg/L	5/Week	24-Hr Flow Prop Comp	Effective September
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	9.3 mg/L	5/Week	24-Hr Flow Prop Comp	Effective October
Dissolved Oxygen	Daily Min	6.0 mg/L	Daily	Grab	
pH Field	Daily Max	9.0 su	Daily	Grab	

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
pH Field	Daily Min	6.0 su	Daily	Grab	
E. coli	Geometric Mean - Monthly	126 #/100 ml	2/Week	Grab	Limit effective May - September annually, per the "Effluent Limitations for E. coli" Schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May - September annually. See the "E. coli Percent Limit" section below. Enter the result in the DMR on the last day of the month.
Phosphorus, Total	Monthly Avg	1.0 mg/L	5/Week	24-Hr Flow Prop Comp	Effective July to March and May. This technology-based limit is retained as it represents a minimum control level to prevent backsliding. See "Water Quality Trading (WQT)" sections for more information.
Phosphorus, Total	Monthly Avg	0.8 mg/L	5/Week	24-Hr Flow Prop Comp	Effective April and June. The MDV limit for April and June is retained for anti-backsliding purposes.
Phosphorus, Total		lbs/day	5/Week	Calculated	Report daily mass discharged using Equation 1a. in the "Water Quality Trading (WQT)" section.
WQT Credits Used (TP)		lbs/month	Monthly	Calculated	Report WQT TP Credits used per month using Equation 2b. in the "Water Quality Trading (WQT)" section. Available TP Credits are specified in Table 2 and in the approved Water Quality Trading Plan.
WQT Computed Compliance (TP)	Monthly Avg	13.7 lbs/day	Monthly	Calculated	Effective January. Report the WQT TP Computed Compliance value using Equation 4a. in the "Water Quality Trading (WQT)" section. Value entered on the last day of the month.
WQT Computed Compliance (TP)	Monthly Avg	19.5 lbs/day	Monthly	Calculated	Effective February. Calculate using Eq. 4a.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
WQT Computed Compliance (TP)	Monthly Avg	18.4 lbs/day	Monthly	Calculated	Effective March. Calculate using Eq. 4a.
WQT Computed Compliance (TP)	Monthly Avg	18.3 lbs/day	Monthly	Calculated	Effective April. Calculate using Eq. 4a.
WQT Computed Compliance (TP)	Monthly Avg	16.5 lbs/day	Monthly	Calculated	Effective May. Calculate using Eq. 4a.
WQT Computed Compliance (TP)	Monthly Avg	17.6 lbs/day	Monthly	Calculated	Effective June. Calculate using Eq. 4a.
WQT Computed Compliance (TP)	Monthly Avg	17.7 lbs/day	Monthly	Calculated	Effective July. Calculate using Eq. 4a.
WQT Computed Compliance (TP)	Monthly Avg	16.2 lbs/day	Monthly	Calculated	Effective August. Calculate using Eq. 4a.
WQT Computed Compliance (TP)	Monthly Avg	14.8 lbs/day	Monthly	Calculated	Effective September Calculate using Eq. 4a..
WQT Computed Compliance (TP)	Monthly Avg	12.3 lbs/day	Monthly	Calculated	Effective October and November. Calculate using Eq. 4a.
WQT Computed Compliance (TP)	Monthly Avg	11.9 lbs/day	Monthly	Calculated	Effective December. Calculate using Eq. 4a.
WQT Credits Used (TP)	Annual Total	25.5 lbs/yr	Annual	Calculated	Effective 2022.The sum of total monthly credits used after the effective date of the permit modification may not exceed Table 2 values listed below.
WQT Credits Used (TP)	Annual Total	102 lbs/yr	Annual	Calculated	Effective 2023-2025. The sum of total monthly credits used may not exceed Table 2 values listed below.
Chloride		mg/L	4/Month	24-Hr Flow Prop Comp	Monitoring only in 2024
Mercury, Total Recoverable	Daily Max	3.7 ng/L	Quarterly	Grab	This is an Alternative Mercury Effluent Limit. See Mercury section and schedule.
Temperature Maximum		deg F	3/Week	Continuous	
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET section.
Chronic WET	Monthly Avg	1.5 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET section.
Cadmium, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Chromium, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Copper, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Lead, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Nickel, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Zinc, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.

3.2.1.1 Annual Average Design Flow

The annual average design flow of the permittee's wastewater treatment facility is 5.2 MGD.

3.2.1.2 *E. coli* Percent Limit

No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\#\ of\ Samples\ greater\ than\ 410\ \#/100}{Total\ \#\ of\ samples} \times 100 = \%\ Exceedance$$

3.2.1.3 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wis. Adm. Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3.2.1.4 Mercury Variance – Implement Pollutant Minimization Program Plan

This permit contains a variance to the water quality-based effluent limit (WQBEL) for mercury granted in accordance with s. 283.15, Stats. As conditions of this variance the permittee shall (a) maintain effluent quality at or below the interim effluent limitation specified in the table above, (b) follow the Pollutant Minimization Program Plan and (c) perform the actions listed in the compliance schedule (See the Schedules section herein

3.2.1.5 Effluent Temperature Monitoring

For monitoring temperature continuously, collect measurements in accordance with s. NR 218.04(13), Wis. Adm Code. This means that discrete measurements shall be recorded at intervals of not more than 15 minutes during the 24-hour period. Report the maximum temperature measured during the day on the DMR.

3.2.1.6 TMDL Limitations for Total Suspended Solids

The Rock River TMDL for Total Phosphorus (TP) and Total Suspended Solids (TSS) was approved by the Environmental Protection Agency (EPA) September 2011. The TMDL derived TSS limits are expressed as weekly average and monthly average effluent limits. The approved TSS TMDL limits for this permittee are included in the following table*:

Total Suspended Solids Effluent Limitations

Month	Monthly Average TSS Effluent Limit (lbs/day)	Weekly Average TSS Effluent Limit (lbs/day)*
Jan	1270	2270
Feb	1410	2500
March	1270	2270
April	1310	2340
May	1270	2270
June	700	1250
July	510	910
Aug	430	760
Sept	440	770
Oct	510	910
Nov	1100	1950
Dec	1230	2190

* The TMDL derived weekly average TSS limits in the table above are superseded by more stringent water quality based effluent limits for the months of June through February.

3.2.1.7 TMDL Limitations for Total Phosphorus

The Rock River TMDL for Total Phosphorus (TP) and Total Suspended Solids (TSS) was approved by the Environmental Protection Agency (EPA) September 2011. The TMDL derived phosphorus limits are expressed as monthly average effluent limits. The approved total phosphorus TMDL limits for this permittee are included in the following table:

Total Phosphorus Effluent Limitations

Month	Monthly Average Total P Effluent Limit (lbs/day)
Jan	13.7
Feb	19.5
March	18.4
April	18.3
May	16.5
June	17.6
July	17.7
Aug	16.2
Sept	14.8
Oct	12.3
Nov	12.3
Dec	11.9

3.2.1.8 Phosphorus Water Quality Trading (WQT)

The permittee may use water quality trading to demonstrate compliance with TMDL derived WQBELs for total phosphorus (TP) in the list above. Pollutant reduction credits for total phosphorus are available as specified in Water Quality Trading Plan **WQT-2022-0006** or approved amendments thereof.

Table 2. Available Phosphorus Credits per WQT-2022-0006

Year	Available TP Credits (lbs/yr) – Total
2022	25.5
2023	102
2024	102
2025	102
2026	102
2027	102

*In the event that this permit is not reissued prior to the expiration date, 102 lbs/yr of long-term credits will be available in subsequent year(s).

Only those pollutant reduction credits established by a water quality trading plan approved by the Department may be used by the permittee to demonstrate compliance with the WQBELs identified in this subsection. If the permittee wishes to use pollutant reduction credits not identified in an approved water quality trading plan, the permittee must amend the plan or develop a new plan and obtain Department approval of the amended or new plan prior to use of the new pollutant reduction credits. Prior to Department approval, the amended or new water quality trading plan will be

subject to notice and opportunity for public comment. Any change in the number of available credits requires a permit modification.

In the event pollutant reduction credits as defined in the approved water quality trading plan are no longer generated, the permittee shall comply with the WQBELs for TP contained in this subsection. The sum of available interim and long-term credits shown in Table 2 may be used to demonstrate compliance for a given year. Interim credits are subject to duration limits and may not be used past the duration defined in Water Quality Trading Plan **WQT-2022-0006.**

3.2.1.9 Demonstrating Compliance with TP WQBELs Using Water Quality Trading

Use the following methods to demonstrate compliance with the TP WQBELs contained in the Water Quality Trading subsection above.

TOTAL POLLUTANT DISCHARGED (TP)

Use the following equations to calculate the amount of pollutant discharged for Monthly Avg TP [lbs/day].

TP Discharged [lbs/day] = TP Discharged [mg/L] × Daily Flow [MGD] × 8.34 *(Eq. 1a.)*

Monthly or Weekly Average = Σ daily results ÷ # of results *(Eq. 1b.)*

WQT CREDITS USED (TOTAL PHOSPHORUS)

Use the following method to calculate the credits to be used expressed as a mass in lbs/month:

WQT TP Credits Needed [lbs/day] = Monthly Avg TP [lbs/day] – {the Monthly Avg limit} [lbs/day] *(Eq. 2a.)*

Note: When the TP discharge is less than {the monthly average limit} lbs/day as a monthly avg, report 0 (zero) as the "WQT Credits Used (TP)". The monthly limit for each month ({Monthly Avg limit} [lbs/day]) is located in the Total Phosphorus TMDL WQBELS Table above at 2.1.2.7.

WQT TP Credits Used [lbs/month] = WQT TP Credits Needed [lbs/day] × # of days of discharge/month *(Eq. 2b.)*

WQT COMPUTED COMPLIANCE (TOTAL PHOSPHORUS)

Use the following method to demonstrate compliance with TP WQBELs expressed as a mass in lbs/day:

WQT TP Computed Compliance [lbs/day] = Monthly Avg TP [lbs/day] – [WQT TP Credits Needed [lbs/day] *(Eq. 4a.)*

Negative computed compliance values should be entered as zero - "0".

3.2.1.10 TSS Water Quality Trading (WQT)

The permittee may use water quality trading to demonstrate compliance with WQBELs for total suspended solids (TSS) of TSS Mass limits listed in table above. Pollutant reduction credits for TSS are available as specified in Water Quality Trading Plan **WQT-2023-0004** or approved amendments thereof.

Table 3 Available TSS Credits per WQT-2023-0004

Year	Available TSS Credits (lbs/yr) – Total	Available TSS Credits (lbs/yr) – Total

	Interim	Long Term
2024	500	3,200
2025	500	3,200

*In the event that this permit is not reissued prior to the expiration date, 3,200 lbs/yr of long-term credits will be available in subsequent year(s).

Only those pollutant reduction credits established by a water quality trading plan approved by the Department may be used by the permittee to demonstrate compliance with the WQBELs identified in this subsection. If the permittee wishes to use pollutant reduction credits not identified in an approved water quality trading plan, the permittee must amend the plan or develop a new plan and obtain Department approval of the amended or new plan prior to use of the new pollutant reduction credits. Prior to Department approval, the amended or new water quality trading plan will be subject to notice and opportunity for public comment. Any change in the number of available credits requires a permit modification.

In the event pollutant reduction credits as defined in the approved water quality trading plan are no longer generated, the permittee shall comply with the WQBELs for TSS contained in this subsection. The sum of available interim and long-term credits shown in Table 3 may be used to demonstrate compliance for a given year. Interim credits are subject to duration limits and may not be used past the duration defined in Water Quality Trading Plan **WQT-2023-0004.**

3.2.1.11 Demonstrating Compliance with TSS WQBELs Using Water Quality Trading

Use the following methods to demonstrate compliance with the TSS WQBELs contained in the Water Quality Trading subsection above.

TOTAL POLLUTANT DISCHARGED (TSS)

Use the following equations to calculate the amount of pollutant discharged for Weekly Avg TSS [lbs/day] and Monthly Avg TSS [lbs/day].

TSS Discharged [lbs/day] = TSS Discharged [mg/L] × Daily Flow [MGD] × 8.34 *(Eq. 1a.)*

Monthly or Weekly Avg = Σ daily results ÷ # of results *(Eq. 1b.)*

WQT CREDITS USED (TSS)

Use the following method to calculate the credits to be used expressed as a mass in lbs/month:

WQT TSS Credits Needed [lbs/day] = Monthly Avg TSS [lbs/day] – {the Monthly Avg limit} *(Eq. 3a.)*

For each week,

WQT TSS Credits Needed [lbs/day] = Weekly Avg TSS [lbs/day] – {the Weekly Avg limit} *(Eq. 3b.)*

Using values calculated in the above Equations 3a and 3b, calculate the "WQT TSS Credits Needed" for the entire month in lbs/month. If multiple weeks need credits, sum the credits in lbs/week to get credits in lbs/month.

WQT TSS Credits Used [lbs/month] = WQT TSS Credits Needed [lbs/day] × # of days of discharge in averaging period *(Eq. 3c.)*

After calculating "WQT TSS Credits" in lbs/month based on both overall weekly and monthly credit needs, report the greater of the two values as the "WQT TSS Credits."

Note: When the TSS discharge is less than {the Weekly Avg limit} lbs/day as a weekly avg AND {the Monthly Avg limit} lbs/day as a monthly avg, report 0 (zero) as the "WQT TSS Credits".

WQT COMPUTED COMPLIANCE (TSS)

Use the following method to demonstrate compliance with TSS WQBELs expressed as a mass in lbs/day:

WQT TSS Computed Compliance - Monthly Avg [lbs/day] = Monthly Avg TSS [lbs/day] – WQT TSS Credits Needed [lbs/day]* *(Eq. 5a.)*

*Depending on Equation 3a.

WQT TSS Computed Compliance - Weekly Avg [lbs/day] = Weekly Avg TSS [lbs/day] – WQT TSS Credits Needed [lbs/day] ** *(Eq. 5b.)*

**Depending on Equation 3b.

3.2.1.12 Additional Water Quality Trading Requirements

When using water quality trading to demonstrate compliance with WQBELs for TP, the permittee shall comply with the following:

• Failure to implement any of the terms or conditions of the approved water quality trading plan is a violation of this permit.

• Each month the permittee shall certify that the nonpoint source management practices installed to generate pollutant reduction credits are operated and maintained in a manner consistent with that specified in the approved water quality trading plan. Such a certification may be made by including the following statement as a comment on the monthly discharge monitoring report:

> I certify that management practices identified in the approved water quality trading plan as the source of pollutant reduction credits are installed, established and properly maintained.

• At least once a year the permittee or the permittee's agent shall inspect each nonpoint source management practice that generates pollutant reduction credits to confirm the implementation of the management practice and their appropriate operation and adequate maintenance.

• The permittee shall notify WDNR by telephone within 24 hours or next business day of becoming aware that pollutant reduction credits used or intended for use by the permittee are not being implemented or generated as defined in the approved trading plan. A written notification shall be submitted to the Department within 5 days regarding the status of the permittee's pollutant reduction credits.

• The permittee shall provide WDNR written notice within 7 days of the trade agreement upon which the approved water quality trading plan is based being amended, modified, or revoked. This notification shall include the details of any amendment or modification in addition to the justification for the changes.

• The permittee shall not use pollutant reduction credits for the demonstration of compliance when pollutant reduction credits are not being generated.

3.2.1.13 Water Quality Trading Reopener Clause

Under any of the following conditions as provided by s. 283.53(2), Wis. Stats. and Wis. Adm. Code NR 203.135 and 203.136, the Department may modify or revoke and reissue this permit to modify or eliminate permit terms and conditions related to water quality trading:

• The permittee fails to implement the water quality trading plan as approved;

• The permittee fails to comply with permit terms and conditions related to water quality trading;

• New information becomes available that would change the number of credits available for the water quality trade or would change the Department's determinations that water quality trading is an acceptable option.

3.2.1.14 Submittal of Permit Application for Next Reissuance and Pollutant Trading Plan

The permittee shall submit the permit application for the next reissuance at least 6 months prior to expiration of this permit.

The permittee has submitted a Water Quality Trading Plan that was approved by WDNR on June 9, 2022. If the permittee intends to pursue pollutant trading to achieve compliance in a future permit term, and updated water quality trading plan is due with the application for the next reissuance. If system upgrades will be used in combination with pollutant trading the permittee shall submit plans for any system upgrade.

3.2.1.15 MDV (Multi-Discharger Variance) Requirements – MDV Not in Effect after Modification

Watershed Provisions: The permittee is required to implement watershed measures to reduce the amount of phosphorus entering the receiving water. The permittee has selected the following approved watershed measure.

Payment to County for Phosphorus Reduction: The permittee shall make payments for phosphorus reduction to the county or counties approved by the Department per s. 283.16(8), Wis. Stats. The permittee shall make a total payment by March 1 of each year in the amount equal to the per pound amount of $54.23 times the number of pounds by which the effluent phosphorus discharged during the previous year exceeded the permittee's target value or $640,000, whichever is less. The target value is based on the TMDL-derived limit per s. 283.16(1)(h), Wis. Stats., and is applicable during the months that the MDV is in effect. The MDV is in effect for April and June. Refer to the Schedules section for the scheduled annual requirements.

Annual Payment Calculation: The annual payment is equal to the phosphorus load that exceeds the target value multiplied by $54.23 per pound. Use the steps shown below to calculate the annual payment. In addition, the Department shall send a statement to the permittee specifying total payment due to the participating counties each year in accordance with the Schedules section.

Annual Payment = [Annual Phosphorus Load – Annual Target Load] × Price Per Pound
Calculation Steps:
●Calculate pounds of phosphorus discharged for each month that the MDV is in effect:

Monthly Phosphorus Load (lbs/month) = Total Monthly Flow (MG) × Monthly Avg. TP effluent conc. (mg/L) × 8.34

●Sum the lbs/month discharged for the months that the MDV is in effect to calculate the annual phosphorus

load:

Annual Phosphorus Load (lbs/year) = ∑ [Monthly Phosphorus Load (lbs/month)]

ROCK RIVER TMDL Target Value Calculations:

Target Value = TMDL Derived Limit

Month	Monthly Ave Total P Effluent Limit (lbs/day)	Monthly Target Load = Monthly Ave. TP Limit (lbs/day) × Number of Days in Month
April	18.3	549.04
June	17.6	528.7

●Calculate the monthly payment for each month the MDV is in effect:

Monthly Payment = [Monthly Phosphorus Load (lbs/month) – Monthly Target Load (lbs/month)] × Price Per Pound

●Calculate the annual payment:

Annual Payment ($) = ∑ [Monthly Payment ($)]

3.2.1.16 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Rock River

Instream Waste Concentration (IWC): 67%

Acute Mixing Zone Concentration: N/A

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.
- **Chronic:** 100, 75, 50, 25, 12.5% and any additional selected by the permittee.

WET Testing Frequency:

Acute tests shall be conducted once each year rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Acute:** October – December 2020; January – March 2021; April – June 2022; July – September 2023; January – March 2024; April – June 2025

Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in January – March 2026.

Chronic tests shall be conducted once each year in rotating quarters in order to collect seasonal information

about the discharge. Tests are required during the following quarters.

- **Chronic:** October – December 2020; January – March 2021; April – June 2022; July – September 2023; January – March 2024; April – June 2025

Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in January – March 2026.

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than 1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than 1.5 for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90 day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

4 Land Application Requirements

4.1 Sampling Point(s)

The discharge(s) shall be limited to land application of the waste type(s) designated for the listed sampling point(s) on Department approved land spreading sites or by hauling to another facility.

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
002	Representative samples of class B, anaerobically digested liquid sludge shall be collected from the secondary digester, if this sludge is land applied. If this sample point is activated, the sludge shall be analyzed for List 2 parameters (Nutrients) just prior to land application and DNR shall be notified prior to land application.
004	Representative samples of class B, anaerobically digested cake sludge shall be collected from the centrifuge.

4.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

4.2.1 Sampling Point (Outfall) 002 - LIQUID SLUDGE and 004- CAKE SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Quarterly	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Quarterly	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Quarterly	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Quarterly	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Quarterly	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Quarterly	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Quarterly	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Quarterly	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Quarterly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Quarterly	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Quarterly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Quarterly	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Quarterly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Quarterly	Composite	
Nitrogen, Total Kjeldahl		Percent	Quarterly	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Ammonium (NH_4-N) Total		Percent	Quarterly	Composite	
Phosphorus, Total		Percent	Quarterly	Composite	
Phosphorus, Water Extractable		% of Tot P	Quarterly	Composite	
Potassium, Total Recoverable		Percent	Quarterly	Composite	
Radium 226 Dry Wt		pCi/g	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Monitor for PCB's as part of the priority pollutant scan in 2022.
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Monitor for PCB's as part of the priority pollutant scan in 2022.
Municipal Sludge Priority Pollutant Scan			Once	Composite	As specified in ch. NR 215.03 (1-4), Wis. Adm. Code

Other Sludge Requirements	
Sludge Requirements	**Sample Frequency**
List 3 Requirements – Pathogen Control: The requirements in List 3 shall be met prior to land application of sludge.	**Annual**
List 4 Requirements – Vector Attraction Reduction: The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4.	**Annual**

4.2.1.1 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

4.2.1.2 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

4.2.1.3 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

4.2.1.4 Sludge Which Exceeds the High Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high quality limit for any parameter. This requirement applies for the entire calendar year in which any exceedance of Table 3 of s. NR 204.07(5)(c), is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied in that calendar year. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), the Department shall be so notified through letter or in the comment section of the annual land application report (3400-55).

4.2.1.5 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs one time during **2022**. The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code and the conditions specified in Standard Requirements of this permit. PCB results shall be submitted by January 31, following the specified year of analysis.

4.2.1.6 Lists 1, 2, 3, and 4

List 1 **TOTAL SOLIDS AND METALS** See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters
Solids, Total (percent)
Arsenic, mg/kg (dry weight)
Cadmium, mg/kg (dry weight)
Copper, mg/kg (dry weight)
Lead, mg/kg (dry weight)
Mercury, mg/kg (dry weight)
Molybdenum, mg/kg (dry weight)
Nickel, mg/kg (dry weight)
Selenium, mg/kg (dry weight)
Zinc, mg/kg (dry weight)

List 2 **NUTRIENTS** See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters
Solids, Total (percent)
Nitrogen Total Kjeldahl (percent)
Nitrogen Ammonium (NH4-N) Total (percent)
Phosphorus Total as P (percent)
Phosphorus, Water Extractable (as percent of Total P)
Potassium Total Recoverable (percent)

List 3
PATHOGEN CONTROL FOR CLASS B SLUDGE

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control.

The following requirements shall be met prior to land application of sludge.

Parameter	Unit	Limit
Fecal Coliform*	MPN/gTS or CFU/gTS	2,000,000
OR, ONE OF THE FOLLOWING PROCESS OPTIONS		
Aerobic Digestion	Air Drying	
Anaerobic Digestion	Composting	
Alkaline Stabilization	PSRP Equivalent Process	

* The Fecal Coliform limit shall be reported as the geometric mean of 7 discrete samples on a dry weight basis.

List 4
VECTOR ATTRACTION REDUCTION

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

Option	Limit	Where/When it Shall be Met
Volatile Solids Reduction	≥38%	Across the process
Specific Oxygen Uptake Rate	≤1.5 mg O_2/hr/g TS	On aerobic stabilized sludge
Anaerobic bench-scale test	<17 % VS reduction	On anaerobic digested sludge
Aerobic bench-scale test	<15 % VS reduction	On aerobic digested sludge
Aerobic Process	>14 days, Temp >40°C and Avg. Temp > 45°C	On composted sludge
pH adjustment	>12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours)	During the process
Drying without primary solids	>75 % TS	When applied or bagged
Drying with primary solids	>90 % TS	When applied or bagged
Equivalent Process	Approved by the Department	Varies with process
Injection	-	When applied
Incorporation	-	Within 6 hours of application

4.2.1.7 Daily Land Application Log

Daily Land Application Log		
Discharge Monitoring Requirements and Limitations The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. The following minimum records must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements**.**		
Parameters	**Units**	**Sample Frequency**
DNR Site Number(s)	Number	Daily as used
Outfall number applied	Number	Daily as used
Acres applied	Acres	Daily as used
Amount applied	As appropriate * /day	Daily as used
Application rate per acre	unit */acre	Daily as used
Nitrogen applied per acre	lb/acre	Daily as used
Method of Application	Injection, Incorporation, or surface applied	Daily as used

*gallons, cubic yards, dry US Tons or dry Metric Tons

5 Schedules

5.1 Mercury Pollutant Minimization Program

Required Action	Due Date
Annual Mercury Progress Reports: Submit an annual mercury progress report. The annual mercury progress report shall: Indicate which mercury pollutant minimization activities or activities outlined in the approved Pollutant Minimization Plan have been implemented; Include an analysis of trends in monthly and annual total effluent mercury concentrations based on mercury sampling; and Include an analysis of how influent and effluent mercury varies with time and with significant loading of mercury such as loads from industries into the collection system. The first annual mercury progress report is to be submitted by the Due Date.	01/31/2021
Annual Mercury Progress Report #2: Submit a mercury progress report as defined above.	01/31/2022
Annual Mercury Progress Report #3: Submit a mercury progress report as defined above.	01/31/2023
Annual Mercury Progress Report #4: Submit a mercury progress report as defined above.	01/31/2024
Final Mercury Report: Submit a final report documenting the success in reducing mercury concentrations in the effluent, as well as the anticipated future reduction in mercury sources and mercury effluent concentrations. The report shall summarize mercury pollutant minimization activities that have been implemented during the current permit term and state which, if any, pollutant minimization activities from the approved pollutant minimization plan were not pursued and why. The report shall include an analysis of trends in monthly and annual total effluent mercury concentrations based on mercury sampling during the current permit term. The report shall also include an analysis of how influent and effluent mercury varies with time and with significant loading of mercury such as loads from industries into the collection system. If the permittee intends to reapply for a mercury variance per s. NR 106.145, Wis. Adm. Code, for the reissued permit, a detailed pollutant minimization plan outlining the pollutant minimization activities proposed for the upcoming permit term shall be submitted along with the final report.	01/31/2025
Annual Mercury Reports After Permit Expiration: In the event that this permit is not reissued on time, the permittee shall continue to submit annual mercury reports each year covering pollutant minimization activities implemented and mercury concentration trends.	

5.2 Effluent Limitations for E. coli (Outfall 001)

Required Action	Due Date
Status Update: The permittee shall submit information within the discharge monitoring report (DMR) comment section documenting the steps taken in preparation for properly monitoring and testing for E. coli including, but not limited to, selected test method and location of sampling.	11/21/2020
Operational Evaluation Report: The permittee shall prepare and submit an Operational Evaluation Report to the Department for review and approval. The report shall include an evaluation of collected	10/31/2021

effluent data and proposed operational improvements that will optimize efficacy of disinfection at the treatment plant during the period prior to complying with final E. coli limitations and, to the extent possible, enable compliance with the final E. coli limitations. The report shall include a plan and schedule for implementation of the operational improvements. These improvements shall occur as soon as possible, but not later than April 30, 2022. The report shall state whether the operational improvements are expected to result in compliance with the final E. coli limitations. The permittee shall implement the operational improvements in accordance with the approved plan and schedule specified in the Operational Evaluation Report and in no case later than April 30, 2022 If the Operational Evaluation Report concludes that the operational improvements are expected to result in compliance with the final E. coli limitations, the permittee shall comply with the final E. coli limitations by April 30, 2022 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule (‘Submit Facility Plan’, 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet Limitations', ‘Construction Upgrade Progress Report’, 'Complete Construction', 'Achieve Compliance'). FACILITY PLAN - If the Operational Evaluation Report concludes that operational improvements alone are not expected to result in compliance with the final E. coli limitations, the permittee shall initiate development of a facility plan for meeting final E. coli limitations and comply with the remaining required actions in this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final E. coli limitations using the existing treatment system with only operational improvements, the Department may reopen and modify the permit to include an implementation schedule for achieving the final E. coli limitations sooner than April 30, 2025.	
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	05/01/2022

5.3 Water Quality Trading (WQT) Management Plan

Required Action	Due Date
Complete Installation of Management Practices: Complete the installation of management practices as identified in the Water Quality Management Plan WQT-2022-0006 as approved by the Department.	09/30/2022
Management Practices: The Management Practices as identified in the Water Quality Trading Plan shall become effective and the permittee shall submit a completed Management Practice Registration Form 3400-207 for each site.	09/30/2022

5.4 Annual Water Quality Trading (WQT) Report

Required Action	Due Date
Annual WQT Report: Submit an annual WQT report that shall cover the first year of the permit term. The WQT Report shall include: The number of pollutant reduction credits (lbs/month) used each month of the previous year to demonstrate compliance; The source of each month’s pollutant reduction credits by identifying the approved water quality	01/31/2023

trading plan that details the source; A summary of the annual inspection of each nonpoint source management practice that generated any of the pollutant reduction credits used during the previous year; and Identification of noncompliance or failure to implement any terms or conditions of this permit with respect to water quality trading that have not been reported in discharge monitoring reports.	
Annual WQT Report #2: Submit an annual WQT report that shall cover the previous year.	01/31/2024
Annual WQT Report #3: Submit the 3rd annual WQT report. If the permittee wishes to continue to comply with phosphorus and total suspended solids limits through WQT in subsequent permit terms, the permittee shall submit a revised WQT plan including a demonstration of credit need, compliance record of the existing WQT, and any additional practices needed to maintain compliance over time.	01/31/2025
Annual WQT Report Required After Permit Expiration: In the event that this permit is not reissued by the expiration date, the permittee shall continue to submit annual WQT reports by January 31 each year covering the total number of pollutant credits used, the source of the pollution reduction credits, a summary of annual inspection reports performed, and identification of noncompliance or failure to implement any terms or conditions of the approved water quality trading plan for the previous calendar year.	

5.5 Phosphorus Schedule - Optimization Plan

Required Action	Due Date
Optimization Plan: The permittee shall prepare an Optimization Plan and submit it for Department approval. The plan shall include an evaluation of collected effluent data, possible source reduction measures and operational improvements to optimize performance to control phosphorus discharges. The plan shall contain a schedule for implementation of the measures and improvements. Once the plan is approved by the Department, the permittee shall take the steps called for in the Optimization Plan and follow the schedule of implementation as approved.	06/30/2021
Progress Report #1: Submit a progress report on optimizing removal of phosphorus.	06/30/2022

5.6 Phosphorus Payment per Pound to County

Required Action	Due Date
Annual Verification of Phosphorus Payment to County: The permittee shall make a total payment to the participating county or counties approved by the Department by March 1 of each calendar year. The amount due is equal to the following: (lbs of phosphorus discharged minus the permittee's target value) times ($54.23 per pound) or $640,000, whichever is less. See the payment calculation steps in the Surface Water section. The permittee shall submit Form 3200-151 to the Department by March 1 of each calendar year indicating total amount remitted to the participating counties to verify that the correct payment was made. The first payment verification form is due by the specified Due Date. Note: The applicable Target Value is the TMDL derived limit value as defined by s. 283.16(1)(h), Wis. Stats. The "per pound" value is $50.00 adjusted for CPI.	03/01/2021

Annual Verification of Payment #2: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2022
Annual Verification of Payment #3: Submit Form 3200-151 to the Department indicating total amount remitted to the participating counties.	03/01/2023

6 Standard Requirements

NR 205, Wisconsin Administrative Code: The conditions in ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(2).

6.1 Reporting and Monitoring Requirements

6.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report. The report may require reporting of any or all of the information specified below under 'Recording of Results'. This report is to be returned to the Department no later than the date indicated on the form. A copy of the Wastewater Discharge Monitoring Report Form or an electronic file of the report shall be retained by the permittee.

Monitoring results shall be reported on an electronic discharge monitoring report (eDMR). The eDMR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

6.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

6.1.3 Pretreatment Sampling Requirements

Sampling for pretreatment parameters (cadmium, chromium, copper, lead, nickel, zinc, and mercury) shall be done during a day each month when industrial discharges are occurring at normal to maximum levels. The sampling of the influent and effluent for these parameters shall be coordinated. All 24 hour composite samples shall be flow proportional.

6.1.4 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;

- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

6.1.5 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.
- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.
- For purposes of calculating NR 101 fees, the 2 mg/l lower reporting limits for BOD5 and Total Suspended Solids shall be considered to be limits of quantitation
- For the purposes of reporting a calculated result, average or a mass discharge value, the permittee may substitute a "0" (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.
- If no discharge occurs through an outfall, flow related parameters (e.g. flow rate, hydraulic application rate, volume, etc.) should be reported as "0" (zero) at the required sample frequency specified for the outfall. For example: if the sample frequency is daily, "0" would be reported for any day during the month that no discharge occurred.

6.1.6 Compliance Maintenance Annual Reports

Compliance Maintenance Annual Reports (CMAR) shall be completed using information obtained over each calendar year regarding the wastewater conveyance and treatment system. The CMAR shall be submitted and certified by the permittee in accordance with ch. NR 208, Wis. Adm. Code, by June 30, each year on an electronic report form provided by the Department.

In the case of a publicly owned treatment works, a resolution shall be passed by the governing body and submitted as part of the CMAR, verifying its review of the report and providing responses as required. Private owners of wastewater treatment works are not required to pass a resolution; but they must provide an Owner Statement and responses as required, as part of the CMAR submittal.

The CMAR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The certification verifies that the electronic report is true, accurate and complete.

6.1.7 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronic data records for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application. All pertinent sludge information, including permit application information and other documents specified in this permit or s. NR 204.06(9), Wis. Adm. Code shall be retained for a minimum of 5 years.

6.1.8 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

6.1.9 Reporting Requirements – Alterations or Additions

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source.
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies to pollutants which are not subject to effluent limitations in the existing permit.
- The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use of disposal sites not reported during the permit application process nor reported pursuant to an approved land application plan. Additional sites may not be used for the land application of sludge until department approval is received.

6.2 System Operating Requirements

6.2.1 Noncompliance Reporting

Sanitary sewer overflows and sewage treatment facility overflows shall be reported according to the 'Sanitary Sewer Overflows and Sewage Treatment Facility Overflows' section of this permit.
The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger health or the environment;
- any violation of an effluent limitation resulting from a bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.
A scheduled bypass approved by the Department under the 'Scheduled Bypass' section of this permit shall not be subject to the reporting required under this section.
NOTE: Section 292.11(2)(a), Wisconsin Statutes, requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to notify the Department of Natural Resources immediately of any discharge not authorized by the permit. **The discharge of a hazardous substance that is not authorized by this permit or that violates this permit may be a hazardous substance spill. To report a hazardous substance spill, call DNR's 24-hour HOTLINE at 1-800-943-0003.**

6.2.2 Flow Meters

Flow meters shall be calibrated annually, as per s. NR 218.06, Wis. Adm. Code.

6.2.3 Raw Grit and Screenings

All raw grit and screenings shall be disposed of at a properly licensed solid waste facility or picked up by a licensed waste hauler. If the facility or hauler are located in Wisconsin, then they shall be licensed under chs. NR 500-555, Wis. Adm. Code.

6.2.4 Sludge Management

All sludge management activities shall be conducted in compliance with ch. NR 204 "Domestic Sewage Sludge Management", Wis. Adm. Code.

6.2.5 Prohibited Wastes

Under no circumstances may the introduction of wastes prohibited by s. NR 211.10, Wis. Adm. Code, be allowed into the waste treatment system. Prohibited wastes include those:

- which create a fire or explosion hazard in the treatment work;
- which will cause corrosive structural damage to the treatment work;
- solid or viscous substances in amounts which cause obstructions to the flow in sewers or interference with the proper operation of the treatment work;
- wastewaters at a flow rate or pollutant loading which are excessive over relatively short time periods so as to cause a loss of treatment efficiency; and
- changes in discharge volume or composition from contributing industries which overload the treatment works or cause a loss of treatment efficiency.

6.2.6 Bypass

This condition applies only to bypassing at a sewage treatment facility that is not a scheduled bypass, approved blending as a specific condition of this permit, a sewage treatment facility overflow or a controlled diversion as provided in the sections titled 'Scheduled Bypass', 'Blending' (if approved), 'SSO's and Sewage Treatment Facility Overflows' and 'Controlled Diversions' of this permit. Any other bypass at the sewage treatment facility is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats. The Department may approve a bypass if the permittee demonstrates all the following conditions apply:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance. When evaluating feasibility of alternatives, the department may consider factors such as technical achievability, costs and affordability of implementation and risks to public health, the environment and, where the permittee is a municipality, the welfare of the community served; and
- The bypass was reported in accordance with the Noncompliance Reporting section of this permit.

6.2.7 Scheduled Bypass

Whenever the permittee anticipates the need to bypass for purposes of efficient operations and maintenance and the permittee may not meet the conditions for controlled diversions in the 'Controlled Diversions' section of this permit, the permittee shall obtain prior written approval from the Department for the scheduled bypass. A permittee's written request for Department approval of a scheduled bypass shall demonstrate that the conditions for bypassing specified

in the above section titled 'Bypass' are met and include the proposed date and reason for the bypass, estimated volume and duration of the bypass, alternatives to bypassing and measures to mitigate environmental harm caused by the bypass. The department may require the permittee to provide public notification for a scheduled bypass if it is determined there is significant public interest in the proposed action and may recommend mitigation measures to minimize the impact of such bypass.

6.2.8 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation. Sewage treatment facilities that have multiple treatment units to treat variable or seasonal loading conditions may shut down redundant treatment units when necessary for efficient operation. The following requirements shall be met during controlled diversions:

- Effluent from the sewage treatment facility shall meet the effluent limitations established in the permit. Wastewater that is diverted around a treatment unit or treatment process during a controlled diversion shall be recombined with wastewater that is not diverted prior to the effluent sampling location and prior to effluent discharge;
- A controlled diversion does not include blending as defined in s. NR 210.03(2e), Wis. Adm. Code, and as may only be approved under s. NR 210.12. A controlled diversion may not occur during periods of excessive flow or other abnormal wastewater characteristics;
- A controlled diversion may not result in a wastewater treatment facility overflow; and
- All instances of controlled diversions shall be documented in sewage treatment facility records and such records shall be available to the department on request.

6.2.9 Blending

The Department has determined that blending as defined in s. NR 210.03(2e), Wis. Adm. Code, may occur at this sewage treatment facility. The following requirements shall apply whenever blending operations are in effect:

- Blending may occur temporarily only during wet weather or other high flow conditions when peak wastewater flow to the sewage treatment facility exceeds the maximum design and operating capacity of the biological treatment processes and when necessary to avoid severe property damage to the sewage treatment facility as described in NR 210.12, Wis. Adm. Code.;
- Untreated, or partially treated wastewater that is routed around the biological treatment process, or a portion of a biological treatment process, shall be recombined with the biologically treated wastewater and the combined flow shall be disinfected, if required by this permit, prior to discharge;
- Effluent from the sewage treatment facility shall be monitored to include all wastewater that is discharged from the facility, including those wastewaters that are diverted around the biological treatment process. Final discharged effluent shall meet the effluent limitations for outfalls included in this permit; and
- Blending under this section and the circumstances that lead to blending shall be reported to the Department by telephone or email no later than 24 hours from the time each blending operation ceases at the sewage treatment facility. Permittees shall also report the time, duration and volume of wastewater routed around the biological treatment process on the wastewater Discharge Monitoring Report (DMR) forms.

6.2.10 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

6.2.11 Operator Certification

The wastewater treatment facility shall be under the direct supervision of a state certified operator. In accordance with s. NR 114.53, Wis. Adm. Code, every WPDES permitted treatment plant shall have a designated operator-in-charge holding a current and valid certificate. The designated operator-in-charge shall be certified at the level and in all subclasses of the treatment plant, except laboratory. Treatment plant owners shall notify the department of any changes in the operator-in-charge within 30 days. Note that s. NR 114.52(22), Wis. Adm. Code, lists types of facilities that are excluded from operator certification requirements (i.e. private sewage systems, pretreatment facilities discharging to public sewers, industrial wastewater treatment that consists solely of land disposal, agricultural digesters and concentrated aquatic production facilities with no biological treatment).

6.3 Sewage Collection Systems

6.3.1 Sanitary Sewage Overflows and Sewage Treatment Facility Overflows

6.3.1.1 Overflows Prohibited

Any overflow or discharge of wastewater from the sewage collection system or at the sewage treatment facility, other than from permitted outfalls, is prohibited. The permittee shall provide information on whether any of the following conditions existed when an overflow occurred:

- The sanitary sewer overflow or sewage treatment facility overflow was unavoidable to prevent loss of life, personal injury or severe property damage;
- There were no feasible alternatives to the sanitary sewer overflow or sewage treatment facility overflow such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or preventative maintenance activities;
- The sanitary sewer overflow or the sewage treatment facility overflow was caused by unusual or severe weather related conditions such as large or successive precipitation events, snowmelt, saturated soil conditions, or severe weather occurring in the area served by the sewage collection system or sewage treatment facility; and
- The sanitary sewer overflow or the sewage treatment facility overflow was unintentional, temporary, and caused by an accident or other factors beyond the reasonable control of the permittee.

6.3.1.2 Permittee Response to Overflows

Whenever a sanitary sewer overflow or sewage treatment facility overflow occurs, the permittee shall take all feasible steps to control or limit the volume of untreated or partially treated wastewater discharged, and terminate the discharge as soon as practicable. Remedial actions, including those in NR 210.21 (3), Wis. Adm. Code, shall be implemented consistent with an emergency response plan developed under the CMOM program.

6.3.1.3 Permittee Reporting

Permittees shall report all sanitary sewer overflows and sewage treatment overflows as follows:

- The permittee shall notify the department by telephone, fax or email as soon as practicable, but no later than 24 hours from the time the permittee becomes aware of the overflow;
- The permittee shall, no later than five days from the time the permittee becomes aware of the overflow, provide to the department the information identified in this paragraph using department form number 3400-184. If an overflow lasts for more than five days, an initial report shall be submitted within 5 days as required in this paragraph and an updated report submitted following cessation of the overflow. At a minimum, the following information shall be included in the report:
    - The date and location of the overflow;
    - The surface water to which the discharge occurred, if any;
    - The duration of the overflow and an estimate of the volume of the overflow;

- A description of the sewer system or treatment facility component from which the discharge occurred such as manhole, lift station, constructed overflow pipe, or crack or other opening in a pipe;
- The estimated date and time when the overflow began and stopped or will be stopped;
- The cause or suspected cause of the overflow including, if appropriate, precipitation, runoff conditions, areas of flooding, soil moisture and other relevant information;
- Steps taken or planned to reduce, eliminate and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
- A description of the actual or potential for human exposure and contact with the wastewater from the overflow;
- Steps taken or planned to mitigate the impacts of the overflow and a schedule of major milestones for those steps;
- To the extent known at the time of reporting, the number and location of building backups caused by excessive flow or other hydraulic constraints in the sewage collection system that occurred concurrently with the sanitary sewer overflow and that were within the same area of the sewage collection system as the sanitary sewer overflow; and
- The reason the overflow occurred or explanation of other contributing circumstances that resulted in the overflow event. This includes any information available including whether the overflow was unavoidable to prevent loss of life, personal injury, or severe property damage and whether there were feasible alternatives to the overflow.

NOTE: A copy of form 3400-184 for reporting sanitary sewer overflows and sewage treatment facility overflows may be obtained from the department or accessed on the department's web site at http://dnr.wi.gov/topic/wastewater/SSOreport.html. As indicated on the form, additional information may be submitted to supplement the information required by the form.

- The permittee shall identify each specific location and each day on which a sanitary sewer overflow or sewage treatment facility overflow occurs as a discrete sanitary sewer overflow or sewage treatment facility overflow occurrence. An occurrence may be more than one day if the circumstances causing the sanitary sewer overflow or sewage treatment facility overflow results in a discharge duration of greater than 24 hours. If there is a stop and restart of the overflow at the same location within 24 hours and the overflow is caused by the same circumstance, it may be reported as one occurrence. Sanitary sewer overflow occurrences at a specific location that are separated by more than 24 hours shall be reported as separate occurrences; and
- A permittee that is required to submit wastewater discharge monitoring reports under NR 205.07 (1) (r) shall also report all sanitary sewer overflows and sewage treatment facility overflows on that report.

6.3.1.4 Public Notification

The permittee shall notify the public of any sanitary sewer and sewage treatment facility overflows consistent with its emergency response plan required under the CMOM (Capacity, Management, Operation and Maintenance) section of this permit and s. NR 210.23 (4) (f), Wis. Adm. Code. Such public notification shall occur promptly following any overflow event using the most effective and efficient communications available in the community. At minimum, a daily newspaper of general circulation in the county(s) and municipality whose waters may be affected by the overflow shall be notified by written or electronic communication.

6.3.2 Capacity, Management, Operation and Maintenance (CMOM) Program

- The permittee shall have written documentation of the Capacity, Management, Operation and Maintenance (CMOM) program components in accordance with s. NR 210.23(4), Wis. Adm. Code. Such documentation shall be available for Department review upon request. The Department may request that the permittee provide this documentation or prepare a summary of the permittee's CMOM program at the time of application for reissuance of the WPDES permit.
- The permittee shall implement a CMOM program in accordance with s. NR 210.23, Wis. Adm. Code.
- The permittee shall at least annually conduct a self-audit of activities conducted under the permittee's CMOM program to ensure CMOM components are being implemented as necessary to meet the general standards of s. NR 210.23(3), Wis. Adm. Code.

6.3.3 Sewer Cleaning Debris and Materials

All debris and material removed from cleaning sanitary sewers shall be managed to prevent nuisances, run-off, ground infiltration or prohibited discharges.

- Debris and solid waste shall be dewatered, dried and then disposed of at a licensed solid waste facility.
- Liquid waste from the cleaning and dewatering operations shall be collected and disposed of at a permitted wastewater treatment facility.
- Combination waste including liquid waste along with debris and solid waste may be disposed of at a licensed solid waste facility or wastewater treatment facility willing to accept the waste.

6.4 Surface Water Requirements

6.4.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantitation (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

6.4.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average concentration limits and mass limits and total load limits:

Weekly/Monthly/Six-Month/Annual Average Concentration = the sum of all daily results for that week/month/six-month/year, divided by the number of results during that time period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Weekly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

Six-Month Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the six-month period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Annual Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the entire year.

Total Monthly Discharge: = monthly average concentration (mg/L) x total flow for the month (MG/month) x 8.34.

Total Annual Discharge: = sum of total monthly discharges for the calendar year.

12-Month Rolling Sum of Total Monthly Discharge: = the sum of the most recent 12 consecutive months of Total Monthly Discharges.

6.4.3 Effluent Temperature Requirements

Weekly Average Temperature – If temperature limits are included in this permit, Weekly Average Temperature shall be calculated as the sum of all daily maximum results for that week divided by the number of daily maximum results during that time period.

Cold Shock Standard – Water temperatures of the discharge shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock pursuant to Wis. Adm. Code, s. NR 102.28. 'Cold Shock' means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavior or physiological performance and may lead to death.

Rate of Temperature Change Standard – Temperature of a water of the state or discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state pursuant to Wis. Adm. Code, s. NR 102.29.

6.4.4 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

6.4.5 Surface Water Uses and Criteria

In accordance with NR 102.04, Wis. Adm. Code, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

d) Substances in concentrations or in combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

6.4.6 Percent Removal

During any 30 consecutive days, the average effluent concentrations of BOD_5 and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively. This requirement does not apply to removal of total suspended solids if the permittee operates a lagoon system and has received a variance for suspended solids granted under NR 210.07(2), Wis. Adm. Code.

6.4.7 Fecal Coliform

The monthly limit for fecal coliform shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

6.4.8 *E. coli*

The monthly limit for *E. coli* shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

6.4.9 Seasonal Disinfection

Disinfection shall be provided from May 1 through September 30 of each year. Monitoring requirements and the limitations for Fecal Coliform (interim) and *E. coli* apply only during the period in which disinfection is required. Whenever chlorine is used for disinfection or other uses, the limitations and monitoring requirements for residual chlorine shall apply. A dechlorination process shall be in operation whenever chlorine is used.

6.4.10 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the *Ceriodaphnia dubia* and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

6.4.11 Whole Effluent Toxicity (WET) Identification and Reduction

Within 60 days of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;
- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including the following actions:
    a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)
    b) Identify the compound(s) causing toxicity. Conduct toxicity screening tests on the effluent at a minimum of once per month for six months to determine if toxicity recurs. Screening tests are WET tests using fewer effluent concentrations conducted on the most sensitive species. If any of the screening tests contain toxicity, conduct a toxicity identification evaluation (TIE) to determine the cause. TIE methods are available from USEPA "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures (EPA/600/6-91/003) and "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I" (EPA/600/6-91/005F).
    c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)
    d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)
- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;
- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

6.4.12 Reopener Clause

Pursuant to s. 283.15(11), Wis. Stat. and 40 CFR 131.20, the Department may modify or revoke and reissue this permit if, through the triennial standard review process, the Department determines that the terms and conditions of this permit need to be updated to reflect the highest attainable condition of the receiving water.

6.5 Pretreatment Program Requirements

The permittee is required to operate an industrial pretreatment program as described in the program initially approved by the Department of Natural Resources including any subsequent program modifications approved by the Department, and including commitments to program implementation activities provided in the permittee's annual pretreatment program report, and that complies with the requirements set forth in 40 CFR Part 403 and ch. NR 211, Wis. Adm. Code. To ensure that the program is operated in accordance with these requirements, the following general conditions and requirements are hereby established:

6.5.1 Inventories

The permittee shall implement methods to maintain a current inventory of the general character and volume of wastewater that industrial users discharge to the treatment works and shall provide an updated industrial user listing annually and report any changes in the listing to the Department by March 31 of each year as part of the annual pretreatment program report required herein.

6.5.2 Regulation of Industrial Users

6.5.2.1 Limitations for Industrial Users:

The permittee shall develop, maintain, enforce and revise as necessary local limits to implement the general and specific prohibitions of the state and federal General Pretreatment Regulations.

6.5.2.2 Control Documents for Industrial Users (IUs)

The permittee shall control the discharge from each significant industrial user through individual discharge permits as required by s. NR 211.235, Wis. Adm. Code and in accordance with the approved pretreatment program procedures and the permittee's sewer use ordinance. The discharge permits shall be modified in a timely manner during the stated term of the discharge permits according to the sewer use ordinance as conditions warrant. The discharge permits shall include at a minimum the elements found in s. NR 211.235(1), Wis. Adm. Code and references to the approved pretreatment program procedures and the sewer use ordinance.

6.5.2.3 Review of Industrial User Reports, Inspections and Compliance Monitoring

The permittee shall require the submission of, receive, and review self-monitoring reports and other notices from industrial users in accordance with the approved pretreatment program procedures. The permittee shall randomly sample and analyze industrial user discharges and conduct surveillance activities to determine independent of information supplied by the industrial users, whether the industrial users are in compliance with pretreatment standards and requirements. The inspections and monitoring shall also be conducted to maintain accurate knowledge of local industrial processes, including changes in the discharge, pretreatment equipment operation, spill prevention control plans, slug control plans, and implementation of solvent management plans.

The permittee shall inspect and sample the discharge from each significant industrial user as specified in the permittee's approved pretreatment program or as specified in NR 211.235(3). The permittee shall evaluate whether industrial users identified as significant need a slug control plan according to the requirements of NR 211.235(4). If a slug control plan is needed, the plan shall contain at a minimum the elements specified in s. NR 211.235(4)(b), Wis. Adm. Code.

6.5.2.4 Enforcement and Industrial User Compliance Evaluation & Violation Reports

The permittee shall enforce the industrial pretreatment requirements including the industrial user discharge limitations of the permittee's sewer use ordinance. The permittee shall investigate instances of noncompliance by collecting and analyzing samples and collecting other information with sufficient care to produce evidence admissible in enforcement proceedings or in judicial actions. Investigation and response to instances of noncompliance shall be in accordance with the permittee's sewer use ordinance and approved Enforcement Response Plan.

The permittee shall make a semiannual report on forms provided or approved by the Department. The semiannual report shall include an analysis of industrial user significant noncompliance (i.e. the Industrial User Compliance Evaluation, also known as the SNC Analysis) as outlined in s.NR 211.23(1)(j), Wis. Adm. Code, and a summary of the permittee's response to all industrial noncompliance (i.e. the Industrial User Violation Report). The Industrial User Compliance Evaluation Report shall include monitoring results received from industrial users pursuant to s. NR 211.15(1)-(5), Wis. Adm. Code. The Industrial User Violation Report shall include copies of all notices of noncompliance, notices of violation and other enforcement correspondence sent by the permittee to industrial users, together with the industrial user's response. The Industrial User Compliance Evaluation and Violation Reports for the period January through June shall be provided to the Department by September 30 of each year and for the period July through December shall be provided to the Department by March 31 of the succeeding year, unless alternate submittal dates are approved.

6.5.2.5 Publication of Violations

The permittee shall publish a list of industrial users that have significantly violated the municipal sewer use ordinance during the calendar year, in the largest daily newspaper in the area by March 31 of the following year pursuant to s. NR 211.23(1)(j), Wis. Adm. Code. A copy of the newspaper publication shall be provided as part of the annual pretreatment report specified herein.

6.5.2.6 Multijurisdictional Agreements

The permittee shall establish agreements with all contributing jurisdictions as necessary to ensure compliance with pretreatment standards and requirements by all industrial users discharging to the permittee's wastewater treatment system. Any such agreement shall identify who will be responsible for maintaining the industrial user inventory, issuance of industrial user control mechanisms, inspections and sampling, pretreatment program implementation, and enforcement.

6.5.3 Annual Pretreatment Program Report

The permittee shall evaluate the pretreatment program, and submit the Pretreatment Program Report to the Department on forms provided or approved by the Department by March 31 annually, unless an alternate submittal date is approved. The report shall include a brief summary of the work performed during the preceding calendar year, including the numbers of discharge permits issued and in effect, pollution prevention activities, number of inspections and monitoring surveys conducted, budget and personnel assigned to the program, a general discussion of program progress in meeting the objectives of the permittee's pretreatment program together with summary comments and recommendations.

6.5.4 Pretreatment Program Modifications

- Future Modifications: The permittee shall within one year of any revisions to federal or state General Pretreatment Regulations submit an application to the Department in duplicate to modify and update its approved pretreatment program to incorporate such regulatory changes as applicable to the permittee. Additionally, the Department or the permittee may request an application for program modification at any time where necessary to improve program effectiveness based on program experience to date.
- Modifications Subject to Department Approval: The permittee shall submit all proposed pretreatment program modifications to the Department for determination of significance and opportunity for comment in accordance with the requirements and conditions of s. NR 211.27, Wis. Adm. Code. Any substantial

proposed program modification shall be subject to Department public noticing and formal approval prior to implementation. A substantial program modification includes, but is not limited to, changes in enabling legal authority to administer and enforce pretreatment conditions and requirements; significant changes in program administrative or operational procedures; significant reductions in monitoring frequencies; significant reductions in program resources including personnel commitments, equipment, and funding levels; changes (including any relaxation) in the local limitations for substances enforced and applied to users of the sewerage treatment works; changes in treatment works sludge disposal or management practices which impact the pretreatment program; or program modifications which increase pollutant loadings to the treatment works. The Department shall use the procedures outlined in s. NR 211.30, Wis. Adm. Code for review and approval/denial of proposed pretreatment program modifications. The permittee shall comply with local public participation requirements when implementing the pretreatment program.

6.5.5 Program Resources

The permittee shall have sufficient resources and qualified personnel to carry out the pretreatment program responsibilities as listed in ss. NR 211.22 and NR 211.23, Wis. Adm. Code.

6.6 Land Application Requirements

6.6.1 Sludge Management Program Standards And Requirements Based Upon Federally Promulgated Regulations

In the event that new federal sludge standards or regulations are promulgated, the permittee shall comply with the new sludge requirements by the dates established in the regulations, if required by federal law, even if the permit has not yet been modified to incorporate the new federal regulations.

6.6.2 General Sludge Management Information

The General Sludge Management Form 3400-48 shall be completed and submitted prior to any significant sludge management changes.

6.6.3 Sludge Samples

All sludge samples shall be collected at a point and in a manner which will yield sample results which are representative of the sludge being tested, and collected at the time which is appropriate for the specific test.

6.6.4 Land Application Characteristic Report

Each report shall consist of a Characteristic Form 3400-49 and Lab Report. The Characteristic Report Form 3400-49 shall be submitted electronically by January 31 following each year of analysis.

Following submittal of the electronic Characteristic Report Form 3400-49, this form shall be certified electronically via the ‘eReport Certify’ page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The ‘eReport Certify’ page certifies that the electronic report is true, accurate and complete. The Lab Report must be sent directly to the facility’s DNR sludge representative or basin engineer unless approval for not submitting the lab reports has been given.

The permittee shall use the following convention when reporting sludge monitoring results: Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 1.0 mg/kg, report the pollutant concentration as < 1.0 mg/kg .

All results shall be reported on a dry weight basis.

6.6.5 Calculation of Water Extractable Phosphorus

When sludge analysis for Water Extractable Phosphorus is required by this permit, the permittee shall use the following formula to calculate and report Water Extractable Phosphorus:
Water Extractable Phosphorus (% of Total P) =
[Water Extractable Phosphorus (mg/kg, dry wt) ÷ Total Phosphorus (mg/kg, dry wt)] x 100

6.6.6 Annual Land Application Report

Land Application Report Form 3400-55 shall be submitted electronically by January 31, each year whether or not non-exceptional quality sludge is land applied. Non-exceptional quality sludge is defined in s. NR 204.07(4), Wis. Adm. Code. Following submittal of the electronic Annual Land Application Report Form 3400-55, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

6.6.7 Other Methods of Disposal or Distribution Report

The permittee shall submit electronically the Other Methods of Disposal or Distribution Report Form 3400-52 by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied. Following submittal of the electronic Report Form 3400-52, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

6.6.8 Approval to Land Apply

Bulk non-exceptional quality sludge as defined in s. NR 204.07(4), Wis. Adm. Code, may not be applied to land without a written approval letter or Form 3400-122 from the Department unless the Permittee has obtained permission from the Department to self approve sites in accordance with s. NR 204.06 (6), Wis. Adm. Code. Analysis of sludge characteristics is required prior to land application. Application on frozen or snow covered ground is restricted to the extent specified in s. NR 204.07(3) (l), Wis. Adm. Code.

6.6.9 Soil Analysis Requirements

Each site requested for approval for land application must have the soil tested prior to use. Each approved site used for land application must subsequently be soil tested such that there is at least one valid soil test in the four years prior to land application. All soil sampling and submittal of information to the testing laboratory shall be done in accordance with UW Extension Bulletin A-2100. The testing shall be done by the UW Soils Lab in Madison or Marshfield, WI or at a lab approved by UW. The test results including the crop recommendations shall be submitted to the DNR contact listed for this permit, as they are available. Application rates shall be determined based on the crop nitrogen recommendations and with consideration for other sources of nitrogen applied to the site.

6.6.10 Land Application Site Evaluation

For non-exceptional quality sludge, as defined in s. NR 204.07(4), Wis. Adm. Code, a Land Application Site Request Form 3400-053 shall be submitted to the Department for the proposed land application site. The Department will evaluate the proposed site for acceptability and will either approve or deny use of the proposed site. The permittee may obtain permission to approve their own sites in accordance with s. NR 204.06(6), Wis. Adm. Code.

6.6.11 Class B Sludge: Fecal Coliform Limitation

Compliance with the fecal coliform limitation for Class B sludge shall be demonstrated by calculating the geometric mean of at least 7 separate samples. (Note that a Total Solids analysis must be done on each sample). The geometric mean shall be less than 2,000,000 MPN or CFU/g TS. Calculation of the geometric mean can be done using one of the following 2 methods.

Method 1:

Geometric Mean = $(X_1 \times X_2 \times X_3 \ldots \times X_n)^{1/n}$

Where X = Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Method 2:

Geometric Mean = antilog$[(X_1 + X_2 + X_3 \ldots + X_n) \div n]$

Where X = $\log_{10}$ of Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Example for Method 2

Sample Number	Coliform Density of Sludge Sample	$\log_{10}$
1	6.0×10^5	5.78
2	4.2×10^6	6.62
3	1.6×10^6	6.20
4	9.0×10^5	5.95
5	4.0×10^5	5.60
6	1.0×10^6	6.00
7	5.1×10^5	5.71

The geometric mean for the seven samples is determined by averaging the $\log_{10}$ values of the coliform density and taking the antilog of that value.

$(5.78 + 6.62 + 6.20 + 5.95 + 5.60 + 6.00 + 5.71) \div 7 = 5.98$

The antilog of $5.98 = 9.5 \times 10^5$

6.6.12 Class B Sludge: Anaerobic Digestion

Treat the sludge in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35° C to 55° C and 60 days at 20° C. Straight-line interpolation to calculate mean cell residence time is allowable when the temperature falls between 35° C and 20° C.

6.6.13 Vector Control: Volatile Solids Reduction

The mass of volatile solids in the sludge shall be reduced by a minimum of 38% between the time the sludge enters the digestion process and the time it either exits the digester or a storage facility. For calculation of volatile solids reduction, the permittee shall use the Van Kleeck equation or one of the other methods described in "Determination of Volatile Solids Reduction in Digestion" by J.B. Farrell, which is Appendix C of EPA's *Control of Pathogens in Municipal Wastewater Sludge* (EPA/625/R-92/013). The Van Kleeck equation is:

$$VSR\% = \frac{VS_{IN} - VS_{OUT}}{VS_{IN} - (VS_{OUT} \times VS_{IN})} \times 100$$

Where: VS_{IN} = Volatile Solids in Feed Sludge (g VS/g TS)

VS_{OUT} = Volatile Solids in Final Sludge (g VS/g TS)

VSR% = Volatile Solids Reduction, (Percent)

6.6.14 Class B Sludge - Vector Control: Incorporation

Class B sludge shall be incorporated within 6 hours of surface application, or as approved by the Department.

6.6.15 Land Application of Sludge Which Contains Elevated Levels of Radium-226

When contributory water supplies exceed 2 pci per liter of Radium 226, monitoring for Radium 226 in sludge is required. Sludge containing Radium 226 shall be land applied in accordance with the requirements in s. NR 204.07(3)(n), Wis. Adm. Code.

7 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Mercury Pollutant Minimization Program -Annual Mercury Progress Reports	January 31, 2021	27
Mercury Pollutant Minimization Program -Annual Mercury Progress Report #2	January 31, 2022	27
Mercury Pollutant Minimization Program -Annual Mercury Progress Report #3	January 31, 2023	27
Mercury Pollutant Minimization Program -Annual Mercury Progress Report #4	January 31, 2024	27
Mercury Pollutant Minimization Program -Final Mercury Report	January 31, 2025	27
Mercury Pollutant Minimization Program -Annual Mercury Reports After Permit Expiration	See Permit	27
Effluent Limitations for E. coli (Outfall 001) -Status Update	November 21, 2020	27
Effluent Limitations for E. coli (Outfall 001) -Operational Evaluation Report	October 31, 2021	28
Effluent Limitations for E. coli (Outfall 001) -Achieve Compliance	May 1, 2022	28
Water Quality Trading (WQT) Management Plan -Complete Installation of Management Practices	September 30, 2022	28
Water Quality Trading (WQT) Management Plan -Management Practices	September 30, 2022	28
Annual Water Quality Trading (WQT) Report -Annual WQT Report	January 31, 2023	28
Annual Water Quality Trading (WQT) Report -Annual WQT Report #2	January 31, 2024	29
Annual Water Quality Trading (WQT) Report -Annual WQT Report #3	January 31, 2025	29
Annual Water Quality Trading (WQT) Report -Annual WQT Report Required After Permit Expiration	See Permit	29
Phosphorus Schedule - Optimization Plan -Optimization Plan	June 30, 2021	29
Phosphorus Schedule - Optimization Plan -Progress Report #1	June 30, 2022	29
Phosphorus Payment per Pound to County -Annual Verification of Phosphorus Payment to County	March 1, 2021	29
Phosphorus Payment per Pound to County -Annual Verification of Payment #2	March 1, 2022	30
Phosphorus Payment per Pound to County -Annual Verification of Payment #3	March 1, 2023	30
Compliance Maintenance Annual Reports (CMAR)	by June 30, each year	32
Industrial User Compliance Evaluation and Violation Reports	Semiannual	42
Pretreatment Program Report	Annually	42
General Sludge Management Form 3400-48	prior to any significant sludge	43

	management changes	
Characteristic Form 3400-49 and Lab Report	by January 31 following each year of analysis	43
Land Application Report Form 3400-55	by January 31, each year whether or not non-exceptional quality sludge is land applied	44
Other Methods of Disposal or Distribution Report Form 3400-52	by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied	44
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	31

Report forms shall be submitted electronically in accordance with the reporting requirements herein. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non industrial wastewater systems shall be submitted to the Bureau of Water Quality, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:
South Central Region, 3911 Fish Hatchery Road, Fitchburg, WI 53711-5397

APPENDIX C
WQBEL Memorandum

CORRESPONDENCE/MEMORANDUM

State of

DATE: September 5, 2024

TO: Brett Schmidt – WY/3

FROM: Sarah Luck – SCR/Fitchburg

SUBJECT: Facility Planning Water Quality-Based Effluent Limitations for Watertown Wastewater Treatment Facility
WPDES Permit No. WI-0028541

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Watertown Wastewater Treatment Facility in Jefferson County. This municipal wastewater treatment facility (WWTF) discharges to the Rock River, located in the Middle Rock River Watershed in the Upper Rock River Basin. This discharge is included in the Rock River TMDL as approved by EPA. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 001 based on the facility upgrade plans and data available at this time. Limits will be recalculated at the next permit issuance which may deviate from the following recommendations.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1
BOD_5					2
January			31 mg/L (1400 lbs/day)	30 mg/L	
February			35 mg/L (1500 lbs/day)	30 mg/L	
March			45 mg/L	30 mg/L	
April			45 mg/L	30 mg/L	
May			45 mg/L	30 mg/L	
June			16 mg/L (690 lbs/day)	16 mg/L	
July			12 mg/L (530 lbs/day)	12 mg/L	
August			10 mg/L (450 lbs/day)	10 mg/L	
September			10 mg/L (440 lbs/day)	10 mg/L	
October			12 mg/L (530 lbs/day)	12 mg/L	
November			25 mg/L (1100 lbs/day)	25 mg/L	
December			29 mg/L (1300 lbs/day)	29 mg/L	
TSS					2,3
January			31 mg/L	30 mg/L	
February			35 mg/L	30 mg/L	
March			45 mg/L	30 mg/L	
April			45 mg/L	30 mg/L	
May			45 mg/L	30 mg/L	
June			16 mg/L	16 mg/L	
July			12 mg/L	12 mg/L	
August			10 mg/L	10 mg/L	
September			10 mg/L	10 mg/L	
October			12 mg/L	12 mg/L	
November			25 mg/L	25 mg/L	

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
December			29 mg/L	29 mg/L	
pH	9.0 s.u.	6.0 s.u.			2
Dissolved Oxygen		6.0 mg/L			2
Ammonia Nitrogen					2,4
November – March	20 mg/L		**20 mg/L**	**20 mg/L**	
April – May	No Limit		No Limit	No Limit	
June	No Limit		17 mg/L	**17 mg/L**	
July	No Limit		9.0 mg/L	**9.0 mg/L**	
August	No Limit		6.4 mg/L	**6.4 mg/L**	
September	No Limit		8.9 mg/L	**8.9 mg/L**	
October	No Limit		13 mg/L	9.3 mg/L	
Bacteria					2,5
E. coli				126 #/100 mL geometric mean	
Mercury					6
Chloride					1
PFOS and PFOA					7
Phosphorus					3,8
July – March, May				1.0 mg/L	
April and June				0.8 mg/L	
Temperature					1
Cadmium, Chromium, Copper, Lead, Nickel, and Zinc					9
TKN, Nitrate+Nitrite, and Total Nitrogen					10
Acute WET					11,13
Chronic WET				1.5 TU_c	12,13

Footnotes:

1. Monitoring only.
2. No changes from the current permit.
3. Additional phosphorus and TSS mass limitations are required in accordance with the waste load allocations specified in the Rock River TMDL.

Month	Weekly Average TSS Effluent Limit (lbs/day)*	Monthly Average TSS Effluent Limit (lbs/day)	Monthly Average Total P Effluent Limit (lbs/day)
Jan	1400	1270	13.7
Feb	1500	1410	19.5
March	2270	1270	18.4
April	2340	1310	18.3
May	2270	1270	16.5
June	690	700	17.6
July	530	510	17.7
Aug	450	430	16.2
Sept	440	440	14.8

Month	Weekly Average TSS Effluent Limit (lbs/day)*	Monthly Average TSS Effluent Limit (lbs/day)	Monthly Average Total P Effluent Limit (lbs/day)
Oct	530	510	12.3
Nov	1100	1100	12.3
Dec	1300	1230	11.9

* The TMDL-derived weekly average TSS limits are superseded by more stringent TSS limits for the months of June through February that were included in the permit prior to the TMDL. The most restrictive limits are presented in the table above.

4. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code, are included in bold.
5. Bacteria limits apply during the disinfection season of May through September. Additional limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
6. Monitoring only. Source pollutant minimization procedures put in place should continue in order to prevent backsliding.
7. PFOS and PFOA monitoring is recommended at a frequency of once every two months.
8. If water quality trading is used as compliance option for phosphorus, the concentration limits of 1.0 mg/L, effective July – March and May, and 0.8 mg/L, effective April and June, would be required to continue as minimum control levels.
9. Monitoring for total recoverable cadmium, chromium, copper, lead, nickel, and zinc is required because Watertown Wastewater Treatment Facility operates a local pretreatment program for the industries that discharge to the treatment facility.
10. As recommended in the Department's October 1, 2019 *Guidance for Total Nitrogen Monitoring in Wastewater Permits*, quarterly total nitrogen monitoring is recommended for all municipal major permittees. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total kjeldahl nitrogen (TKN) (all expressed as N).
11. Annual acute WET monitoring is recommended.
12. Annual chronic WET monitoring is recommended. The Instream Waste Concentration (IWC) to assess chronic test results is 67%. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), chronic testing shall be performed using a dilution series of 100%, 75%, 50%, 25% & 12.5%, and the dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the Rock River.
13. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge and should continue after the permit expiration date (until the permit is reissued).

The test for antidegradation is whether any of the effluent limitations is an increased discharge as defined in ch. NR 207, Wis. Adm Code, because this facility is an existing discharge. “Increased discharge” means any change in concentration, level or loading of a substance which would exceed an effluent limitation specified in a current WPDES permit. No effluent limitations outlined above would constitute an increased discharge as defined in ch. NR 207, Wis. Adm. Code, as they are equal to or less than the existing permit limitations or are the first-time imposition of the limit. Therefore, the limits do not change due to this consideration.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Sarah Luck (Sarah.Luck@wisconsin.gov) or Diane Figiel (Diane.Figiel@wisconsin.gov).

Attachments (2) – Narrative and Site Map

PREPARED BY: Sarah Luck _____ Date: September 5, 2024

Sarah Luck
Water Resources Engineer

E-cc: Ashley Brechlin, Wastewater Engineer – SCR/Fitchburg
Diane Figiel, Water Resources Engineer – WY/3

Attachment #1

Water Quality-Based Effluent Limitations for
Watertown Wastewater Treatment Facility

WPDES Permit No. WI-0028541

PART 1 – BACKGROUND INFORMATION

Facility Description
The City of Watertown operates a wastewater treatment facility to treat an average daily flow of 5.2 MGD of domestic, commercial, and industrial wastewater. Treatment units include parallel bar screens and grit removal, primary clarifying, three activated sludge tanks with an anoxic selector in the front of the basins, ferric chloride addition to bind phosphorus, final clarification, ultraviolet light disinfection, and effluent cascade aeration.

The facility has submitted a plan for a facility upgrade which proposes **no increase in design flow or discharge location**. The purpose of this memo is to evaluate any changes to effluent limitations resulting from the upgrade. The most recent WQBEL recommendations are from the memo dated September 20, 2019 and addendums dated May 1, 2020 and June 9, 2020.

Attachment #2 is a map of the area showing the approximate location of Outfall 001.

Existing Permit Limitations
The current permit, expiring on September 30, 2025, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1
BOD_5					-
January			31 mg/L (1400 lbs/day)	30 mg/L	
February			35 mg/L (1500 lbs/day)	30 mg/L	
March			45 mg/L	30 mg/L	
April			45 mg/L	30 mg/L	
May			45 mg/L	30 mg/L	
June			16 mg/L (690 lbs/day)	16 mg/L	
July			12 mg/L (530 lbs/day)	12 mg/L	
August			10 mg/L (450 lbs/day)	10 mg/L	
September			10 mg/L (440 lbs/day)	10 mg/L	
October			12 mg/L (530 lbs/day)	12 mg/L	
November			25 mg/L (1100 lbs/day)	25 mg/L	
December			29 mg/L (1300 lbs/day)	29 mg/L	
TSS					2
January			31 mg/L	30 mg/L	
February			35 mg/L	30 mg/L	
March			45 mg/L	30 mg/L	

Attachment #1

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
April			45 mg/L	30 mg/L	
May			45 mg/L	30 mg/L	
June			16 mg/L	16 mg/L	
July			12 mg/L	12 mg/L	
August			10 mg/L	10 mg/L	
September			10 mg/L	10 mg/L	
October			12 mg/L	12 mg/L	
November			25 mg/L	25 mg/L	
December			29 mg/L	29 mg/L	
pH	9.0 s.u.	6.0 s.u.			-
Dissolved Oxygen		6.0 mg/L			-
Ammonia Nitrogen					3
November – March	20 mg/L		**20 mg/L**	**20 mg/L**	
April – May	No Limit		No Limit	No Limit	
June	No Limit		17 mg/L	**17 mg/L**	
July	No Limit		9.0 mg/L	**9.0 mg/L**	
August	No Limit		6.4 mg/L	**6.4 mg/L**	
September	No Limit		8.9 mg/L	**8.9 mg/L**	
October	No Limit		13 mg/L	9.3 mg/L	
Bacteria					4
E. coli				126 #/100 mL geometric mean	
Mercury	3.7 ng/L				5
Phosphorus					2,6
July – March, May				1.0 mg/L	
April and June				0.8 mg/L	
Temperature					1
Cadmium, Chloride, Chromium, Copper, Lead, Nickel, and Zinc					1
TKN, Nitrate+Nitrite, and Total Nitrogen					1
Acute WET					7
Chronic WET				1.5 TU_c	7

Footnotes:

1. Monitoring only.
2. Additional phosphorus and TSS mass limitations are required in accordance with the waste load allocations specified in the Rock River TMDL.

Month	Weekly Average TSS Effluent Limit (lbs/day)*	Monthly Average TSS Effluent Limit (lbs/day)	Monthly Average Total P Effluent Limit (lbs/day)
Jan	1400	1270	13.7

Attachment #1

Month	Weekly Average TSS Effluent Limit (lbs/day)*	Monthly Average TSS Effluent Limit (lbs/day)	Monthly Average Total P Effluent Limit (lbs/day)
Feb	1500	1410	19.5
March	2270	1270	18.4
April	2340	1310	18.3
May	2270	1270	16.5
June	690	700	17.6
July	530	510	17.7
Aug	450	430	16.2
Sept	440	440	14.8
Oct	530	510	12.3
Nov	1100	1100	12.3
Dec	1300	1230	11.9

* The TMDL-derived weekly average TSS limits are superseded by more stringent TSS limits for the months of June through February that were included in the permit prior to the TMDL. The most restrictive limits are presented in the above.

3. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code, are included in bold.
4. Bacteria limits apply during the disinfection season of May through September. Additional limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
5. The current permit contains a variance to the water quality-based effluent limit (WQBEL) for mercury; this is the alternative effluent concentration limit.
6. The concentration limits represent minimum control levels as required for water quality trading.
7. Annual acute and chronic WET testing.

Receiving Water Information

- Name: Rock River
- Waterbody Identification Code (WBIC): 788800
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm Water Sport Fish (WWSF) community, non-public water supply.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q_{10} and 7-Q_2 values are from USGS for Station UR5 – located 700 feet downstream of the Milwaukee Street Bridge in Watertown – upstream of where Outfall 001 is located. These updated values were provided in a September 20, 3013 memo from USGS. The Harmonic Mean has been estimated as recommended in *State of Wisconsin Water Quality Rules Implementation Plan* (Publ. WT-511-98)

  7-Q_{10} = 16 cfs (cubic feet per second)
  7-Q_2 = 51 cfs
  90-Q_{10} = 43 cfs
  Harmonic Mean Flow = 204 cfs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7-Q_{10} (cfs)	45	56	109	278	109	48	30	22	20	21	45	47
7-Q_2 (cfs)	169	184	440	819	365	180	109	86	77	102	193	184

- Hardness = 320 mg/L as $CaCO_3$. This value represents the geometric mean of data (n=7) from WET testing done by Watertown Wastewater Treatment Facility from 2019 through 2024.
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Background metals concentrations were measured as Total Recoverable from the Rock River at Waupun. Chloride data measured from the Rock River at the Milwaukee Street Bridge in Watertown is used as a background concentration for chloride. The geometric mean of the chloride concentration at this location was 62.7 mg/L from 7/30/01 to 2/15/18.
- Multiple dischargers: There are several other dischargers to the Rock River; however, they are not in the immediate vicinity and the mixing zones do not overlap. Therefore, the other dischargers do not impact this evaluation.
- Impaired water status: The Rock River is listed as impaired for phosphorus at the point of discharge. An EPA-approved TMDL addresses the phosphorus and TSS impairments in this waterbody and downstream waters.

Effluent Information

- Flow rate:
  Design annual average = 5.2 MGD (Million Gallons per Day)
  Peak daily = 24 MGD
  Peak weekly = 10.4 MGD
  Peak monthly = 8.8 MGD
  The peak design flows are from the Effluent Limits request, Table 5, from Applied Technologies, Inc. dated June 13, 2024.
  For reference, the actual average flow from June 2019 through July 2024 was 3.3 MGD.
- Hardness = 415 mg/L as $CaCO_3$. This value represents the geometric mean of data (n=4) from March 2018 reported on the 2019 permit application.
- Acute dilution factor used in accordance with s. NR 106.06(3)(c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water source: Domestic, commercial, and industrial wastewater with water supply from wells with industrial sources from the City of Watertown.
- Additives: Ferric chloride for phosphorus removal.
- Effluent characterization: This facility is categorized as a major municipal discharger. The permit-required monitoring for Cd, Cl, Cr, Cu, Pb, Ni, Hg and Zn from June 2019 through July 2024 is used in this evaluation.

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

Permit limits for toxic substances are required whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P_{99}) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Attachment #1

Acute Limits based on 1-Q_{10}

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q_{10} receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards. The mass balance equation is provided below.

$$\text{Limitation} = \frac{(WQC)\,(Qs + (1-f)\,Qe) - (Qs - f\,Qe)\,(Cs)}{Qe}$$

Where:

WQC =Acute toxicity criterion or secondary acute value according to ch. NR 105, Wis. Adm. Code.

Qs = average minimum 1-day flow which occurs once in 10 years (1-day Q_{10}) if the 1-day Q_{10} flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q_{10}).

Qe = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

Cs = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e), Wis. Adm. Code.

If the receiving water is effluent dominated under low stream flow conditions, the 1-Q_{10} method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for Watertown Wastewater Treatment Facility, and the limits are set based on two times the acute toxicity criteria.

The following tables list the calculated WQBELs for this discharge along with the results of effluent sampling. All concentrations are expressed in terms of micrograms per Liter (µg/L), except for hardness and chloride (mg/L) and mercury (ng/L).

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

RECEIVING WATER FLOW = 12.8 cfs, (1-Q_{10} (estimated as 80% of 7-Q_{10})), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	ATC	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Arsenic		340	679.6	135.9			
Cadmium	415	52.7	105.4	21.1	0.03		
Chromium	301	4446	8891.7	1778	0.37		
Copper	415	59.4	118.8			31	30
Lead	356	365	729.3	145.9	<4.3		
Mercury (ng/L)		830	1660			1.4	1.2
Nickel	268	1080	2160.6	432		15	13
Zinc	333	345	689.4	137.9	18		
Chloride (mg/L)		757	1514			555.9	499.8

Attachment #1

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105 over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

* * The 2 × ATC method of limit calculation yields a more restrictive limit than consideration of ambient concentrations and 1-Q_{10} flow rates per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 4.0 cfs (¼ of the 7-Q_{10}), as specified in s. NR 106.06(4)(c), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Arsenic		152.2		228	45.6		
Cadmium	175	3.82		5.72	1.1	0.03	
Chromium	301	325.75		488	97.5	0.37	
Copper	320	28.02		42.0			22
Lead	320	86.20		129.1	25.8	<4.3	
Mercury (ng/L)		440	4.74	656	131.3		1.0
Nickel	268	120.18		180			10
Zinc	320	333.02		499	99.7	18	
Chloride (mg/L)		395	62.70	560			492.2

* The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

Monthly Average Limits based on Wildlife Criteria (WC)

RECEIVING WATER FLOW = 10.8 cfs (¼ of the 90-Q_{10}), as specified in s. NR 106.06(4), Wis. Adm. Code

SUBSTANCE	WC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	30-day P_{99}
Mercury (ng/L)	1.3	4.74	1.3	0.77

Monthly Average Limits based on Human Threshold Criteria (HTC)

RECEIVING WATER FLOW = 51 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Cadmium	370		2718	543.6	0.03	
Chromium (+3)	3818000		28044310	5608862	0.37	
Lead	140		1028	205.7	<4.3	
Mercury (ng/L)	1.5	4.74	1.5			0.77
Nickel	43000		315847			7.2

Attachment #1

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 51 cfs (¼ of Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT
Arsenic	13.3		97.7	19.54

Conclusions and Recommendations

Based on a comparison of the effluent data and calculated effluent limitations, **no effluent limitations are required. Continued monitoring is recommended, and reasonable potential for limitations will be evaluated at the next permit reissuance.**

Mercury – The WQBEL for total recoverable mercury is set equal to the most stringent criterion of 1.3 ng/L, according to s. NR 106.06(6), Wis. Adm. Code, because the background concentration in the receiving water and similar inland streams is known to exceed 1.3 ng/L.

Effluent sampling from July 2019 through July 2024 is shown in the table below.

Mercury Effluent Data

	Mercury (ng/L)
1-day P_{99}	1.4
4-day P_{99}	1.0
30-day P_{99}	0.77
Mean	0.67
Std	0.22
Sample size	21
Range	0.35 - 1.2

The 30-day P_{99} of representative data is 0.77 ng/L, which is less than the most stringent limit (wildlife criterion of 1.3 ng/L); therefore, **no limit for mercury is required. Monitoring and the continuation of pollutant minimization procedures should continue.**

Antidegradation and Antibacksliding

Since current treatment capability and pollutant minimization procedures are expected to remain in place, the removal of the daily maximum mercury variance limit will not increase the concentration, level, or loading of mercury to the Rock River. Therefore, antidegradation would not be applicable. To be consistent with antibacksliding requirements, the current limit may be removed in accordance with s. NR 207.12(4)(b), Wis. Adm. Code.

PFOS and PFOA – The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code. Previous monitoring produced a PFOS result of 4.17 ng/L and a PFOA result of 2.74 ng/L. The PFOS result is greater than one fifth of the criteria. Based on the effluent flow rate, **PFOS and PFOA monitoring is recommended at a once every two months frequency.**

Attachment #1

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)
Daily maximum limitations are based on acute toxicity criteria in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The effluent pH data from June 2019 through 2024 were examined as part of this evaluation. A value of 7.79 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.79 s.u. yields a daily maximum limit of 24 mg/L which is greater than the current daily maximum limit of 20 mg/L. If Watertown Wastewater Treatment Facility would like to request an increase to the existing permit limits, an assessment of their effluent data consistent with the requirements of ss. NR 207.04(1)(a) and (c), Wis. Adm. Code, must be provided. Without a demonstration of need for a higher limit in accordance with s. NR 207.04, Wis. Adm. Code, **the current daily maximum limit of 20 mg/L, effective November – March**, **must be continued.**

Watertown Wastewater Treatment Facility also has the option to change to a daily maximum limit that varies based on the effluent pH in lieu of fixed single daily maximum limit. Presented below is a table of daily maximum limitations corresponding to various effluent pH values. Use of this table is not necessarily recommended, but it is presented herein for informational purposes.

Daily Maximum Ammonia Nitrogen Limits – WWSF

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq pH \leq 6.1$	108	$7.0 < pH \leq 7.1$	66	$8.0 < pH \leq 8.1$	14
$6.1 < pH \leq 6.2$	106	$7.1 < pH \leq 7.2$	59	$8.1 < pH \leq 8.2$	11
$6.2 < pH \leq 6.3$	104	$7.2 < pH \leq 7.3$	52	$8.2 < pH \leq 8.3$	9.4
$6.3 < pH \leq 6.4$	101	$7.3 < pH \leq 7.4$	46	$8.3 < pH \leq 8.4$	7.8
$6.4 < pH \leq 6.5$	98	$7.4 < pH \leq 7.5$	40	$8.4 < pH \leq 8.5$	6.4
$6.5 < pH \leq 6.6$	94	$7.5 < pH \leq 7.6$	34	$8.5 < pH \leq 8.6$	5.3
$6.6 < pH \leq 6.7$	89	$7.6 < pH \leq 7.7$	29	$8.6 < pH \leq 8.7$	4.4
$6.7 < pH \leq 6.8$	84	$7.7 < pH \leq 7.8$	24	$8.7 < pH \leq 8.8$	3.7
$6.8 < pH \leq 6.9$	78	$7.8 < pH \leq 7.9$	20	$8.8 < pH \leq 8.9$	3.1
$6.9 < pH \leq 7.0$	72	$7.9 < pH \leq 8.0$	17	$8.9 < pH \leq 9.0$	2.6

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)
No changes are recommended for the weekly and monthly average ammonia nitrogen limits since the facility plan does not include changes in either the effluent or receiving water flow rates.

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

Section NR 210.06(2)(a)1, Wis. Adm. Code, includes two limits which must be included in permits for facilities which are required to disinfect:

1. The geometric mean of *E. coli* bacteria in effluent samples collected in any calendar month may not exceed 126 counts/100 mL.

2. No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 counts/100 mL.

Since Watertown Wastewater Treatment Facility's permit requires twice weekly monitoring, the 410 counts/100 mL limit will effectively function as a daily maximum limit unless the facility performs additional monitoring. Any additional monitoring beyond what is required by the permit must also be reported on the DMR as required in the standard requirements section of the permit.

These limits are required during May through September. **No changes to the current bacteria limits, recreational period, or the required disinfection season are recommended.**

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit
Subchapter II of Chapter NR 217, Wis. Adm. Code, requires municipal wastewater treatment facilities that discharge greater than 150 pounds of Total Phosphorus per month to comply with a monthly average limit of 1.0 mg/L, or an approved alternative concentration limit.

Since Watertown Wastewater Treatment Facility has phosphorus limits in effect that are more stringent than 1.0 mg/L, the need for a TBEL will not be considered further.

In addition, the need for a WQBEL for phosphorus must be considered.

TMDL Limits
The current permit includes monthly average total phosphorus mass limits based on the wasteload allocation specified in the Rock River TMDL. **These limits do not need to be reevaluated at this time since the effluent flow rate will not be changing and are recommended to continue after the facility upgrade.**

For informational purposes, the following table lists the statistics for total phosphorus in the discharge as concentration and mass from June 2019 through July 2024.

Total Phosphorus Effluent Data

	mg/L	lbs/day
1-day P_{99}	1.20	43.06
4-day P_{99}	0.77	25.54
30-day P_{99}	0.55	16.71
Mean	0.44	12.72
Std	0.22	8.40
Sample Size	1349	1349
Range	0.095 - 1.672	1.78 - 84.86

Water Quality Trading
Water quality trading is being used in the current permit to achieve phosphorus compliance. If water quality trading is pursued after the upgrade is complete, the phosphorus WQBELs may be expressed as computed compliance limits, but a Minimum Control Level (MCL) must be set as a limit not to be exceeded at the outfall location. **The existing MCLs of 1.0 mg/L, effective July – March and May, and**

0.8 mg/L, effective April and June, would continue.

PART 5 – TOTAL SUSPENDED SOLIDS

Mass Limits

The current permit includes weekly and monthly average total suspended solids (TSS) mass limits based on existing mass limits as well as from the wasteload allocation specified in the Rock River TMDL. **Since Watertown Wastewater Treatment Facility is currently meeting these limits, the limits do not need to be reevaluated at this time, and the limits are recommended to continue after the facility upgrade.**

For informational purposes, the following table lists the statistics for total phosphorus in the discharge as concentration and mass from June 2019 through July 2024.

Total Suspended Solids Effluent Data

	mg/L	lbs/day
1-day P_{99}	11.7	536.5
4-day P_{99}	7.6	299.7
30-day P_{99}	5.4	177.2
Mean	4.3	124.4
Std	2.2	107.8
Sample Size	1349 (27 ND)	1349
Range	<2 - 26.4	0 - 2629.56

"<" means that the pollutant was not detected at the indicated level of detection. The mean concentration was calculated using zero in place of the non-detected results.

Pilot Study

Watertown Wastewater Treatment Facility is currently undergoing a three-year pilot study using fathead minnows to reduce daphnia. The need for any additional TSS limits if the long-term use of fish at the treatment facility is approved will be reevaluated following the conclusion of the pilot study.

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

Reasonable potential for a weekly average temperature limit of 66°F is shown based on thermal monitoring data from October 2020 through July 2024 and effluent flow data from June 2019 through July 2024. However, Watertown Wastewater Treatment Facility completed a dissipative cooling study in October 2019 that was approved by the Department on June 9, 2020. **Assuming the proposed facility upgrade includes no substantial changes to operation or thermal loadings, no thermal limits are expected to be needed. It is likely thermal monitoring will be required once the upgrade is complete in order to assess reasonable potential** at future permit reissuances.

Attachment #1

Future WPDES Permit Reissuance

Dissipative cooling (DC) requests must be reevaluated every permit reissuance. The permittee is responsible for submitting an updated DC request prior to permit reissuance. Such a request must either include:

a) A statement by the permittee that there have been no substantial changes in operation of, or thermal loadings to, the treatment facility and the receiving water; or
b) New information demonstrating DC to supplement the information used in the previous DC determination. If significant changes in operation or thermal loads have occurred, additional DC data must be submitted to the Department.

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

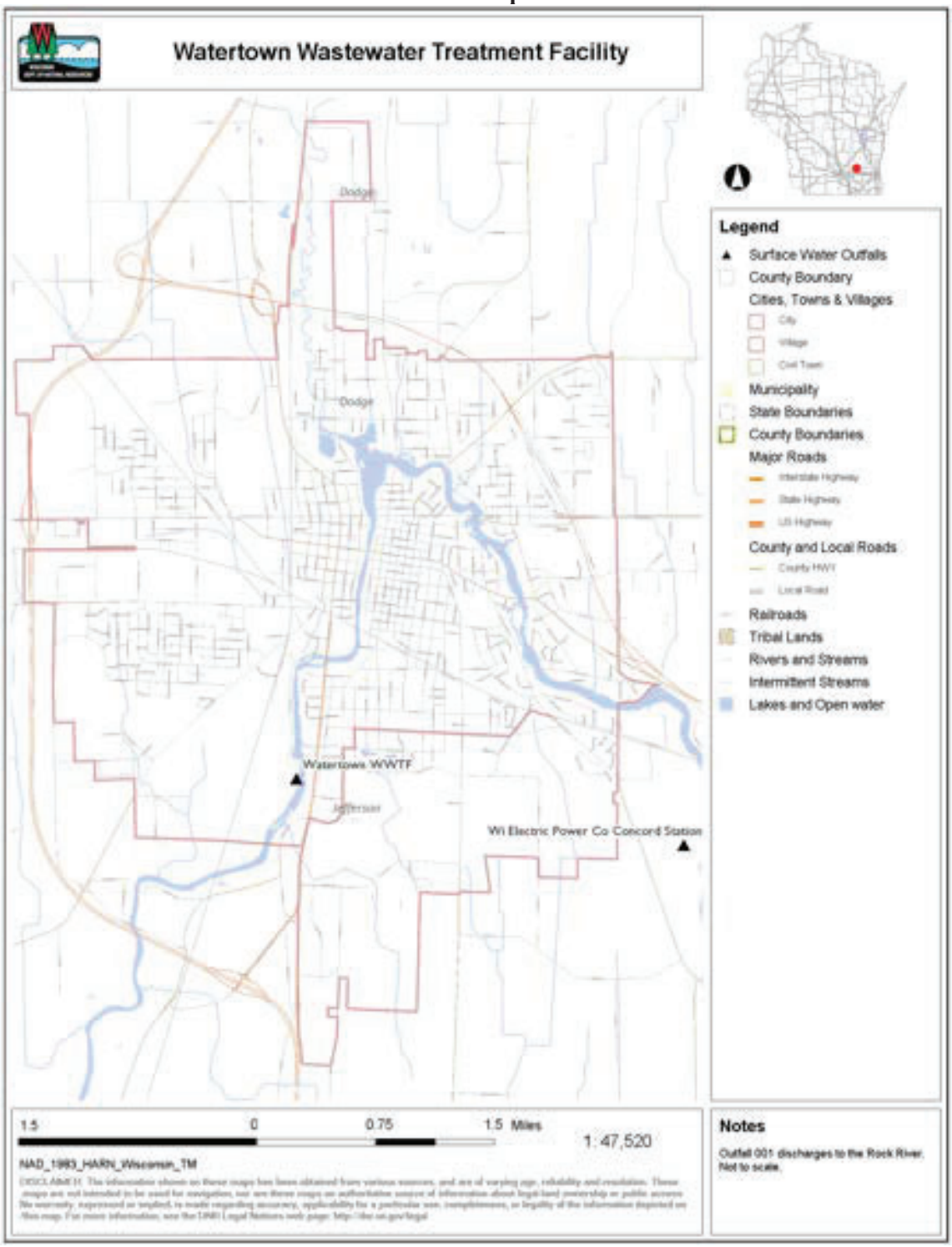
WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data and the need for WET limits were made according to ss. NR 106.08 and 106.09, Wis. Adm. Code. WET monitoring frequency and toxicity reduction evaluation (TRE) recommendations were made using the best professional judgment of staff familiar with the discharge after consideration of the guidance in the *Whole Effluent Toxicity (WET) Program Guidance Document* (2022).

The only change pertaining to WET testing that may occur due to the changes in design flow is a new instream waste concentration (IWC) for evaluating chronic WET tests. However, since the design flow is not changing, **there are no changes to the WET recommendations. A minimum of annual acute and chronic monitoring is required** because Watertown Wastewater Treatment Facility is a major municipal discharger with a design flow greater than 1.0 MGD and because a chronic WET limit is in place.

Note: Since Watertown Wastewater Treatment Facility currently uses a chemical additive to remove phosphorus, it is recommended that a Standard Operating Procedure (SOP) document be developed and submitted to the Department for approval (if not already done). Development of this document is voluntary, but the absence of an approved SOP may result in more frequent WET testing to ensure the additive is not causing toxicity due to overdosing. Please reach out to your compliance engineer if you have any questions or would like more information.

Attachment #2

Site Map



APPENDIX D
Mass Balance Calculations

Applied Technologies, Inc.
Mass Balance Calculations
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Project: Watertown WWTP
Event: Current Annual Average
Rev. on: 9/25/2024 13:51

Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Influent Parameters			**Influent Parameters**			
Flow	**3.200**	MGD				
BOD5	**6,400**	lbs/day	BOD5	240	3.200	6,400
Soluble BOD5	**40**	% of BOD5	Soluble BOD5	96	3.200	2,560
TSS	**6,000**	lbs/day	TSS	225	3.200	6,000
VSS	**80**	% of TSS	VSS	180	3.200	4,800
ISS	**20**	% of TSS	ISS	45	3.200	1,200
TKN	**930**	lbs/day	TKN	34.8	3.200	930
Ammonia-N	**70**	% of TKN	Ammonia-N	24.4	3.200	651
Organic-N	**30**	% of TKN	Organic-N	10.5	3.200	279
Total-P	**150**	lbs/day	Total-P	5.6	3.200	150
Ortho-P	**70**	% of T-P	Ortho-P	3.9	3.200	105
Organic-P	**30**	% of T-P	Organic-P	1.7	3.200	45
Recycle Streams to Pump Station			**Recycle Streams to Pump Station**			
Recycle Stream from Filtrate and Washwater			**Recycle Stream from Filtrate and Washwater**			
			BOD5	292	0.0135	33
			Soluble BOD5	3	0.0135	0
			TSS	1090	0.0135	123
			VSS	515	0.0135	58
			ISS	575	0.0135	65
			TKN	1030	0.0135	116
			Ammonia-N	616	0.0135	70
			Organic-N	414	0.0135	47
			Total-P	650	0.0135	73
			Ortho-P	182	0.0135	21
			Organic-P	122	0.0135	14
…Assumed that all Chemical-P is recycled as Ortho-P.			Chemical-P	414	0.0135	47
Preliminary Treatment			**Preliminary Treatment**			
Preliminary Treatment Effluent			**Preliminary Treatment Effluent**			
			BOD5	240	3.214	6,433
…Any removals obtained in the Grit Basins and			Soluble BOD5	96	3.214	2,560
Fine Screens are negligible.			TSS	228	3.214	6,123
			VSS	181	3.214	4,858
			ISS	47	3.214	1,265
			TKN	39.0	3.214	1,046
			Ammonia-N	26.9	3.214	721
			Organic-N	12.2	3.214	326
			Total-P	8.3	3.214	223
			Ortho-P	6.4	3.214	172
			Organic-P	2.2	3.214	59
			Vol. Content of Solids		79.3%	
Waste Activated Sludge to the Primary Clarifiers			**Waste Activated Sludge to the Primary Clarifiers**			
			BOD5	0	0.0250	0
			Soluble BOD5	0	0.0250	0
			TSS	20,000	0.0250	4,176
			VSS	10,506	0.0250	2,194
			ISS	9,494	0.0250	1,983
			Total Nitrogen	1,103	0.0250	230
			Nitrate-N	28	0.0250	6
			TKN	1,075	0.0250	225
			Ammonia-N	0	0.0250	0
			Organic-N	1,075	0.0250	225
			Total-P	809	0.0250	169
			Ortho-P	0	0.0250	0
			Organic-P	206	0.0250	43
			Chemical-P	602	0.0250	126
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.4%		
			Phosphorus:	4.0%		
			Volatile Content:	52.5%		

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Mass Balance Calculations
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Project: Watertown WWTP
Event: Current Annual Average
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Input Assumptions				Calculations			
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}		{C}	{D}	{E}	{F}	{G}
Primary Treatment				**Primary Treatment**			
Primary Clarifier Influent				**Primary Clarifier Influent (WAS + Preliminary Effluent)**			
				BOD5	238	3.239	6,433
				Soluble BOD5	95	3.239	2,560
				TSS	381	3.239	10,299
				VSS	261	3.239	7,052
				ISS	120	3.239	3,247
				Nitrate-N	8	3.239	225
				TKN	47	3.239	1,271
				Ammonia-N	27	3.239	721
				Organic-N	20	3.239	550
				Total-P	15	3.239	392
				Ortho-P	6	3.239	172
				Organic-P	4	3.239	102
				Chemical-P	5	3.239	126
Clarifier Dimensional Parameters				**Loading Rates**			
Clarifier Diameter	**85**	ft					
No. of Clarifiers	**2**						
Clarifier Depth	**12**	ft					
Total Surface Area	11,349	ft^2		Surface Overflow Rate (SOR)	285	$gal/day/ft^2$	
Total Weir Length	534	ft		Weir Overflow Rate (WOR)	6,064	gal/day/ft	
Volume	1,018,755	gallons		Hydraulic Retention Time	7.5	hours	
Primary Clarifier Effluent From Preliminary Effluent				**Primary Clarifier Effluent From Preliminary Effluent**			
BOD5 Removal	**30.0**	%		BOD5	169	3.203	4,503
				Soluble BOD5	96	3.203	2,552
TSS Removal	**50.0**	%		TSS	115	3.203	3,061
				VSS	90	3.203	2,409
				ISS	24	3.203	653
TKN Removal: Based on sludge content				TKN	36.2	3.203	967
Ammonia Removal	**0**	%		Ammonia-N	26.9	3.203	718
				Organic-N	9.3	3.203	249
Total-P Removal: Based on sludge content				Total-P	6.6	3.203	177
Ortho-P Removal	**0**	%		Ortho-P	6.4	3.203	172
				Organic-P	0.2	3.203	5.1
				Vol. Content of Solids		78.7%	
Primary Sludge From Preliminary Treatment Effluent				**Primary Sludge From Preliminary Treatment Effluent**			
Percent Solids	**3.50**	%		TSS	35,000	0.0105	3,061
Volatile Content	**80**	% of TSS		VSS	28,000	0.0105	2,449
				ISS	7,000	0.0105	612
Nitrogen Content	**2.5**	% of TSS		TKN	902	0.0105	79
				Ammonia-N	27	0.0105	2
				Organic-N	875	0.0105	77
Phosphorus Content	**1.5**	% of TSS		Total-P	531	0.0105	46
				Ortho-P	6	0.0105	1
				Organic-P	525	0.0105	46
				TKN Removal		7.5%	
				Total-P Removal		20.8%	

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Mass Balance Calculations
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Project: Watertown WWTP
Event: Current Annual Average
Rev. on: 9/25/2024 13:51

Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Clarifier Effluent From WAS			**Primary Clarifier Effluent From WAS**			
Total WAS Removal	**100**	%	BOD5	0	0.011	0
			Soluble BOD5	0	0.011	0
			TSS	0	0.011	0
			VSS	0	0.011	0
			ISS	0	0.011	0
			Nitrate-N	0	0.011	0
			TKN	0	0.011	0
			Ammonia-N	0	0.011	0
			Organic-N	0	0.011	0
			Total-P	0	0.011	0
			Ortho-P	0	0.011	0
			Organic-P	0	0.011	0
			Chemical-P	0	0.011	0
			Vol. Content of Solids			
Primary Sludge From WAS			**Primary Sludge From WAS**			
Percent Solids	**3.50**	%	TSS	35,000	0.0143	4,176
			VSS	18385	0.0143	2,194
			ISS	16615	0.0143	1,983
			Nitrate-N	48	0.0143	6
			TKN	1882	0.0143	225
			Ammonia-N	0	0.0143	0
			Organic-N	1882	0.0143	225
			Total-P	1415	0.0143	169
			Ortho-P	1	0.0143	0
			Organic-P	361	0.0143	43
			Chemical-P	1054	0.0143	126
			TKN Removal		100.0%	
			Total-P Removal		100.0%	
Total Primary Clarifier Effluent			**Total Primary Clarifier Effluent**			
			BOD5	168	3.214	4,503
			Soluble BOD5	95	3.214	2,552
			TSS	114	3.214	3,061
			VSS	90	3.214	2,409
			ISS	24	3.214	653
			Nitrate-N	0	3.214	0
			TKN	36.1	3.214	967
			Ammonia-N	26.8	3.214	718
			Organic-N	9.3	3.214	249
			Total-P	6.6	3.214	177
			Ortho-P	6.4	3.214	172
			Organic-P	0.2	3.214	5
			Chemical-P	0.0	3.214	0
			Vol. Content of Solids		78.7%	
Total Primary Sludge			**Total Primary Sludge**			
			TSS	35,000	0.0248	7,238
			VSS	22,452	0.0248	4,643
			ISS	12,548	0.0248	2,595
			Nitrate-N	28	0.0248	5.8
			TKN	1,467	0.0248	303
			Ammonia-N	12	0.0248	2.4
			Organic-N	1,456	0.0248	301
			Total-P	1,041	0.0248	215
			Ortho-P	3	0.0248	1
			Organic-P	430	0.0248	89
			Chemical-P	608	0.0248	126
			TKN Removal		24%	
			Total-P Removal		55%	

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Mass Balance Calculations
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Project: Watertown WWTP
Event: Current Annual Average
Rev. on: 9/25/2024 13:51

Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Treatment - Activated Sludge			**Secondary Treatment - Activated Sludge**			
Aeration Basin Influent			**Aeration Basin Influent**			
			BOD5	168	3.214	4,503
			Soluble BOD5	95	3.214	2,552
			TSS	114	3.214	3,061
			VSS	90	3.214	2,409
			ISS	24	3.214	653
			TKN	36.1	3.214	967
			Ammonia-N	26.8	3.214	718
			Organic-N	9.3	3.214	249
			Total-P	6.6	3.214	177
			Ortho-P	6.4	3.214	172
			Organic-P	0.2	3.214	5
			Vol. Content of Solids		78.7%	
Nutrient Conversions						
Organic-N Conversion			**Organic-N Conversion**			
… A portion of the Influent Organic-N is converted to Ammonia-N			Influent Organic-N			249
			Influent Ammonia-N			718
Assume Conversion of	**95**	%	Organic-N Converted			237
			Resulting Ammonia-N			955
			Remaining Organic-N			12
Organic-P Conversion			**Organic-P Conversion**			
… A portion of the Influent Organic-P is converted to Ortho-P			Influent Organic-P			5
			Influent Ortho-P			172
Assume Conversion of	**95**	%	Organic-P Converted			5
			Resulting Ortho-P			177
			Remaining Organic-P			0
VSS Biodegradation			**VSS Biodegradation**			
… A portion of the Influent VSS is Biodegradable			Influent VSS			2,409
Assumed Biodegradable Fraction	**80**	%	VSS Biodegraded			1,927
… Remaining VSS is incorportated into the Sludge			Non-Biodegradable VSS			482
Nutrient Requirements						
Carbonaceous						
… Based on weight ratio of VSS produced			VSS Produced			1,638
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			203
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			41
Nitrification						
… Based on weight ratio of VSS produced			VSS Produced			74
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			9
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			2
			Remaining Ammonia-N			743
			Remaining Ortho-P			134
			BOD:N:P Ratio			
			Nutrients Utilized:			
			Influent BOD5			4,503
			Ammonia-N			212
			Ortho-P			43
			Therefore the BOD5:N:P Ratio is:			
			BOD5	100		
			Ammonia-N	4.7		
			Ortho-P	1.0		

Applied Technologies, Inc.
Mass Balance Calculations
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Project: Watertown WWTP
Event: Current Annual Average
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Input Assumptions				Calculations				
	{A}	{B}	{C}		{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Nitrification				**Nitrification**				
				Ammonia-N remaining after satisfying nutrient requirements				743
	Ammonia Oxidation	**99.5**	%	Ammonia-N Oxidized; i.e. NO_3-N				739
				Ammonia Remaining				4
Denitrification				**Denitrification**				
…A portion of the NO3-N is used is converted to nitrogen gas				Ammonia-N Oxidized; i.e. NO_3-N				739
	Denitrification	**0**	%	Total NO_3-N reduced				0
				NO_3-N Remaining				739
Chemical Phosphorus Removal				**Chemical Phosphorus Removal**				
				Ortho-P remaining after satisfying nutrient requirements				134
	Ortho-P Removed	**94.0**	%	Ortho-P Removed				126
				Ortho-P Remaining				8
	Ferric Chloride Density	**12**	lbs Sol'n/gal					
	Iron Content	**0.15**	lbs Fe/lbs Sol'n	Ferric Chloride Contains:		0.4357	lbs $FeCl_3$/lb Sol'n	
	Ferric Chloride Dosage	**2.00**	moles Fe to moles Ortho-P	Weight Ratio		3.61	lbs Fe/lb Ortho-P Removed	
				Iron Required		453	lbs Fe/day	
				Ferric Chloride Required		1317	lbs $FeCl_3$/day	
Dosing approximately 100 gpd of ferric chloride						252	gal $FeCl_3$/day	
Solids Produced Due to Chemical Precipitation				**Solids Produced Due to Chemical Precipitation**				
	Ferric Phosphate Produced	4.9	lbs/lb P rem.	Ferric Phosphate Produced				612
	Ferric Hydroxide Produced	3.5	lbs/lb P rem.	Ferric Hydroxide Produced				434
				Total Chemical Sludge Produced				1,046
…Assume that chemcical is added to tail end of the aeration basins and that 100% of the chemical sludge is removed with the biological sludge.				Chemical-P Incorporated Into Sludge				126
Secondary Effluent				**Secondary Effluent**				
	BOD5 Removal	**97**	%		BOD5	5	3.189	135
					Soluble BOD5	3	3.189	77
	TSS Removal	**96**	%		TSS	5	3.189	122
					VSS	4	3.189	104
					ISS	1	3.189	18
					Total Nitrogen	28.3	3.189	752
					Nitrate-N	27.6	3.189	733
					TKN	0.7	3.189	19
					Ammonia-N	0.1	3.189	4
	Organic-N	12.4	% of TSS + Inf. Fraction		Organic-N	0.6	3.189	16
					Total-P	0.4	3.189	11
					Ortho-P	0.3	3.189	8
	Organic-N	2.5	% of TSS + Inf. Fraction		Organic-P	0.1	3.189	3
					Vol. Content of Solids		85.0%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Sludge			**Secondary Sludge**			
Sludge Production due to BOD Removal			**Sludge Production due to BOD Removal**			
Yield Coefficient (lb VSS Produced / lb BOD5 Removed)	**0.60**		BOD5 Removed			4,368
			Observed Yield	0.375	lbs VSS / lb BOD_5	
Decay Coefficient	**0.06**	/day				
Mean Cell Residence Time	**10**	days	VSS Produced			1,638
Sludge Production due to Nitrification			**Sludge Production due to Nitrification**			
Yield Coefficient (lb NVSS Produced / lb Ammonia Oxidized)	**0.15**		Ammonia-N Removed			739
			Observed Yield	0.100	lbs VSS / lb BOD_5	
Decay Coefficient	**0.05**	/day				
Mean Cell Residence Time	10	days	NVSS Produced			74
			Total Biological Sludge Production			
			Net VSS Produced			1,712
Volatile Content of MLTSS Produced	**85**	%	Net TSS Produced			2,014
Sludge Production due to Influent Solids			**Sludge Production due to Influent Solids**			
			Influent ISS			653
…Difference incorportated into sludge			Effluent ISS			18
			Inf. ISS incorp. Into sludge			634
			Influent ISS fraction in sludge	97.2%		
			Organic-N			
			Organic-N Remaining after Solub.			12
… Assume same ratio as ISS			Organic -N incorported into sludge			12
			Remaining Organic-N			0
			Nitrate-N			
			Ammonia-N Nitrified			739
			Conc. Based on Influent Flow	27.6	mg/L	
			Nitrate in WAS			6
			Organic-P			
			Organic-P Remaining after Solub.			0.2541
… Assume same ratio as ISS			Organic -P incorported into sludge			0.2470
			Remaining Organic-P			0.0072
Waste Activated Sludge			**Waste Activated Sludge**			
… Assume Net TSS is wasted			TSS	20,000	0.0250	4,176
… Sludge is Wasted from Return Sludge			VSS	10,506	0.0250	2,194
Percent Solids	**2.000**	%	ISS	9,494	0.0250	1,983
… Assume Nutrients consumed are incorportated into cell mass.			Total Nitrogen	1,103	0.0250	230
			Nitrate-N	28	0.0250	6
			TKN	1,075	0.0250	225
			Ammonia-N	0.1	0.0250	0
			Organic-N	1,075	0.0250	225
			Total-P	809	0.0250	169
			Ortho-P	0.3	0.0250	0
			Organic-P	206	0.0250	43
			Chemical-P	602	0.0250	126
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.4%		
			Phosphorus:	4.0%		
			Volatile Content:	52.5%		

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Input Assumptions				Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)	
{A}	{B}		{C}	{D}	{E}	{F}	{G}	
Activated Sludge Parameters				**Activated Sludge Parameters**				
Aeration Basin Volume	**282,000**	ft^3		Aeration Basin Volume	2.110	Million Gallons		
Solids Under Aeration:				Solids Under Aeration:				
MLTSS	2,486	mg/L		MLTSS	43,744	lbs		
MLVSS	1306			MLVSS	22,978	lbs		
				MLVSS Conc	1,306	mg/L		
				Mixed Liquor Volatile Fraction	52.5%			
				Organic Volumetric Loading	16	lb/1000 ft^3		
				F:M Ratio	0.196			
				Mean Cell Residence Time	10.00	days		
Anoxic Selector Parameters								
Anoxic Selector Volume	0.22	MG		Selector HRT	1.7	hours		
				Selector F:M Ratio	1.8			
Aeration System				**Aeration System**				
BOD Oxygen Requirement	**1.1**	lb O_2/ lb BOD rem.		BOD5 Removed		4,368	lbs/day	
				BOD5 Oxygen Requirement		4,805	lbs/day	
TKN Oygen Requirement	**4.6**	lb O_2/ lb TKN rem.		TKN Removed		739	lbs/day	
				TKN Oxygen Requirement		3,399	lbs/day	
				Total Oxygen Requirement		8,204	lbs/day	
				Total NO3-N reduced		0	lbs/day	
Oxygen Recovery from Denitrification	**2.86**	lbs O_2/ lb NO_3 reduced		Denitrification Oxygen Credit		0	lbs/day	
				Actual Oxygen Requirement		8,204	lbs/day	
Return Activated Sludge				**Return Activated Sludge**				
				TSS	20,000	0.428	71,335	
				VSS	10,506	0.428	37,471	
				Vol. Content of Solids		52.5%		
				RAS Ratio		13.4%		
Final Clarifiers				**Final Clarifiers**				
				Secondary Clarifier Influent				
				MLTSS	2,486	3.641	75,511	
				MLVSS	1,306	3.641	39,664	
				Vol. Content of Solids		52.5%		
Clarifier Dimensional Parameters				**Loading Rates**				
Clarifier Diameter	**90**	ft						
No. of Clarifiers	**2**							
Clarifier Depth	**16**	ft						
Total Surface Area	12,723	ft^2		Surface Overflow Rate (SOR)	251	gal/day/ft^2		
Total Weir Length	565	ft		Weir Overflow Rate (WOR)	5,639	gal/day/ft		
Volume	1,522,844	gallons		Solids Loading Rate	5.9	lb/day/ft^2		
				or	0.25	lb/hr/ft^2		

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Input Assumptions			Calculations				
				CONC	FLOW	MASS
				(mg/L)	(MGD)	(lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Anaerobic Digestion (No Supernating)			**Anaerobic Digestion (No Supernating)**			
Digester Influent			**Digester Influent = WAS + Primary Sludge**			
			TSS	35,000	0.0248	7,238
			VSS	22,452	0.0248	4,643
			ISS	12,548	0.0248	2,595
			Total Nitrogen	1,495	0.0248	309
			Nitrate-N	28	0.0248	5.8
			TKN	1,467	0.0248	303
			Ammonia-N	12	0.0248	2.4
			Organic-N	1,456	0.0248	301
			Total-P	1,041	0.0248	215
			Ortho-P	3	0.0248	1
			Organic-P	430	0.0248	89
			Chemical-P	608	0.0248	126
			Vol. Content of Solids		64.1%	
Removals and Conversions			**Removals and Conversions**			
VSS Destruction			**VSS Destruction**			
VSS Destruction	**50**	%	VSS Destruction			2,321
Gas Production	**15**	ft^3/lb VSS des.	Digester Gas Production		34,822	ft^3 /day
Organic-N Conversion			**Organic-N Conversion**			
Conversion of influent Organic-N	50	%	Influent Organic-N			301
			Organic-N Converted			151
…A portion of the influent Organic-N is converted to Ammonia-N			Organic-N Remaining			151
			Ammonia-N Produced			151
Nitrate-N Conversion			**Nitrate-N Conversion**			
Conversion of influent Nitrate-N	**100**	%	Influent Nitrate-N			6
			Nitrate-N Converted			6
…The influent Nitrate-N is converted to Nitrogen Gas			Nitrate-N Remaining			0
Organic-P Solubilized			**Organic-P Solubilized**			
Conversion of influent Organic-P	50	%	Influent Organic-P			89
			Organic-P Converted			44
…A portion of the influent Organic-P is converted to Ortho-P			Organic-P Remaining			44
			Ortho-P Produced			44
Digested Sludge			**Digested Sludge**			
			TSS	23,774	0.0248	4,916
			VSS	11,226	0.0248	2,321
			ISS	12,548	0.0248	2,595
			Total Nitrogen	1,467	0.0248	303
			Nitrate-N	0	0.0248	0
			TKN	1,467	0.0248	303
			Ammonia-N	739	0.0248	153
			Organic-N	728	0.0248	151
			Total-P	1,041	0.0248	215
			Ortho-P	218	0.0248	45
			Organic-P	215	0.0248	44
			Chemical-P	608	0.0248	126
			Vol. Content of Solids		47.2%	
			Fraction of Nutrients in Sludge:			
			Nitrogen:	6.2%		
			Phosphorus:	4.4%		
Digester Dimensional Parameters			**Loading Rates**			
			Digester Influent VS	4,643	lbs/day	
Digester Volume	**79,600**	ft^3	Volatile Solids Loading	0.058	lb VS/day/ft^3	
			or	58	lb VS/ 1000 ft^3 /day	
			Digester Influent Flow Rate	24,795	gpd	
			Digester Volume	595,448	gallons	
			HRT = SRT =	24	days	

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Input Assumptions				Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}		{D}	{E}	{F}	{G}
Digested Sludge To Centrifuges				**Digested Sludge to Centrifuges**			
				TSS	23,774	0.0620	12,291
				VSS	11,226	0.0620	5,804
				ISS	12,548	0.0620	6,487
				Total Nitrogen	1,467	0.0620	759
				Nitrate-N	-	0.0620	-
				TKN	1,467	0.0620	759
				Ammonia-N	739	0.0620	382
				Organic-N	728	0.0620	376
				Total-P	1,041	0.0620	538
				Ortho-P	218	0.0620	113
				Organic-P	215	0.0620	111
				Chemical-P	608	0.0620	314
Dewatered Digested Sludge				**Dewatered Digested Sludge**			
Solids Capture	**95**	%		TSS	250,000	0.0056	11,676
Percent Solids	**25.0**	%		VSS	118,048	0.0056	5,513
				ISS	131,952	0.0056	6,163
				Total Nitrogen	3,801	0.0056	178
				Nitrate-N	-	0.0056	-
… Organic-N, Organic-P, and Chemcial-P are assumed to be related to				TKN	3,801	0.0056	178
TSS and assumed to be removed at the same rate.				Ammonia-N	739	0.0056	35
Ammonia-N, Ortho-P are assumed to be soluble.				Organic-N	3,062	0.0056	143
				Total-P	3,681	0.0056	172
				Ortho-P	218	0.0056	10
				Organic-P	905	0.0056	42
				Chemical-P	2,558	0.0056	119
						47.2%	
				Centrate			
…Assume that the ratio of the filtrate BOD5/VSS							
				BOD5	350	0.0564	165
				Soluble BOD5	3	0.0564	1
				TSS	1,307	0.0564	615
				VSS	617	0.0564	290
				ISS	690	0.0564	324
				Total Nitrogen	1,235	0.0564	581
				Nitrate-N	0	0.0564	0
…Assume that Ortho-P and Ammonia-N concentrations				TKN	1,235	0.0564	581
are the same as that in Secondary Effluent.				Ammonia-N	739	0.0564	348
				Organic-N	496	0.0564	233
				Total-P	779	0.0564	366
				Ortho-P	218	0.0564	103
				Organic-P	147	0.0564	69
				Chemical-P	414	0.0564	195

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Washwater			**Washwater**			
…Assume that Secondary Effluent is used for washwater			BOD5	5	0.0113	0.5
			Soluble BOD5	3	0.0113	0.3
			TSS	5	0.0113	0.4
			VSS	4	0.0113	0.4
			ISS	1	0.0113	0.1
			Total Nitrogen	28.3	0.0113	2.7
			Nitrate-N	27.6	0.0113	2.6
			TKN	0.7	0.0113	0.1
			Ammonia-N	0.1	0.0113	0.0
			Organic-N	0.6	0.0113	0.1
			Total-P	0.4	0.0113	0.0
			Ortho-P	0.3	0.0113	0.0
			Organic-P	0.1	0.0113	0.0
Centrifuge Feed Rate	**220**	gpm	… Average Operating Time		4.70	hrs/day
Belt Washwater	**100**	gpm	… Ave. Solids Loading		2,617	lbs/hr
			… Belt Washwater		28,176	gpd
			… Average Operating Time / Week		9.39	hrs/week
Centrate and Washwater			**Centrate and Washwater**			
			BOD5	292	0.014	33
			Soluble BOD5	3	0.014	0
			TSS	1090	0.014	123
			VSS	515	0.014	58
			ISS	575	0.014	65
			Total Nitrogen	1034	0.014	117
			Nitrate-N	5	0.014	1
			TKN	1030	0.014	116
			Ammonia-N	616	0.014	70
			Organic-N	414	0.014	47
			Total-P	650	0.014	73
			Ortho-P	182	0.014	21
			Organic-P	122	0.014	14
			Chemical-P	414	0.014	47

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Influent Parameters			**Influent Parameters**			
Flow	**5.200**	MGD				
BOD5	**8,300**	lbs/day	BOD5	191	5.200	8,300
Soluble BOD5	**40**	% of BOD5	Soluble BOD5	77	5.200	3,320
TSS	**7,100**	lbs/day	TSS	164	5.200	7,100
VSS	**80**	% of TSS	VSS	131	5.200	5,680
ISS	**20**	% of TSS	ISS	33	5.200	1,420
TKN	**1,100**	lbs/day	TKN	25.4	5.200	1,100
Ammonia-N	**70**	% of TKN	Ammonia-N	17.8	5.200	770
Organic-N	**30**	% of TKN	Organic-N	7.6	5.200	330
Total-P	**180**	lbs/day	Total-P	4.2	5.200	180
Ortho-P	**70**	% of T-P	Ortho-P	2.9	5.200	126
Organic-P	**30**	% of T-P	Organic-P	1.2	5.200	54
Recycle Streams to Pump Station			**Recycle Streams to Pump Station**			
Recycle Stream from Filtrate and Washwater			**Recycle Stream from Filtrate and Washwater**			
			BOD5	322	0.0164	44
			Soluble BOD5	2	0.0164	0
			TSS	1085	0.0164	149
			VSS	519	0.0164	71
			ISS	566	0.0164	78
			TKN	1066	0.0164	146
			Ammonia-N	637	0.0164	87
			Organic-N	429	0.0164	59
			Total-P	645	0.0164	88
			Ortho-P	185	0.0164	25
			Organic-P	125	0.0164	17
…Assumed that all Chemical-P is recycled as Ortho-P.			Chemical-P	403	0.0164	55
Preliminary Treatment			**Preliminary Treatment**			
Preliminary Treatment Effluent			**Preliminary Treatment Effluent**			
			BOD5	192	5.216	8,344
…Any removals obtained in the Grit Basins and			Soluble BOD5	76	5.216	3,320
Fine Screens are negligible.			TSS	167	5.216	7,249
			VSS	132	5.216	5,751
			ISS	34	5.216	1,498
			TKN	28.6	5.216	1,246
			Ammonia-N	19.7	5.216	857
			Organic-N	8.9	5.216	389
			Total-P	6.2	5.216	268
			Ortho-P	4.7	5.216	206
			Organic-P	1.6	5.216	71
			Vol. Content of Solids		79.3%	
Waste Activated Sludge to the Primary Clarifiers			**Waste Activated Sludge to the Primary Clarifiers**			
			BOD5	0	0.0309	0
			Soluble BOD5	0	0.0309	0
			TSS	20,000	0.0309	5,156
			VSS	10,786	0.0309	2,781
			ISS	9,214	0.0309	2,375
			Total Nitrogen	1,140	0.0309	294
			Nitrate-N	20	0.0309	5
			TKN	1,120	0.0309	289
			Ammonia-N	0	0.0309	0
			Organic-N	1,120	0.0309	289
			Total-P	792	0.0309	204
			Ortho-P	0	0.0309	0
			Organic-P	216	0.0309	56
			Chemical-P	575	0.0309	148
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.6%		
			Phosphorus:	4.0%		
			Volatile Content:	53.9%		

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				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Treatment			**Primary Treatment**			
Primary Clarifier Influent			**Primary Clarifier Influent (WAS + Preliminary Effluent)**			
			BOD5	191	5.247	8,344
			Soluble BOD5	76	5.247	3,320
			TSS	283	5.247	12,405
			VSS	195	5.247	8,532
			ISS	89	5.247	3,873
			Nitrate-N	7	5.247	289
			TKN	35	5.247	1,535
			Ammonia-N	20	5.247	857
			Organic-N	15	5.247	678
			Total-P	11	5.247	472
			Ortho-P	5	5.247	207
			Organic-P	3	5.247	127
			Chemical-P	3	5.247	148
Clarifier Dimensional Parameters			**Loading Rates**			
Clarifier Diameter	**85**	ft				
No. of Clarifiers	**2**					
Clarifier Depth	**12**	ft				
Total Surface Area	11,349	ft^2	Surface Overflow Rate (SOR)	462	$gal/day/ft^2$	
Total Weir Length	534	ft	Weir Overflow Rate (WOR)	9,825	gal/day/ft	
Volume	1,018,755	gallons	Hydraulic Retention Time	4.7	hours	
Primary Clarifier Effluent From Preliminary Effluent			**Primary Clarifier Effluent From Preliminary Effluent**			
BOD5 Removal	**30.0**	%	BOD5	135	5.204	5,841
			Soluble BOD5	76	5.204	3,312
TSS Removal	**50.0**	%	TSS	84	5.204	3,624
			VSS	66	5.204	2,852
			ISS	18	5.204	773
TKN Removal: Based on sludge content			TKN	26.6	5.204	1,153
Ammonia Removal	**0**	%	Ammonia-N	19.7	5.204	855
			Organic-N	6.9	5.204	298
Total-P Removal: Based on sludge content			Total-P	4.9	5.204	213
Ortho-P Removal	**0**	%	Ortho-P	4.7	5.204	206
			Organic-P	0.2	5.204	7.5
			Vol. Content of Solids		78.7%	
Primary Sludge From Preliminary Treatment Effluent			**Primary Sludge From Preliminary Treatment Effluent**			
Percent Solids	**3.50**	%	TSS	35,000	0.0124	3,624
Volatile Content	**80**	% of TSS	VSS	28,000	0.0124	2,899
			ISS	7,000	0.0124	725
Nitrogen Content	**2.5**	% of TSS	TKN	895	0.0124	93
			Ammonia-N	20	0.0124	2
			Organic-N	875	0.0124	91
Phosphorus Content	**1.5**	% of TSS	Total-P	530	0.0124	55
			Ortho-P	5	0.0124	0
			Organic-P	525	0.0124	54
			TKN Removal		7.4%	
			Total-P Removal		20.4%	

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Input Assumptions			Calculations				
				CONC	FLOW	MASS
				(mg/L)	(MGD)	(lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Clarifier Effluent From WAS			**Primary Clarifier Effluent From WAS**			
			BOD5	0	0.013	0
Total WAS Removal	**100**	%	Soluble BOD5	0	0.013	0
			TSS	0	0.013	0
			VSS	0	0.013	0
			ISS	0	0.013	0
			Nitrate-N	0	0.013	0
			TKN	0	0.013	0
			Ammonia-N	0	0.013	0
			Organic-N	0	0.013	0
			Total-P	0	0.013	0
			Ortho-P	0	0.013	0
			Organic-P	0	0.013	0
			Chemical-P	0	0.013	0
			Vol. Content of Solids			
Primary Sludge From WAS			**Primary Sludge From WAS**			
Percent Solids	**3.50**	%	TSS	35,000	0.0177	5,156
			VSS	18876	0.0177	2,781
			ISS	16124	0.0177	2,375
			Nitrate-N	35	0.0177	5
			TKN	1960	0.0177	289
			Ammonia-N	0	0.0177	0
			Organic-N	1960	0.0177	289
			Total-P	1385	0.0177	204
			Ortho-P	0	0.0177	0
			Organic-P	378	0.0177	56
			Chemical-P	1007	0.0177	148
			TKN Removal		100.0%	
			Total-P Removal		100.0%	
Total Primary Clarifier Effluent			**Total Primary Clarifier Effluent**			
			BOD5	134	5.217	5,841
			Soluble BOD5	76	5.217	3,312
			TSS	83	5.217	3,624
			VSS	66	5.217	2,852
			ISS	18	5.217	773
			Nitrate-N	0	5.217	0
			TKN	26.5	5.217	1,153
			Ammonia-N	19.7	5.217	855
			Organic-N	6.9	5.217	298
			Total-P	4.9	5.217	213
			Ortho-P	4.7	5.217	206
			Organic-P	0.2	5.217	8
			Chemical-P	0.0	5.217	0
			Vol. Content of Solids		78.7%	
Total Primary Sludge			**Total Primary Sludge**			
			TSS	35,000	0.0301	8,781
			VSS	22,642	0.0301	5,680
			ISS	12,358	0.0301	3,100
			Nitrate-N	20	0.0301	5.1
			TKN	1,520	0.0301	381
			Ammonia-N	8	0.0301	2.1
			Organic-N	1,512	0.0301	379
			Total-P	1,032	0.0301	259
			Ortho-P	2	0.0301	1
			Organic-P	439	0.0301	110
			Chemical-P	591	0.0301	148
			TKN Removal		25%	
			Total-P Removal		55%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Treatment - Activated Sludge			**Secondary Treatment - Activated Sludge**			
Aeration Basin Influent			**Aeration Basin Influent**			
			BOD5	134	5.217	5,841
			Soluble BOD5	76	5.217	3,312
			TSS	83	5.217	3,624
			VSS	66	5.217	2,852
			ISS	18	5.217	773
			TKN	26.5	5.217	1,153
			Ammonia-N	19.7	5.217	855
			Organic-N	6.9	5.217	298
			Total-P	4.9	5.217	213
			Ortho-P	4.7	5.217	206
			Organic-P	0.2	5.217	8
			Vol. Content of Solids		78.7%	
Nutrient Conversions						
Organic-N Conversion			**Organic-N Conversion**			
… A portion of the Influent Organic-N is converted to Ammonia-N			Influent Organic-N			298
			Influent Ammonia-N			855
Assume Conversion of	**95**	%	Organic-N Converted			283
			Resulting Ammonia-N			1,138
			Remaining Organic-N			15
Organic-P Conversion			**Organic-P Conversion**			
… A portion of the Influent Organic-P is converted to Ortho-P			Influent Organic-P			8
			Influent Ortho-P			206
Assume Conversion of	**95**	%	Organic-P Converted			7
			Resulting Ortho-P			213
			Remaining Organic-P			0
VSS Biodegradation			**VSS Biodegradation**			
… A portion of the Influent VSS is Biodegradable			Influent VSS			2,852
Assumed Biodegradable Fraction	**80**	%	VSS Biodegraded			2,281
… Remaining VSS is incorportated into the Sludge			Non-Biodegradable VSS			570
Nutrient Requirements						
Carbonaceous						
… Based on weight ratio of VSS produced			VSS Produced			2,125
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			263
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			53
Nitrification						
… Based on weight ratio of VSS produced			VSS Produced			86
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			11
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			2
			Remaining Ammonia-N			864
			Remaining Ortho-P			158
			BOD:N:P Ratio			
			Nutrients Utilized:			
			Influent BOD5			5,841
			Ammonia-N			274
			Ortho-P			55
			Therefore the BOD5:N:P Ratio is:			
			BOD5	100		
			Ammonia-N	4.7		
			Ortho-P	0.9		

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Input Assumptions				Calculations				
	{A}	{B}	{C}		{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Nitrification				**Nitrification**				
					Ammonia-N remaining after satisfying nutrient requirements			864
	Ammonia Oxidation	**99.5**	%		Ammonia-N Oxidized; i.e. NO_3-N			860
					Ammonia Remaining			4
Denitrification				**Denitrification**				
…A portion of the NO3-N is used is converted to nitrogen gas					Ammonia-N Oxidized; i.e. NO_3-N			860
	Denitrification	**0**	%		Total NO_3-N reduced			0
					NO_3-N Remaining			860
Chemical Phosphorus Removal				**Chemical Phosphorus Removal**				
					Ortho-P remaining after satisfying nutrient requirements			158
	Ortho-P Removed	**94.0**	%		Ortho-P Removed			148
					Ortho-P Remaining			9
	Ferric Chloride Density	**12**	lbs Sol'n/gal					
	Iron Content	**0.15**	lbs Fe/lbs Sol'n		Ferric Chloride Contains:	0.4357	lbs $FeCl_3$/lb Sol'n	
	Ferric Chloride Dosage	**2.00**	moles Fe to moles Ortho-P		Weight Ratio	3.61	lbs Fe/lb Ortho-P Removed	
					Iron Required	535	lbs Fe/day	
					Ferric Chloride Required	1554	lbs $FeCl_3$/day	
Dosing approximately 100 gpd of ferric chloride						297	gal $FeCl_3$/day	
Solids Produced Due to Chemical Precipitation				**Solids Produced Due to Chemical Precipitation**				
	Ferric Phosphate Produced	4.9	lbs/lb P rem.		Ferric Phosphate Produced			723
	Ferric Hydroxide Produced	3.5	lbs/lb P rem.		Ferric Hydroxide Produced			512
					Total Chemical Sludge Produced			1,234
…Assume that chemcical is added to tail end of the aeration basins and that 100% of the chemical sludge is removed with the biological sludge.					Chemical-P Incorporated Into Sludge			148
Secondary Effluent				**Secondary Effluent**				
	BOD5 Removal	**97**	%		BOD5	4	5.186	175
					Soluble BOD5	2	5.186	99
	TSS Removal	**96**	%		TSS	3	5.186	145
					VSS	3	5.186	123
					ISS	1	5.186	22
					Total Nitrogen	20.3	5.186	878
					Nitrate-N	19.8	5.186	855
					TKN	0.5	5.186	23
					Ammonia-N	0.1	5.186	4
	Organic-N	12.4	% of TSS + Inf. Fraction		Organic-N	0.4	5.186	18
					Total-P	0.3	5.186	13
					Ortho-P	0.2	5.186	9
	Organic-N	2.5	% of TSS + Inf. Fraction		Organic-P	0.1	5.186	4
					Vol. Content of Solids		85.0%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Sludge			**Secondary Sludge**			
Sludge Production due to BOD Removal			**Sludge Production due to BOD Removal**			
Yield Coefficient (lb VSS Produced / lb BOD5 Removed)	**0.60**		BOD5 Removed			5,666
			Observed Yield	0.375	lbs VSS / lb BOD_5	
Decay Coefficient	**0.06**	/day				
Mean Cell Residence Time	**10**	days	VSS Produced			2,125
Sludge Production due to Nitrification			**Sludge Production due to Nitrification**			
Yield Coefficient (lb NVSS Produced / lb Ammonia Oxidized)	**0.15**		Ammonia-N Removed			860
			Observed Yield	0.100	lbs VSS / lb BOD_5	
Decay Coefficient	**0.05**	/day				
Mean Cell Residence Time	10	days	NVSS Produced			86
			Total Biological Sludge Production			
			Net VSS Produced			2,211
Volatile Content of MLTSS Produced	**85**	%	Net TSS Produced			2,601
Sludge Production due to Influent Solids			**Sludge Production due to Influent Solids**			
			Influent ISS			773
…Difference incorporated into sludge			Effluent ISS			22
			Inf. ISS incorp. Into sludge			751
			Influent ISS fraction in sludge	97.2%		
			Organic-N			
			Organic-N Remaining after Solub.			15
… Assume same ratio as ISS			Organic -N incorported into sludge			14
			Remaining Organic-N			0
			Nitrate-N			
			Ammonia-N Nitrified			860
			Conc. Based on Influent Flow	19.8	mg/L	
			Nitrate in WAS			5
			Organic-P			
			Organic-P Remaining after Solub.			0.3750
… Assume same ratio as ISS			Organic -P incorported into sludge			0.3645
			Remaining Organic-P			0.0106
Waste Activated Sludge			**Waste Activated Sludge**			
… Assume Net TSS is wasted			TSS	20,000	0.0309	5,156
… Sludge is Wasted from Return Sludge			VSS	10,786	0.0309	2,781
Percent Solids	**2.000**	%	ISS	9,214	0.0309	2,375
… Assume Nutrients consumed are incorportated into cell mass.			Total Nitrogen	1,140	0.0309	294
			Nitrate-N	20	0.0309	5
			TKN	1,120	0.0309	289
			Ammonia-N	0.1	0.0309	0
			Organic-N	1,120	0.0309	289
			Total-P	792	0.0309	204
			Ortho-P	0.2	0.0309	0
			Organic-P	216	0.0309	56
			Chemical-P	575	0.0309	148
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.6%		
			Phosphorus:	4.0%		
			Volatile Content:	53.9%		

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Input Assumptions				Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}		{C}	{D}	{E}	{F}	{G}
Activated Sludge Parameters				**Activated Sludge Parameters**			
Aeration Basin Volume	**282,000**	ft^3		Aeration Basin Volume	2.110	Million Gallons	
Solids Under Aeration:				Solids Under Aeration:			
MLTSS	3,061	mg/L		MLTSS	53,849	lbs	
MLVSS	1651			MLVSS	29,042	lbs	
				MLVSS Conc	1,651	mg/L	
				Mixed Liquor Volatile Fraction	53.9%		
				Organic Volumetric Loading	21	lb/1000 ft^3	
				F:M Ratio	0.201		
				Mean Cell Residence Time	10.00	days	
Anoxic Selector Parameters							
Anoxic Selector Volume	0.22	MG		Selector HRT	1.0	hours	
				Selector F:M Ratio	1.9		
Aeration System				**Aeration System**			
BOD Oxygen Requirement	**1.1**	lb O_2/ lb BOD rem.		BOD5 Removed		5,666	lbs/day
				BOD5 Oxygen Requirement		6,232	lbs/day
TKN Oygen Requirement	**4.6**	lb O_2/ lb TKN rem.		TKN Removed		860	lbs/day
				TKN Oxygen Requirement		3,956	lbs/day
				Total Oxygen Requirement		10,188	lbs/day
				Total NO3-N reduced		0	lbs/day
Oxygen Recovery from Denitrification	**2.86**	lbs O_2/ lb NO_3 reduced		Denitrification Oxygen Credit		0	lbs/day
				Actual Oxygen Requirement		10,188	lbs/day
Return Activated Sludge				**Return Activated Sludge**			
				TSS	20,000	0.906	151,157
				VSS	10,786	0.906	81,521
				Vol. Content of Solids		53.9%	
				RAS Ratio		17.5%	
Final Clarifiers				**Final Clarifiers**			
				Secondary Clarifier Influent			
				MLTSS	3,061	6.123	156,314
				MLVSS	1,651	6.123	84,302
				Vol. Content of Solids		53.9%	
Clarifier Dimensional Parameters				**Loading Rates**			
Clarifier Diameter	**90**	ft					
No. of Clarifiers	**2**						
Clarifier Depth	**16**	ft					
Total Surface Area	12,723	ft^2		Surface Overflow Rate (SOR)	408	gal/day/ft^2	
Total Weir Length	565	ft		Weir Overflow Rate (WOR)	9,171	gal/day/ft	
Volume	1,522,844	gallons		Solids Loading Rate	12.3	lb/day/ft^2	
				or	0.51	lb/hr/ft^2	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Anaerobic Digestion (No Supernating)			**Anaerobic Digestion (No Supernating)**			
Digester Influent			**Digester Influent = WAS + Primary Sludge**			
			TSS	35,000	0.0301	8,781
			VSS	22,642	0.0301	5,680
			ISS	12,358	0.0301	3,100
			Total Nitrogen	1,541	0.0301	386
			Nitrate-N	20	0.0301	5.1
			TKN	1,520	0.0301	381
			Ammonia-N	8	0.0301	2.1
			Organic-N	1,512	0.0301	379
			Total-P	1,032	0.0301	259
			Ortho-P	2	0.0301	1
			Organic-P	439	0.0301	110
			Chemical-P	591	0.0301	148
			Vol. Content of Solids		64.7%	
Removals and Conversions			**Removals and Conversions**			
VSS Destruction			**VSS Destruction**			
VSS Destruction	**50**	%	VSS Destruction			2,840
Gas Production	**15**	ft^3/lb VSS des.	Digester Gas Production		42,603	ft^3 /day
Organic-N Conversion			**Organic-N Conversion**			
Conversion of influent Organic-N	50	%	Influent Organic-N			379
			Organic-N Converted			190
…A portion of the influent Organic-N is converted to Ammonia-N			Organic-N Remaining			190
			Ammonia-N Produced			190
Nitrate-N Conversion			**Nitrate-N Conversion**			
Conversion of influent Nitrate-N	**100**	%	Influent Nitrate-N			5
			Nitrate-N Converted			5
…The influent Nitrate-N is converted to Nitrogen Gas			Nitrate-N Remaining			0
Organic-P Solubilized			**Organic-P Solubilized**			
Conversion of influent Organic-P	50	%	Influent Organic-P			110
			Organic-P Converted			55
…A portion of the influent Organic-P is converted to Ortho-P			Organic-P Remaining			55
			Ortho-P Produced			55
Digested Sludge			**Digested Sludge**			
			TSS	23,679	0.0301	5,941
			VSS	11,321	0.0301	2,840
			ISS	12,358	0.0301	3,100
			Total Nitrogen	1,520	0.0301	381
			Nitrate-N	0	0.0301	0
			TKN	1,520	0.0301	381
			Ammonia-N	764	0.0301	192
			Organic-N	756	0.0301	190
			Total-P	1,032	0.0301	259
			Ortho-P	221	0.0301	56
			Organic-P	219	0.0301	55
			Chemical-P	591	0.0301	148
			Vol. Content of Solids		47.8%	
			Fraction of Nutrients in Sludge:			
			Nitrogen:	6.4%		
			Phosphorus:	4.4%		
Digester Dimensional Parameters			**Loading Rates**			
			Digester Influent VS	5,680	lbs/day	
Digester Volume	**79,600**	ft^3	Volatile Solids Loading	0.071	lb VS/day/ft^3	
			or	71	lb VS/ 1000 ft^3 /day	
			Digester Influent Flow Rate	30,081	gpd	
			Digester Volume	595,448	gallons	
			HRT = SRT =	20	days	

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	{A}	{B}	{C}	{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Digested Sludge to Centrifuges				**Digested Sludge to Centrifuges**			
				TS	23,679	0.0752	14,851
				VS	11,321	0.0752	7,100
				ISS	12,358	0.0752	7,751
				Total Nitrogen	1,520	0.0752	953
				Nitrate-N	-	0.0752	-
				TKN	1,520	0.0752	953
				Ammonia-N	764	0.0752	479
				Organic-N	756	0.0752	474
				Total-P	1,032	0.0752	647
				Ortho-P	221	0.0752	139
				Organic-P	219	0.0752	138
				Chemical-P	591	0.0752	371
				Vol. Content of Solids		47.8%	
Dewatered Digested Sludge				**Dewatered Digested Sludge**			
	Solids Capture	**95**	%				
	Percent Solids	**25.0**	%				
				TS	250,000	0.0068	14,109
				VS	119,526	0.0068	6,745
				ISS	130,474	0.0068	7,363
				Total Nitrogen	3,957	0.0068	223
… Organic-N, Organic-P, and Chemcial-P are assumed to be related to				Nitrate-N	-	0.0068	-
TSS and assumed to be removed at the same rate.				TKN	3,957	0.0068	223
Ammonia-N, Ortho-P are assumed to be soluble.				Ammonia-N	764	0.0068	43
				Organic-N	3,193	0.0068	180
				Total-P	3,645	0.0068	206
				Ortho-P	221	0.0068	12
				Organic-P	926	0.0068	52
				Chemical-P	2,497	0.0068	141
				Vol. Content of Solids		47.8%	
Centrate				**Centrate**			
…Assume that the ratio of the centrate BOD5/VSS				BOD5	385	0.0684	220
				Soluble BOD5	2	0.0684	1
				TSS	1,301	0.0684	743
…Assume that Ortho-P and Ammonia-N concentrations				VSS	622	0.0684	355
are the same as that in Secondary Effluent.				ISS	679	0.0684	388
				Total Nitrogen	1,279	0.0684	730
				Nitrate-N	0	0.0684	0
				TKN	1,279	0.0684	730
				Ammonia-N	764	0.0684	436
				Organic-N	515	0.0684	294
				Total-P	774	0.0684	442
				Ortho-P	221	0.0684	126
				Organic-P	149	0.0684	85
				Chemical-P	403	0.0684	230

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				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Washwater			**Washwater**			
…Assume that Secondary Effluent is used for washwater			BOD5	4	0.0137	0.5
			Soluble BOD5	2	0.0137	0.3
			TSS	3	0.0137	0.4
			VSS	3	0.0137	0.3
			ISS	1	0.0137	0.1
			Total Nitrogen	20.3	0.0137	2.3
			Nitrate-N	19.8	0.0137	2.3
			TKN	0.5	0.0137	0.1
			Ammonia-N	0.1	0.0137	0.0
			Organic-N	0.4	0.0137	0.0
			Total-P	0.3	0.0137	0.0
			Ortho-P	0.2	0.0137	0.0
			Organic-P	0.1	0.0137	0.0
Centrifuge Feed Rate	**220**	gpm	… Average Operating Time		5.70	hrs/day
Belt Washwater	**100**	gpm	… Ave. Solids Loading		2,607	lbs/hr
			… Belt Washwater		34,183	gpd
			… Average Operating Time / Week		11.39	hrs/week
Centrate and Washwater			**Centrate and Washwater**			
			BOD5	322	0.016	44
			Soluble BOD5	2	0.016	0
			TSS	1085	0.016	149
			VSS	519	0.016	71
			ISS	566	0.016	78
			Total Nitrogen	1070	0.016	146
			Nitrate-N	3	0.016	0
			TKN	1066	0.016	146
			Ammonia-N	637	0.016	87
			Organic-N	429	0.016	59
			Total-P	645	0.016	88
			Ortho-P	185	0.016	25
			Organic-P	125	0.016	17
			Chemical-P	403	0.016	55

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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Influent Parameters			**Influent Parameters**			
Flow	**8.800**	MGD				
BOD5	**13,900**	lbs/day	BOD5	189	8.800	13,900
Soluble BOD5	**40**	% of BOD5	Soluble BOD5	76	8.800	5,560
TSS	**15,000**	lbs/day	TSS	204	8.800	15,000
VSS	**80**	% of TSS	VSS	164	8.800	12,000
ISS	**20**	% of TSS	ISS	41	8.800	3,000
TKN	**1,400**	lbs/day	TKN	19.1	8.800	1,400
Ammonia-N	**70**	% of TKN	Ammonia-N	13.4	8.800	980
Organic-N	**30**	% of TKN	Organic-N	5.7	8.800	420
Total-P	**400**	lbs/day	Total-P	5.5	8.800	400
Ortho-P	**70**	% of T-P	Ortho-P	3.8	8.800	280
Organic-P	**30**	% of T-P	Organic-P	1.6	8.800	120
Recycle Streams to Pump Station			**Recycle Streams to Pump Station**			
Recycle Stream from Filtrate and Washwater			**Recycle Stream from Filtrate and Washwater**			
			BOD5	245	0.0331	68
			Soluble BOD5	2	0.0331	1
			TSS	1110	0.0331	307
			VSS	497	0.0331	137
			ISS	612	0.0331	169
			TKN	919	0.0331	254
			Ammonia-N	549	0.0331	152
			Organic-N	371	0.0331	102
			Total-P	693	0.0331	191
			Ortho-P	173	0.0331	48
			Organic-P	116	0.0331	32
…Assumed that all Chemical-P is recycled as Ortho-P.			Chemical-P	485	0.0331	134
Preliminary Treatment			**Preliminary Treatment**			
Preliminary Treatment Effluent			**Preliminary Treatment Effluent**			
			BOD5	190	8.833	13,968
…Any removals obtained in the Grit Basins and Fine Screens are negligible.			Soluble BOD5	75	8.833	5,561
			TSS	208	8.833	15,307
			VSS	165	8.833	12,137
			ISS	43	8.833	3,169
			TKN	22.5	8.833	1,654
			Ammonia-N	15.4	8.833	1,132
			Organic-N	7.1	8.833	522
			Total-P	8.0	8.833	591
			Ortho-P	6.3	8.833	462
			Organic-P	2.1	8.833	152
			Vol. Content of Solids		79.3%	
Waste Activated Sludge to the Primary Clarifiers			**Waste Activated Sludge to the Primary Clarifiers**			
			BOD5	0	0.0605	0
			Soluble BOD5	0	0.0605	0
			TSS	20,000	0.0605	10,092
			VSS	9,627	0.0605	4,858
			ISS	10,373	0.0605	5,234
			Total Nitrogen	944	0.0605	476
			Nitrate-N	13	0.0605	7
			TKN	931	0.0605	470
			Ammonia-N	0	0.0605	0
			Organic-N	931	0.0605	470
			Total-P	897	0.0605	452
			Ortho-P	0	0.0605	0
			Organic-P	183	0.0605	92
			Chemical-P	714	0.0605	360
			Fraction of Nutrients in Sludge:			
			Nitrogen:	4.7%		
			Phosphorus:	4.5%		
			Volatile Content:	48.1%		

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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Treatment			**Primary Treatment**			
Primary Clarifier Influent			**Primary Clarifier Influent (WAS + Preliminary Effluent)**			
			BOD5	188	8.894	13,968
			Soluble BOD5	75	8.894	5,561
			TSS	342	8.894	25,399
			VSS	229	8.894	16,995
			ISS	113	8.894	8,403
			Nitrate-N	6	8.894	470
			TKN	29	8.894	2,124
			Ammonia-N	15	8.894	1,132
			Organic-N	13	8.894	992
			Total-P	14	8.894	1,044
			Ortho-P	6	8.894	462
			Organic-P	3	8.894	244
			Chemical-P	5	8.894	360
Clarifier Dimensional Parameters			**Loading Rates**			
Clarifier Diameter	**85**	ft				
No. of Clarifiers	**2**					
Clarifier Depth	**12**	ft				
Total Surface Area	11,349	ft^2	Surface Overflow Rate (SOR)	784	$gal/day/ft^2$	
Total Weir Length	534	ft	Weir Overflow Rate (WOR)	16,653	gal/day/ft	
Volume	1,018,755	gallons	Hydraulic Retention Time	2.7	hours	
Primary Clarifier Effluent From Preliminary Effluent			**Primary Clarifier Effluent From Preliminary Effluent**			
BOD5 Removal	**30.0**	%	BOD5	133	8.807	9,777
			Soluble BOD5	75	8.807	5,544
TSS Removal	**50.0**	%	TSS	104	8.807	7,653
			VSS	82	8.807	6,015
			ISS	22	8.807	1,638
TKN Removal: Based on sludge content			TKN	19.9	8.807	1,459
Ammonia Removal	**0**	%	Ammonia-N	15.4	8.807	1,128
			Organic-N	4.5	8.807	331
Total-P Removal: Based on sludge content			Total-P	6.5	8.807	475
Ortho-P Removal	**0**	%	Ortho-P	6.3	8.807	460
			Organic-P	0.2	8.807	14.9
			Vol. Content of Solids		78.6%	
Primary Sludge From Preliminary Treatment Effluent			**Primary Sludge From Preliminary Treatment Effluent**			
Percent Solids	**3.50**	%	TSS	35,000	0.0262	7,653
Volatile Content	**80**	% of TSS	VSS	28,000	0.0262	6,123
			ISS	7,000	0.0262	1,531
Nitrogen Content	**2.5**	% of TSS	TKN	890	0.0262	195
			Ammonia-N	15	0.0262	3
			Organic-N	875	0.0262	191
Phosphorus Content	**1.5**	% of TSS	Total-P	531	0.0262	116
			Ortho-P	6	0.0262	1
			Organic-P	525	0.0262	115
			TKN Removal		11.8%	
			Total-P Removal		19.6%	

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Input Assumptions			Calculations				
				CONC	FLOW	MASS
				(mg/L)	(MGD)	(lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Clarifier Effluent From WAS			**Primary Clarifier Effluent From WAS**			
			BOD5	0	0.026	0
Total WAS Removal	**100**	%	Soluble BOD5	0	0.026	0
			TSS	0	0.026	0
			VSS	0	0.026	0
			ISS	0	0.026	0
			Nitrate-N	0	0.026	0
			TKN	0	0.026	0
			Ammonia-N	0	0.026	0
			Organic-N	0	0.026	0
			Total-P	0	0.026	0
			Ortho-P	0	0.026	0
			Organic-P	0	0.026	0
			Chemical-P	0	0.026	0
			Vol. Content of Solids			
Primary Sludge From WAS			**Primary Sludge From WAS**			
Percent Solids	**3.50**	%	TSS	35,000	0.0346	10,092
			VSS	16848	0.0346	4,858
			ISS	18152	0.0346	5,234
			Nitrate-N	23	0.0346	7
			TKN	1629	0.0346	470
			Ammonia-N	0	0.0346	0
			Organic-N	1629	0.0346	470
			Total-P	1569	0.0346	452
			Ortho-P	1	0.0346	0
			Organic-P	320	0.0346	92
			Chemical-P	1249	0.0346	360
			TKN Removal		100.0%	
			Total-P Removal		100.0%	
Total Primary Clarifier Effluent			**Total Primary Clarifier Effluent**			
			BOD5	133	8.833	9,777
			Soluble BOD5	75	8.833	5,544
			TSS	104	8.833	7,653
			VSS	82	8.833	6,015
			ISS	22	8.833	1,638
			Nitrate-N	0	8.833	0
			TKN	19.8	8.833	1,459
			Ammonia-N	15.3	8.833	1,128
			Organic-N	4.5	8.833	331
			Total-P	6.5	8.833	475
			Ortho-P	6.2	8.833	460
			Organic-P	0.2	8.833	15
			Chemical-P	0.0	8.833	0
			Vol. Content of Solids		78.6%	
Total Primary Sludge			**Total Primary Sludge**			
			TSS	35,000	0.0608	17,745
			VSS	21,657	0.0608	10,981
			ISS	13,343	0.0608	6,765
			Nitrate-N	13	0.0608	6.7
			TKN	1,310	0.0608	664
			Ammonia-N	7	0.0608	3.4
			Organic-N	1,304	0.0608	661
			Total-P	1,122	0.0608	569
			Ortho-P	3	0.0608	2
			Organic-P	408	0.0608	207
			Chemical-P	710	0.0608	360
			TKN Removal		31%	
			Total-P Removal		54%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Treatment - Activated Sludge			**Secondary Treatment - Activated Sludge**			
Aeration Basin Influent			**Aeration Basin Influent**			
			BOD5	133	8.833	9,777
			Soluble BOD5	75	8.833	5,544
			TSS	104	8.833	7,653
			VSS	82	8.833	6,015
			ISS	22	8.833	1,638
			TKN	19.8	8.833	1,459
			Ammonia-N	15.3	8.833	1,128
			Organic-N	4.5	8.833	331
			Total-P	6.5	8.833	475
			Ortho-P	6.2	8.833	460
			Organic-P	0.2	8.833	15
			Vol. Content of Solids		78.6%	
Nutrient Conversions						
Organic-N Conversion			**Organic-N Conversion**			
… A portion of the Influent Organic-N is converted to Ammonia-N			Influent Organic-N			331
			Influent Ammonia-N			1,128
Assume Conversion of	**95**	%	Organic-N Converted			315
			Resulting Ammonia-N			1,443
			Remaining Organic-N			17
Organic-P Conversion			**Organic-P Conversion**			
… A portion of the Influent Organic-P is converted to Ortho-P			Influent Organic-P			15
			Influent Ortho-P			460
Assume Conversion of	**95**	%	Organic-P Converted			14
			Resulting Ortho-P			475
			Remaining Organic-P			1
VSS Biodegradation			**VSS Biodegradation**			
… A portion of the Influent VSS is Biodegradable			Influent VSS			6,015
Assumed Biodegradable Fraction	**80**	%	VSS Biodegraded			4,812
… Remaining VSS is incorportated into the Sludge			Non-Biodegradable VSS			1,203
Nutrient Requirements						
Carbonaceous						
… Based on weight ratio of VSS produced			VSS Produced			3,557
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			441
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			89
Nitrification						
… Based on weight ratio of VSS produced			VSS Produced			98
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			12
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			2
			Remaining Ammonia-N			990
			Remaining Ortho-P			383
			BOD:N:P Ratio			
			Nutrients Utilized:			
			Influent BOD5			9,777
			Ammonia-N			453
			Ortho-P			91
			Therefore the BOD5:N:P Ratio is:			
			BOD5	100		
			Ammonia-N	4.6		
			Ortho-P	0.9		

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Input Assumptions				Calculations				
	{A}	{B}	{C}		{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Nitrification				**Nitrification**				
				Ammonia-N remaining after satisfying nutrient requirements				990
	Ammonia Oxidation	**99.5**	%	Ammonia-N Oxidized; i.e. NO_3-N				985
				Ammonia Remaining				5
Denitrification				**Denitrification**				
…A portion of the NO3-N is used is converted to nitrogen gas				Ammonia-N Oxidized; i.e. NO_3-N				985
	Denitrification	**0**	%	Total NO_3-N reduced				0
				NO_3-N Remaining				985
Chemical Phosphorus Removal				**Chemical Phosphorus Removal**				
				Ortho-P remaining after satisfying nutrient requirements				383
	Ortho-P Removed	**94.0**	%	Ortho-P Removed				360
				Ortho-P Remaining				23
	Ferric Chloride Density	**12**	lbs Sol'n/gal					
	Iron Content	**0.15**	lbs Fe/lbs Sol'n	Ferric Chloride Contains:		0.4357	lbs $FeCl_3$/lb Sol'n	
	Ferric Chloride Dosage	**2.00**	moles Fe to moles Ortho-P	Weight Ratio		3.61	lbs Fe/lb Ortho-P Removed	
				Iron Required		1299	lbs Fe/day	
				Ferric Chloride Required		3773	lbs $FeCl_3$/day	
Dosing approximately 100 gpd of ferric chloride						722	gal $FeCl_3$/day	
Solids Produced Due to Chemical Precipitation				**Solids Produced Due to Chemical Precipitation**				
	Ferric Phosphate Produced	4.9	lbs/lb P rem.	Ferric Phosphate Produced				1,754
	Ferric Hydroxide Produced	3.5	lbs/lb P rem.	Ferric Hydroxide Produced				1,243
				Total Chemical Sludge Produced				2,997
…Assume that chemcical is added to tail end of the aeration basins and that 100% of the chemical sludge is removed with the biological sludge.				Chemical-P Incorporated Into Sludge				360
Secondary Effluent				**Secondary Effluent**				
	BOD5 Removal	**97**	%		BOD5	4	8.772	293
					Soluble BOD5	2	8.772	166
	TSS Removal	**96**	%		TSS	4	8.772	306
					VSS	4	8.772	260
					ISS	1	8.772	46
					Total Nitrogen	14.0	8.772	1,021
					Nitrate-N	13.4	8.772	978
					TKN	0.6	8.772	43
					Ammonia-N	0.1	8.772	5
	Organic-N	12.4	% of TSS + Inf. Fraction		Organic-N	0.5	8.772	38
					Total-P	0.4	8.772	31
					Ortho-P	0.3	8.772	23
	Organic-N	2.5	% of TSS + Inf. Fraction		Organic-P	0.1	8.772	8
					Vol. Content of Solids		85.0%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Sludge			**Secondary Sludge**			
Sludge Production due to BOD Removal			**Sludge Production due to BOD Removal**			
Yield Coefficient (lb VSS Produced			BOD5 Removed			9,484
/ lb BOD5 Removed)	**0.60**		Observed Yield	0.375	lbs VSS / lb BOD_5	
Decay Coefficient	**0.06**	/day				
Mean Cell Residence Time	**10**	days	VSS Produced			3,557
Sludge Production due to Nitrification			**Sludge Production due to Nitrification**			
Yield Coefficient (lb NVSS Produced			Ammonia-N Removed			985
/ lb Ammonia Oxidized)	**0.15**		Observed Yield	0.100	lbs VSS / lb BOD_5	
Decay Coefficient	**0.05**	/day				
Mean Cell Residence Time	**10**	days	NVSS Produced			98
			Total Biological Sludge Production			
			Net VSS Produced			3,655
Volatile Content of MLTSS Produced	**85**	%	Net TSS Produced			4,300
Sludge Production due to Influent Solids			**Sludge Production due to Influent Solids**			
			Influent ISS			1,638
…Difference incorportated into sludge			Effluent ISS			46
			Inf. ISS incorp. Into sludge			1,593
			Influent ISS fraction in sludge	97.2%		
			Organic-N			
			Organic-N Remaining after Solub.			17
… Assume same ratio as ISS			Organic -N incorported into sludge			16
			Remaining Organic-N			0
			Nitrate-N			
			Ammonia-N Nitrified			985
			Conc. Based on Influent Flow	13.4	mg/L	
			Nitrate in WAS			7
			Organic-P			
			Organic-P Remaining after Solub.			0.7466
… Assume same ratio as ISS			Organic -P incorported into sludge			0.7256
			Remaining Organic-P			0.0209
Waste Activated Sludge			**Waste Activated Sludge**			
… Assume Net TSS is wasted			TSS	20,000	0.0605	10,092
… Sludge is Wasted from Return Sludge			VSS	9,627	0.0605	4,858
Percent Solids	**2.000**	%	ISS	10,373	0.0605	5,234
… Assume Nutrients consumed are incorportated into cell mass.			Total Nitrogen	944	0.0605	476
			Nitrate-N	13	0.0605	7
			TKN	931	0.0605	470
			Ammonia-N	0.1	0.0605	0
			Organic-N	931	0.0605	470
			Total-P	897	0.0605	452
			Ortho-P	0.3	0.0605	0
			Organic-P	183	0.0605	92
			Chemical-P	714	0.0605	360
			Fraction of Nutrients in Sludge:			
			Nitrogen:	4.7%		
			Phosphorus:	4.5%		
			Volatile Content:	48.1%		

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Input Assumptions				Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}		{C}	{D}	{E}	{F}	{G}
Activated Sludge Parameters				**Activated Sludge Parameters**			
Aeration Basin Volume	**282,000**	ft^3		Aeration Basin Volume	2.110	Million Gallons	
Solids Under Aeration:				Solids Under Aeration:			
MLTSS	6,044	mg/L		MLTSS	106,327	lbs	
MLVSS	2909			MLVSS	51,182	lbs	
				MLVSS Conc	2,909	mg/L	
				Mixed Liquor Volatile Fraction	48.1%		
				Organic Volumetric Loading	35	lb/1000 ft^3	
				F:M Ratio	0.191		
				Mean Cell Residence Time	10.00	days	
Anoxic Selector Parameters							
Anoxic Selector Volume	0.22	MG		Selector HRT	0.6	hours	
				Selector F:M Ratio	1.8		
Aeration System				**Aeration System**			
BOD Oxygen Requirement	**1.1**	lb O_2/ lb BOD rem.		BOD5 Removed		9,484	lbs/day
				BOD5 Oxygen Requirement		10,432	lbs/day
TKN Oygen Requirement	**4.6**	lb O_2/ lb TKN rem.		TKN Removed		985	lbs/day
				TKN Oxygen Requirement		4,529	lbs/day
				Total Oxygen Requirement		14,962	lbs/day
				Total NO3-N reduced		0	lbs/day
Oxygen Recovery from Denitrification	**2.86**	lbs O_2/ lb NO_3 reduced		Denitrification Oxygen Credit		0	lbs/day
				Actual Oxygen Requirement		14,962	lbs/day
Return Activated Sludge				**Return Activated Sludge**			
				TSS	20,000	3.738	623,537
				VSS	9,627	3.738	300,147
				Vol. Content of Solids		48.1%	
				RAS Ratio		42.6%	
Final Clarifiers				**Final Clarifiers**			
				Secondary Clarifier Influent			
				MLTSS	6,044	12.571	633,629
				MLVSS	2,909	12.571	305,005
				Vol. Content of Solids		48.1%	
Clarifier Dimensional Parameters				**Loading Rates**			
Clarifier Diameter	**90**	ft					
No. of Clarifiers	**2**						
Clarifier Depth	**16**	ft					
Total Surface Area	12,723	ft^2		Surface Overflow Rate (SOR)	689	gal/day/ft^2	
Total Weir Length	565	ft		Weir Overflow Rate (WOR)	15,513	gal/day/ft	
Volume	1,522,844	gallons		Solids Loading Rate	49.8	lb/day/ft^2	
				or	2.08	lb/hr/ft^2	

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Project: Watertown WWTP
Event: Design Max Month
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Input Assumptions			Calculations				
				CONC	FLOW	MASS
				(mg/L)	(MGD)	(lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Anaerobic Digestion (No Supernating)			**Anaerobic Digestion (No Supernating)**			
Digester Influent			**Digester Influent = WAS + Primary Sludge**			
			TSS	35,000	0.0608	17,745
			VSS	21,657	0.0608	10,981
			ISS	13,343	0.0608	6,765
			Total Nitrogen	1,324	0.0608	671
			Nitrate-N	13	0.0608	6.7
			TKN	1,310	0.0608	664
			Ammonia-N	7	0.0608	3.4
			Organic-N	1,304	0.0608	661
			Total-P	1,122	0.0608	569
			Ortho-P	3	0.0608	2
			Organic-P	408	0.0608	207
			Chemical-P	710	0.0608	360
			Vol. Content of Solids		61.9%	
Removals and Conversions			**Removals and Conversions**			
VSS Destruction			**VSS Destruction**			
VSS Destruction	**50**	%	VSS Destruction			5,490
Gas Production	**15**	ft^3/lb VSS des.	Digester Gas Production		82,354	ft^3 /day
Organic-N Conversion			**Organic-N Conversion**			
Conversion of influent Organic-N	50	%	Influent Organic-N			661
			Organic-N Converted			330
…A portion of the influent Organic-N is converted to Ammonia-N			Organic-N Remaining			330
			Ammonia-N Produced			330
Nitrate-N Conversion			**Nitrate-N Conversion**			
Conversion of influent Nitrate-N	**100**	%	Influent Nitrate-N			7
			Nitrate-N Converted			7
…The influent Nitrate-N is converted to Nitrogen Gas			Nitrate-N Remaining			0
Organic-P Solubilized			**Organic-P Solubilized**			
Conversion of influent Organic-P	50	%	Influent Organic-P			207
			Organic-P Converted			103
…A portion of the influent Organic-P is converted to Ortho-P			Organic-P Remaining			103
			Ortho-P Produced			103
Digested Sludge			**Digested Sludge**			
			TSS	24,171	0.0608	12,255
			VSS	10,829	0.0608	5,490
			ISS	13,343	0.0608	6,765
			Total Nitrogen	1,310	0.0608	664
			Nitrate-N	0	0.0608	0
			TKN	1,310	0.0608	664
			Ammonia-N	658	0.0608	334
			Organic-N	652	0.0608	330
			Total-P	1,122	0.0608	569
			Ortho-P	207	0.0608	105
			Organic-P	204	0.0608	103
			Chemical-P	710	0.0608	360
			Vol. Content of Solids		44.8%	
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.4%		
			Phosphorus:	4.6%		
Digester Dimensional Parameters			**Loading Rates**			
			Digester Influent VS	10,981	lbs/day	
Digester Volume	**79,600**	ft^3	Volatile Solids Loading	0.138	lb VS/day/ft^3	
			or	138	lb VS/ 1000 ft^3 /day	
			Digester Influent Flow Rate	60,793	gpd	
			Digester Volume	595,448	gallons	
			HRT = SRT =	10	days	

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Input Assumptions				Calculations			
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
	{A}	{B}	{C}	{D}	{E}	{F}	{G}
Digested Sludge Dewatering				**Digested Sludge to Centrifuges**			
Digested Sludge							
					24,171	0.1520	30,638
					10,829	0.1520	13,726
					13,343	0.1520	16,912
					1,310	0.1520	1,661
					-	0.1520	-
					1,310	0.1520	1,661
					658	0.1520	835
					652	0.1520	826
					1,122	0.1520	1,422
					207	0.1520	263
					204	0.1520	259
					710	0.1520	900
Dewatered Digested Sludge				**Dewatered Digested Sludge**			
	Solids Capture	**95**	%				
	Percent Solids	**25.0**	%	TSS	250,000	0.0140	29,106
				VSS	112,000	0.0140	13,039
				ISS	138,000	0.0140	16,066
				Total Nitrogen	3,355	0.0140	391
… Organic-N, Organic-P, and Chemcial-P are assumed to be related to				Nitrate-N	-	0.0140	-
TSS and assumed to be removed at the same rate.				TKN	3,355	0.0140	391
Ammonia-N, Ortho-P are assumed to be soluble.				Ammonia-N	658	0.0140	77
				Organic-N	2,696	0.0140	314
				Total-P	3,990	0.0140	465
				Ortho-P	207	0.0140	24
				Organic-P	844	0.0140	98
				Chemical-P	2,939	0.0140	342
				Vol. Content of Solids		44.8%	
Centrate				**Centrate**			
…Assume that the ratio of the centrate BOD5/VSS							
				BOD5	293	0.1380	338
				Soluble BOD5	2	0.1380	3
				TSS	1,331	0.1380	1,532
				VSS	596	0.1380	686
				ISS	735	0.1380	846
				Total Nitrogen	1,103	0.1380	1,270
				Nitrate-N	0	0.1380	0
…Assume that Ortho-P and Ammonia-N concentrations				TKN	1,103	0.1380	1,270
are the same as that in Secondary Effluent.				Ammonia-N	658	0.1380	758
				Organic-N	445	0.1380	512
				Total-P	831	0.1380	957
				Ortho-P	207	0.1380	238
				Organic-P	139	0.1380	160
				Chemical-P	485	0.1380	558

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Input Assumptions			Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}		{D}	{E}	{F}	{G}
Washwater			**Washwater**				
…Assume that Secondary Effluent is used for washwater				BOD5	4	0.0276	0.9
				Soluble BOD5	2	0.0276	0.5
				TSS	4	0.0276	1.0
				VSS	4	0.0276	0.8
				ISS	1	0.0276	0.1
				Total Nitrogen	14.0	0.0276	3.2
				Nitrate-N	13.4	0.0276	3.1
				TKN	0.6	0.0276	0.1
				Ammonia-N	0.1	0.0276	0.0
				Organic-N	0.5	0.0276	0.1
				Total-P	0.4	0.0276	0.1
				Ortho-P	0.3	0.0276	0.1
				Organic-P	0.1	0.0276	0.0
Centrifuge Feed Rate	**220**	gpm	… Average Operating Time		11.51	hrs/day	
Belt Washwater	**100**	gpm	… Ave. Solids Loading		2,661	lbs/hr	
			… Belt Washwater		69,083	gpd	
			… Average Operating Time / Week		23.03	hrs/week	
Centrate and Washwater			**Centrate and Washwater**				
				BOD5	245	0.033	68
				Soluble BOD5	2	0.033	1
				TSS	1110	0.033	307
				VSS	497	0.033	137
				ISS	612	0.033	169
				Total Nitrogen	922	0.033	255
				Nitrate-N	2	0.033	1
				TKN	919	0.033	254
				Ammonia-N	549	0.033	152
				Organic-N	371	0.033	102
				Total-P	693	0.033	191
				Ortho-P	173	0.033	48
				Organic-P	116	0.033	32
				Chemical-P	485	0.033	134

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Project: Watertown WWTP
Event: Design Peak Week
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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Influent Parameters			**Influent Parameters**			
Flow	**10.400**	MGD				
BOD5	**16,300**	lbs/day	BOD5	188	10.400	16,300
Soluble BOD5	**40**	% of BOD5	Soluble BOD5	75	10.400	6,520
TSS	**19,500**	lbs/day	TSS	225	10.400	19,500
VSS	**80**	% of TSS	VSS	180	10.400	15,600
ISS	**20**	% of TSS	ISS	45	10.400	3,900
TKN	**1,900**	lbs/day	TKN	21.9	10.400	1,900
Ammonia-N	**70**	% of TKN	Ammonia-N	15.3	10.400	1,330
Organic-N	**30**	% of TKN	Organic-N	6.6	10.400	570
Total-P	**550**	lbs/day	Total-P	6.3	10.400	550
Ortho-P	**70**	% of T-P	Ortho-P	4.4	10.400	385
Organic-P	**30**	% of T-P	Organic-P	1.9	10.400	165
Recycle Streams to Pump Station			**Recycle Streams to Pump Station**			
Recycle Stream from Filtrate and Washwater			**Recycle Stream from Filtrate and Washwater**			
			BOD5	216	0.0428	77
			Soluble BOD5	2	0.0428	1
			TSS	1124	0.0428	401
			VSS	485	0.0428	173
			ISS	639	0.0428	228
			TKN	867	0.0428	310
			Ammonia-N	518	0.0428	185
			Organic-N	350	0.0428	125
			Total-P	727	0.0428	260
			Ortho-P	167	0.0428	60
			Organic-P	112	0.0428	40
…Assumed that all Chemical-P is recycled as Ortho-P.			Chemical-P	538	0.0428	192
Preliminary Treatment			**Preliminary Treatment**			
Preliminary Treatment Effluent			**Preliminary Treatment Effluent**			
			BOD5	188	10.443	16,377
…Any removals obtained in the Grit Basins and			Soluble BOD5	75	10.443	6,521
Fine Screens are negligible.			TSS	229	10.443	19,901
			VSS	181	10.443	15,773
			ISS	47	10.443	4,128
			TKN	25.4	10.443	2,210
			Ammonia-N	17.4	10.443	1,515
			Organic-N	8.0	10.443	695
			Total-P	9.3	10.443	810
			Ortho-P	7.3	10.443	637
			Organic-P	2.4	10.443	205
			Vol. Content of Solids		79.3%	
Waste Activated Sludge to the Primary Clarifiers			**Waste Activated Sludge to the Primary Clarifiers**			
			BOD5	0	0.0780	0
			Soluble BOD5	0	0.0780	0
			TSS	20,000	0.0780	13,009
			VSS	9,027	0.0780	5,872
			ISS	10,973	0.0780	7,137
			Total Nitrogen	871	0.0780	567
			Nitrate-N	16	0.0780	10
			TKN	856	0.0780	556
			Ammonia-N	0	0.0780	0
			Organic-N	855	0.0780	556
			Total-P	962	0.0780	626
			Ortho-P	0	0.0780	0
			Organic-P	168	0.0780	109
			Chemical-P	794	0.0780	517
			Fraction of Nutrients in Sludge:			
			Nitrogen:	4.3%		
			Phosphorus:	4.8%		
			Volatile Content:	45.1%		

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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Treatment			**Primary Treatment**			
Primary Clarifier Influent			**Primary Clarifier Influent (WAS + Preliminary Effluent)**			
			BOD5	187	10.521	16,377
			Soluble BOD5	74	10.521	6,521
			TSS	375	10.521	32,910
			VSS	247	10.521	21,645
			ISS	128	10.521	11,265
			Nitrate-N	6	10.521	556
			TKN	32	10.521	2,766
			Ammonia-N	17	10.521	1,515
			Organic-N	14	10.521	1,251
			Total-P	16	10.521	1,436
			Ortho-P	7	10.521	637
			Organic-P	4	10.521	314
			Chemical-P	6	10.521	517
Clarifier Dimensional Parameters			**Loading Rates**			
Clarifier Diameter	**85**	ft				
No. of Clarifiers	**2**					
Clarifier Depth	**12**	ft				
Total Surface Area	11,349	ft^2	Surface Overflow Rate (SOR)	927	$gal/day/ft^2$	
Total Weir Length	534	ft	Weir Overflow Rate (WOR)	19,699	gal/day/ft	
Volume	1,018,755	gallons	Hydraulic Retention Time	2.3	hours	
Primary Clarifier Effluent From Preliminary Effluent			**Primary Clarifier Effluent From Preliminary Effluent**			
BOD5 Removal	**30.0**	%	BOD5	132	10.409	11,464
			Soluble BOD5	75	10.409	6,500
TSS Removal	**50.0**	%	TSS	115	10.409	9,951
			VSS	90	10.409	7,813
			ISS	25	10.409	2,138
TKN Removal: Based on sludge content			TKN	22.5	10.409	1,956
Ammonia Removal	**0**	%	Ammonia-N	17.4	10.409	1,510
			Organic-N	5.1	10.409	446
Total-P Removal: Based on sludge content			Total-P	7.6	10.409	658
Ortho-P Removal	**0**	%	Ortho-P	7.3	10.409	635
			Organic-P	0.3	10.409	23.7
			Vol. Content of Solids		78.5%	
Primary Sludge From Preliminary Treatment Effluent			**Primary Sludge From Preliminary Treatment Effluent**			
Percent Solids	**3.50**	%	TSS	35,000	0.0341	9,951
Volatile Content	**80**	% of TSS	VSS	28,000	0.0341	7,961
			ISS	7,000	0.0341	1,990
Nitrogen Content	**2.5**	% of TSS	TKN	892	0.0341	254
			Ammonia-N	17	0.0341	5
			Organic-N	875	0.0341	249
Phosphorus Content	**1.5**	% of TSS	Total-P	532	0.0341	151
			Ortho-P	7	0.0341	2
			Organic-P	525	0.0341	149
			TKN Removal		11.5%	
			Total-P Removal		18.7%	

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Input Assumptions			Calculations				
				CONC	FLOW	MASS
				(mg/L)	(MGD)	(lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Clarifier Effluent From WAS			**Primary Clarifier Effluent From WAS**			
			BOD5	0	0.033	0
Total WAS Removal	**100**	%	Soluble BOD5	0	0.033	0
			TSS	0	0.033	0
			VSS	0	0.033	0
			ISS	0	0.033	0
			Nitrate-N	0	0.033	0
			TKN	0	0.033	0
			Ammonia-N	0	0.033	0
			Organic-N	0	0.033	0
			Total-P	0	0.033	0
			Ortho-P	0	0.033	0
			Organic-P	0	0.033	0
			Chemical-P	0	0.033	0
			Vol. Content of Solids			
Primary Sludge From WAS			**Primary Sludge From WAS**			
Percent Solids	**3.50**	%	TSS	35,000	0.0446	13,009
			VSS	15798	0.0446	5,872
			ISS	19202	0.0446	7,137
			Nitrate-N	28	0.0446	10
			TKN	1497	0.0446	556
			Ammonia-N	0	0.0446	0
			Organic-N	1497	0.0446	556
			Total-P	1684	0.0446	626
			Ortho-P	1	0.0446	0
			Organic-P	293	0.0446	109
			Chemical-P	1390	0.0446	517
			TKN Removal		100.0%	
			Total-P Removal		100.0%	
Total Primary Clarifier Effluent			**Total Primary Clarifier Effluent**			
			BOD5	132	10.442	11,464
			Soluble BOD5	75	10.442	6,500
			TSS	114	10.442	9,951
			VSS	90	10.442	7,813
			ISS	25	10.442	2,138
			Nitrate-N	0	10.442	0
			TKN	22.5	10.442	1,956
			Ammonia-N	17.3	10.442	1,510
			Organic-N	5.1	10.442	446
			Total-P	7.6	10.442	658
			Ortho-P	7.3	10.442	635
			Organic-P	0.3	10.442	24
			Chemical-P	0.0	10.442	0
			Vol. Content of Solids		78.5%	
Total Primary Sludge			**Total Primary Sludge**			
			TSS	35,000	0.0787	22,959
			VSS	21,086	0.0787	13,832
			ISS	13,914	0.0787	9,127
			Nitrate-N	16	0.0787	10.4
			TKN	1,235	0.0787	810
			Ammonia-N	8	0.0787	5.0
			Organic-N	1,227	0.0787	805
			Total-P	1,185	0.0787	777
			Ortho-P	4	0.0787	2
			Organic-P	394	0.0787	258
			Chemical-P	787	0.0787	517
			TKN Removal		29%	
			Total-P Removal		54%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Treatment - Activated Sludge			**Secondary Treatment - Activated Sludge**			
Aeration Basin Influent			**Aeration Basin Influent**			
			BOD5	132	10.442	11,464
			Soluble BOD5	75	10.442	6,500
			TSS	114	10.442	9,951
			VSS	90	10.442	7,813
			ISS	25	10.442	2,138
			TKN	22.5	10.442	1,956
			Ammonia-N	17.3	10.442	1,510
			Organic-N	5.1	10.442	446
			Total-P	7.6	10.442	658
			Ortho-P	7.3	10.442	635
			Organic-P	0.3	10.442	24
			Vol. Content of Solids		78.5%	
Nutrient Conversions						
Organic-N Conversion			**Organic-N Conversion**			
… A portion of the Influent Organic-N is converted to Ammonia-N			Influent Organic-N			446
			Influent Ammonia-N			1,510
Assume Conversion of	**95**	%	Organic-N Converted			424
			Resulting Ammonia-N			1,934
			Remaining Organic-N			22
Organic-P Conversion			**Organic-P Conversion**			
… A portion of the Influent Organic-P is converted to Ortho-P			Influent Organic-P			24
			Influent Ortho-P			635
Assume Conversion of	**95**	%	Organic-P Converted			22
			Resulting Ortho-P			657
			Remaining Organic-P			1
VSS Biodegradation			**VSS Biodegradation**			
… A portion of the Influent VSS is Biodegradable			Influent VSS			7,813
Assumed Biodegradable Fraction	**80**	%	VSS Biodegraded			6,250
… Remaining VSS is incorportated into the Sludge			Non-Biodegradable VSS			1,563
Nutrient Requirements						
Carbonaceous						
… Based on weight ratio of VSS produced			VSS Produced			4,170
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			517
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			104
Nitrification						
… Based on weight ratio of VSS produced			VSS Produced			139
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			17
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			3
			Remaining Ammonia-N			1,399
			Remaining Ortho-P			550
			BOD:N:P Ratio			
			Nutrients Utilized:			
			Influent BOD5			11,464
			Ammonia-N			534
			Ortho-P			108
			Therefore the BOD5:N:P Ratio is:			
			BOD5	100		
			Ammonia-N	4.7		
			Ortho-P	0.9		

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Input Assumptions				Calculations				
	{A}	{B}	{C}	{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}	
Nitrification				**Nitrification**				
				Ammonia-N remaining after satisfying nutrient requirements			1,399	
Ammonia Oxidation		**99.5**	%	Ammonia-N Oxidized; i.e. NO_3-N			1,392	
				Ammonia Remaining			7	
Denitrification				**Denitrification**				
…A portion of the NO3-N is used is converted to nitrogen gas				Ammonia-N Oxidized; i.e. NO_3-N			1,392	
Denitrification		**0**	%	Total NO_3-N reduced			0	
				NO_3-N Remaining			1,392	
Chemical Phosphorus Removal				**Chemical Phosphorus Removal**				
				Ortho-P remaining after satisfying nutrient requirements			550	
Ortho-P Removed		**94.0**	%	Ortho-P Removed			517	
				Ortho-P Remaining			33	
Ferric Chloride Density		**12**	lbs Sol'n/gal					
Iron Content		**0.15**	lbs Fe/lbs Sol'n	Ferric Chloride Contains:	0.4357	lbs $FeCl_3$/lb Sol'n		
Ferric Chloride Dosage		**2.00**	moles Fe to moles Ortho-P	Weight Ratio	3.61	lbs Fe/lb Ortho-P Removed		
				Iron Required	1863	lbs Fe/day		
				Ferric Chloride Required	5411	lbs $FeCl_3$/day		
Dosing approximately 100 gpd of ferric chloride					1035	gal $FeCl_3$/day		
Solids Produced Due to Chemical Precipitation				**Solids Produced Due to Chemical Precipitation**				
Ferric Phosphate Produced		4.9	lbs/lb P rem.	Ferric Phosphate Produced			2,516	
Ferric Hydroxide Produced		3.5	lbs/lb P rem.	Ferric Hydroxide Produced			1,783	
				Total Chemical Sludge Produced			4,298	
…Assume that chemcical is added to tail end of the aeration basins and that 100% of the chemical sludge is removed with the biological sludge.				Chemical-P Incorporated Into Sludge			517	
Secondary Effluent				**Secondary Effluent**				
BOD5 Removal		**97**	%	BOD5	4	10.364	344	
				Soluble BOD5	2	10.364	195	
TSS Removal		**96**	%	TSS	5	10.364	398	
				VSS	4	10.364	338	
				ISS	1	10.364	60	
				Total Nitrogen	16.6	10.364	1,439	
				Nitrate-N	16.0	10.364	1,382	
				TKN	0.7	10.364	57	
				Ammonia-N	0.1	10.364	7	
Organic-N		12.4	% of TSS + Inf. Fraction	Organic-N	0.6	10.364	50	
				Total-P	0.5	10.364	43	
				Ortho-P	0.4	10.364	33	
Organic-N		2.5	% of TSS + Inf. Fraction	Organic-P	0.1	10.364	10	
				Vol. Content of Solids		85.0%		

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Project: Watertown WWTP
Event: Design Peak Week
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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)	
{A}	{B}	{C}	{D}	{E}	{F}	{G}	
Secondary Sludge			**Secondary Sludge**				
Sludge Production due to BOD Removal			**Sludge Production due to BOD Removal**				
Yield Coefficient (lb VSS Produced			BOD5 Removed			11,120	
/ lb BOD5 Removed)	**0.60**		Observed Yield	0.375	lbs VSS / lb BOD_5		
Decay Coefficient	**0.06**	/day					
Mean Cell Residence Time	**10**	days	VSS Produced			4,170	
Sludge Production due to Nitrification			**Sludge Production due to Nitrification**				
Yield Coefficient (lb NVSS Produced			Ammonia-N Removed			1,392	
/ lb Ammonia Oxidized)	**0.15**		Observed Yield	0.100	lbs VSS / lb BOD_5		
Decay Coefficient	**0.05**	/day					
Mean Cell Residence Time	10	days	NVSS Produced			139	
			Total Biological Sludge Production				
			Net VSS Produced			4,309	
Volatile Content of MLTSS Produced	**85**	%	Net TSS Produced			5,070	
Sludge Production due to Influent Solids			**Sludge Production due to Influent Solids**				
			Influent ISS			2,138	
…Difference incorportated into sludge			Effluent ISS			60	
			Inf. ISS incorp. Into sludge			2,078	
			Influent ISS fraction in sludge	97.2%			
			Organic-N				
			Organic-N Remaining after Solub.			22	
… Assume same ratio as ISS			Organic -N incorported into sludge			22	
			Remaining Organic-N			1	
			Nitrate-N				
			Ammonia-N Nitrified			1,392	
			Conc. Based on Influent Flow	16.0	mg/L		
			Nitrate in WAS			10	
			Organic-P				
			Organic-P Remaining after Solub.			1.1836	
… Assume same ratio as ISS			Organic -P incorported into sludge			1.1505	
			Remaining Organic-P			0.0330	
Waste Activated Sludge			**Waste Activated Sludge**				
… Assume Net TSS is wasted			TSS	20,000	0.0780	13,009	
… Sludge is Wasted from Return Sludge			VSS	9,027	0.0780	5,872	
Percent Solids	**2.000**	%	ISS	10,973	0.0780	7,137	
… Assume Nutrients consumed are incorportated into cell mass.			Total Nitrogen	871	0.0780	567	
			Nitrate-N	16	0.0780	10	
			TKN	856	0.0780	556	
			Ammonia-N	0.1	0.0780	0	
			Organic-N	855	0.0780	556	
			Total-P	962	0.0780	626	
			Ortho-P	0.4	0.0780	0	
			Organic-P	168	0.0780	109	
			Chemical-P	794	0.0780	517	
			Fraction of Nutrients in Sludge:				
			Nitrogen:	4.3%			
			Phosphorus:	4.8%			
			Volatile Content:	45.1%			

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Project: Watertown WWTP
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Input Assumptions				Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}		{C}	{D}	{E}	{F}	{G}
Activated Sludge Parameters				**Activated Sludge Parameters**			
Aeration Basin Volume	**282,000**	ft^3		Aeration Basin Volume	2.110	Million Gallons	
Solids Under Aeration:				Solids Under Aeration:			
MLTSS	7,820	mg/L		MLTSS	137,583	lbs	
MLVSS	3530			MLVSS	62,101	lbs	
				MLVSS Conc	3,530	mg/L	
				Mixed Liquor Volatile Fraction	45.1%		
				Organic Volumetric Loading	41	lb/1000 ft^3	
				F:M Ratio	0.185		
				Mean Cell Residence Time	10.00	days	
Anoxic Selector Parameters							
Anoxic Selector Volume	0.22	MG		Selector HRT	0.5	hours	
				Selector F:M Ratio	1.7		
Aeration System				**Aeration System**			
BOD Oxygen Requirement	**1.1**	lb O_2/ lb BOD rem.		BOD5 Removed		11,120	lbs/day
				BOD5 Oxygen Requirement		12,232	lbs/day
TKN Oygen Requirement	**4.6**	lb O_2/ lb TKN rem.		TKN Removed		1,392	lbs/day
				TKN Oxygen Requirement		6,405	lbs/day
				Total Oxygen Requirement		18,637	lbs/day
				Total NO3-N reduced		0	lbs/day
Oxygen Recovery from Denitrification	**2.86**	lbs O_2/ lb NO_3 reduced		Denitrification Oxygen Credit		0	lbs/day
				Actual Oxygen Requirement		18,637	lbs/day
Return Activated Sludge				**Return Activated Sludge**			
				TSS	20,000	6.577	1,096,960
				VSS	9,027	6.577	495,134
				Vol. Content of Solids		45.1%	
				RAS Ratio		63.5%	
Final Clarifiers				**Final Clarifiers**			
				Secondary Clarifier Influent			
				MLTSS	7,820	17.019	1,109,969
				MLVSS	3,530	17.019	501,005
				Vol. Content of Solids		45.1%	
Clarifier Dimensional Parameters				**Loading Rates**			
Clarifier Diameter	**90**	ft					
No. of Clarifiers	**2**						
Clarifier Depth	**16**	ft					
Total Surface Area	12,723	ft^2		Surface Overflow Rate (SOR)	815	gal/day/ft^2	
Total Weir Length	565	ft		Weir Overflow Rate (WOR)	18,328	gal/day/ft	
Volume	1,522,844	gallons		Solids Loading Rate	87.2	lb/day/ft^2	
				or	3.63	lb/hr/ft^2	

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Event: Design Peak Week
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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Anaerobic Digestion (No Supernating)			**Anaerobic Digestion (No Supernating)**			
Digester Influent			**Digester Influent = WAS + Primary Sludge**			
			TSS	35,000	0.0787	22,959
			VSS	21,086	0.0787	13,832
			ISS	13,914	0.0787	9,127
			Total Nitrogen	1,251	0.0787	821
			Nitrate-N	16	0.0787	10.4
			TKN	1,235	0.0787	810
			Ammonia-N	8	0.0787	5.0
			Organic-N	1,227	0.0787	805
			Total-P	1,185	0.0787	777
			Ortho-P	4	0.0787	2
			Organic-P	394	0.0787	258
			Chemical-P	787	0.0787	517
			Vol. Content of Solids		60.2%	
Removals and Conversions			**Removals and Conversions**			
VSS Destruction			**VSS Destruction**			
VSS Destruction	**50**	%	VSS Destruction			6,916
Gas Production	**15**	ft^3/lb VSS des.	Digester Gas Production		103,742	ft^3 /day
Organic-N Conversion			**Organic-N Conversion**			
Conversion of influent Organic-N	50	%	Influent Organic-N			805
			Organic-N Converted			403
…A portion of the influent Organic-N is converted to Ammonia-N			Organic-N Remaining			403
			Ammonia-N Produced			403
Nitrate-N Conversion			**Nitrate-N Conversion**			
Conversion of influent Nitrate-N	**100**	%	Influent Nitrate-N			10
			Nitrate-N Converted			10
…The influent Nitrate-N is converted to Nitrogen Gas			Nitrate-N Remaining			0
Organic-P Solubilized			**Organic-P Solubilized**			
Conversion of influent Organic-P	50	%	Influent Organic-P			258
			Organic-P Converted			129
…A portion of the influent Organic-P is converted to Ortho-P			Organic-P Remaining			129
			Ortho-P Produced			129
Digested Sludge			**Digested Sludge**			
			TSS	24,457	0.0787	16,043
			VSS	10,543	0.0787	6,916
			ISS	13,914	0.0787	9,127
			Total Nitrogen	1,235	0.0787	810
			Nitrate-N	0	0.0787	0
			TKN	1,235	0.0787	810
			Ammonia-N	621	0.0787	408
			Organic-N	614	0.0787	403
			Total-P	1,185	0.0787	777
			Ortho-P	200	0.0787	131
			Organic-P	197	0.0787	129
			Chemical-P	787	0.0787	517
			Vol. Content of Solids		43.1%	
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.0%		
			Phosphorus:	4.8%		
Digester Dimensional Parameters			**Loading Rates**			
			Digester Influent VS	13,832	lbs/day	
Digester Volume	**79,600**	ft^3	Volatile Solids Loading	0.174	lb VS/day/ft^3	
			or	174	lb VS/ 1000 ft^3 /day	
			Digester Influent Flow Rate	78,655	gpd	
			Digester Volume	595,448	gallons	
			HRT = SRT =	8	days	

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Input Assumptions				Calculations				
	{A}	{B}	{C}	{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Digested Sludge to Centrifuges				**Digested Sludge to Centrifuges**			
				TSS	24,457	0.1966	40,108
				VSS	10,543	0.1966	17,290
				ISS	13,914	0.1966	22,818
				Total Nitrogen	1,235	0.1966	2,025
				Nitrate-N	-	0.1966	-
				TKN	1,235	0.1966	2,025
				Ammonia-N	621	0.1966	1,019
				Organic-N	614	0.1966	1,006
				Total-P	1,185	0.1966	1,943
				Ortho-P	200	0.1966	329
				Organic-P	197	0.1966	323
				Chemical-P	787	0.1966	1,291
				Vol. Content of Solids		43.1%	
Dewatered Digested Sludge				**Dewatered Digested Sludge**			
	Solids Capture	**95**	%				
	Percent Solids	**25.0**	%				
				TS	250,000	0.0183	38,103
				VS	107,773	0.0183	16,426
				ISS	142,227	0.0183	21,677
				Total Nitrogen	3,131	0.0183	477
				Nitrate-N	-	0.0183	-
… Organic-N, Organic-P, and Chemcial-P are assumed to be related to				TKN	3,131	0.0183	477
TSS and assumed to be removed at the same rate.				Ammonia-N	621	0.0183	95
Ammonia-N, Ortho-P are assumed to be soluble.				Organic-N	2,509	0.0183	382
				Total-P	4,225	0.0183	644
				Ortho-P	200	0.0183	31
				Organic-P	805	0.0183	123
				Chemical-P	3,220	0.0183	491
				Vol. Content of Solids		43.1%	
Centrate				**Centrate**			
…Assume that the ratio of the centrate BOD5/VSS							
				BOD5	258	0.1784	384
				Soluble BOD5	2	0.1784	3
				TSS	1,348	0.1784	2,005
				VSS	581	0.1784	865
				ISS	767	0.1784	1,141
				Total Nitrogen	1,041	0.1784	1,548
				Nitrate-N	0	0.1784	0
…Assume that Ortho-P and Ammonia-N concentrations				TKN	1,041	0.1784	1,548
are the same as that in Secondary Effluent.				Ammonia-N	621	0.1784	924
				Organic-N	419	0.1784	624
				Total-P	873	0.1784	1,299
				Ortho-P	200	0.1784	298
				Organic-P	135	0.1784	200
				Chemical-P	538	0.1784	801

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Project: Watertown WWTP
Event: Design Peak Week
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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Washwater			**Washwater**			
…Assume that Secondary Effluent is used for washwater			BOD5	4	0.0358	1.2
			Soluble BOD5	2	0.0358	0.7
			TSS	5	0.0358	1.4
			VSS	4	0.0358	1.2
			ISS	1	0.0358	0.2
			Total Nitrogen	16.6	0.0358	5.0
			Nitrate-N	16.0	0.0358	4.8
			TKN	0.7	0.0358	0.2
			Ammonia-N	0.1	0.0358	0.0
			Organic-N	0.6	0.0358	0.2
			Total-P	0.5	0.0358	0.1
			Ortho-P	0.4	0.0358	0.1
			Organic-P	0.1	0.0358	0.0
Centrifuge Feed Rate	**220**	gpm	… Average Operating Time		14.90	hrs/day
Belt Washwater	**100**	gpm	… Ave. Solids Loading		2,692	lbs/hr
			… Belt Washwater		89,381	gpd
			… Average Operating Time / Week		29.79	hrs/week
Centrate and Washwater			**Centrate and Washwater**			
			BOD5	216	0.043	77
			Soluble BOD5	2	0.043	1
			TSS	1124	0.043	401
			VSS	485	0.043	173
			ISS	639	0.043	228
			Total Nitrogen	870	0.043	311
			Nitrate-N	3	0.043	1
			TKN	867	0.043	310
			Ammonia-N	518	0.043	185
			Organic-N	350	0.043	125
			Total-P	727	0.043	260
			Ortho-P	167	0.043	60
			Organic-P	112	0.043	40
			Chemical-P	538	0.043	192

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Project: Watertown WWTP
Event: Design Peak Day
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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Influent Parameters			**Influent Parameters**			
Flow	**24.000**	MGD				
BOD5	**29,100**	lbs/day	BOD5	145	24.000	29,100
Soluble BOD5	**40**	% of BOD5	Soluble BOD5	58	24.000	11,640
TSS	**44,500**	lbs/day	TSS	222	24.000	44,500
VSS	**80**	% of TSS	VSS	178	24.000	35,600
ISS	**20**	% of TSS	ISS	44	24.000	8,900
TKN	**2,800**	lbs/day	TKN	14.0	24.000	2,800
Ammonia-N	**70**	% of TKN	Ammonia-N	9.8	24.000	1,960
Organic-N	**30**	% of TKN	Organic-N	4.2	24.000	840
Total-P	**710**	lbs/day	Total-P	3.5	24.000	710
Ortho-P	**70**	% of T-P	Ortho-P	2.5	24.000	497
Organic-P	**30**	% of T-P	Organic-P	1.1	24.000	213
Recycle Streams to Pump Station			**Recycle Streams to Pump Station**			
Recycle Stream from Filtrate and Washwater			**Recycle Stream from Filtrate and Washwater**			
			BOD5	186	0.0824	128
			Soluble BOD5	2	0.0824	1
			TSS	1069	0.0824	735
			VSS	533	0.0824	367
			ISS	535	0.0824	368
			TKN	861	0.0824	592
			Ammonia-N	514	0.0824	353
			Organic-N	347	0.0824	238
			Total-P	525	0.0824	361
			Ortho-P	176	0.0824	121
			Organic-P	119	0.0824	82
…Assumed that all Chemical-P is recycled as Ortho-P.			Chemical-P	276	0.0824	189
Preliminary Treatment			**Preliminary Treatment**			
Preliminary Treatment Effluent			**Preliminary Treatment Effluent**			
			BOD5	146	24.082	29,228
…Any removals obtained in the Grit Basins and Fine Screens are negligible.			Soluble BOD5	58	24.082	11,641
			TSS	225	24.082	45,235
			VSS	179	24.082	35,967
			ISS	46	24.082	9,268
			TKN	16.9	24.082	3,392
			Ammonia-N	11.5	24.082	2,313
			Organic-N	5.4	24.082	1,078
			Total-P	5.3	24.082	1,071
			Ortho-P	4.0	24.082	808
			Organic-P	1.5	24.082	295
			Vol. Content of Solids		79.5%	
Waste Activated Sludge to the Primary Clarifiers			**Waste Activated Sludge to the Primary Clarifiers**			
			BOD5	0	0.1283	0
			Soluble BOD5	0	0.1283	0
			TSS	20,000	0.1283	21,395
			VSS	10,470	0.1283	11,201
			ISS	9,530	0.1283	10,194
			Total Nitrogen	917	0.1283	981
			Nitrate-N	9	0.1283	10
			TKN	908	0.1283	971
			Ammonia-N	0	0.1283	0
			Organic-N	908	0.1283	971
			Total-P	651	0.1283	697
			Ortho-P	0	0.1283	0
			Organic-P	175	0.1283	187
			Chemical-P	476	0.1283	510
			Fraction of Nutrients in Sludge:			
			Nitrogen:	4.5%		
			Phosphorus:	3.3%		
			Volatile Content:	52.4%		

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Event: Design Peak Day
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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Treatment			**Primary Treatment**			
Primary Clarifier Influent			**Primary Clarifier Influent (WAS + Preliminary Effluent)**			
			BOD5	145	24.211	29,228
			Soluble BOD5	58	24.211	11,641
			TSS	330	24.211	66,629
			VSS	234	24.211	47,167
			ISS	96	24.211	19,462
			Nitrate-N	5	24.211	971
			TKN	22	24.211	4,363
			Ammonia-N	11	24.211	2,314
			Organic-N	10	24.211	2,049
			Total-P	9	24.211	1,767
			Ortho-P	4	24.211	808
			Organic-P	2	24.211	482
			Chemical-P	3	24.211	510
Clarifier Dimensional Parameters			**Loading Rates**			
Clarifier Diameter	**85**	ft				
No. of Clarifiers	**2**					
Clarifier Depth	**12**	ft				
Total Surface Area	11,349	ft^2	Surface Overflow Rate (SOR)	2,133	$gal/day/ft^2$	
Total Weir Length	534	ft	Weir Overflow Rate (WOR)	45,332	gal/day/ft	
Volume	1,018,755	gallons	Hydraulic Retention Time	1.0	hours	
Primary Clarifier Effluent From Preliminary Effluent			**Primary Clarifier Effluent From Preliminary Effluent**			
BOD5 Removal	**30.0**	%	BOD5	102	24.005	20,460
			Soluble BOD5	58	24.005	11,604
TSS Removal	**50.0**	%	TSS	113	24.005	22,617
			VSS	89	24.005	17,873
			ISS	24	24.005	4,745
TKN Removal: Based on sludge content			TKN	14.1	24.005	2,819
Ammonia Removal	**0**	%	Ammonia-N	11.5	24.005	2,306
			Organic-N	2.6	24.005	513
Total-P Removal: Based on sludge content			Total-P	3.6	24.005	729
Ortho-P Removal	**0**	%	Ortho-P	4.0	24.005	805
			Organic-P	-0.4	24.005	-76.2
			Vol. Content of Solids		79.0%	
Primary Sludge From Preliminary Treatment Effluent			**Primary Sludge From Preliminary Treatment Effluent**			
Percent Solids	**3.50**	%	TSS	35,000	0.0775	22,617
Volatile Content	**80**	% of TSS	VSS	28,000	0.0775	18,094
			ISS	7,000	0.0775	4,523
Nitrogen Content	**2.5**	% of TSS	TKN	887	0.0775	573
			Ammonia-N	12	0.0775	7
			Organic-N	875	0.0775	565
Phosphorus Content	**1.5**	% of TSS	Total-P	529	0.0775	342
			Ortho-P	4	0.0775	3
			Organic-P	525	0.0775	339
			TKN Removal		16.9%	
			Total-P Removal		31.9%	

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Project: Watertown WWTP
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Input Assumptions			Calculations				
	{A}	{B}	{C}	{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Primary Clarifier Effluent From WAS				**Primary Clarifier Effluent From WAS**			
	Total WAS Removal	**100**	%	BOD5	0	0.055	0
				Soluble BOD5	0	0.055	0
				TSS	0	0.055	0
				VSS	0	0.055	0
				ISS	0	0.055	0
				Nitrate-N	0	0.055	0
				TKN	0	0.055	0
				Ammonia-N	0	0.055	0
				Organic-N	0	0.055	0
				Total-P	0	0.055	0
				Ortho-P	0	0.055	0
				Organic-P	0	0.055	0
				Chemical-P	0	0.055	0
				Vol. Content of Solids			
Primary Sludge From WAS				**Primary Sludge From WAS**			
	Percent Solids	**3.50**	%	TSS	35,000	0.0733	21,395
				VSS	18323	0.0733	11,201
				ISS	16677	0.0733	10,194
				Nitrate-N	16	0.0733	10
				TKN	1589	0.0733	971
				Ammonia-N	0	0.0733	0
				Organic-N	1589	0.0733	971
				Total-P	1140	0.0733	697
				Ortho-P	0	0.0733	0
				Organic-P	306	0.0733	187
				Chemical-P	834	0.0733	510
				TKN Removal		100.0%	
				Total-P Removal		100.0%	
Total Primary Clarifier Effluent				**Total Primary Clarifier Effluent**			
				BOD5	102	24.060	20,460
				Soluble BOD5	58	24.060	11,604
				TSS	113	24.060	22,617
				VSS	89	24.060	17,873
				ISS	24	24.060	4,745
				Nitrate-N	0	24.060	0
				TKN	14.0	24.060	2,819
				Ammonia-N	11.5	24.060	2,306
				Organic-N	2.6	24.060	513
				Total-P	3.6	24.060	729
				Ortho-P	4.0	24.060	805
				Organic-P	-0.4	24.060	-76
				Chemical-P	0.0	24.060	0
				Vol. Content of Solids		79.0%	
Total Primary Sludge				**Total Primary Sludge**			
				TSS	35,000	0.1508	44,012
				VSS	23,296	0.1508	29,294
				ISS	11,704	0.1508	14,717
				Nitrate-N	8	0.1508	9.8
				TKN	1,228	0.1508	1,544
				Ammonia-N	6	0.1508	7.5
				Organic-N	1,222	0.1508	1,537
				Total-P	826	0.1508	1,039
				Ortho-P	2	0.1508	3
				Organic-P	419	0.1508	526
				Chemical-P	405	0.1508	510
				TKN Removal		35%	
				Total-P Removal		59%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Treatment - Activated Sludge			**Secondary Treatment - Activated Sludge**			
Aeration Basin Influent			**Aeration Basin Influent**			
			BOD5	102	24.060	20,460
			Soluble BOD5	58	24.060	11,604
			TSS	113	24.060	22,617
			VSS	89	24.060	17,873
			ISS	24	24.060	4,745
			TKN	14.0	24.060	2,819
			Ammonia-N	11.5	24.060	2,306
			Organic-N	2.6	24.060	513
			Total-P	3.6	24.060	729
			Ortho-P	4.0	24.060	805
			Organic-P	-0.4	24.060	-76
			Vol. Content of Solids		79.0%	
Nutrient Conversions						
Organic-N Conversion			**Organic-N Conversion**			
… A portion of the Influent Organic-N is converted to Ammonia-N			Influent Organic-N			513
			Influent Ammonia-N			2,306
Assume Conversion of	**95**	%	Organic-N Converted			487
			Resulting Ammonia-N			2,793
			Remaining Organic-N			26
Organic-P Conversion			**Organic-P Conversion**			
… A portion of the Influent Organic-P is converted to Ortho-P			Influent Organic-P			-76
			Influent Ortho-P			805
Assume Conversion of	**95**	%	Organic-P Converted			-72
			Resulting Ortho-P			733
			Remaining Organic-P			-4
VSS Biodegradation			**VSS Biodegradation**			
… A portion of the Influent VSS is Biodegradable			Influent VSS			17,873
Assumed Biodegradable Fraction	**80**	%	VSS Biodegraded			14,298
… Remaining VSS is incorportated into the Sludge			Non-Biodegradable VSS			3,575
Nutrient Requirements						
Carbonaceous						
… Based on weight ratio of VSS produced			VSS Produced			7,442
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			923
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			186
Nitrification						
… Based on weight ratio of VSS produced			VSS Produced			184
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			23
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			5
			Remaining Ammonia-N			1,848
			Remaining Ortho-P			542
			BOD:N:P Ratio			
			Nutrients Utilized:			
			Influent BOD5			20,460
			Ammonia-N			946
			Ortho-P			191
			Therefore the BOD5:N:P Ratio is:			
			BOD5	100		
			Ammonia-N	4.6		
			Ortho-P	0.9		

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Input Assumptions				Calculations				
	{A}	{B}	{C}	{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}	
Nitrification				**Nitrification**				
				Ammonia-N remaining after satisfying nutrient requirements			1,848	
Ammonia Oxidation		**99.5**	%	Ammonia-N Oxidized; i.e. NO_3-N			1,838	
				Ammonia Remaining			9	
Denitrification				**Denitrification**				
…A portion of the NO3-N is used is converted to nitrogen gas				Ammonia-N Oxidized; i.e. NO_3-N			1,838	
Denitrification		**0**	%	Total NO_3-N reduced			0	
				NO_3-N Remaining			1,838	
Chemical Phosphorus Removal				**Chemical Phosphorus Removal**				
				Ortho-P remaining after satisfying nutrient requirements			542	
Ortho-P Removed		**94.0**	%	Ortho-P Removed			510	
				Ortho-P Remaining			33	
Ferric Chloride Density		**12**	lbs Sol'n/gal					
Iron Content		**0.15**	lbs Fe/lbs Sol'n	Ferric Chloride Contains:	0.4357	lbs $FeCl_3$/lb Sol'n		
Ferric Chloride Dosage		**2.00**	moles Fe to moles Ortho-P	Weight Ratio	3.61	lbs Fe/lb Ortho-P Removed		
				Iron Required	1838	lbs Fe/day		
				Ferric Chloride Required	5337	lbs $FeCl_3$/day		
Dosing approximately 100 gpd of ferric chloride					1021	gal $FeCl_3$/day		
Solids Produced Due to Chemical Precipitation				**Solids Produced Due to Chemical Precipitation**				
Ferric Phosphate Produced		4.9	lbs/lb P rem.	Ferric Phosphate Produced			2,481	
Ferric Hydroxide Produced		3.5	lbs/lb P rem.	Ferric Hydroxide Produced			1,758	
				Total Chemical Sludge Produced			4,239	
…Assume that chemcical is added to tail end of the aeration basins and that 100% of the chemical sludge is removed with the biological sludge.				Chemical-P Incorporated Into Sludge			510	
Secondary Effluent				**Secondary Effluent**				
BOD5 Removal		**97**	%	BOD5	3	23.932	614	
				Soluble BOD5	2	23.932	348	
TSS Removal		**96**	%	TSS	5	23.932	905	
				VSS	4	23.932	769	
				ISS	1	23.932	136	
				Total Nitrogen	9.8	23.932	1,951	
				Nitrate-N	9.2	23.932	1,829	
				TKN	0.6	23.932	122	
				Ammonia-N	0.0	23.932	9	
Organic-N		12.4	% of TSS + Inf. Fraction	Organic-N	0.6	23.932	113	
				Total-P	0.3	23.932	55	
				Ortho-P	0.2	23.932	33	
Organic-N		2.5	% of TSS + Inf. Fraction	Organic-P	0.1	23.932	23	
				Vol. Content of Solids		85.0%		

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)	
{A}	{B}	{C}	{D}	{E}	{F}	{G}	
Secondary Sludge			**Secondary Sludge**				
Sludge Production due to BOD Removal			**Sludge Production due to BOD Removal**				
Yield Coefficient (lb VSS Produced			BOD5 Removed			19,846	
/ lb BOD5 Removed)	**0.60**		Observed Yield	0.375	lbs VSS / lb BOD_5		
Decay Coefficient	**0.06**	/day					
Mean Cell Residence Time	**10**	days	VSS Produced			7,442	
Sludge Production due to Nitrification			**Sludge Production due to Nitrification**				
Yield Coefficient (lb NVSS Produced			Ammonia-N Removed			1,838	
/ lb Ammonia Oxidized)	**0.15**		Observed Yield	0.100	lbs VSS / lb BOD_5		
Decay Coefficient	**0.05**	/day					
Mean Cell Residence Time	10	days	NVSS Produced			184	
			Total Biological Sludge Production				
			Net VSS Produced			7,626	
Volatile Content of MLTSS Produced	**85**	%	Net TSS Produced			8,972	
Sludge Production due to Influent Solids			**Sludge Production due to Influent Solids**				
			Influent ISS			4,745	
…Difference incorportated into sludge			Effluent ISS			136	
			Inf. ISS incorp. Into sludge			4,609	
			Influent ISS fraction in sludge	97.1%			
			Organic-N				
			Organic-N Remaining after Solub.			26	
… Assume same ratio as ISS			Organic -N incorported into sludge			25	
			Remaining Organic-N			1	
			Nitrate-N				
			Ammonia-N Nitrified			1,838	
			Conc. Based on Influent Flow	9.2	mg/L		
			Nitrate in WAS			10	
			Organic-P				
			Organic-P Remaining after Solub.			-3.8090	
… Assume same ratio as ISS			Organic -P incorported into sludge			-3.7001	
			Remaining Organic-P			-0.1089	
Waste Activated Sludge			**Waste Activated Sludge**				
… Assume Net TSS is wasted			TSS	20,000	0.1283	21,395	
… Sludge is Wasted from Return Sludge			VSS	10,470	0.1283	11,201	
Percent Solids	**2.000**	%	ISS	9,530	0.1283	10,194	
… Assume Nutrients consumed are incorportated into cell mass.			Total Nitrogen	917	0.1283	981	
			Nitrate-N	9	0.1283	10	
			TKN	908	0.1283	971	
			Ammonia-N	0.0	0.1283	0	
			Organic-N	908	0.1283	971	
			Total-P	651	0.1283	697	
			Ortho-P	0.2	0.1283	0	
			Organic-P	175	0.1283	187	
			Chemical-P	476	0.1283	510	
			Fraction of Nutrients in Sludge:				
			Nitrogen:	4.5%			
			Phosphorus:	3.3%			
			Volatile Content:	52.4%			

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Input Assumptions				Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}		{C}	{D}	{E}	{F}	{G}
Activated Sludge Parameters				**Activated Sludge Parameters**			
Aeration Basin Volume	**282,000**	ft^3		Aeration Basin Volume	2.110	Million Gallons	
Solids Under Aeration:				Solids Under Aeration:			
MLTSS	12,996	mg/L		MLTSS	228,634	lbs	
MLVSS	6803			MLVSS	119,695	lbs	
				MLVSS Conc	6,803	mg/L	
				Mixed Liquor Volatile Fraction	52.4%		
				Organic Volumetric Loading	73	lb/1000 ft^3	
				F:M Ratio	0.171		
				Mean Cell Residence Time	10.00	days	
Anoxic Selector Parameters							
Anoxic Selector Volume	0.22	MG		Selector HRT	0.2	hours	
				Selector F:M Ratio	1.6		
Aeration System				**Aeration System**			
BOD Oxygen Requirement	**1.1**	lb O_2/ lb BOD rem.		BOD5 Removed		19,846	lbs/day
				BOD5 Oxygen Requirement		21,830	lbs/day
TKN Oygen Requirement	**4.6**	lb O_2/ lb TKN rem.		TKN Removed		1,838	lbs/day
				TKN Oxygen Requirement		8,456	lbs/day
				Total Oxygen Requirement		30,287	lbs/day
				Total NO3-N reduced		0	lbs/day
Oxygen Recovery from Denitrification	**2.86**	lbs O_2/ lb NO_3 reduced		Denitrification Oxygen Credit		0	lbs/day
				Actual Oxygen Requirement		30,287	lbs/day
Return Activated Sludge				**Return Activated Sludge**			
				TSS	20,000	44.273	7,384,715
				VSS	10,470	44.273	3,866,069
				Vol. Content of Solids		52.4%	
				RAS Ratio		185.0%	
Final Clarifiers				**Final Clarifiers**			
				Secondary Clarifier Influent			
				MLTSS	12,996	68.333	7,406,109
				MLVSS	6,803	68.333	3,877,269
				Vol. Content of Solids		52.4%	
Clarifier Dimensional Parameters				**Loading Rates**			
Clarifier Diameter	**90**	ft					
No. of Clarifiers	**2**						
Clarifier Depth	**16**	ft					
Total Surface Area	12,723	ft^2		Surface Overflow Rate (SOR)	1,881	gal/day/ft^2	
Total Weir Length	565	ft		Weir Overflow Rate (WOR)	42,320	gal/day/ft	
Volume	1,522,844	gallons		Solids Loading Rate	582.1	lb/day/ft^2	
				or	24.25	lb/hr/ft^2	

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Input Assumptions			Calculations				
				CONC	FLOW	MASS
				(mg/L)	(MGD)	(lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Anaerobic Digestion (No Supernating)			**Anaerobic Digestion (No Supernating)**			
Digester Influent			**Digester Influent = WAS + Primary Sludge**			
			TSS	35,000	0.1508	44,012
			VSS	23,296	0.1508	29,294
			ISS	11,704	0.1508	14,717
			Total Nitrogen	1,236	0.1508	1,554
			Nitrate-N	8	0.1508	9.8
			TKN	1,228	0.1508	1,544
			Ammonia-N	6	0.1508	7.5
			Organic-N	1,222	0.1508	1537
			Total-P	826	0.1508	1039
			Ortho-P	2	0.1508	3
			Organic-P	419	0.1508	526
			Chemical-P	405	0.1508	510
			Vol. Content of Solids		66.6%	
Removals and Conversions			**Removals and Conversions**			
VSS Destruction			**VSS Destruction**			
VSS Destruction	**50**	%	VSS Destruction			14,647
Gas Production	**15**	ft^3/lb VSS des.	Digester Gas Production		219,708	ft^3 /day
Organic-N Conversion			**Organic-N Conversion**			
Conversion of influent Organic-N	50	%	Influent Organic-N			1537
			Organic-N Converted			768
…A portion of the influent Organic-N is converted to Ammonia-N			Organic-N Remaining			768
			Ammonia-N Produced			768
Nitrate-N Conversion			**Nitrate-N Conversion**			
Conversion of influent Nitrate-N	**100**	%	Influent Nitrate-N			10
			Nitrate-N Converted			10
…The influent Nitrate-N is converted to Nitrogen Gas			Nitrate-N Remaining			0
Organic-P Solubilized			**Organic-P Solubilized**			
Conversion of influent Organic-P	50	%	Influent Organic-P			526
			Organic-P Converted			263
…A portion of the influent Organic-P is converted to Ortho-P			Organic-P Remaining			263
			Ortho-P Produced			263
Digested Sludge			**Digested Sludge**			
			TSS	23,352	0.1508	29,365
			VSS	11,648	0.1508	14,647
			ISS	11,704	0.1508	14,717
			Total Nitrogen	1,228	0.1508	1,544
			Nitrate-N	0	0.1508	0
			TKN	1,228	0.1508	1,544
			Ammonia-N	617	0.1508	776
			Organic-N	611	0.1508	768
			Total-P	826	0.1508	1,039
			Ortho-P	211	0.1508	266
			Organic-P	209	0.1508	263
			Chemical-P	405	0.1508	510
			Vol. Content of Solids		49.9%	
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.3%		
			Phosphorus:	3.5%		
Digester Dimensional Parameters			**Loading Rates**			
			Digester Influent VS	29,294	lbs/day	
Digester Volume	**79,600**	ft^3	Volatile Solids Loading	0.368	lb VS/day/ft^3	
			or	368	lb VS/ 1000 ft^3 /day	
			Digester Influent Flow Rate	150,777	gpd	
			Digester Volume	595,448	gallons	
			HRT = SRT =	4	days	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Digested Sludge to Centrifuge			**Digested Sludge to Centrifuge**			
			TSS	23,352	0.3769	73,412
			VSS	11,648	0.3769	36,618
			ISS	11,704	0.3769	36,794
			Total Nitrogen	1,228	0.3769	3,860
			Nitrate-N	-	0.3769	-
			TKN	1,228	0.3769	3,860
			Ammonia-N	617	0.3769	1,939
			Organic-N	611	0.3769	1,921
			Total-P	826	0.3769	2,597
			Ortho-P	211	0.3769	665
			Organic-P	209	0.3769	658
			Chemical-P	405	0.3769	1,274
			Vol. Content of Solids		49.9%	
			Dewatered Digested Sludge			
Solids Capture	**95**	%				
Percent Solids	**25.0**	%	TS	250,000	0.0334	69,741
			VS	124,701	0.0334	34,787
			ISS	125,299	0.0334	34,954
			Total Nitrogen	3,233	0.0334	902
… Organic-N, Organic-P, and Chemcial-P are assumed to be related to			Nitrate-N	-	0.0334	-
TSS and assumed to be removed at the same rate.			TKN	3,233	0.0334	902
Ammonia-N, Ortho-P are assumed to be soluble.			Ammonia-N	617	0.0334	172
			Organic-N	2,616	0.0334	730
			Total-P	2,843	0.0334	793
			Ortho-P	211	0.0334	59
			Organic-P	896	0.0334	250
			Chemical-P	1,735	0.0334	484
			Vol. Content of Solids		49.9%	
Centrate			**Centrate**			
…Assume that the ratio of the centrate BOD5/VSS						
			BOD5	223	0.3435	638
			Soluble BOD5	2	0.3435	5
			TSS	1,281	0.3435	3,671
			VSS	639	0.3435	1,831
			ISS	642	0.3435	1,840
			Total Nitrogen	1,033	0.3435	2,958
			Nitrate-N	0	0.3435	0
…Assume that Ortho-P and Ammonia-N concentrations			TKN	1,033	0.3435	2,958
are the same as that in Secondary Effluent.			Ammonia-N	617	0.3435	1,767
			Organic-N	416	0.3435	1,191
			Total-P	630	0.3435	1,803
			Ortho-P	211	0.3435	606
			Organic-P	142	0.3435	408
			Chemical-P	276	0.3435	790

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)	
{A}	{B}	{C}	{D}	{E}	{F}	{G}	
Washwater			**Washwater**				
…Assume that Secondary Effluent is used for washwater			BOD5	3	0.0685	1.8	
			Soluble BOD5	2	0.0685	1.0	
			TSS	5	0.0685	2.6	
			VSS	4	0.0685	2.2	
			ISS	1	0.0685	0.4	
			Total Nitrogen	9.8	0.0685	5.6	
			Nitrate-N	9.2	0.0685	5.2	
			TKN	0.6	0.0685	0.3	
			Ammonia-N	0.0	0.0685	0.0	
			Organic-N	0.6	0.0685	0.3	
			Total-P	0.3	0.0685	0.2	
			Ortho-P	0.2	0.0685	0.1	
			Organic-P	0.1	0.0685	0.1	
Centrifuge Feed Rate	**220**	gpm	… Average Operating Time	28.56	hrs/day		
Belt Washwater	**100**	gpm	… Ave. Solids Loading	2,571	lbs/hr		
			… Belt Washwater	171,338	gpd		
			… Average Operating Time / Week	57.11	hrs/week		
Centrate and Washwater			**Centrate and Washwater**				
			BOD5	186	0.082	128	
			Soluble BOD5	2	0.082	1	
			TSS	1069	0.082	735	
			VSS	533	0.082	367	
			ISS	535	0.082	368	
			Total Nitrogen	862	0.082	593	
			Nitrate-N	2	0.082	1	
			TKN	861	0.082	592	
			Ammonia-N	514	0.082	353	
			Organic-N	347	0.082	238	
			Total-P	525	0.082	361	
			Ortho-P	176	0.082	121	
			Organic-P	119	0.082	82	
			Chemical-P	276	0.082	189	

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Project: Watertown WWTP
Event: Design Peak Hour
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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Influent Parameters			**Influent Parameters**			
Flow	**27.000**	MGD				
BOD5	**29,100**	lbs/day	BOD5	129	27.000	29,100
Soluble BOD5	**40**	% of BOD5	Soluble BOD5	52	27.000	11,640
TSS	**44,500**	lbs/day	TSS	198	27.000	44,500
VSS	**80**	% of TSS	VSS	158	27.000	35,600
ISS	**20**	% of TSS	ISS	40	27.000	8,900
TKN	**2,800**	lbs/day	TKN	12.4	27.000	2,800
Ammonia-N	**70**	% of TKN	Ammonia-N	8.7	27.000	1,960
Organic-N	**30**	% of TKN	Organic-N	3.7	27.000	840
Total-P	**710**	lbs/day	Total-P	3.2	27.000	710
Ortho-P	**70**	% of T-P	Ortho-P	2.2	27.000	497
Organic-P	**30**	% of T-P	Organic-P	0.9	27.000	213
Recycle Streams to Pump Station			**Recycle Streams to Pump Station**			
Recycle Stream from Filtrate and Washwater			**Recycle Stream from Filtrate and Washwater**			
			BOD5	186	0.0824	128
			Soluble BOD5	2	0.0824	1
			TSS	1069	0.0824	735
			VSS	533	0.0824	367
			ISS	536	0.0824	368
			TKN	860	0.0824	591
			Ammonia-N	514	0.0824	353
			Organic-N	347	0.0824	238
			Total-P	525	0.0824	361
			Ortho-P	176	0.0824	121
			Organic-P	119	0.0824	82
…Assumed that all Chemical-P is recycled as Ortho-P.			Chemical-P	276	0.0824	190
Preliminary Treatment			**Preliminary Treatment**			
Preliminary Treatment Effluent			**Preliminary Treatment Effluent**			
			BOD5	129	27.082	29,228
…Any removals obtained in the Grit Basins and			Soluble BOD5	52	27.082	11,641
Fine Screens are negligible.			TSS	200	27.082	45,235
			VSS	159	27.082	35,967
			ISS	41	27.082	9,268
			TKN	15.0	27.082	3,391
			Ammonia-N	10.2	27.082	2,313
			Organic-N	4.8	27.082	1,078
			Total-P	4.7	27.082	1,071
			Ortho-P	3.6	27.082	808
			Organic-P	1.3	27.082	295
			Vol. Content of Solids		79.5%	
Waste Activated Sludge to the Primary Clarifiers			**Waste Activated Sludge to the Primary Clarifiers**			
			BOD5	0	0.1283	0
			Soluble BOD5	0	0.1283	0
			TSS	20,000	0.1283	21,396
			VSS	10,470	0.1283	11,201
			ISS	9,530	0.1283	10,196
			Total Nitrogen	916	0.1283	980
			Nitrate-N	8	0.1283	9
			TKN	908	0.1283	971
			Ammonia-N	0	0.1283	0
			Organic-N	908	0.1283	971
			Total-P	651	0.1283	697
			Ortho-P	0	0.1283	0
			Organic-P	175	0.1283	187
			Chemical-P	476	0.1283	510
			Fraction of Nutrients in Sludge:			
			Nitrogen:	4.5%		
			Phosphorus:	3.3%		
			Volatile Content:	52.3%		

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Project: Watertown WWTP
Event: Design Peak Hour
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Input Assumptions			Calculations			
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Primary Treatment			**Primary Treatment**			
Primary Clarifier Influent			**Primary Clarifier Influent (WAS + Preliminary Effluent)**			
			BOD5	129	27.211	29,228
			Soluble BOD5	51	27.211	11,641
			TSS	294	27.211	66,631
			VSS	208	27.211	47,167
			ISS	86	27.211	19,464
			Nitrate-N	4	27.211	971
			TKN	19	27.211	4,362
			Ammonia-N	10	27.211	2,313
			Organic-N	9	27.211	2,049
			Total-P	8	27.211	1,768
			Ortho-P	4	27.211	808
			Organic-P	2	27.211	482
			Chemical-P	2	27.211	510
Clarifier Dimensional Parameters			**Loading Rates**			
Clarifier Diameter	**85**	ft				
No. of Clarifiers	**2**					
Clarifier Depth	**12**	ft				
Total Surface Area	11,349	ft^2	Surface Overflow Rate (SOR)	2,398	$gal/day/ft^2$	
Total Weir Length	534	ft	Weir Overflow Rate (WOR)	50,950	gal/day/ft	
Volume	1,018,755	gallons	Hydraulic Retention Time	0.9	hours	
Primary Clarifier Effluent From Preliminary Effluent			**Primary Clarifier Effluent From Preliminary Effluent**			
BOD5 Removal	**30.0**	%	BOD5	91	27.005	20,459
			Soluble BOD5	52	27.005	11,608
TSS Removal	**50.0**	%	TSS	100	27.005	22,617
			VSS	79	27.005	17,873
			ISS	21	27.005	4,745
TKN Removal: Based on sludge content			TKN	12.5	27.005	2,819
Ammonia Removal	**0**	%	Ammonia-N	10.2	27.005	2,306
			Organic-N	2.3	27.005	513
Total-P Removal: Based on sludge content			Total-P	3.2	27.005	729
Ortho-P Removal	**0**	%	Ortho-P	3.6	27.005	805
			Organic-P	-0.3	27.005	-76.2
			Vol. Content of Solids		79.0%	
Primary Sludge From Preliminary Treatment Effluent			**Primary Sludge From Preliminary Treatment Effluent**			
Percent Solids	**3.50**	%	TSS	35,000	0.0775	22,617
Volatile Content	**80**	% of TSS	VSS	28,000	0.0775	18,094
			ISS	7,000	0.0775	4,523
Nitrogen Content	**2.5**	% of TSS	TKN	885	0.0775	572
			Ammonia-N	10	0.0775	7
			Organic-N	875	0.0775	565
Phosphorus Content	**1.5**	% of TSS	Total-P	529	0.0775	342
			Ortho-P	4	0.0775	2
			Organic-P	525	0.0775	339
			TKN Removal		16.9%	
			Total-P Removal		31.9%	

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Input Assumptions			Calculations				
	{A}	{B}	{C}		{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Primary Clarifier Effluent From WAS				**Primary Clarifier Effluent From WAS**			
Total WAS Removal		**100**	%	BOD5	0	0.055	0
				Soluble BOD5	0	0.055	0
				TSS	0	0.055	0
				VSS	0	0.055	0
				ISS	0	0.055	0
				Nitrate-N	0	0.055	0
				TKN	0	0.055	0
				Ammonia-N	0	0.055	0
				Organic-N	0	0.055	0
				Total-P	0	0.055	0
				Ortho-P	0	0.055	0
				Organic-P	0	0.055	0
				Chemical-P	0	0.055	0
				Vol. Content of Solids			
Primary Sludge From WAS				**Primary Sludge From WAS**			
Percent Solids		**3.50**	%	TSS	35,000	0.0733	21,396
				VSS	18322	0.0733	11,201
				ISS	16678	0.0733	10,196
				Nitrate-N	14	0.0733	9
				TKN	1589	0.0733	971
				Ammonia-N	0	0.0733	0
				Organic-N	1588	0.0733	971
				Total-P	1140	0.0733	697
				Ortho-P	0	0.0733	0
				Organic-P	306	0.0733	187
				Chemical-P	834	0.0733	510
				TKN Removal		100.0%	
				Total-P Removal		100.0%	
Total Primary Clarifier Effluent				**Total Primary Clarifier Effluent**			
				BOD5	91	27.060	20,459
				Soluble BOD5	51	27.060	11,608
				TSS	100	27.060	22,617
				VSS	79	27.060	17,873
				ISS	21	27.060	4,745
				Nitrate-N	0	27.060	0
				TKN	12.5	27.060	2,819
				Ammonia-N	10.2	27.060	2,306
				Organic-N	2.3	27.060	513
				Total-P	3.2	27.060	729
				Ortho-P	3.6	27.060	805
				Organic-P	-0.3	27.060	-76
				Chemical-P	0.0	27.060	0
				Vol. Content of Solids		79.0%	
Total Primary Sludge				**Total Primary Sludge**			
				TSS	35,000	0.1508	44,013
				VSS	23,295	0.1508	29,294
				ISS	11,705	0.1508	14,719
				Nitrate-N	7	0.1508	8.7
				TKN	1,227	0.1508	1,543
				Ammonia-N	5	0.1508	6.7
				Organic-N	1,222	0.1508	1,536
				Total-P	826	0.1508	1,038
				Ortho-P	2	0.1508	2
				Organic-P	419	0.1508	526
				Chemical-P	405	0.1508	510
				TKN Removal		35%	
				Total-P Removal		59%	

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Secondary Treatment - Activated Sludge			**Secondary Treatment - Activated Sludge**			
Aeration Basin Influent			**Aeration Basin Influent**			
			BOD5	91	27.060	20,459
			Soluble BOD5	51	27.060	11,608
			TSS	100	27.060	22,617
			VSS	79	27.060	17,873
			ISS	21	27.060	4,745
			TKN	12.5	27.060	2,819
			Ammonia-N	10.2	27.060	2,306
			Organic-N	2.3	27.060	513
			Total-P	3.2	27.060	729
			Ortho-P	3.6	27.060	805
			Organic-P	-0.3	27.060	-76
			Vol. Content of Solids		79.0%	
Nutrient Conversions						
Organic-N Conversion			**Organic-N Conversion**			
… A portion of the Influent Organic-N is converted to Ammonia-N			Influent Organic-N			513
			Influent Ammonia-N			2,306
Assume Conversion of	**95**	%	Organic-N Converted			487
			Resulting Ammonia-N			2,794
			Remaining Organic-N			26
Organic-P Conversion			**Organic-P Conversion**			
… A portion of the Influent Organic-P is converted to Ortho-P			Influent Organic-P			-76
			Influent Ortho-P			805
Assume Conversion of	**95**	%	Organic-P Converted			-72
			Resulting Ortho-P			733
			Remaining Organic-P			-4
VSS Biodegradation			**VSS Biodegradation**			
… A portion of the Influent VSS is Biodegradable			Influent VSS			17,873
Assumed Biodegradable Fraction	**80**	%	VSS Biodegraded			14,298
… Remaining VSS is incorportated into the Sludge			Non-Biodegradable VSS			3,575
Nutrient Requirements						
Carbonaceous						
… Based on weight ratio of VSS produced			VSS Produced			7,442
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			923
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			186
Nitrification						
… Based on weight ratio of VSS produced			VSS Produced			184
Nitrogen Req'd as Ammonia-N	**12.4**	%	Ammonia-N Req'd			23
Phosphorus Req'd as Ortho-P	**2.5**	%	Ortho-P Req'd			5
			Remaining Ammonia-N			1,848
			Remaining Ortho-P			542
			BOD:N:P Ratio			
			Nutrients Utilized:			
			Influent BOD5			20,459
			Ammonia-N			946
			Ortho-P			191
			Therefore the BOD5:N:P Ratio is:			
			BOD5	100		
			Ammonia-N	4.6		
			Ortho-P	0.9		

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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Nitrification			**Nitrification**			
			Ammonia-N remaining after satisfying nutrient requirements			1,848
Ammonia Oxidation	**99.5**	%	Ammonia-N Oxidized; i.e. NO_3-N			1,839
			Ammonia Remaining			9
Denitrification			**Denitrification**			
…A portion of the NO3-N is used is converted to nitrogen gas			Ammonia-N Oxidized; i.e. NO_3-N			1,839
Denitrification	**0**	%	Total NO_3-N reduced			0
			NO_3-N Remaining			1,839
Chemical Phosphorus Removal			**Chemical Phosphorus Removal**			
			Ortho-P remaining after satisfying nutrient requirements			542
Ortho-P Removed	**94.0**	%	Ortho-P Removed			510
			Ortho-P Remaining			33
Ferric Chloride Density	**12**	lbs Sol'n/gal				
Iron Content	**0.15**	lbs Fe/lbs Sol'n	Ferric Chloride Contains:	0.4357	lbs $FeCl_3$/lb Sol'n	
Ferric Chloride Dosage	**2.00**	moles Fe to moles Ortho-P	Weight Ratio	3.61	lbs Fe/lb Ortho-P Removed	
			Iron Required	1838	lbs Fe/day	
			Ferric Chloride Required	5339	lbs $FeCl_3$/day	
Dosing approximately 100 gpd of ferric chloride				1021	gal $FeCl_3$/day	
Solids Produced Due to Chemical Precipitation			**Solids Produced Due to Chemical Precipitation**			
Ferric Phosphate Produced	4.9	lbs/lb P rem.	Ferric Phosphate Produced			2,482
Ferric Hydroxide Produced	3.5	lbs/lb P rem.	Ferric Hydroxide Produced			1,759
			Total Chemical Sludge Produced			4,241
…Assume that chemcical is added to tail end of the aeration basins and that 100% of the chemical sludge is removed with the biological sludge.			Chemical-P Incorporated Into Sludge			510
Secondary Effluent			**Secondary Effluent**			
BOD5 Removal	**97**	%	BOD5	3	26.932	614
			Soluble BOD5	2	26.932	348
TSS Removal	**96**	%	TSS	4	26.932	905
			VSS	3	26.932	769
			ISS	1	26.932	136
			Total Nitrogen	8.7	26.932	1,952
			Nitrate-N	8.1	26.932	1,830
			TKN	0.5	26.932	122
			Ammonia-N	0.0	26.932	9
Organic-N	12.4	% of TSS + Inf. Fraction	Organic-N	0.5	26.932	113
			Total-P	0.2	26.932	55
			Ortho-P	0.1	26.932	33
Organic-N	2.5	% of TSS + Inf. Fraction	Organic-P	0.1	26.932	23
			Vol. Content of Solids		85.0%	

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Event: Design Peak Hour
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Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)	
{A}	{B}	{C}	{D}	{E}	{F}	{G}	
Secondary Sludge			**Secondary Sludge**				
Sludge Production due to BOD Removal			**Sludge Production due to BOD Removal**				
Yield Coefficient (lb VSS Produced			BOD5 Removed			19,846	
/ lb BOD5 Removed)	**0.60**		Observed Yield	0.375	lbs VSS / lb BOD_5		
Decay Coefficient	**0.06**	/day					
Mean Cell Residence Time	**10**	days	VSS Produced			7,442	
Sludge Production due to Nitrification			**Sludge Production due to Nitrification**				
Yield Coefficient (lb NVSS Produced			Ammonia-N Removed			1,839	
/ lb Ammonia Oxidized)	**0.15**		Observed Yield	0.100	lbs VSS / lb BOD_5		
Decay Coefficient	**0.05**	/day					
Mean Cell Residence Time	10	days	NVSS Produced			184	
			Total Biological Sludge Production				
			Net VSS Produced			7,626	
Volatile Content of MLTSS Produced	**85**	%	Net TSS Produced			8,972	
Sludge Production due to Influent Solids			**Sludge Production due to Influent Solids**				
			Influent ISS			4,745	
…Difference incorportated into sludge			Effluent ISS			136	
			Inf. ISS incorp. Into sludge			4,609	
			Influent ISS fraction in sludge	97.1%			
			Organic-N				
			Organic-N Remaining after Solub.			26	
… Assume same ratio as ISS			Organic -N incorported into sludge			25	
			Remaining Organic-N			1	
			Nitrate-N				
			Ammonia-N Nitrified			1,839	
			Conc. Based on Influent Flow	8.1	mg/L		
			Nitrate in WAS			9	
			Organic-P				
			Organic-P Remaining after Solub.			-3.8098	
… Assume same ratio as ISS			Organic -P incorported into sludge			-3.7008	
			Remaining Organic-P			-0.1090	
Waste Activated Sludge			**Waste Activated Sludge**				
… Assume Net TSS is wasted			TSS	20,000	0.1283	21,396	
… Sludge is Wasted from Return Sludge			VSS	10,470	0.1283	11,201	
Percent Solids	**2.000**	%	ISS	9,530	0.1283	10,196	
… Assume Nutrients consumed are incorportated into cell mass.			Total Nitrogen	916	0.1283	980	
			Nitrate-N	8	0.1283	9	
			TKN	908	0.1283	971	
			Ammonia-N	0.0	0.1283	0	
			Organic-N	908	0.1283	971	
			Total-P	651	0.1283	697	
			Ortho-P	0.1	0.1283	0	
			Organic-P	175	0.1283	187	
			Chemical-P	476	0.1283	510	
			Fraction of Nutrients in Sludge:				
			Nitrogen:	4.5%			
			Phosphorus:	3.3%			
			Volatile Content:	52.3%			

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Input Assumptions				Calculations				
					CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}		{C}	{D}	{E}	{F}	{G}
Activated Sludge Parameters				**Activated Sludge Parameters**			
Aeration Basin Volume	**282,000**	ft^3		Aeration Basin Volume	2.110	Million Gallons	
Solids Under Aeration:				Solids Under Aeration:			
MLTSS	12,997	mg/L		MLTSS	228,651	lbs	
MLVSS	6803			MLVSS	119,695	lbs	
				MLVSS Conc	6,803	mg/L	
				Mixed Liquor Volatile Fraction	52.3%		
				Organic Volumetric Loading	73	lb/1000 ft^3	
				F:M Ratio	0.171		
				Mean Cell Residence Time	10.00	days	
Anoxic Selector Parameters							
Anoxic Selector Volume	0.22	MG		Selector HRT	0.2	hours	
				Selector F:M Ratio	1.6		
Aeration System				**Aeration System**			
BOD Oxygen Requirement	**1.1**	lb O_2/ lb BOD rem.		BOD5 Removed		19,846	lbs/day
				BOD5 Oxygen Requirement		21,830	lbs/day
TKN Oygen Requirement	**4.6**	lb O_2/ lb TKN rem.		TKN Removed		1,839	lbs/day
				TKN Oxygen Requirement		8,458	lbs/day
				Total Oxygen Requirement		30,288	lbs/day
				Total NO3-N reduced		0	lbs/day
Oxygen Recovery from Denitrification	**2.86**	lbs O_2/ lb NO_3 reduced		Denitrification Oxygen Credit		0	lbs/day
				Actual Oxygen Requirement		30,288	lbs/day
Return Activated Sludge				**Return Activated Sludge**			
				TSS	20,000	49.849	8,314,852
				VSS	10,470	49.849	4,352,693
				Vol. Content of Solids		52.3%	
				RAS Ratio		185.1%	
Final Clarifiers				**Final Clarifiers**			
				Secondary Clarifier Influent			
				MLTSS	12,997	76.909	8,336,248
				MLVSS	6,803	76.909	4,363,893
				Vol. Content of Solids		52.3%	
Clarifier Dimensional Parameters				**Loading Rates**			
Clarifier Diameter	**90**	ft					
No. of Clarifiers	**2**						
Clarifier Depth	**16**	ft					
Total Surface Area	12,723	ft^2		Surface Overflow Rate (SOR)	2,117	gal/day/ft^2	
Total Weir Length	565	ft		Weir Overflow Rate (WOR)	47,626	gal/day/ft	
Volume	1,522,844	gallons		Solids Loading Rate	655.2	lb/day/ft^2	
				or	27.30	lb/hr/ft^2	

Applied Technologies, Inc.
Mass Balance Calculations
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Project: Watertown WWTP
Event: Design Peak Hour
Rev. on: 9/25/2024 13:23

Input Assumptions			Calculations				
				CONC	FLOW	MASS
				(mg/L)	(MGD)	(lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Anaerobic Digestion (No Supernating)			**Anaerobic Digestion (No Supernating)**			
Digester Influent			**Digester Influent = WAS + Primary Sludge**			
			TSS	35,000	0.1508	44,013
			VSS	23,295	0.1508	29,294
			ISS	11,705	0.1508	14,719
			Total Nitrogen	1,234	0.1508	1,552
			Nitrate-N	7	0.1508	8.7
			TKN	1,227	0.1508	1,543
			Ammonia-N	5	0.1508	6.7
			Organic-N	1,222	0.1508	1536
			Total-P	826	0.1508	1038
			Ortho-P	2	0.1508	2
			Organic-P	419	0.1508	526
			Chemical-P	405	0.1508	510
			Vol. Content of Solids		66.6%	
Removals and Conversions			**Removals and Conversions**			
VSS Destruction			**VSS Destruction**			
VSS Destruction	**50**	%	VSS Destruction			14,647
Gas Production	**15**	ft^3/lb VSS des.	Digester Gas Production		219,708	ft^3 /day
Organic-N Conversion			**Organic-N Conversion**			
Conversion of influent Organic-N	50	%	Influent Organic-N			1536
			Organic-N Converted			768
…A portion of the influent Organic-N is converted to Ammonia-N			Organic-N Remaining			768
			Ammonia-N Produced			768
Nitrate-N Conversion			**Nitrate-N Conversion**			
Conversion of influent Nitrate-N	**100**	%	Influent Nitrate-N			9
			Nitrate-N Converted			9
…The influent Nitrate-N is converted to Nitrogen Gas			Nitrate-N Remaining			0
Organic-P Solubilized			**Organic-P Solubilized**			
Conversion of influent Organic-P	50	%	Influent Organic-P			526
			Organic-P Converted			263
…A portion of the influent Organic-P is converted to Ortho-P			Organic-P Remaining			263
			Ortho-P Produced			263
Digested Sludge			**Digested Sludge**			
			TSS	23,352	0.1508	29,366
			VSS	11,648	0.1508	14,647
			ISS	11,705	0.1508	14,719
			Total Nitrogen	1,227	0.1508	1,543
			Nitrate-N	0	0.1508	0
			TKN	1,227	0.1508	1,543
			Ammonia-N	616	0.1508	775
			Organic-N	611	0.1508	768
			Total-P	826	0.1508	1,038
			Ortho-P	211	0.1508	266
			Organic-P	209	0.1508	263
			Chemical-P	405	0.1508	510
			Vol. Content of Solids		49.9%	
			Fraction of Nutrients in Sludge:			
			Nitrogen:	5.3%		
			Phosphorus:	3.5%		
Digester Dimensional Parameters			**Loading Rates**			
			Digester Influent VS	29,294	lbs/day	
Digester Volume	**79,600**	ft^3	Volatile Solids Loading	0.368	lb VS/day/ft^3	
			or	368	lb VS/ 1000 ft^3 /day	
			Digester Influent Flow Rate	150,782	gpd	
			Digester Volume	595,448	gallons	
			HRT = SRT =	4	days	

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Mass Balance Calculations
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Project: Watertown WWTP
Event: Design Peak Hour
Rev. on: 9/25/2024 13:23

Input Assumptions				Calculations				
	{A}	{B}	{C}	{D}	CONC (mg/L) {E}	FLOW (MGD) {F}	MASS (lbs/day) {G}
Digested Sludge to Centrifuge				**Digested Sludge to Centrifuge**			
				TSS	23,352	0.3770	73,416
				VSS	11,648	0.3770	36,618
				ISS	11,705	0.3770	36,798
				Total Nitrogen	1,227	0.3770	3,858
				Nitrate-N	-	0.3770	-
				TKN	1,227	0.3770	3,858
				Ammonia-N	616	0.3770	1,937
				Organic-N	611	0.3770	1,921
				Total-P	826	0.3770	2,596
				Ortho-P	211	0.3770	664
				Organic-P	209	0.3770	658
				Chemical-P	405	0.3770	1,274
				Vol. Content of Solids		49.9%	
Dewatered Digested Sludge				**Dewatered Digested Sludge**			
	Solids Capture	**95**	%				
	Percent Solids	**25.0**	%		250,000	0.0335	69,745
					124,694	0.0335	34,787
					125,306	0.0335	34,958
					3,232	0.0335	902
… Organic-N, Organic-P, and Chemcial-P are assumed to be related to					-	0.0335	-
TSS and assumed to be removed at the same rate.					3,232	0.0335	902
Ammonia-N, Ortho-P are assumed to be soluble.					616	0.0335	172
					2,616	0.0335	730
					2,843	0.0335	793
					211	0.0335	59
					896	0.0335	250
					1,736	0.0335	484
						49.9%	
Centrate				**Centrate**			
…Assume that the ratio of the centrate BOD5/VSS				BOD5	222	0.3435	637
				Soluble BOD5	2	0.3435	4
				TSS	1,281	0.3435	3,671
				VSS	639	0.3435	1,831
				ISS	642	0.3435	1,840
				Total Nitrogen	1,032	0.3435	2,956
				Nitrate-N	0	0.3435	0
				TKN	1,032	0.3435	2,956
…Assume that Ortho-P and Ammonia-N concentrations				Ammonia-N	616	0.3435	1,765
are the same as that in Secondary Effluent.				Organic-N	416	0.3435	1,191
				Total-P	629	0.3435	1,803
				Ortho-P	211	0.3435	605
				Organic-P	142	0.3435	408
				Chemical-P	276	0.3435	790

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Mass Balance Calculations
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Project: Watertown WWTP
Event: Design Peak Hour
Rev. on: 9/25/2024 13:23

Input Assumptions			Calculations				
				CONC (mg/L)	FLOW (MGD)	MASS (lbs/day)
{A}	{B}	{C}	{D}	{E}	{F}	{G}
Washwater			**Washwater**			
…Assume that Secondary Effluent is used for washwater			BOD5	3	0.0685	1.6
			Soluble BOD5	2	0.0685	0.9
			TSS	4	0.0685	2.3
			VSS	3	0.0685	2.0
			ISS	1	0.0685	0.3
			Total Nitrogen	8.7	0.0685	5.0
			Nitrate-N	8.1	0.0685	4.7
			TKN	0.5	0.0685	0.3
			Ammonia-N	0.0	0.0685	0.0
			Organic-N	0.5	0.0685	0.3
			Total-P	0.2	0.0685	0.1
			Ortho-P	0.1	0.0685	0.1
			Organic-P	0.1	0.0685	0.1
Centrifuge Feed Rate	**220**	gpm	… Average Operating Time	28.56	hrs/day	
Belt Washwater	**100**	gpm	… Ave. Solids Loading	2,571	lbs/hr	
			… Belt Washwater	171,344	gpd	
			… Average Operating Time / Week	57.11	hrs/week	
Centrate and Washwater			**Centrate and Washwater**			
			BOD5	186	0.082	128
			Soluble BOD5	2	0.082	1
			TSS	1069	0.082	735
			VSS	533	0.082	367
			ISS	536	0.082	368
			Total Nitrogen	862	0.082	592
			Nitrate-N	1	0.082	1
			TKN	860	0.082	591
			Ammonia-N	514	0.082	353
			Organic-N	347	0.082	238
			Total-P	525	0.082	361
			Ortho-P	176	0.082	121
			Organic-P	119	0.082	82
			Chemical-P	276	0.082	190

APPENDIX E
Detailed Cost Estimates

TABLE A-1
Present Worth Evaluation Cost Estimating Criteria
August 2024

Item	Value
Operation and Maintenance Costs (O&M)	
Labor	
Operators/Technicians/Mechanics	$60/hr
Electrical Energy	$0.1/kWh
Annual Maintenance Cost (% of Equipment Cost)	1.0%
Present Worth Analysis	
Interest Rate	2.365%
Present Worth Factors (20 years)	
Present Worth of Salvage Value	0.627
Present Worth of Annual O&M Costs	15.790
Monetary Cost Planning Period	20 Years
Useful Life	
Land	Permanent
Sewers & Force Mains	50 years
Structures & Piping	40 years
Process Equipment, I&C, and Electrical	20 years

TABLE A-2
Chemical Treatment – Ferric Chloride Dosing
Annual Operation and Maintenance Costs

Parameter	Value
Sludge Equipment Annual Usage (hrs)	1,248
Motor Size (HP)	245
Electrical Cost ($/kWh)	$0.10
Annual Power Cost	$30,600
Sludge Polymer Costs ($/lb)	$2.25
Annual Polymer Costs[1]	$45,000
Sludge Disposal Costs ($/yd^3)	$29.15
Annual Sludge Disposal Costs[2]	$87,500
Chemical Addition (gpd)	110
Chemical Costs ($/gal)	$2.75
Annual Chemical Cost[3]	$110,400

1. Based on annual polymer usage of 20,000 lb/yr
2. Based on annual sludge disposal of 3,000 yd^3/yr
3. Based on average chemical addition of 110 gpd

TABLE A-3
Present Worth Evaluation
Disc Filtration System – Construction Cost

Item	Total Cost
Building Excavation and Backfill	$187,000
Filter Building	$781,000
Floc Tank	$62,000
Floc Tank Mixer	$62,000
Filter Feed Pumps	$475,000
Disc Filters	$2,246,000
Site Work (20% of Building and Excavation Costs)	$206,000
Mechanical Piping and Valves (15% of Equipment Costs)	$417,000
I&C (16% of Equipment Costs)	$445,000
Electrical (18% of Equipment Costs)	$501,000
Subtotal	$5,382,000
Contingencies (25%)	$1,346,000
Subtotal Construction Cost	$6,728,000
General Conditions, Bonds, and Insurance (8%)	$538,000
Construction Cost	**$7,226,000**

TABLE A-4
Present Worth Evaluation
Disc Filtration System – Salvage Costs

Item	Initial Cost	Life (Years)	Total Cost
Building Excavation and Backfill	$187,000	-	-
Filter Building	$781,000	40	$390,500
Floc Tank	$62,000	40	$31,000
Floc Tank Mixer	$62,000	20	$31,000
Filter Feed Pumps	$475,000	20	$0
Disc Filters	$2,246,000	20	$0
Site Work	$206,000	40	$103,000
Mechanical Piping and Valves	$417,000	40	$208,500
I&C	$445,000	20	$0
Electrical	$501,000	20	$0
Subtotal of Salvage Value			$733,000
Present Worth of Salvage Value			**$459,300**

TABLE A-5
Present Worth Evaluation
Operation and Maintenance Costs

Item	Disc Filtration System ($/yr)	Chemical Treatment ($/yr)
Electrical Power	$68,000	$31,000
Chemical Addition	$80,000	$110,000
General Maintenance (1% of Equipment Cost)	$22,000	-
Total Annual O&M	$193,000	$141,000
Present Worth Factor (20 years @ 2.365%)	15.79	15.79
Present Worth O&M	**$2,684,000**	**$2,226,000**

APPENDIX F
Public Hearing

THE CITY OF WATERTOWN

LICENSING BOARD MEETING MINUTES

WEDNESDAY, NOVEMBER 13, 2024 AT 4:15 PM

WATERTOWN MUNICIPAL - 106 JONES STREET, WATERTOWN, WI 53094 ROOM 2044

The Licensing Board met on the above date and time in person at the Municipal Building 106 Jones St. in Room 2044 and via Zoom. The following members were present: Mayor McFarland, Ald. Smith, Blanke, Erin Schroeder. Absent was Cheri Martin. Staff present were: Police Chief David Brower, City Attorney Steven Chesebro, and City Clerk Megan Dunneisen. Other members of the public were also present.

1. CALL TO ORDER – Mayor McFarland called the meeting to order at 4:19 pm

2. REVIEW AND APPROVE MINUTES

A. Ald. Blanke made a motion to approve the Licensing Board minutes from September 11, 2024, seconded by Schroeder and carried by unanimous voice vote.

3. BUSINESS

A. Ald. Blanke made a motion to approve the application for a “Class A” Malt and Liquor License from Watertown Liquor Depot LLC DBA Liquor Depot (Hydn Heisel, Agent) located at 1907 Market Way Ste C with conditions of passed inspection from the Police and Fire Departments, seconded by Ald. Smith. Discussion by Ms. Heisel, co-owner Ms. Hobbs, and their representative Attorney Randall including the removal of prior applicant Ashraf Mustafa on the liquor application, business organization, and building lease. Owners are working to get premise ready for inspection and have been in contact with Police and Fire. Motion carried by unanimous voice vote.

B. Schroeder made a motion to approve the application for Temporary "Class B" Wine license from St. Jude Academy Inc at Watertown Moravian Church at 510 Cole St for the St. Jude Academy Benefit Event event on Friday, December 6, 2024 from 6:00 pm to 9:00 pm subject to event staff having a licensed bartender on premise during the event, second by Ald. Smith and carried by unanimous voice vote.

C. Schroder made a motion to convene into closed session pursuant to Wis. Stats. 19.85(1)(b) Considering licensing or discipline of any person licensed by a board or commission or the investigation of charges against such a person, and the taking of formal action on any such matter; provided that the person licensed is given actual notice of an evidentiary hearing which may be held prior to final action being taken and of any meeting at which final action may be taken. The notice shall contain a statement that the person has the right to demand the evidentiary hearing or meeting be held in open session. This closed session does not apply to any such evidentiary hearing or meeting where the person licensed requests that an open session be held to discuss specific licenses: Application for operator license: Jessica L Raatz, seconded by Ald. Blanke and carried by roll call vote of: Yes;4 (Schroeder, Smith, Blanke, McFarland): No;0.

D. Ald. Smith made a motion to reconvene to open session, seconded by Ald. Blanke and carried by unanimous voice vote.

E. Ald. Smith made a motion to deny the application for operator's license from Jessica L Raatz due to Cat. I of the licensing guidelines, seconded by Ald. Blanke and carried by unanimous voice vote.

4. REPORTS

A. Special Events List was presented.

B. Monthly Operator's List was presented.

C. Monthly Police Report was presented – 10 out of 40 establishment failed the underage compliance check – PD offering Bartender Awareness course – a refresher course and a way for establishments to earn points back.

5. ADJOURNMENT Schroeder made a motion to adjourn, seconded by Ald. Blanke and carried by unanimous voice vote at 5:02 pm.

Respectfully submitted,

Megan Dunneisen, City Clerk

Note: These minutes are uncorrected, and any corrections made thereto will be noted in the proceedings at which these minutes are approved.

Watertown Tourism Commission Meeting Minutes November 14, 2024

The following Tourism Commission members were present via Zoom Meeting or in person at Watertown City Hall. Commission Members present; Conrad Talaga, Cheryl Mitchell, Courtney Krause, Melissa Lampe, Steven Board Also present; Chamber of Commerce Executive Director Bonnie Hertel and Tourism Director Robin Kaufmann and Finance Director/Treasurer Mark Stevens.

1. The meeting was called to order by Conrad Talaga at 8:00 a.m.

2. Review & Approve October Minutes. Motion to approve the minutes was made by Melissa Lampe and seconded by Steven Board. The Commission voted to approve the minutes.

3. Old Business:

a. Approve Financial Report: Motion to approve the October financials was made by Steven Board and seconded by Conrad Talaga. The Commission voted to approve the financials.

b. Marketing Plan – review and act on marketing plan.

1. Visitor Guides – Will be noted in discussion on the 2025 Visitor Guide proposal

2. Ad opportunities – No new updates

c. Review and take possible action on mural restoration projects – Nothing new to report.

d. Discuss Hotel stay updates: Final numbers not released yet and will be reported at December meeting. October and November weather has been excellent and construction projects have not stopped. October and November revenue/occupancy will increase over 2023 largely due to construction projects in the area. The last week of November will be slower occupancy due to the Thanksgiving holiday.

e. Discuss and take possible action on number of pages in the 2025 Watertown Tourism Guide.
Motion to approve 5,000 copies of the 20-Page guide at a cost of $4950 was made by Melissa Lampe and seconded by Courtney Krause. The Commission voted to approve the funds for the guide.

f. Discuss and take possible action on Tourism Director salary
Melissa Lampe made a motion to approve a Year-End bonus of $2,000 for the Tourism Director Steven Board seconded and the Commission voted to approve the bonus. Steven Board made a motion to approve the increase in Director's salary. Melissa Lampe seconded the motion and the Commission voted to approve the salary increase.

g. Discuss and take possible action on 2025 budget. The budget is submitted to the Chamber of Commerce in December. Courtney Krause made a motion to approve the 2025 budget with the update to the Tourism Director's salary. Conrad Talaga seconded the motion and the Commission voted to approve the budget.

4. New Business

a. Discuss and take possible action on lodging establishments not complying with room tax requirements. Lodging establishments are required to obtain authorization from the Health Department before being open to rent to the public. The Health Department informs the City Clerk when a lodging establishment requests authorization to operate. A document is available for Lodging establishments to complete each month, showing eligible revenue and room taxes that were collected. The lodging establishment is required to report taxes on eligible revenue and pay those taxes to the City by the 20th of the following month.
If the lodging establishment does not send monthly reports and payments, the City Clerk may follow up with the lodging establishment to request the payment of taxes.

b. Review Manager's report of previous month's task – report attached.

c. Commission members' report - The play "Mouse Trap" will take place at Maranatha Christmas Tree lighting on Saturday 11/16. Jingle Bell on the Rock at Bentzien Town Square 12/7, Play at the Octagon House starting 11/30-12/1. CP Rail Christmas train will stop in Watertown on December 8th. Downtown businesses will participate in Watertown Window Wonderland.

Adjournment – Motion to adjourn the meeting at 9:17 a.m. was made by Conrad Talaga and seconded by Steven Board.

Agenda items:
A reminder from Robin to have all requests for additions to the next meeting's agenda to her by Tuesday, the week before the meeting.
The next meeting will be at 7:45am December 12 2024, via Zoom or you may attend in person at Watertown City Hall
NOTE: These minutes are uncorrected, and any corrections made thereto will be noted in the proceedings at which these minutes are approved.

Submitted by,
Cheryl Mitchell, Secretary

Manager's Report – October

Social Media Report
Facebook: 108 new followers (Post reach 193,778)
Visitwatertownwi.com: 3400 Users – 9096 views
Instagram: 1129 followers

 Regularly posted to social media (Watertown Tourism, Riverfest)
 Represented Tourism at Wake up Watertown
 Attended Main Street Promotions Committee meeting
 Updated event dates on visitwatertownwi.com
 Began planning Jingle Bell on the Rock in partnership with Watertown Main Street and City of Watertown
 Volunteered at Witch's Brew BINGO
 Attended Bentzin Family Town Square Committee meeting
 Continued marketing campaign for extended bridge closure
 Attended Leadership Watertown class
 Visited businesses/events to take photos for future promos:
o Ava's – a posh boutique
o Don's Corner Bar
o Jordy's Bar & Steakhouse
o Zwieg's Grill
o Witch's Brew BINGO
o White Oak Essentials
o Hometown Pharmacy

PARKS, RECREATION & FORESTRY COMMISSION

MINUTES

Monday, November 18, 2024

1. Call to order

The Watertown Parks, Recreation & Forestry Commission met in person on November 18, 2024. The meeting was called to order by Brian Konz. Members present: Brian Konz, Kyle Krueger, Ald. Jonathan Lampe, Julie Chapman, Brad Clark. Not present: Jennifer Clayton and Emily Lessner. Also present: Kristine Butteris, Andrea Draeger, Stephanie Juhl, Ali Nicholson, and Jarrod Folkman.

2. Review and approval of minutes:

Julie Chapman motioned to approve the October 21, 2024 Parks Recreation and Forestry minutes as written. Brad Clark seconded. Motion carried.

Julie Chapman motioned to approve the October 15, 2024 Senior Center Advisory Board minutes as written. Brad Clark seconded. Motion carried.

3. Review and approval of financial reports

Brad Clark motioned to approve the September 2024 financial reports. Kyle Krueger seconded. Motion carried.

4. Citizens to be heard

There were none.

5. Business

A. Review and take action: 2025 aquatic center rentals

Ali Nicholson discussed updated documents for 2025, including new rental guidelines for hours, rental rates (to reflect direct and indirect costs for operating, etc.) in order to maintain the aquatic revenue budget and continue to offer rental options. In the past, a flat rate was offered, which did not cover a significant portion of operating costs for lifeguards, cleaning, maintenance, etc.

Kyle Krueger motioned to approve the 2025 rental documents. Ald. Jonathan Lampe seconded. Motion carried.

B. Review and recommend: lake Victoria plant management

Kristine Butteris discussed letters from citizens requesting city assistance in the treatment of Lake Victoria for health and safety purposes. It is also stated in the letter that treatment of lake weeds and algae would be a benefit to both the 10 homeowners along Lake Victoria and community benefit as there is public access to the area. Treatment of the lake doesn't affect the city access path in a positive or negative manner. Majority of public use of Lake Victoria is for fishing which treatment would undermine. It was recommended that the city not assist in the treatment of Lake Victoria due to limited recreational use by the community and hinderance of use if treatment occurred. Treatment is also not currently within city budget. This request will be tabled.

C. Review and take action: weather cancellation policy

Due to recent changes within the Senior and Community Center's designation as a heating and cooling center and shelter, the weather cancellation policy was altered to simply a cancellation policy. The updated policy now includes all cancellation policies, including program cancellations when the building is enacted as a warming or cooling center or shelter and family assistance center along with clearer guidelines for program cancellations and building closures due to

weather. Ald. Jonathan Lampe motioned to approve the cancellation policies. seconded. Motion carried.

D. Review and recommend: RFP for parks and open spaces plan

The timeline for approval of an RFP for the parks and open spaces plan will be adjusted this week as many were submitted last Friday. The commissioners were asked to assist with grading the RFP options. A special meeting will be arranged for this week to approve the selection.

6. Director's Report:

A. Parks Updates

The Riverside restrooms are not completed at this time as there are issues with the standards of construction.

B. Forestry Updates

A 2025 Urban Forestry grant was not awarded to Watertown due to needs from other communities. There will be a plan for equipment and tree purchases next year.

C. Aquatics Projects Updates

There is cracking with the small slide, though should be covered under warranty.

D. Senior & Community Center Projects Updates

The generator will likely not be installed until spring. The paging system fell into disrepair and are working to replace with health ARPA funds.

E. Programming - recreation

We are in the middle of fall programming, including adult volleyball, men's basketball, little dunkers, wrestling, etc. Mid-season feedback was gathered with good results. There may be a potential for winter soccer clinics and open gym. We are also working on cost analysis to remain competitive and cover costs.

F. Programming – town square

The tree lighting occurred last weekend with good turnout. Coming up is jingle bell on the rock, the holiday train, and stuff the bus event.

G. Programming – senior & enrichment

The radio club will be reclassified as class one per Chiefs Brower and Reynen. The December newsletter is printed – the holiday party is coming up as well as a cookie box and soup fundraiser. There was a good turnout for the Veteran's Day event with support from Glenn's catering. Winter break enrichment is being planned.

H. Programming – aquatics

Water aerobics is going well and winter registration is still available for January sessions. We are halfway through this session of swim lessons. 2025 pool passes will be available in early December. The next lifeguarding class will be available over winter break.

7. Adjournment – Next meeting date December 16, 2024

Kyle Krueger motioned to adjourn the meeting. Julie Chapman seconded. Motion carried.

PARKS, RECREATION & FORESTRY COMMISSION - SPECIAL

MINUTES

Friday, November 22, 2024

1. Call to order

The Watertown Parks, Recreation & Forestry Commission met in person on November 22, 2024. The meeting was called to order by Brad Clark. Members present: Emily Lessner, Kyle Krueger, Ald. Jonathan Lampe, Julie Chapman, Brad Clark. Not present: Brian Kon, Jennifer Clayton. Also present: Kristine Butteris.

2. Business

A. Review and Approve: RFP for Parks and Open Spaces Plan

Kristine Butteris discussed all proposals and listed the top three (HKGi, Rinka, and MSA) from the review committee consisting of Kristine, Jonathan, and Kyle with use of the RFP Evaluation Form. HKGi came in the first spot based on the average of all of our scores. Scores based on Quality, Approach, and Organization. Cost was not taken into consideration.

Kyle Krueger motioned to approve the HKGi proposal. Julie Chapman seconded. Motion carried.

3. Adjournment

Brad Clark motioned to adjourn the meeting. Ald. Jonathan Lampe seconded. Motion carried.

The Site Plan Review Committee met on the above date at 1:30 P.M. in the Council Chambers on the second floor of City Hall. The following members were present: Brian Zirbes, Mike Jacek, Mason Becker, Mike Zitelman Tanya Reynen, Laura Bohlman, Andrew Beyer, Doug Zwieg, Maureen McBroom, and Stacy Winkelman. Mayor Emily McFarland joined virtually.

Also in attendance were Nikki Zimmerman, John Donovan of Bielinski Development, Jason Daye of Excel Engineering, and Scott Kwiecinski of Horizon.

1. **Call to Order**
   The meeting was called to order by Chairperson Brian Zirbes.

2. **Approval of Minutes**
   A. **Review and take action: Site Plan Review Minutes Dated September 9, 2024**
   Motion was made by Doug Zwieg and seconded by Tanya Reynen to approve the minutes as submitted. Unanimously approved.

3. **Business**
   A. **Review and take action: Hunter Oaks Planned Development Amendment**
   John Donovan of Bielinski Development was present to explain the proposal. This entails changes to Area Cb on the General Development Plan approved in June 2024. There are some wetlands in this area, so the site plan and lot layouts had to be revised. Belmont Drive will connect to Steeplechase Drive, 4 lots and a cul de sac have been removed. Items included will be naming of the subdivision to The Enclave, the minimum lot street width will be 45'. Minimum lot width and setbacks have been changed.

   The following was presented by staff:

Building:	No comments.
Fire:	Hydrants shall be no more than 300' apart and no closer than 40' to any building. There needs to be a hydrant at the end of each cul-de-sac. Multifamily area plans will need to be reviewed for standpipes and systems.
Water/Wastewater:	No comments.
Police:	No comments.
Stormwater:	There will be a permit application required for Phase 2. Details will be discussed at that point.
Engineering:	No comments.
Streets and Solid Waste:	No comments.
Zoning:	The plat will be forthcoming at a future date.

Motion made by Doug Zwieg to recommend to Plan Commission with the requirements as set forth by the Fire Department of: Hydrants shall be no more than 300' apart and no closer than 40' to any building; a hydrant at the end of each cul-de-sac; and multifamily area plans will need to be reviewed for standpipes and systems. Seconded by Tanya Reynen. Unanimously approved.

   B. **Review and take action: Site Plan for Lumin Terrace Apartments**
   This is for a proposed apartment complex by The Collective. Scott Kwiecinski from Horizon and Jason Day of Excel Engineering were present to explain the proposed project. This is for a 92-unit multi-family housing project which is part of the Rock River Ridge Development on a 9.3 acre site. There will be 4 different structures three 24-unit buildings and one 120-unit building. There will be a combination of 1, 2, and 3 bedroom units. Parking meets city codes, there will be two trash enclosures and a dog run area as well as a pavilion.

Building:	State plans will be required. Asked about storage. The units are adequately sized. There are no garages or basements. Bike storage and bike racks will be outside.
Fire:	Fire sprinkler systems will require a hydro flush test with gallon per minute, above ceiling and final inspections. The Fire Department will reach out to the applicant with the information on specific items. On page C1.1 of the plans there needs to be 3' of clearance. Knox Boxes will be required, and signs for the system.
Water/Wastewater:	No comments.
Police:	No comments on this build. With the city growth, there may be some additional needed staff at some point.

Stormwater:	No comments. Plans are being reviewed at this time.
Engineering:	Private sewer and water system comments were forwarded by the Water Systems Manager. Verified that this is being resolved. There will be no public dedication to this project. Sidewalk extension timeline will be discussed between Engineering and the applicants.
Streets and Solid Waste:	Private company will be required to pick up the trash and recycling.
Parks:	No comments.
Zoning:	No comments.

Motion made by Maureen McBroom and seconded by Doug to approve with the contingency of items being completed with the Fire Department, as discussed, and state plans being submitted to the Building, Safety and Zoning Department with the building permit application. Unanimously approved.

C. Review and take action: 1911 Gateway Drive Site Plan
This will be postponed to a future meeting, per the applicant's request.

D. Adjournment
Motion was made by Andrew Beyer and seconded by Mike Jacek to adjourn. Unanimously approved.

Respectfully submitted,
Nikki Zimmerman
Recording Secretary

NOTE: These minutes are uncorrected, and any corrections made thereto will be noted in the proceedings at which these minutes are approved.

PLAN COMMISSION
MINUTES
November 25, 2024

The Plan Commission met on the above date in the Council Chambers.

The following members were present: Mayor McFarland, Alderman Blanke, Beyer, Krueger, Lampe, Zirbes

Also in attendance: Deb Reinbold, Joshua Neudorfer, Zoe Neudorfer, Sonja Kruesel of Vandewalle, and Mason Becker

1. **Call to order (4:33pm)**
2. **Approval of Minutes**
   - **A. Plan Commission minutes November 12, 2024**
     Motion to approve Plan Commission minutes from October 28th was made by Krueger and seconded by Lampe, passed on unanimous voice vote.
3. **Business**
   - **A. Presentation and discussion:** Vandewalle Zoning Code Evaluation Memo
     Sonja Kruesel of Vandewalle was in attendance to present the Zoning Code Evaluation Memo to the Plan Commission.
   - **B. Discussion:** City-owned property on HWY A/Milford Street
     Deb Reinbold of Thrive Economic Development and Josh Neudorfer of Sigma were in attendance to present the request for discussion and direction on the city owned property on Milford Street.
     After discussion the commission agreed that the preference is not residential, but that the commission is still open to that possibility. Residential development would require the city to put a large investment in infrastructure for a lesser return.
     The city currently has a lack of industrial space available for development, after further discussion, the commission agreed that this would be a prime candidate for additional industrial development in the city.

All materials discussed at this meeting can be found at:

https://cms4files.revize.com/watertownwi/November%2025,%202024%20Plan%20Commission%20Meeting%20Packet.pdf

4. **Adjournment**
   Motion to adjourn was made by Lampe and seconded by Krueger and passed on a unanimous voice vote. (5:36pm)

Respectfully Submitted,

Alderman Brad Blanke

THE CITY OF WATERTOWN

FINANCE COMMITTEE MEETING MINUTES

MONDAY, NOVEMBER 25, 2024, AT 5:30 PM

MUNICIPAL BUILDING COUNCIL CHAMBERS – 106 JONES STREET, WATERTOWN, WI 53094

Finance Committee members present: Mayor McFarland, Alderpersons Bartz, Davis, Lampe, and Moldenhauer

Others present: Finance Director Stevens, Attorney Chesebro, Fire Chief Reynen, Police Chief Brower (video)

1. Call to order. Mayor McFarland called the meeting to order at 5:41 p.m.
2. Ald. Lampe motioned, seconded by Ald. Moldenhauer, to approve the **finance committee minutes from October 21 and November 19**. Unanimously approved.
3. Chief Brower has three **promotions in the police department**. Ald. Bartz, seconded by Ald. Lampe, motioned to approve the following: Captain Laura Bohlman- G/S P7 ($46.50/hr), Sergeant Mike Hoyt- G/S M9 ($42.00/hr), and Sergeant Raul Nieto- G/S M9 ($2.00/hr). Approved unanimously.
4. The fire department administration presented a list of **EMS accounts with a request to write off balances as uncollectible**. Ald. Moldenhauer moved to approve, seconded by Ald. Lampe, and unanimously approved.
5. Chief Reynen presented a request for **2025 pay assignment for Matt Pieper**, a promotion to Battalion Chief. The request for assignment to N-Adj8 was approved as a motion by Ald. Lample, supported by Ald. Bartz.
6. Chief Reynen has reviewed an existing **MOU with WI DNR** from 2019 for the participation in the suppression of forest fires and provided recommendations for revisions, including the reimbursement expectations on initial fire response on DNR land. Ald. Bartz moved to approve, seconded by Ald. Lampe, and approved by all.
7. The **Mayville EMS Training Center** is requesting an agreement to allow its students to be assigned for training with Watertown Fire Department. Ald. Lampe motioned, supported by Ald. Moldenhauer, to approve this agreement. Approved unanimously.
8. An **Assistance to Firefighter Grant (AFG)** is federally funded through FEMA. The focus this year is to invest in training. An awarded grant will provide 90% of the identified costs; the fire department budget would afford the 10%. A request of approximately $51,000 would help secure certifications in NFPA 1403, CEVO 4 & CEVO 5 Train-the-trainer, and Incident Safety Officer courses. After a motion by Ald. Lampe, seconded by Ald. Moldenhauer, the committee approved the pursuit of this grant.
9. Mayor McFarland provided an update on a **position title change** from Strategic Initiatives and Development Coordinator to **Manager of Economic Development and Strategic Initiatives**. Ald. Lampe voiced his desire to make sure the RDA board has an ability to participate in the processes involving the RDA Executive Director position.
10. **Intrepid Investments** LLC, a partnership of two other companies, has expressed interest in developing residential buildings at both 111 S Water St and a portion of the N First St parking lot. They are seeking a **pre-development agreement** that would grant an exclusivity window on these two parcels until March 1, 2025 with the goal to engage in a formal developer's agreement at that

time. This request was approved unanimously following a motion of Ald. Moldenhauer, seconded by Ald. Bartz.

11. Mr. Stevens reviewed the **General Fund Income Statement through October** noting the timing of the intergovernmental shared tax payment that was received in mid-November and the remaining tax revenue to be posted via an interfund journal entry at year's end.
12. Ald. Moldenhauer moved, supported by Ald. Bartz, to convene into **closed session** per §19.85(c) to consider employment, promotion, compensation or performance evaluation data of any public employee over which the governmental body has jurisdiction or exercises responsibility (**amending union contract with IAFF Local 877 re: vacation scheduling**). Approved unanimously by roll call vote.
13. The Finance Committee reconvened into open session.
14. Minimum staffing levels in the **fire department** from 6 to 7 will be adjusted as of December 1. The addition of staffing the command car is limited to a Battalion Chief (BC) or Lieutenant (LT), which has an impact on the way vacation days are chosen among staff. The MOU, already approved by the union, will help in the **prioritization of vacation selections of BC/LT**. A motion made by Ald. Moldenhauer and seconded by Ald. Lampe approved the requested MOU. Approved by all.
15. Ald. Bartz moved, supported by Ald. Lampe, to convene into closed session per §19.85(1)(e) to deliberate or negotiate the purchasing of public properties, the investing of public funds, or conducting other specified public business, whenever competitive or bargaining reasons require a closed session (**MOU between City and Watertown Public Library**). This was unanimously approved by a roll call vote.
16. The Finance Committee reconvened into open session.
17. **Finance Committee adjournment**. Ald. Bartz moved, seconded by Ald. Lampe, to adjourn the Finance Committee at 6:51 p.m., and carried by unanimous voice vote.

Respectfully submitted,

Mark Stevens, Finance Director

Note: These minutes are uncorrected, and any corrections made thereto will be noted in the proceedings at which these minutes are approved.

PUBLIC SAFETY & WELFARE COMMITTEE

December 4, 2024

5:00 p.m.

1. **CALL TO ORDER**

Members Present	Also in Attendance	Citizens Present
• Dana Davis, Chair • Brad Blanke • Steve Board • Eric Schmid	• Chief David Brower • Andrew Beyer	• Ian Pilak

2.**RECIEVE COMMENTS FROM THE PUBLIC**

Each individual who would like to address the Committee will be permitted up to three minutes for their comments.

There were no comments from the public.

3.**APPROVAL OF MINUTES**

A. Public Safety minutes from November 13, 2024
   - Public Safety Meeting Notes 11.13.24.pdf (0.02 MB)

   MOTION: Motion to approve by Board, second by Schmid and approved unanimously.

4.**BUSINESS**

A. Review and Approve: Special Event- Elks Breakfast with Santa
   - Memo re PSW -Elks Breakfast with Santa.pdf (0.05 MB)
   - 2024-35 Application.pdf (1.31 MB)
   - 2024-35 Map.pdf (0.43 MB)

   MOTION: Motion to approve the Elks Breakfast with Santa by Board, seconded by Schmid and passed unanimously.

B. Review and take possible action: City Park Stop Sign Study
   - 2024.1125_City Park Stop Sign Study.pdf (1.13 MB)
   - **DISCUSSION:** A speed study was performed by Graef to determine if Stop signs are placed at T-intersections near City Parks. The study determined that Stop signs are sometimes placed at T-intersections near parks.
   - The study was performed at the request of the PS&W committee in response to a resident's request for a Stop Sign to be placed at the T-intersection of Willow Creek Parkway and Deer Trail
   - Beyer indicated that a sign would cost about $200 and funds were available in the budget to cover the costs.
   - Schmid voiced some opposition to the placement of a sign. He expressed concern that, without enforcement, the problem may not be resolved, and the stop sign will be ignored.

     MOTION: Davis made a motion, seconded by Board, to place a Stop sign at the T-intersection of Willow Creek Parkway and Deer Trail. The motion passed 3 (Davis/Board/Blanke) to one (Schmid). Beyer indicated that he would advise Graef to end additional work on the study.

C. Review and take possible action: E. Main Street pedestrian crossing safety between Seventh Street & Market Street
   - 2024.1125_E. Main St Pedestrian Safety.pdf (1.13 MB)
   - 01.04.23 Public Safety Minutes.pdf (0.01 MB)
   - Site Map.pdf (1.02 MB)

   DISCUSSION: Recently, an unfortunate accident occurred in this location. Sun glare that impaired the vision of the motorist contributed to the accident. The committee discussed that putting a sign up would not help with the sun glare that is particularly bad at certain times of year. There are plans to put block-style continental crosswalks in this location during the 2028 Main Street Reconstruction.

   NO ACTION TAKEN

D. Review and take possible action: Deer crossing sign request on N. Church Street near Endeavor Drive
   - 2024.1125_Deer Crossing Sign at N Church and Endeavor Drive.pdf (1.16 MB)
   - Site Map.pdf (1.18 MB)
   - Deer Crossing Safety Issue at N. Church Street north of Endeavour Drive to Roundabout 2024.1101.pdf (0.01 MB)

   DISCUSSION: Chief Brower reported on the deer/motorist incidents around the city over the past 10 years. It was determined that there have been a significant number of incidents at this location over the last 10 years. The PS&W committee agreed that the number of deer incidents at this location justifies the addition of 2 deer crossing signs.

   MOTION: Board made a motion to authorize the City Engineer to install two deer crossing signs at this area – one northbound and one southbound -on North Church St. north of Endeavor Drive to the roundabout. The southbound sign will need approval from the county. Motion seconded by Blanke and passed unanimously.

5.**ADJOURN**

There being no additional business to discuss, a motion was made by Blanke and seconded by Schmid to adjourn. The motion passed unanimously.

SITE PLAN REVIEW COMMITTEE
December 9, 2024

The Site Plan Review Committee met on the above date at 1:30 P.M. in the Council Chambers on the second floor of City Hall. The following members were present: Brian Zirbes, Mason Becker, Mike Jacek, Doug Zwieg, Andrew Beyer, Maureen McBroom, Jeff Meloy, Tanya Reynen, and Tim Hayden.

Also in attendance were Nikki Zimmerman, John Donovan of Bielinski Development, and Cory O'Donnell of Loos Homes.

1. **Call to Order**
   The meeting was called to order by Chairperson Brian Zirbes.

2. **Approval of Minutes**
   A. **Review and take action: Site Plan Review Minutes Dated November 25, 2024**
   Motion was made by Doug Zwieg and seconded by Maureen McBroom to approve the minutes as submitted. Unanimously approved.

3. **Business**
   A. **Review and take action: Edge Field Preliminary Plat**
   Cory O'Donnell of Loos Custom Homes was present.

   The following was presented by staff:

Building:	No comments.
Water/Wastewater:	The existing house shall have a water/sewer lateral stubbed to the house for potential of future hookup. As this whole area develops it's fed by 1 water main on Perry Way. Asked if there was a plan to eventually loop this where an additional water main could assist in feeding this area. Mr. O'Donnell stated hopefully future development could include a loop with Milford Street.
Police:	No comments.
Stormwater:	The following items shall be completed: 1. Drainage easements should be wide enough to facilitate installation/maintenance of storm pipe with field inlets in future. a. Between backyards of lots 41-46 and 38-29 b. Between lots 27 and 28-29 c. Between lots 54-48, 24 and 23 and Phase 1/Phase 2 lots to the north d. Between lots 46-48 and lots 24-27 e. Between lots 39-40 and side yards of 38 and 41 2. Minimum 5-foot wide side and rear yard drainage easements should be shown and described for individual lots. 3. Ch. 453, Article III drainage easement restrictions should be listed on the plat. https://ecode360.com/print/WA3515?guid=44974796 4. Ch. 288-18 basement and groundwater considerations should be listed on the plat. https://ecode360.com/29260130?highlight=&searchId=13895991985392228#45010462 5. The preliminary plat approval is contingent on the Erosion Control and Storm Water Runoff Permit review and approval.
Engineering:	GRAEF had the following comments: Survey Comments: 1. 545-13B(1)(b), Provide the name, address, and phone number of the property owner, subdivider, and engineer. 2. 545-13B(2)(e), Add the pavement type, pavement width, and pavement elevation for that portion of CTH A lying south and adjacent to the plat (outside of city limits). 3. 545-13,B(2)(j), Provide the current zoning of lands within the proposed subdivision. 4. 545-13,B(3)(a), Provide the road names for the cul-de-sac and the road

terminating at the South plat line.
5. Confirm the correct vertical datum is listed on the plat, and update accordingly, if needed.

Engineering Comments:
1. 545-13B(2)(g), Provide subsurface soil names, rock, and water conditions, including depth to bedrock and average depth to groundwater table.
2. 545-13B(3)(a), Provide the proposed road widths.
3. 545-13B(3)(c), Provide a draft of proposed covenants, if any, to be imposed.
4. 545-13B(3)(e), Show the required wetland setbacks on the plat.
5. 545-13B(3)(e), Provide a statement from a licensed engineer representing the project that certifies that the technical requirements of City Code § 545 will be met when final engineering design plans (including plans and profiles for public improvements and grading, erosion control, and stormwater management plans) are submitted. Such final engineering design plans shall be submitted and approved by the City Engineer prior to approval of the final plat.
6. 545-13B(2)(h), all final engineering approved plans shall provide the size and invert elevation of any existing sanitary and storm sewers, culverts, or drainpipes and the location and size of any existing water and gas mains on or adjacent to the plat and for proposed use in the development.
7. Show all required drainage easements per City code. 8. Provide information on the plat regarding the location of proposed stormwater best management practices. 9. Provide ownership information about Outlots 1, 2, and 3 on the plat. Indicate if they will be jointly owned by all lots or if a separate entity will own them.

Zoning: Clarify where the stormwater BMP(s) will be located. Is Outlot 2 reserved for a park?
-There is no BMP in this location. Add all road names to the plat.
-Add to the plat a dedication of Milford St / CTH A ROW and a third outlot to include the small remnant property east of the dedicated ROW.
-Add to the plat notes indicating which lots are paired up for twin homes.
-Add subsurface soil, rock, and water conditions including depth to bedrock and average depth to groundwater to the plat.
-Add stormwater BPM locations, drainage easements, drainage restrictions, and basement/groundwater considerations to the plat as detailed at the Site Plan Review Committee.
-Add Airport Approach Protection Zone maximum elevations to the plat.
-Obtain Erosion Control and Storm Water Runoff Permit review and approval.
-Perform a Traffic Impact Analysis on the plat and surrounding area.
-Include an extension of River Road west to Ryan Ridge on the plat to provide a connection to Milford St/CTH A.
-Apply for rezoning of Twin Home lots to Two-Family Residential (TR-6) to run concurrently with Final Plat approval.
-Remove future park designation from Outlot 2.

Fire: Hydrant sizes and locations in the future will need to be seen.

Motion made by Doug Zwieg and seconded by Andrew Beyer to recommend this item to the Plan Commission with the contingencies listed above. Unanimously approved.

B. Review and take action: Hunter Oaks Enclave Preliminary Plat
John Donovan of Bielinski Development was present.

The following was presented by staff:

Building: No comments.

Fire: No comments.

Water/Wastewater: No comments.

Police: No comments.

Stormwater: The following items should be completed:

1. Minimum 5-foot rear and side lot line drainage easements for individual lots should be shown and described on the plat.
   a. Please confirm/explain if side and rear lot line drainage easements are not necessary.

2. The stormwater ponds north and south of Oakland Avenue were constructed in a temporary/interim condition. Permanent improvements to these ponds to meet current stormwater standards are required as part of development of Phase 2 of the Enclave development.

Engineering: Graef had the following comments:

Survey Comments:

1. There appears to be a bust in the exterior boundary; it does not close by approximately 30+ feet.
2. 545-13B(3)(a), Proposed Road “A” should be given its proper name.
3. 545-13B(1)(b), Provide the name and address of the property owner on the plat.
4. 545-13B(2)(i), Verify the current platting status of lands lying east and northeast of plat. They are shown as CSM lots but county parcel mapping shows them as Condo plats.
5. 545-13B(2)(j), Show the existing land use and current zoning information.

Engineering Comments:

1. 545-13B(3)(c), Provide a draft of proposed covenants, if any, to be imposed.
2. 545-13B(2)(d), label the existing alley adjacent to the preliminary plat.
3. 545-13B(3)(e), Provide a statement from a licensed engineer representing the project that certifies that the technical requirements of City Code § 545 will be met when final engineering design plans (including plans and profiles for public improvements and grading, erosion control, and stormwater management plans) are submitted. Such final engineering design plans shall be submitted and approved by the City Engineer prior to approval of the final plat.
4. 545-13B(2)(h), all final engineering approved plans shall provide the size and invert elevation of any existing sanitary and storm sewers, culverts, or drainpipes and the location and size of any existing water and gas mains on or adjacent to the plat and for proposed use in the development.
5. 545 Attachment 2, The City’s minimum right-of-way (ROW) width for Residential (typical) roads is 66 feet. The preliminary plat includes a ROW of 60 feet. Provide a typical cross-section or plan showing the proposed improvements meeting City standards (roadway, curb and gutter, terrace, sidewalk, etc.) will fit within the 60 foot ROW.
6. Show all required drainage easements per City code.

Zoning: -Add minimum Street Frontage of 45 ft per amended PD-GDP/PIP to ‘Site Data Table’.
-Change listed zoning information in ‘Development Summary Table’ to Single-Family Residential with PD Overlay.
-Add subsurface soil, rock, and water conditions including depth to bedrock and average depth to groundwater to the plat.
-Add drainage easements for individual lots to the plat.
-Add a note to the plat that indicates permanent improvements to the existing stormwater ponds meeting current stormwater standards will be completed as part of Phase 2 of the plat.
-Add Airport Approach Protection Zone maximum elevations to the plat.

Motion made by Doug Zwieg and seconded by Tanya Reynen to recommend this item to the Plan Commission with the contingencies listed above. Unanimously approved.

C. Adjournment

Motion was made by Tim Hayden and seconded by Tanya Reynen to adjourn. Unanimously approved.

Respectfully submitted,
Nikki Zimmerman
Recording Secretary

NOTE: These minutes are uncorrected, and any corrections made thereto will be noted in the proceedings at which these minutes are approved.

2024
YEARS OF SERVICE
RECOGNITION FOR

DECEMBER

MARTY LARSON
PUBLIC WORKS, SOLID WASTE DIVISION
5 YEARS

VICTORIA PARKER
HEALTH DEPARTMENT
5 YEARS

Monthly Report

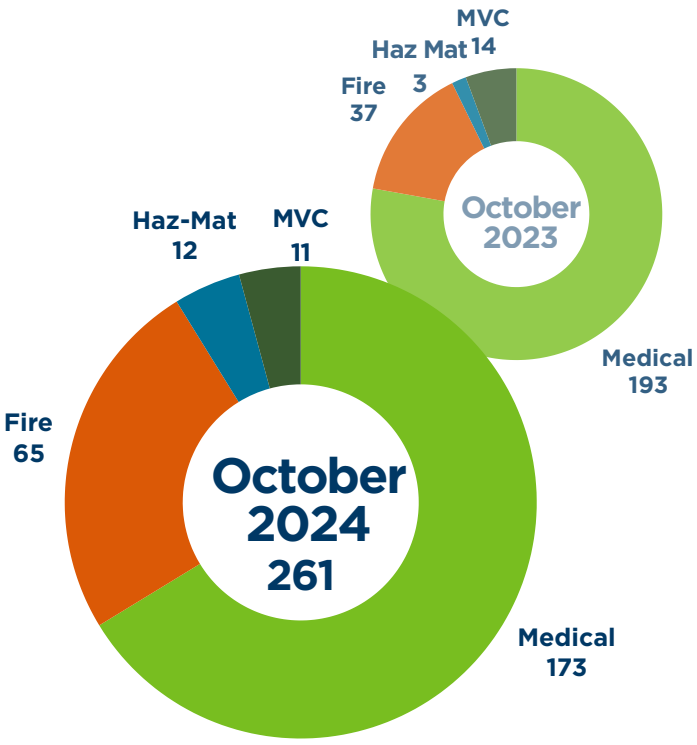
WATERTOWN FIRE DEPARTMENT

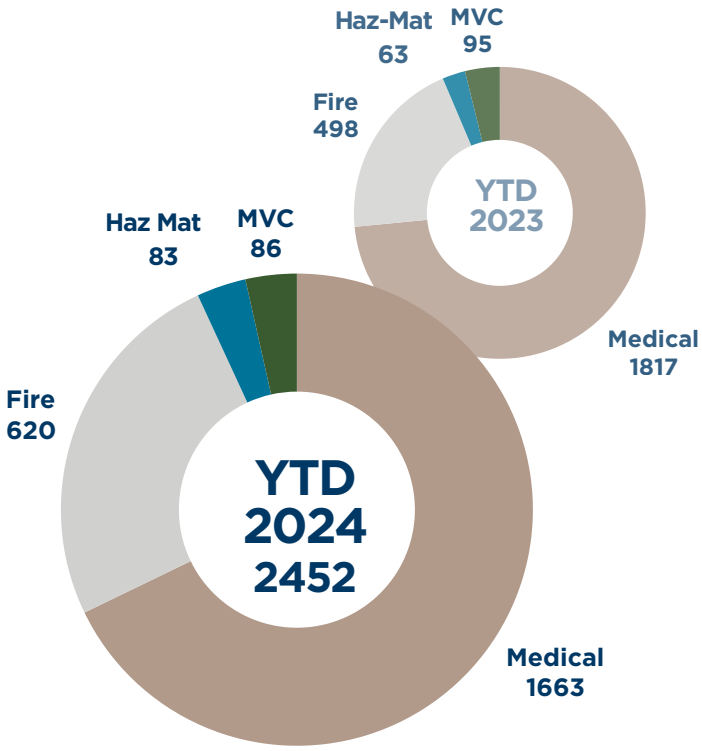
October 2024

Duty, Pride, Service

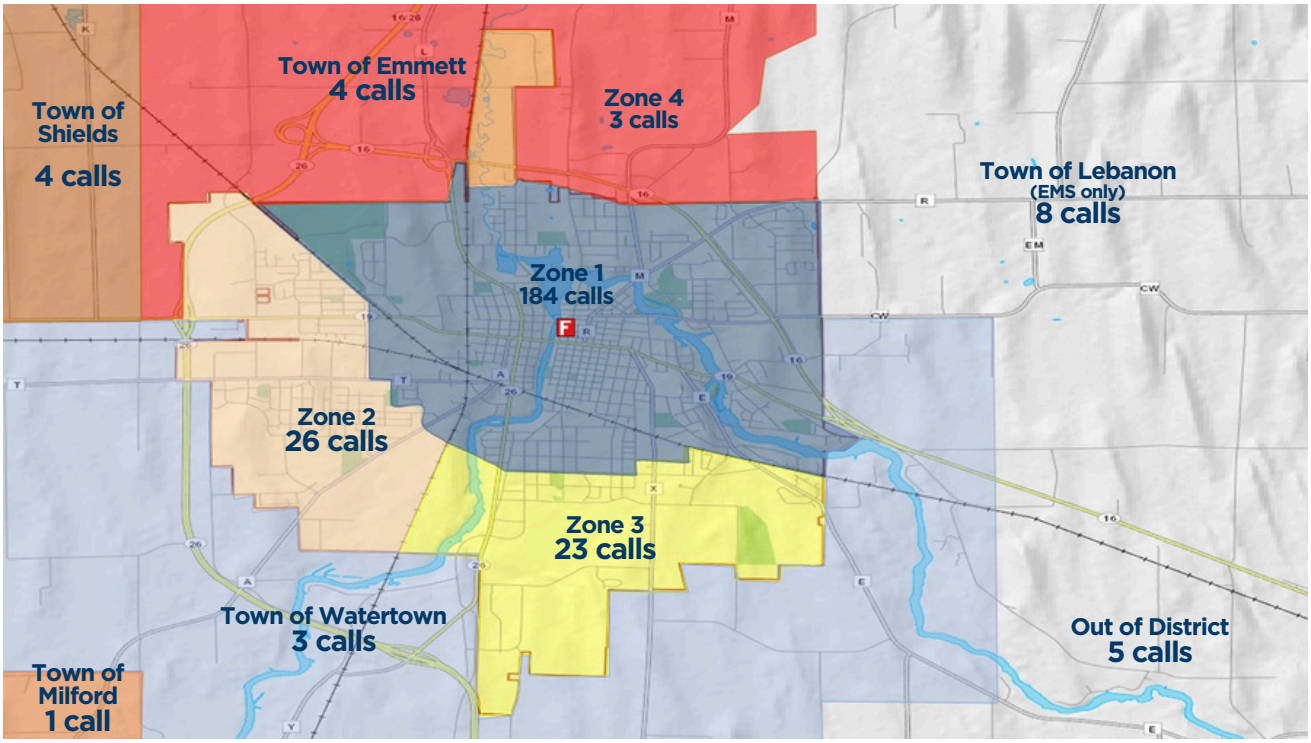
Calls by Type

October Total calls: 261 **Year to Date Total calls: 2444**



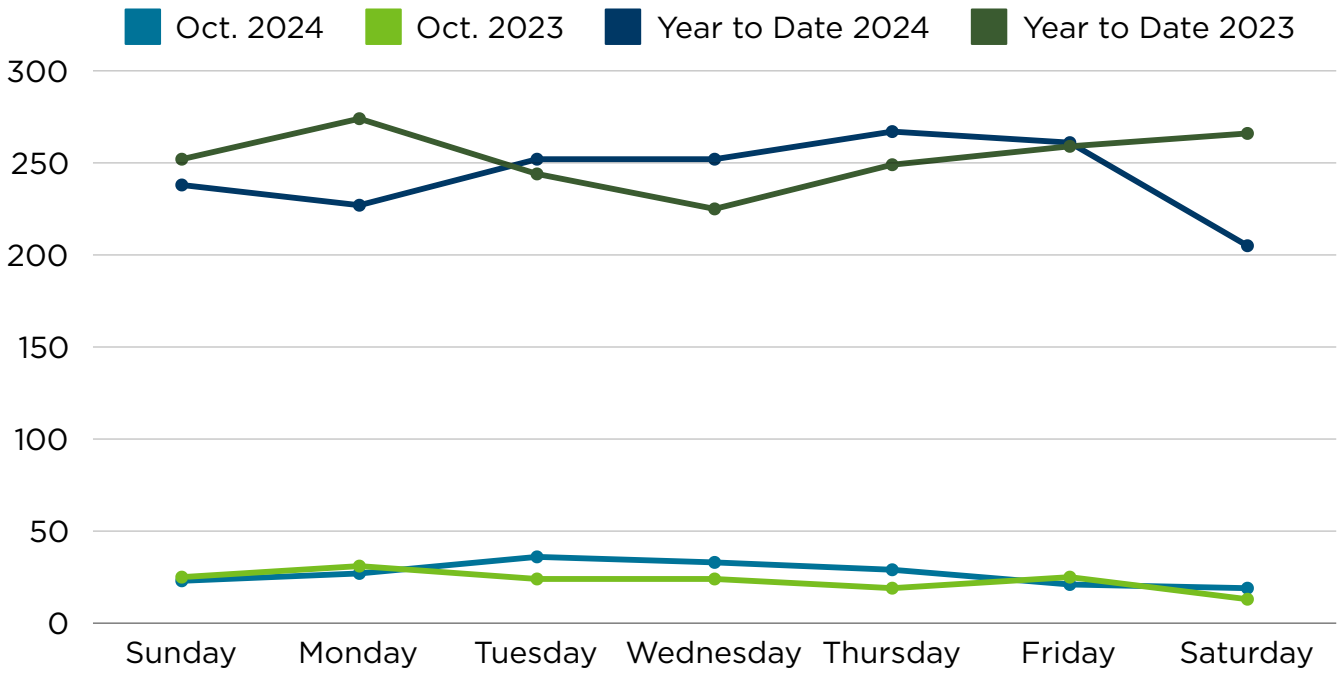


Calls per Zone October

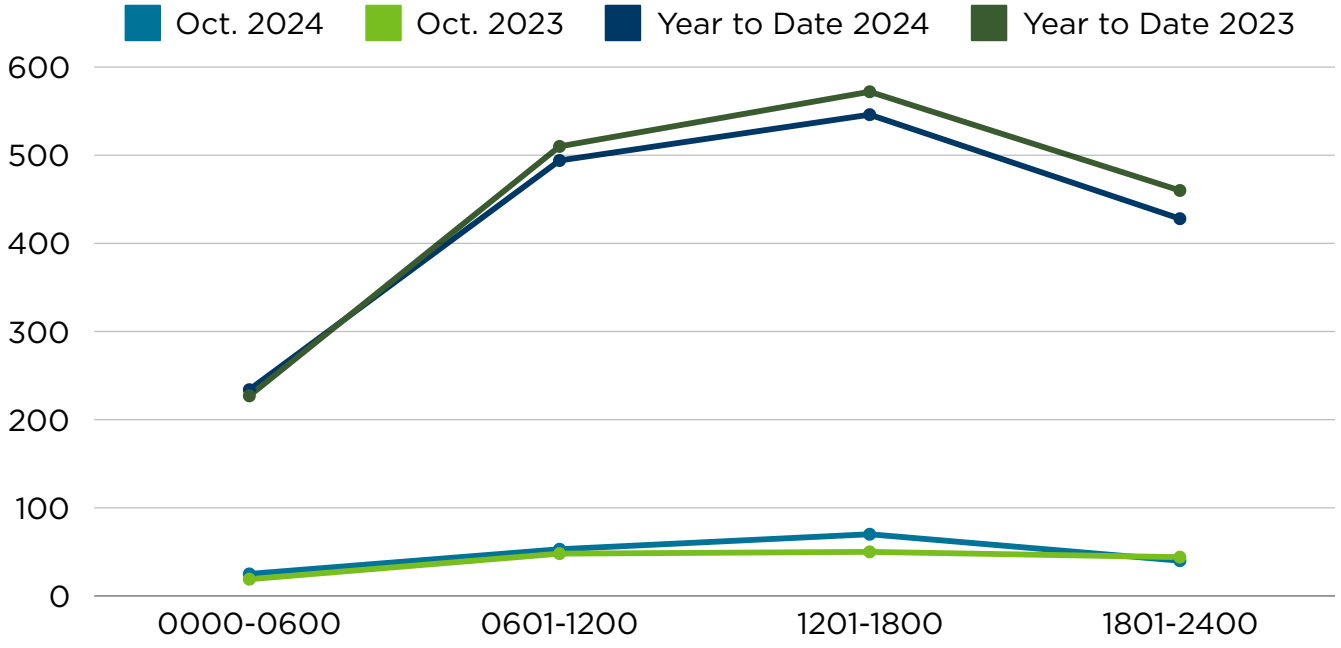


Operational Statistics

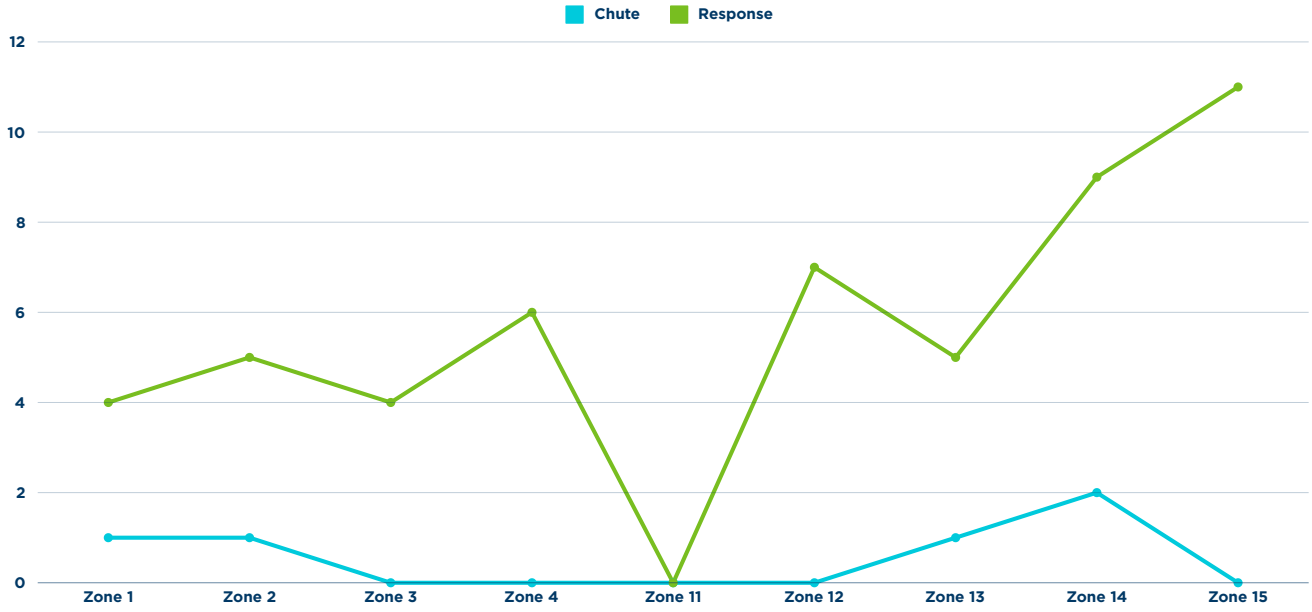
Calls by Day of the Week



Calls by Time of Day



Chute/Response Times By Zone



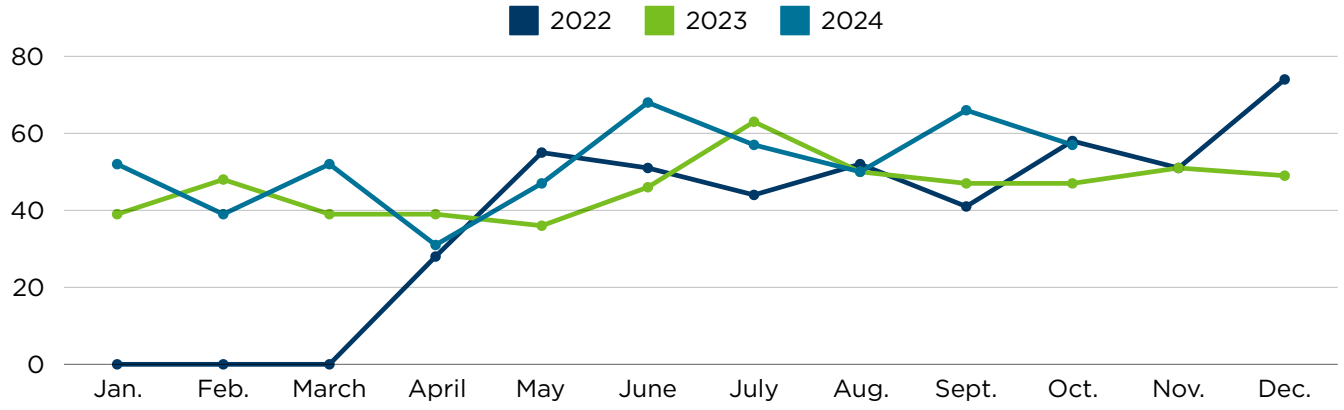
October Fire Saved vs. Loss					
2023			2024		
Saved	Loss	Total Value	Saved	Loss	Total Value
$306,740	$260,000	$307,000	$0	$0	$0
Year to Date Fire Saved vs. Loss					
2023			2024		
Saved	Loss	Total Value	Saved	Loss	Total Value
$2,129,440	$1,258,700	$3,549,400	$1,414,750	$136,750	$1,550,500

*** Information from NFIRS

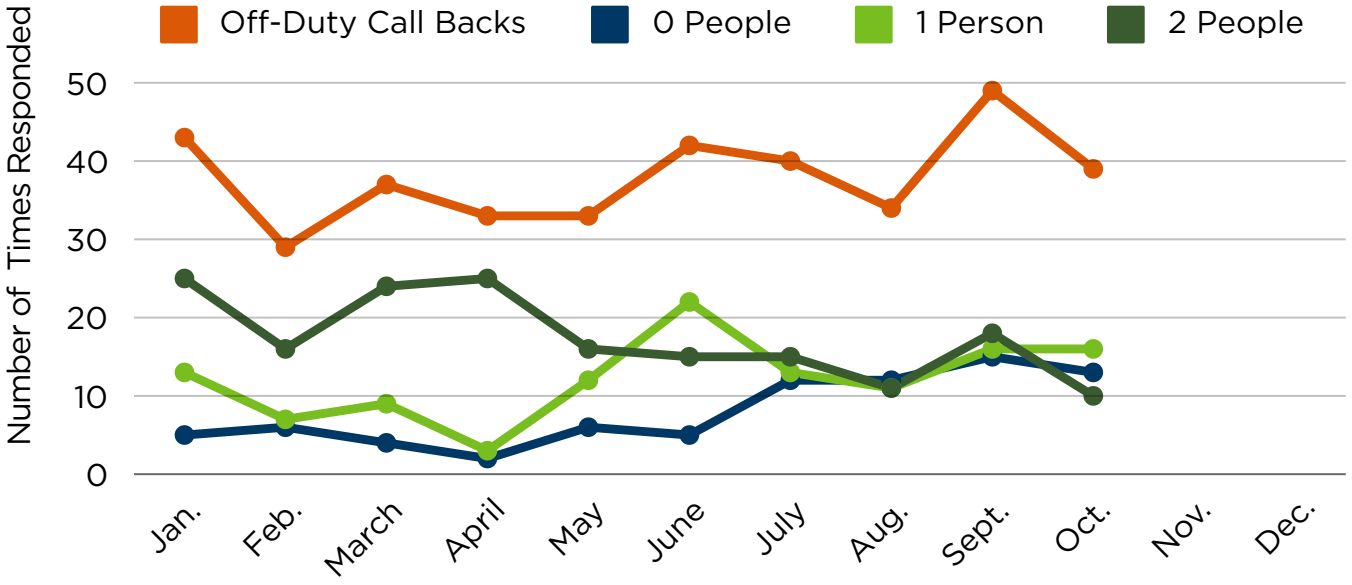
Operational Statistics

Simultaneous Calls	Oct. 2023	Oct. 2024
2 simultaneous incidents	45	55
3 simultaneous incidents	2	7
4+ simultaneous incidents	0	0
TOTAL	47	57
	19% multiple calls	**22% multiple calls**

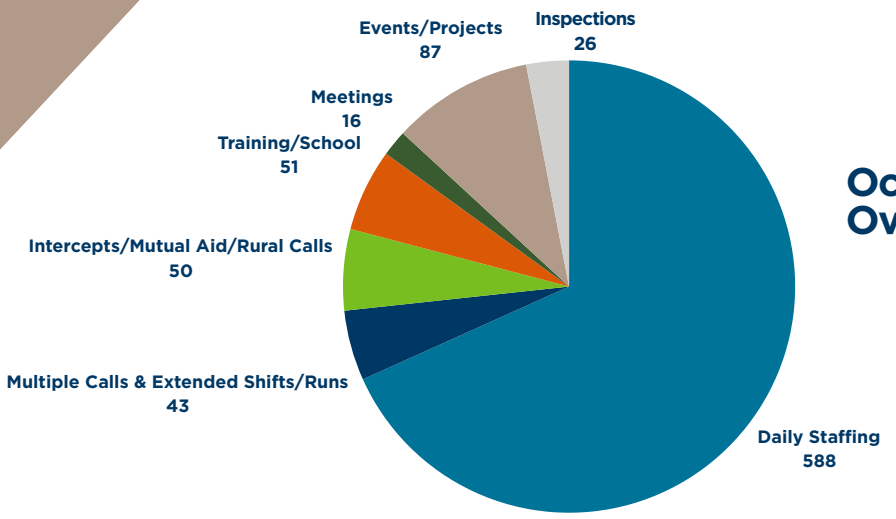
Simultaneous Calls the Past Three Years



Off Duty Call Backs & Responses

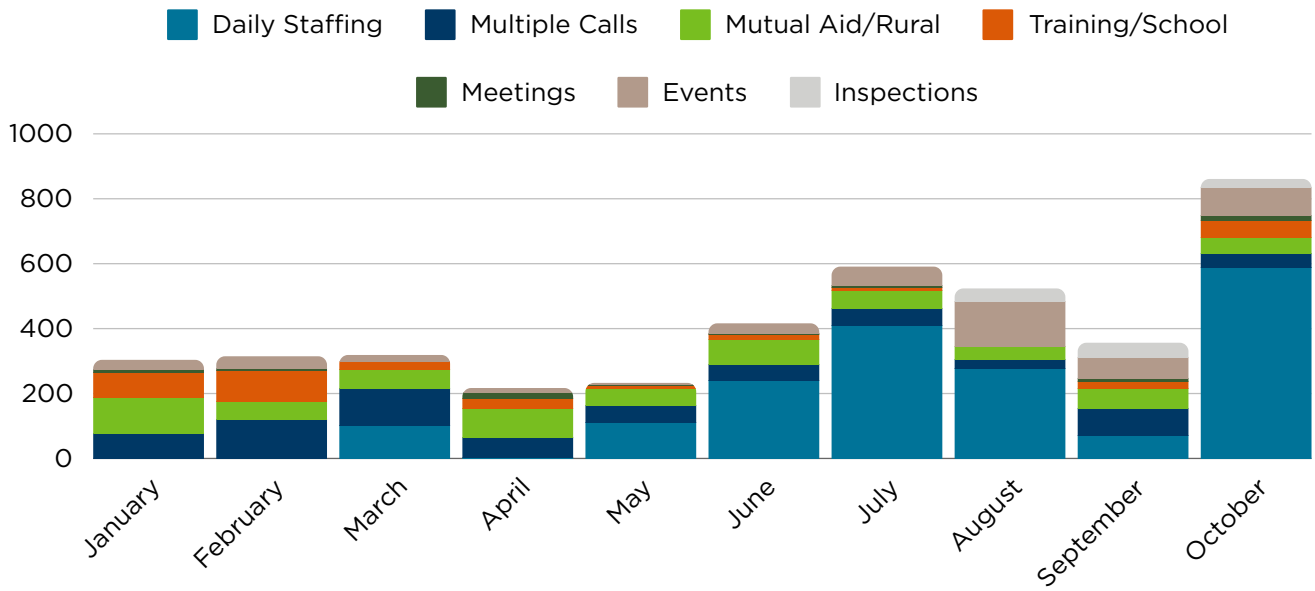


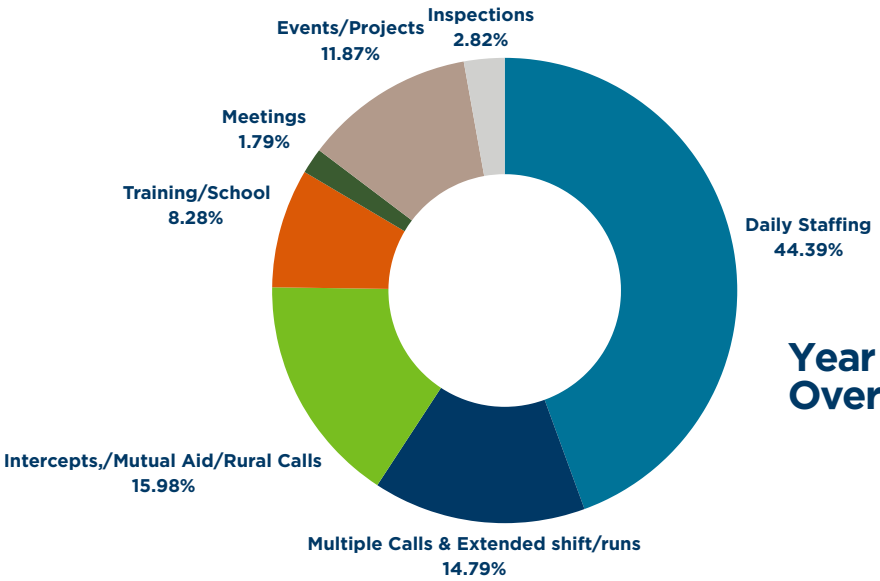
Operational Statistics



October Overtime Hours

Total Monthly Overtime Hours

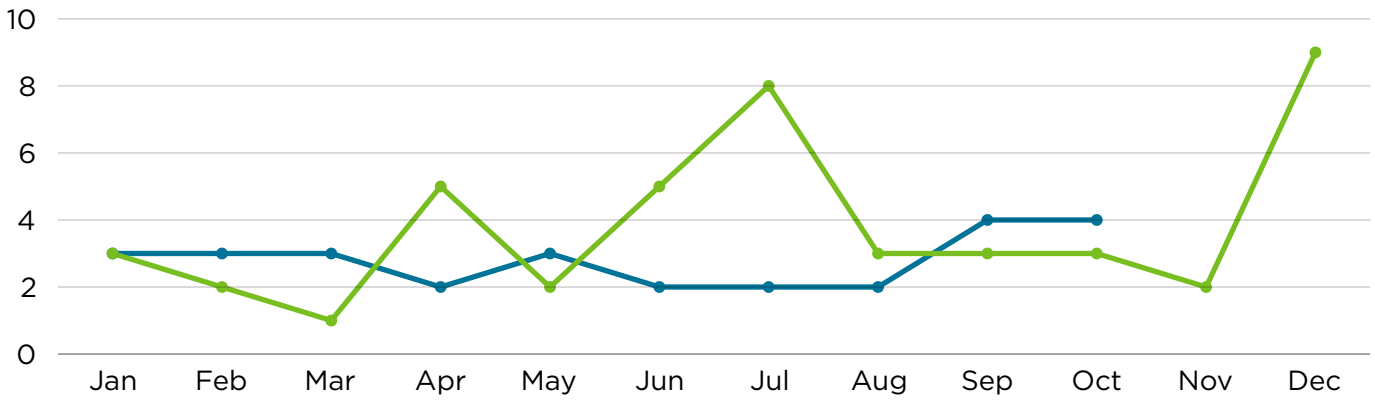




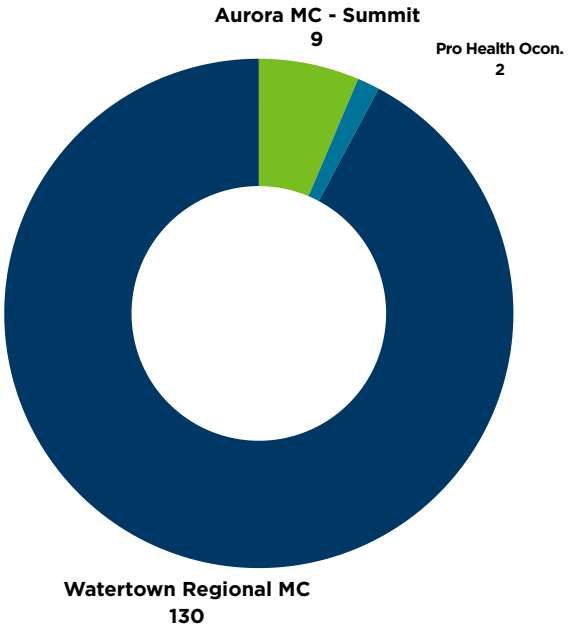
Year to Date Overtime Percentage

Operational Statistics

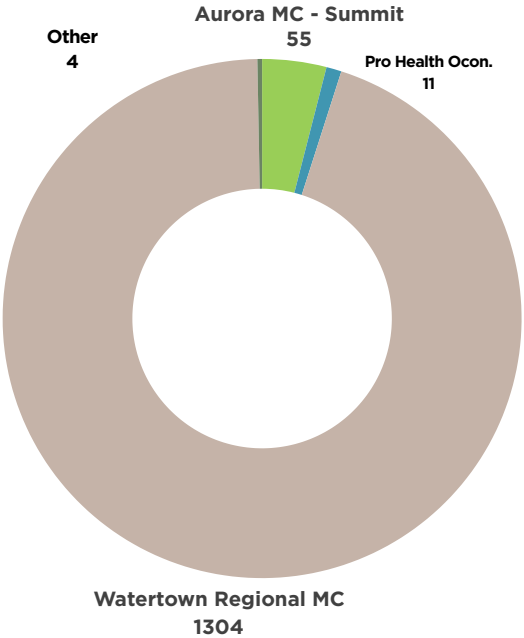
Overdoses 2024 | 2023



October Hospital Transports



Hospital Transports Year to Date



Operational Statistics

Mutual Aid Calls

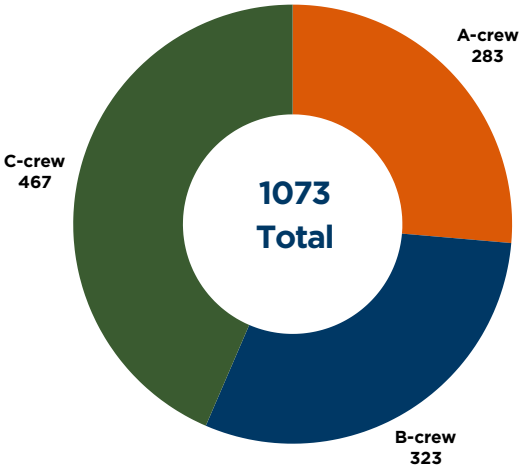
Municipality	Oct. Aid Given	Oct. Aid Received	Year to Date Totals Given & Received
Johnson Creek	1	0	22
Ixonia	3	2	20
Clyman/Lowell Reeseville	0	0	15
Jefferson	1	0	15
Lebanon	1	0	14
Waterloo	2	0	14
Western Lakes	0	0	13
Hustisford	0	0	8
Lake Mills	2	0	8
Juneau	0	0	4
Ashippun	0	0	2
Beaver Dam	0	0	2
Sullivan	0	0	2
Cambridge	0	0	1
Lake Country	0	0	1
Rome	0	0	1
Fort Atkinson	0	0	0
2024 Total	**10**	**2**	**142**
2023 Total	**16**	**10**	**246**

Department Training

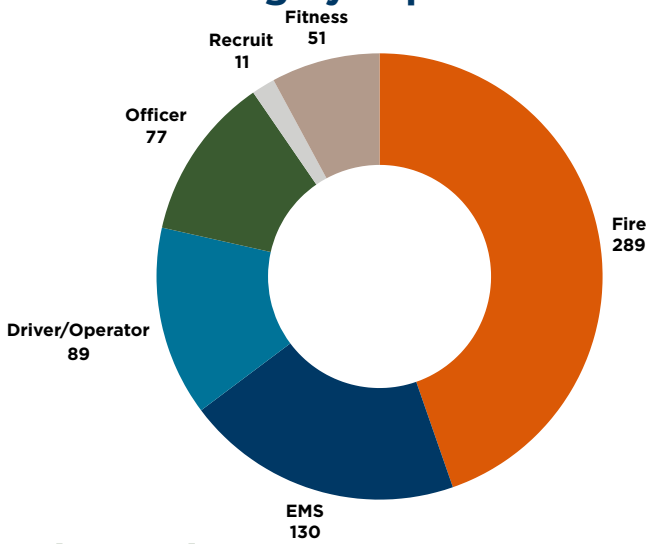
Training Topics for October:

Engine Company	Truck Company	Rescue Company	EMS Training
ProActive MPO Tasks	Ladder Training	Forcible Entry	RSI, Airway
Water Supply Options		Mask-up Drill	Hospice Care

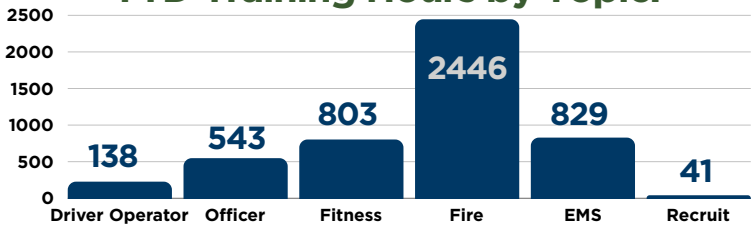
Training Hours by Crew:



Training by Topic:



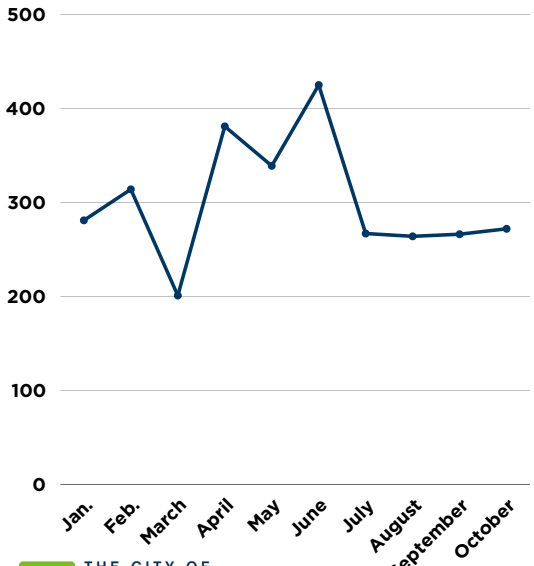
YTD Training Hours by Topic:



EMS Class

Station/Work Maintenance Hours:

This is any type of work done to keep up the station and apparatus.



WFD held Clifton Strengths training for the Officers.

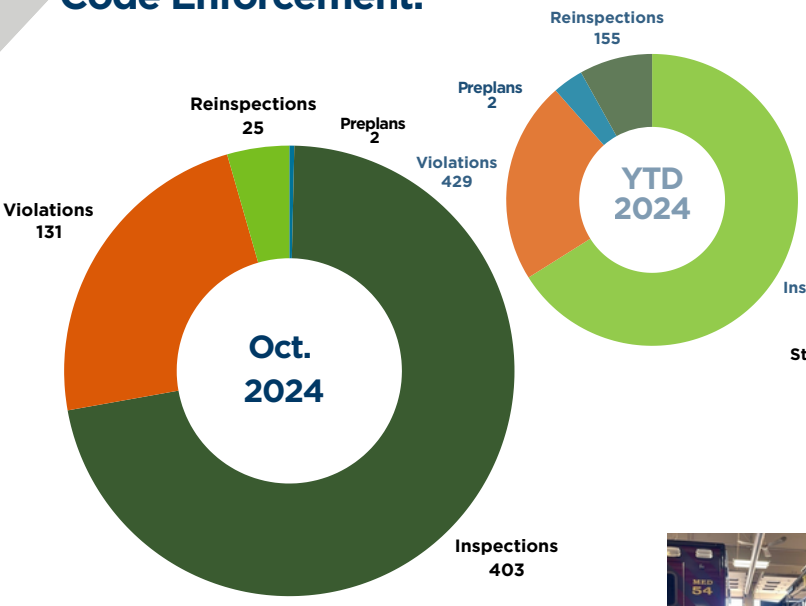
Apparatus Maintenance

Water Rescue Training

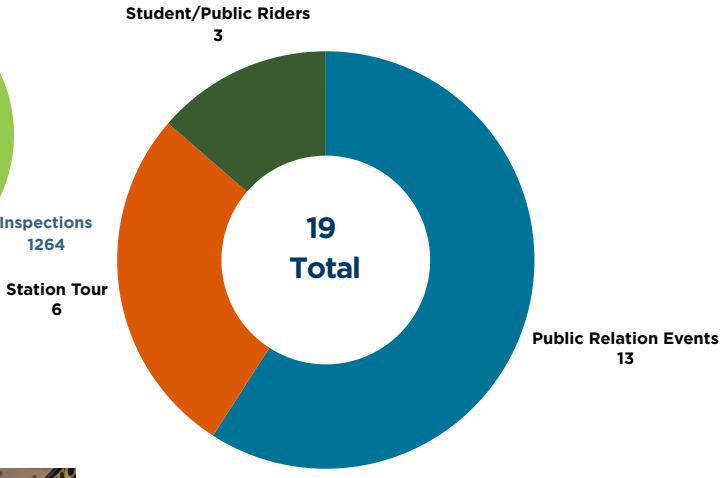
THE CITY OF WATERTOWN
Opportunity runs through it.

Incidents & Public Relations

Code Enforcement:



Community Outreach:



Visiting students from Germany toured the station.

Fire Chief Reynen presented to the students at RMS career day.

October Incidents:

10/5 Watertown, Grass Fire
10/17 Johnson Creek, Mutual Aid Landfill Fire
10/21 Jefferson, Mutual Aid Structure Fire
10/22 Lake Mills, Mutual Aid Structure Fire
10/26 Watertown, Forest Fire
14 Lift Assists
20 False Alarms

The crews handed out candy at Trunk or Treat and the Boo Bash.

Webster students toured the station.

WFD held an open house to the public with tours, demos, and activities.

New Fire Station Progress

WFD Staff toured the progress of the new station

The crew was on standby at the football games at Watertown High School and Luther Prepartory School

We welcomed these new members!

Pam Brunet
FF/Paramedic

Myles Walker
FF/Parmedic

Casey Zahorik
FF/Paramedic

I just wanted to say thank you for visiting our classroom and for the station tour this week. The kids really enjoyed seeing the trucks and the firefighters. After the tour, I had kids saying that it was "the best day ever" and that they liked the tour "by a thousand". So I appreciate you dealing with their energetic behavior so that they can learn!! Thanks again!!
~ Ms. J. W. , Teacher

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
AARON HENNING						
553532						
2024-39	HOLIDAY PARADE PARTICIPANT: WHISTLES ON WHEELS	24581110	11/12/2024	600.00	461535	11/26/2024
Total AARON HENNING:				600.00		
ACCURATE APPRAISAL LLC						
553816						
4947	2024 ASSESSMENT: BOR AND RETAINER	01515246	09/27/2024	26,170.00	461329	11/05/2024
Total ACCURATE APPRAISAL LLC:				26,170.00		
ADVANTAGE SYSTEMS GROUP						
27012						
P40770	FIRE ALARM CONVERSION	11581220	10/21/2024	401.17	461438	11/14/2024
Total ADVANTAGE SYSTEMS GROUP:				401.17		
AIR ONE EQUIPMENT INC						
1423						
211162	HOSE FIRE	24581105	09/10/2024	3,206.00	461380	11/12/2024
Total AIR ONE EQUIPMENT INC:				3,206.00		
ALSCO INC						
1512						
IMIL2063859	MATT SERVICE AT CITY HALL	01517118	10/25/2024	50.78	461330	11/05/2024
IMIL2063859	SHIRTS AND COVERALLS MECH STREET DEPT	01543159	10/25/2024	36.94	461330	11/05/2024
IMIL2063859	COVERALLS STORM WATER TEAM	16581641	10/25/2024	27.83	461330	11/05/2024
IMIL2063859	COVERALL SERVICE FOR SOLID WASTE EMPLOYEE	17581759	10/25/2024	43.67	461330	11/05/2024
IMIL2065857	SHIRTS AND COVERALLS MECH STREET DEPT	01543159	11/01/2024	29.20	461330	11/05/2024
IMIL2065857	COVERALLS STORM WATER TEAM	16581641	11/01/2024	20.07	461330	11/05/2024
IMIL2065857	COVERALL SERVICE FOR SOLID WASTE EMPLOYEE	17581759	11/01/2024	35.91	461330	11/05/2024
IMIL2067862	SHIRTS AND COVERALLS MECH STREET DEPT	01543159	11/08/2024	31.88	461460	11/19/2024
IMIL2067862	COVERALLS STORM WATER TEAM	16581641	11/08/2024	22.77	461460	11/19/2024
IMIL2067862	COVERALL SERVICE FOR SOLID WASTE EMPLOYEE	17581759	11/08/2024	38.61	461460	11/19/2024
Total ALSCO INC:				337.66		
ALUMITANK, INC						
555583						
S-INV040982	80 GALLON GAS TANK FOR #19	17581720	10/24/2024	1,726.86	461331	11/05/2024
Total ALUMITANK, INC:				1,726.86		
AMERICAN TEST CENTER						
1543						
2242179	LADDER AND TRUCK TESTING FIRE	01523159	11/08/2024	1,852.40	461461	11/19/2024
Total AMERICAN TEST CENTER:				1,852.40		
ANDREA DRAEGER						
553411						
111224	BOO BASH, FAMILY BINGO SUPPLIES	01552118	11/12/2024	20.95	461462	11/19/2024
Total ANDREA DRAEGER:				20.95		

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
APG OF SOUTHERN WISCONSIN						
1003						
21406-0924	OFFICIAL PUBS - SEPT 2024	01511120	09/30/2024	4,579.69	461463	11/19/2024
21406-0924	CITY CONNECTION	03992118	09/30/2024	822.67	461463	11/19/2024
21406-0924	CITY CONNECTION	16581619	09/30/2024	822.67	461463	11/19/2024
21406-0924	CITY CONNECTION	17581718	09/30/2024	822.66	461463	11/19/2024
Total APG OF SOUTHERN WISCONSIN:				7,047.69		
APPLIED CONCEPTS INC						
1587						
S308065	PD - RADAR UNITS	01521160	11/13/2024	3,193.00	461464	11/19/2024
Total APPLIED CONCEPTS INC:				3,193.00		
APPLIED TECHNOLOGIES INC						
1589						
37280	PROJECT 6573-WWTP FACILITIES PLAN - WW	02973011	11/01/2024	5,334.00	461536	11/26/2024
Total APPLIED TECHNOLOGIES INC:				5,334.00		
AQUATIC INFORMATICS INC						
554383						
110641	NEW SERVER WIMS MIGRATION - WW	02973012	10/23/2024	2,072.00	461465	11/19/2024
Total AQUATIC INFORMATICS INC:				2,072.00		
AT&T MOBILITY-FIRSTNET						
552664						
287310587104X20241107	PD - PHONES	01521132	11/07/2024	1,297.24	461537	11/26/2024
287303591659X11012024	CELL PHONE-ATTORNEY	01516118	10/23/2024	30.56	1129241	11/15/2024
287303591659X11012024	CELL PHONE-BLDG SAFETY ZONING	01524132	10/23/2024	121.84	1129241	11/15/2024
287303591659X11012024	CELL PHONE-ECONOMIC DEV	60510518	10/23/2024	30.56	1129241	11/15/2024
287303591659X11012024	CELL PHONE-ENG	01541032	10/23/2024	153.83	1129241	11/15/2024
287303591659X11012024	CELL PHONE-FINANCE	01514018	10/23/2024	30.56	1129241	11/15/2024
287303591659X11012024	CELL PHONE-FORESTRY	01561118	10/23/2024	63.98	1129241	11/15/2024
287303591659X11012024	CELL PHONE-IT	01518632	10/23/2024	44.64	1129241	11/15/2024
287303591659X11012024	CELL PHONE-MAYOR	01513132	10/23/2024	44.64	1129241	11/15/2024
287303591659X11012024	CELL PHONE-MEDIA COMMUNICATIONS	01518418	10/23/2024	30.56	1129241	11/15/2024
287303591659X11012024	CELL PHONE-PARK	01554132	10/23/2024	65.55	1129241	11/15/2024
287303591659X11012024	CELL PHONE-RECREATION	01552032	10/23/2024	157.85	1129241	11/15/2024
287303591659X11012024	CELL PHONE-SOLID WASTE	17581718	10/23/2024	33.56	1129241	11/15/2024
287303591659X11012024	CELL PHONE-STORM WATER	16581631	10/23/2024	62.55	1129241	11/15/2024
287303591659X11012024	CELL PHONE-STREET	01542420	10/23/2024	31.99	1129241	11/15/2024
287303591659X11012024	CELL PHONE-STREET	01542420	10/23/2024	95.97	1129241	11/15/2024
287303591659X11012024	CELL PHONE-WASTEWATER	02820032	10/23/2024	300.82	1129241	11/15/2024
287303591659X11012024	CELL PHONE-WATER	03992118	10/23/2024	555.84	1129241	11/15/2024
287303591659X11012024	CELL PHONE-STREET	01542132	10/23/2024	123.67	1129241	11/15/2024
Total AT&T MOBILITY-FIRSTNET:				3,276.21		
ATIS ELEVATOR INSPECTIONS LLC						
555584						
IN371448	MUNI BLDG - ELEVATOR INSPECTION	01517126	10/08/2024	257.26	461381	11/12/2024
Total ATIS ELEVATOR INSPECTIONS LLC:				257.26		

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
AUTOMATIC ENTRANCES OF WISCONSIN INC						
554490						
2042723	SERVICE CONTRACT - DOORS	11581219	10/28/2024	590.00	461439	11/14/2024
Total AUTOMATIC ENTRANCES OF WISCONSIN INC:				590.00		
AXON ENTERPRISE INC						
1986						
INUS260800	BODY CAMERAS & ACCESSORIES-PD	01521120	07/01/2024	19,292.01	461382	11/12/2024
Total AXON ENTERPRISE INC:				19,292.01		
BADGER PEST CONTROL LLC						
552514						
3058	PARK PEST CONTROL	01554118	09/18/2024	80.00	461383	11/12/2024
3059	PEST CONTROL WAC	01552217	10/16/2024	65.00	461383	11/12/2024
3060	PARK PEST CONTROL	01554118	09/18/2024	65.00	461383	11/12/2024
3061	PARK PEST CONTROL	01554118	09/19/2024	80.00	461383	11/12/2024
3064	PARK PEST CONTROL	01554118	09/19/2024	80.00	461383	11/12/2024
3069	SEPTEMBER PEST SERVICE	17581718	09/18/2024	90.00	461332	11/05/2024
4097	PARK PEST CONTROL	01554118	10/16/2024	80.00	461383	11/12/2024
4104	OCT PEST CONTROL	17581718	10/16/2024	90.00	461332	11/05/2024
4108	PARK PEST CONTROL	01554118	10/16/2024	65.00	461383	11/12/2024
4189	PARK PEST CONTROL	01554118	10/16/2024	80.00	461383	11/12/2024
4193	PARK PEST CONTROL	01554118	10/16/2024	80.00	461383	11/12/2024
4427	PEST CONTROL	01517126	09/28/2024	500.00	461383	11/12/2024
4429	HEALTH - PEST CONTROL AROUND THE BUILDING	01531226	11/01/2024	250.00	461383	11/12/2024
Total BADGER PEST CONTROL LLC:				1,605.00		
BADGER TRUCK CENTER INC						
2035						
1010048	DUMP BOX REPLACED VEH #	01541120	10/31/2024	16,525.00	461333	11/05/2024
Total BADGER TRUCK CENTER INC:				16,525.00		
BADGER WELDING SUPPLIES INC						
2043						
3851393	(2) OXYGEN FIRE	01523154	10/23/2024	102.20	461384	11/12/2024
3854045	CYLINDER RENTAL CHARGE FIRE	01523154	10/31/2024	2.80	461384	11/12/2024
Total BADGER WELDING SUPPLIES INC:				105.00		
BEHNKE MATERIALS ENGINEERING LLC						
2201						
1880	LAB/FIELD TESTING PROJ 22.0001	05581169	06/30/2024	880.00	461334	11/05/2024
Total BEHNKE MATERIALS ENGINEERING LLC:				880.00		
BERNABE & KATIE GOMEZ JR						
555611						
20-044400-03	REFUND UTILITY OVERPAYMENT	99001105	10/30/2024	87.31	461466	11/19/2024
Total BERNABE & KATIE GOMEZ JR:				87.31		
BETH ANNE MUELLER						

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
27497						
110924BM	READ, RHYME, RHYTHM FALL	11581250	11/09/2024	225.00	461440	11/14/2024
Total BETH ANNE MUELLER:				225.00		
BETTY JIMENEZ						
54426						
885472	REIMBURSE FOR APPLE CIDER FOR BINGO	24581107	10/28/2024	22.76	461385	11/12/2024
Total BETTY JIMENEZ:				22.76		
BILL ANDERSON						
1568						
111824	ENTERTAINMENT SENIOR CENTER	24581107	11/18/2024	250.00	461538	11/26/2024
Total BILL ANDERSON:				250.00		
BOOGIE & THE YO-YOZ						
555595						
110424	TS EVENTS	26162200	11/04/2024	500.00	461386	11/12/2024
Total BOOGIE & THE YO-YOZ:				500.00		
BUDGET PRINT						
2910						
61519	INCLUSIVE PARK BROCHURES CITY	22551225	10/10/2024	180.00	461387	11/12/2024
61542	OFFICE SUPPLIES	11581218	10/22/2024	70.50	461441	11/14/2024
Total BUDGET PRINT:				250.50		
BUMPER TO BUMPER						
2935						
660-618294	RIGHT STUFF, SHOP SUPPLIES	01554120	11/06/2024	92.75	461539	11/26/2024
Total BUMPER TO BUMPER:				92.75		
CAMERA CORNER CONNECTING POINT						
555614						
173521	INITIAL PAYMENT: FIRE STA TRAINING RM A/V	05523170	11/18/2024	35,111.73	461572	11/26/2024
Total CAMERA CORNER CONNECTING POINT:				35,111.73		
CENGAGE LEARNING INC						
552519						
85813907	LARGE PRINT	11581246	10/15/2024	330.29	461442	11/14/2024
85833018	LARGE PRINT	11581246	10/18/2024	30.39	461442	11/14/2024
85863439	LARGE PRINT	11581246	10/23/2024	32.79	461442	11/14/2024
85891793	LARGE PRINT	11581246	10/28/2024	57.20	461442	11/14/2024
85928199	LARGE PRINT	11581246	11/05/2024	127.96	461442	11/14/2024
85928773	LARGE PRINT	11581246	11/05/2024	125.56	461442	11/14/2024
85933726	LARGE PRINT	11581246	11/06/2024	186.34	461442	11/14/2024
Total CENGAGE LEARNING INC:				890.53		
CENTURY FENCE COMPANY						
3300						
APPL FOR PYMT No. 4	PAVEMENT MARKING/REMOVAL 2024	05581169	11/01/2024	3,780.00	461540	11/26/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
APPL FOR PYMT No. 4	PAVEMENT MARKING/REMOVAL 2024	05581192	11/01/2024	23,002.75	461540	11/26/2024
APPL FOR PYMT No. 4	PAVEMENT MARKING/REMOVAL 2024	08580431	11/01/2024	6,365.00	461540	11/26/2024
Total CENTURY FENCE COMPANY:				33,147.75		
CENTURYLINK						
3301						
712286601	LONG DISTANCE LINE CHARGES	01517132	11/01/2024	4.99	461467	11/19/2024
Total CENTURYLINK:				4.99		
CHARTER COMMUNICATIONS						
3417						
170728301110124	SENIOR CABLE	01552017	11/01/2024	40.00	461468	11/19/2024
170728301110124	SENIOR CABLE	24581107	11/01/2024	148.63	461468	11/19/2024
Total CHARTER COMMUNICATIONS:				188.63		
COMPUTER INFORMATION SYSTEMS						
3672						
239503	DISPATCH-CIS SYSTEMS MAINT/SUPPORT	01521120	11/01/2024	39,506.18	461335	11/05/2024
239595	CIS SOFTWARE FIRE	01523128	10/23/2024	5,000.00	461335	11/05/2024
Total COMPUTER INFORMATION SYSTEMS:				44,506.18		
CONVERGENT SOLUTIONS INC						
3762						
574463	PHONE SYSTEM - VM 4080	01518611	10/31/2024	253.20	461388	11/12/2024
57462	PHONE SYSTEM-SECURITY CERTIFICATE EXPIRATION	01518611	10/31/2024	481.70	461388	11/12/2024
57464	PHONE SYSTEM - FD VM BOX SETUP	01518611	10/31/2024	183.70	461388	11/12/2024
57479	PHONE SYSTEM - CHANGE PHONE SETUP	01518611	11/06/2024	79.45	461388	11/12/2024
Total CONVERGENT SOLUTIONS INC:				998.05		
CORE & MAIN LP						
3784						
V841315	INVENTORY PARTS - WTR	03011540	10/21/2024	4,656.47	461336	11/05/2024
V841799	INVENTORY PARTS - WTR	03011540	10/25/2024	8,271.00	461336	11/05/2024
V911925	4" BASE90&CHK VLV-ALLERMAN LS - WW	02820018	11/04/2024	1,260.00	461469	11/19/2024
V941572	INVENTORY PARTS - WTR	03011540	11/06/2024	2,090.45	461469	11/19/2024
Total CORE & MAIN LP:				16,277.92		
CORNERSTONE ENVIRONMENTAL GROUP LLC						
3785						
52329378	OLD LANDFILL MONITORING PER CONTRACT	17581726	10/31/2024	4,138.66	461470	11/19/2024
Total CORNERSTONE ENVIRONMENTAL GROUP LLC:				4,138.66		
CULLIGAN WATER CONDITIONING						
3950						
103124	SENIOR SALT	01552017	10/31/2024	19.50	461389	11/12/2024
Total CULLIGAN WATER CONDITIONING:				19.50		
DAHM ENTERPRISES INC						

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
553207						
2163	SLUDGE HAULING/LAND APPLIED - WW	02850021	10/30/2024	39,789.75	461390	11/12/2024
Total DAHM ENTERPRISES INC:				39,789.75		
DANCING GRANNIES						
555054						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/07/2024	850.00	461541	Multiple
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/07/2024	850.00-		
Total DANCING GRANNIES:				.00		
DANIELLE BAILEY						
555605						
DB110524 LIB	OCTOBER MILEAGE	11581224	11/05/2024	59.23	461443	11/14/2024
Total DANIELLE BAILEY:				59.23		
DAVES TURF AND MARINE						
4110						
123288	OIL PUMP, LINE, ASST ITEMS	01561120	10/26/2024	462.34	461471	11/19/2024
Total DAVES TURF AND MARINE:				462.34		
DELTA DENTAL PLAN OF WI						
4264						
2245754 D	EMPLOYEE DENTAL INSURANCE-EE	01213168	11/15/2024	1,396.37	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER	01213168	11/15/2024	12,535.27	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER APPENFELDT F NO	01213168	11/15/2024	92.00	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER LORD F NOV	01213168	11/15/2024	92.00	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER BRUNET F NOV	01213168	11/15/2024	92.00	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-EE DAUER-JACEK S N	01213168	11/15/2024	3.32	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-EE SILVA S NOV	01213168	11/15/2024	3.32	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-EE WALKER S NOV	01213168	11/15/2024	29.88	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-EE ZAHORIK S NOV	01213168	11/15/2024	29.88	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER ZAHORIK S NOV	01213168	11/15/2024	3.32	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-EE BRUNET F NOV	01213168	11/15/2024	10.22	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER WALKER S NOV	01213168	11/15/2024	3.32	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-EE APPENFELDT F NO	01213168	11/15/2024	10.22	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER DAUER-JACEK S N	01213168	11/15/2024	29.88	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-ER SILVA S NOV	01213168	11/15/2024	29.88	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-EE LORD F NOV	01213168	11/15/2024	10.22	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-COBRA ANTONOPOLO	01213192	11/15/2024	102.22	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-COBRA SCHULTZ, T F	01213192	11/15/2024	102.22	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-COBRA HOLLOWAY F	01213192	11/15/2024	102.22	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-COBRA WOLLIN S DEC	01213192	11/15/2024	33.20	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-COBRA FUNK S DEC	01213192	11/15/2024	33.20	1129242	11/22/2024
2245754 D	EMPLOYEE DENTAL INSURANCE-COBRA FRENCH S DE	01213192	11/15/2024	33.20	1129242	11/22/2024
2245754 V	EMPLOYEE DENTAL INSURANCE-EE DEC	01213169	11/15/2024	820.56	1129242	11/22/2024
2245754 V	EMPLOYEE VISION INSURANCE-EE APPENFELDT F NOV	01213169	11/15/2024	12.77	1129242	11/22/2024
2245754 V	EMPLOYEE DENTAL INSURANCE-EE BRUNET F NOV	01213169	11/15/2024	12.77	1129242	11/22/2024
2245754 V	EMPLOYEE DENTAL INSURANCE-EE LORD F NOV	01213169	11/15/2024	12.77	1129242	11/22/2024
2245754 V	EMPLOYEE VISION INSURANCE-EE POWERS S NOV	01213169	11/15/2024	5.13-	1129242	11/22/2024
2245754 V	EMPLOYEE VISION INSURANCE-EE SILVA S NOV	01213169	11/15/2024	5.13	1129242	11/22/2024
2245754 V	EMPLOYEE VISION INSURANCE-EE WALKER S NOV	01213169	11/15/2024	5.13	1129242	11/22/2024
2245754 V	EMPLOYEE VISION INSURANCE-EE ZAHORIK S NOV	01213169	11/15/2024	5.13	1129242	11/22/2024
2245754 V	EMPLOYEE VISION INSURANCE-COBRA FRENCH F DEC	01213193	11/15/2024	12.77	1129242	11/22/2024

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2245754 V	EMPLOYEE VISION INSURANCE-COBRA HOLLOWAY F D	01213193	11/15/2024	12.77	1129242	11/22/2024
Total DELTA DENTAL PLAN OF WI:				15,672.03		
DEPT OF EMPLOYEE TRUST FUNDS						
4280						
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE EE	01213163	11/15/2024	48,938.36	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE ER	01213163	11/15/2024	232,727.28	1129243	11/25/2024
1025000 DEC 2025	RETIREE EMPLOYER PORTION-WW AF	01213190	11/15/2024	404.38	1129243	11/25/2024
1025000 DEC 2025	RETIREE EMPLOYER PORTION-HEALTH SW	01519644	11/15/2024	471.70	1129243	11/25/2024
1025000 DEC 2025	SICK LEAVE CONVERSION-WW AF	01519644	11/15/2024	404.38	1129243	11/25/2024
1025000 DEC 2025	SICK LEAVE CONVERSION-HEALTH SW	01213190	11/15/2024	471.70	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-EE DAUER-JACEK S DE	01213163	11/15/2024	215.52	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-ER DAUER-JACEK S DE	01213163	11/15/2024	727.88	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-ER WALKER S MERCY	01213163	11/15/2024	727.88	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-EE WALKER S MERCY	01213163	11/15/2024	80.88	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-EE NEHLS S TO F UW-	01213163	11/15/2024	168.84	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-EE NEHLS S TO F UW-	01213163	11/15/2024	168.84	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-ER NEHLS S TO F UW-	01213163	11/15/2024	1,058.28	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-ER NEHLS S TO F UW-	01213163	11/15/2024	1,058.28	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-ER NEIS S DEAN SEP-N	01213163	11/15/2024	943.40	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-ER NEIS S DEAN OCT-	01213163	11/15/2024	943.40	1129243	11/25/2024
1025000 DEC 2025	EMPLOYEE HEALTH INSURANCE-ER NEIS S DEAN NOV-	01213163	11/15/2024	943.40	1129243	11/25/2024
Total DEPT OF EMPLOYEE TRUST FUNDS:				290,454.40		
DIGICORP INC						
4468						
352116	SEPTEMBER SOFTWARE SUBSCRIPTIONS	01518644	09/15/2024	6,058.20	461542	11/26/2024
352721	PRE-PAY SERVICE BLOCK	01518611	11/13/2024	15,000.00	461472	11/19/2024
352741	VPN FAIL ISSUE-LB/JB - WTR	03992118	11/14/2024	165.00	461542	11/26/2024
352749	NOVEMBER SOFTWARE SUBSCRIPTIONS	01518644	11/15/2024	6,252.95	461542	11/26/2024
Total DIGICORP INC:				27,476.15		
DODGE COUNTY LAND						
4547						
110424	ASST TREE BUNDLES	01561160	11/04/2024	140.00	461391	11/12/2024
Total DODGE COUNTY LAND:				140.00		
DODGE COUNTY TREASURER						
4565						
OCT2024	COUNTY COURT FINES - OCTOBER 2024	01436100	11/22/2024	749.04	461543	11/26/2024
OCT-NOV 2024	DOG LICENSES: OCT-NOV 2024	01431132	11/14/2024	62.50	461473	11/19/2024
Total DODGE COUNTY TREASURER:				811.54		
DON PEACHEY BAND						
16220						
1643	HOLIDAY PARADE PARTICIPANT	24581110	11/01/2024	600.00	461544	11/26/2024
Total DON PEACHEY BAND:				600.00		
DRUG & ALCOHOL TESTING 24/7 LLC						
555599						
18250	NEW HIRE SCREENING KOWALSKI HEALTH	01531218	10/28/2024	55.50	461338	11/05/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
18298	NEW HIRE SCREEN SCHEARER LIBRARY	11581218	11/06/2024	55.50	461392	11/12/2024
Total DRUG & ALCOHOL TESTING 24/7 LLC:				111.00		
EC PLUMBING LLC						
554247						
3786	LAKESIDE TERR WTRMN BRK CLEANUP - WTR	03992318	10/29/2024	1,570.00	461393	11/12/2024
Total EC PLUMBING LLC:				1,570.00		
EHLERS & ASSOCIATES INC						
5276						
99808	2024 WATER RATE STUDY - WTR	03992318	11/21/2024	5,000.00	461546	11/26/2024
Total EHLERS & ASSOCIATES INC:				5,000.00		
EMERGENCY STARTING & TOWING LLC						
5560						
34555	TOWING-POLICE	01521149	11/12/2024	100.00	461475	11/19/2024
Total EMERGENCY STARTING & TOWING LLC:				100.00		
EMILY MCFARLAND						
13218						
103124 MCFARLAND	MILEAGE REIMBURSEMENT-MAYOR	01513124	10/31/2024	97.82	461340	11/05/2024
Total EMILY MCFARLAND:				97.82		
EMPLOYEE BENEFITS CORPORATION						
5284						
4689015	EBC FLEX ADMINISTRATION FEES	01519545	11/15/2024	261.00	20230430	12/11/2024
4689015	EBC FLEX ADMINISTRATION RENEWAL/CARD FEES	01519545	11/15/2024	450.00	20230430	12/11/2024
4689015	EBC FLEX ADMINISTRATION RENEWAL/CARD FEES	01519545	11/15/2024	42.75	20230430	12/11/2024
4689015	EBC FLEX ADMINISTRATION FEES	01519545	11/15/2024	261.00-		
4689015	EBC FLEX ADMINISTRATION RENEWAL/CARD FEES	01519545	11/15/2024	450.00-		
4689015	EBC FLEX ADMINISTRATION RENEWAL/CARD FEES	01519545	11/15/2024	42.75-		
4689015-1	EBC FLEX ADMINISTRATION FEES	01519545	11/15/2024	261.00	1129244	11/27/2024
4689015-1	EBC FLEX ADMINISTRATION RENEWAL/CARD FEES	01519545	11/15/2024	42.75	1129244	11/27/2024
4689015-1	EBC FLEX ADMINISTRATION RENEWAL/CARD FEES	01519545	11/15/2024	450.00	1129244	11/27/2024
Total EMPLOYEE BENEFITS CORPORATION:				753.75		
ENTREPRISE D'ART LLC						
555613						
434	VET'S DAY ENTERTAINMENT-SR CTR	24581107	09/23/2024	350.00	461476	11/19/2024
Total ENTREPRISE D'ART LLC:				350.00		
ENVIRONMENTAL SYSTEMS						
5636						
94714410	ARC GIS ANNUAL SUBSCRIPTION - ENG	01541050	04/29/2024	3,025.00	461477	11/19/2024
Total ENVIRONMENTAL SYSTEMS:				3,025.00		
ENVIROTECH EQUIPMENT						
5635						
24-0024455	ROLLER BEARINGS VEH #23	17581720	10/30/2024	461.16	461341	11/05/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
Total ENVIROTECH EQUIPMENT:				461.16		
EZ OFFICE PRODUCTS						
5018						
852741	LAMINATING POUCHES	01552018	11/14/2024	27.50	461478	11/19/2024
Total EZ OFFICE PRODUCTS:				27.50		
EZ PROMOTION & APPAREL LLC						
554285						
INKS1005943	PROMOTIONAL CUPS & SHIPPING ADMIN	22551225	10/29/2024	250.00	461342	11/05/2024
INKS1006588	LITTLE DUNKERS TSHIRTS	01552118	10/23/2024	418.00	461394	11/12/2024
INKS1006618	WRESTLING TSHIRTS	01552118	10/28/2024	270.00	461394	11/12/2024
INKS1006638	DARE SHIRTS	24581113	10/30/2024	1,402.80	461547	11/26/2024
Total EZ PROMOTION & APPAREL LLC:				2,340.80		
FARRELL EQUIPMENT & SUPPLY CO.						
6077						
183571	CARBIDE DRILL BIT	01543118	10/22/2024	54.99	461343	11/05/2024
184927	OVERCHARGE ON DRILL BIT CREDIT	01543118	10/28/2024	10.00-	461343	11/05/2024
Total FARRELL EQUIPMENT & SUPPLY CO.:				44.99		
FEDERAL SIGNAL CORPORATION						
6085						
8789788	BACKORDERED PIECES FOR SIREN REPAIR EM	01525102	11/05/2024	437.00	461548	11/26/2024
Total FEDERAL SIGNAL CORPORATION:				437.00		
FEH DESIGN						
555502						
114747	PREDESIGN SERVICES POLICE DEPT & CITY HALL	24517260	11/18/2024	15,309.11	461549	11/26/2024
Total FEH DESIGN:				15,309.11		
FIRE SERVICE INC						
6371						
WI-16558	MED 54 BRAKE PADS & MASTER CYLINDER FIRE	01523142	10/31/2024	1,147.56	461395	11/12/2024
WI-16576	MED 54 B SERVICE OIL/FILTER CHANGE FIRE	01523142	10/31/2024	600.00	461395	11/12/2024
Total FIRE SERVICE INC:				1,747.56		
FOREST LANDSCAPING & CONSTRUCTION INC						
6647						
APPL FOR PYMT No. 5-FI	#4-24 ANNUAL STREET & UTILITY RECONSTRUCTION	02973011	11/05/2024	9,300.00	461396	11/12/2024
APPL FOR PYMT No. 5-FI	#4-24 ANNUAL STREET & UTILITY RECONSTRUCTION	03999999	11/05/2024	3,240.00	461396	11/12/2024
APPL FOR PYMT No. 5-FI	#4-24 ANNUAL STREET & UTILITY RECONSTRUCTION	16581660	11/05/2024	38,990.00	461396	11/12/2024
APPL FOR PYMT No. RET	#4-24 ANNUAL STREET & UTILITY RECONSTRUCTION	05581169	11/22/2024	10,259.20	461550	11/26/2024
APPL FOR PYMT No. RET	#4-24 ANNUAL STREET & UTILITY RECONSTRUCTION	16581660	11/22/2024	3,531.70	461550	11/26/2024
APPL FOR PYMT No. RET	#4-24 ANNUAL STREET & UTILITY RECONSTRUCTION	03999999	11/22/2024	32,053.10	461550	11/26/2024
APPL FOR PYMT No. RET	#4-24 ANNUAL STREET & UTILITY RECONSTRUCTION	02973011	11/22/2024	500.00	461550	11/26/2024
Total FOREST LANDSCAPING & CONSTRUCTION INC:				97,874.00		

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
FRAWLEY OIL COMPANY INC						
6728						
7757975	HAND HELD OIL DISPENSERS	01541120	10/03/2024	60.00	461479	11/19/2024
7758051	HI TEMP GREASE	17581740	10/24/2024	186.00	461479	11/19/2024
Total FRAWLEY OIL COMPANY INC:				246.00		
GERALD W & CHAVAH WILSON						
555612						
23-026800-03	REFUND UTILITY OVERPAYMENT	99001105	10/30/2024	80.00	461480	11/19/2024
Total GERALD W & CHAVAH WILSON:				80.00		
GLENNS MARKET & CATERING INC						
7360						
E19234	VETERANS DAY BUFFET	24581107	11/08/2024	1,044.00	461481	11/19/2024
Total GLENNS MARKET & CATERING INC:				1,044.00		
GORDON FLESCH CO INC						
6450						
I00966065	COPIER LEASE	11581218	11/01/2024	265.37	461444	11/14/2024
IN14891108	COPIER USAGE	11581218	10/20/2024	134.97	461445	11/14/2024
Total GORDON FLESCH CO INC:				400.34		
GRAEF						
554795						
0135572	2025 STREET & UTILITY PROJECT 2023-0411.00	05581169	10/29/2024	3,752.03	461397	11/12/2024
0135572	2025 STREET & UTILITY PROJECT 2023-0411.00	16581660	10/29/2024	3,752.02	461397	11/12/2024
0135572	2025 STREET & UTILITY PROJECT 2023-0411.00	03999999	10/29/2024	3,752.03	461397	11/12/2024
0135572	2025 STREET & UTILITY PROJECT 2023-0411.00	02973011	10/29/2024	3,752.03	461397	11/12/2024
0135575	GENERAL ENGINEERING - PROJ 2024-0266.00	01541047	10/29/2024	1,395.00	461397	11/12/2024
0135576	RIVERWALK STEEL BRIDEG FOOTING PROJ 2024-0266.0	01541047	10/29/2024	3,708.75	461397	11/12/2024
0135577	MAIN STREET DOWNTOWN 1077 PROJ 2024-0266.02	01541047	10/29/2024	326.25	461397	11/12/2024
0135578	STOP SIGN STUDY PROJ 2024-0266.03	01541047	10/29/2024	145.00	461397	11/12/2024
0135579	STORM WATER UTILITY PROJ 2024-0266.04	01541047	10/29/2024	145.00	461397	11/12/2024
0135580	PASS THROUGH COST STUDY PROJ 2024-0266.05	01541047	10/29/2024	488.75	461397	11/12/2024
Total GRAEF:				21,216.86		
GRAINGER						
7628						
9281670514	BALLAST - SR CTR	01552020	10/15/2024	61.10	461398	11/12/2024
9315339623	LEATHER GLOVES-PARKS	01554159	11/13/2024	158.16	461482	11/19/2024
Total GRAINGER:				219.26		
GRINWALD FORD INC						
7675						
2025 FORD EXPLORER-6	1FFM5K8AB3SGA03107	05521170	11/08/2024	46,075.44	461399	11/12/2024
Total GRINWALD FORD INC:				46,075.44		
H&H FIRE PROTECTION LLC						
8009						
20451	ANNUAL FIRE EXT INSP -WTR	03992318	10/26/2024	256.62	461344	11/05/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
20451	ANNUAL FIRE EXT INSP - WW	02820020	10/26/2024	256.63	461344	11/05/2024
Total H&H FIRE PROTECTION LLC:				513.25		
HIGHWAY LIGHT & LANDSCAPE INC						
8478						
4583	LIGHT FIXTURE REPLACED FOR LED- ARPA	24544240	10/31/2024	2,150.00	461483	11/19/2024
Total HIGHWAY LIGHT & LANDSCAPE INC:				2,150.00		
HYDROCORP						
8994						
CI-02966	CROSS CONNECTION PROGRAM - WTR	03992318	10/31/2024	1,278.00	461400	11/12/2024
Total HYDROCORP:				1,278.00		
INSIGHT FS						
9415						
16019729	DIESEL FUEL - WW	02820040	11/05/2024	6,512.00	461551	11/26/2024
57001515	FIRE DEPT LANDSCAPING	05523170	11/01/2024	4,556.00	461552	11/26/2024
57047775	MILLENIUM ULTRA, MAX SUPREME-PARKS	01554141	10/29/2024	2,499.56	461484	11/19/2024
57047801	FIRE DEPT RETENTION PONDS	05523170	10/31/2024	1,423.06	461401	11/12/2024
Total INSIGHT FS:				14,990.62		
J&L ENGRAVING						
10016						
3352	PASSPORT TAGS FIRE	24581105	10/18/2024	30.25	461485	11/19/2024
Total J&L ENGRAVING:				30.25		
J&L TIRE INC						
10009						
118306	SQUAD REPAIRS-POLICE	01521144	10/03/2024	38.00	461402	11/12/2024
118816	SQUAD REPAIRS-POLICE	01521144	10/29/2024	78.95	461402	11/12/2024
118873	SQUAD REPAIRS-POLICE	01521144	10/31/2024	49.95	461402	11/12/2024
118908	SQUAD REPAIRS-POLICE	01521144	11/01/2024	144.00	461402	11/12/2024
118944	SQUAD REPAIRS-POLICE	01521144	11/04/2024	38.00	461402	11/12/2024
376583	TIRES FIRE	01523141	11/05/2024	78.00	461402	11/12/2024
Total J&L TIRE INC:				426.90		
JACQUELYNN FOX						
555597						
JF103124	ENVIRO-REFUND LICENSE FEE	14429155	11/01/2024	387.00	461403	11/12/2024
Total JACQUELYNN FOX:				387.00		
JAMES FREY						
6814						
11122024	CDL REIMBURSEMENT	01554159	11/12/2024	64.00	461486	11/19/2024
111224	SAFETY BOOTS REIMBURSEMENT	01554159	11/12/2024	79.98	461486	11/19/2024
Total JAMES FREY:				143.98		
JAMES IMAGING SYSTEMS						

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
10084						
1496030	COPIER MAINT CNTRCT 14804-01 - WTR	03992118	10/24/2024	53.47	461345	11/05/2024
1496030	COPIER MAINT CNTRCT 14804-01 - WW	02850044	10/24/2024	53.48	461345	11/05/2024
1500917	COPIER MAINT CNTRCT 16386-01 - WTR	03992118	11/11/2024	45.00	461487	11/19/2024
Total JAMES IMAGING SYSTEMS:				151.95		
JANI-KING OF MILWAUKEE						
10100						
MIL11240143	CLEANING SERVICE AT AIRPORT	01545318	11/01/2024	642.75	461488	11/19/2024
Total JANI-KING OF MILWAUKEE:				642.75		
JEFF DOYLE						
4680						
9389	SAFETY BOOT REIMBURSEMENT	01554159	10/22/2024	99.99	461404	11/12/2024
Total JEFF DOYLE:				99.99		
JEFFERSON CO CLERK OF COURTS						
10226						
BISCHOFF 24-15375	BOND-BISCHOFF, TRISTAN C 01081997	01271990	11/14/2024	150.00	461489	11/19/2024
MILLER 24-14675	BOND-MILLER, KATRINA M 05242007	01271990	11/07/2024	150.00	461405	11/12/2024
Total JEFFERSON CO CLERK OF COURTS:				300.00		
JEFFERSON CO REGISTER OF DEEDS						
10280						
CUP-321 FRONT ST	REC CUP - 321 FRONT ST	01514018	10/28/2024	30.00	461346	11/05/2024
Total JEFFERSON CO REGISTER OF DEEDS:				30.00		
JEFFERSON COUNTY LAND						
10248						
5880	GIS HOURS	01561160	11/11/2024	1,325.00	461490	11/19/2024
Total JEFFERSON COUNTY LAND:				1,325.00		
JEFFERSON COUNTY TREASURER						
10295						
OCT2024	COUNTY COURT FINES - OCTOBER 2024	01436100	11/22/2024	2,385.01	461553	11/26/2024
OCT-NOV 2024	DOG LICENSES: OCT-NOV 2024	01431132	11/14/2024	66.25	461491	11/19/2024
Total JEFFERSON COUNTY TREASURER:				2,451.26		
JEFFERSON FIRE AND SAFETY INC						
10300						
IN319904	BOOTS FIRE	24581105	10/25/2024	1,242.00	461492	11/19/2024
Total JEFFERSON FIRE AND SAFETY INC:				1,242.00		
JOHN BOLLIG						
553533						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	250.00	461554	11/26/2024
Total JOHN BOLLIG:				250.00		

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
JOHNS RECYCLING INC						
10496						
28322	SINGLE STREAM MIX RECYCLING	17581741	10/31/2024	6,518.51	461493	11/19/2024
Total JOHNS RECYCLING INC:				6,518.51		
JOHNSON CONTROLS						
10500						
1-134647200784	SERVICE AGREEMENT - WW	02850020	11/18/2024	1,437.50	461555	11/26/2024
Total JOHNSON CONTROLS:				1,437.50		
JOHNSONS NURSERY INC						
10504						
102853	TREES FOR ROESELER PLANTING	05581110	10/21/2024	200.00	461347	11/05/2024
MO-21108-1	TREES FOR ROESELER PLANTING	05581110	10/21/2024	955.00	461406	11/12/2024
Total JOHNSONS NURSERY INC:				1,155.00		
JOLLY GIANTS STILT WALKERS LLC						
10620						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	625.00	461556	11/26/2024
Total JOLLY GIANTS STILT WALKERS LLC:				625.00		
JOMAR QSUB INC						
555377						
2400342552	REMAN BRAKE SHOES	01541120	10/22/2024	509.17	461348	11/05/2024
2400357069	BRAKE SHOES - STOCK	01541120	11/04/2024	198.30	461494	11/19/2024
Total JOMAR QSUB INC:				707.47		
JULIE KULKE KRUEGER						
11866						
111224	REIMBURSE SAFETY BOOTS-PARK	01554159	11/12/2024	100.00	461495	11/19/2024
Total JULIE KULKE KRUEGER:				100.00		
JWR INC						
10015						
P44-0346	PIPE SWIVELS	17581720	10/28/2024	31.28	461349	11/05/2024
Total JWR INC:				31.28		
JX ENTERPRISES INC						
1094						
13256643P	BELTS VEH #57	16581622	10/25/2024	123.98	461350	11/05/2024
Total JX ENTERPRISES INC:				123.98		
K & K MASONRY						
11005						
APPL FOR PYMT No. 9-FI	RIVERSIDE PARK STONE WALL REHAB PROJECT	05581106	11/07/2024	2,000.00	461407	11/12/2024
Total K & K MASONRY:				2,000.00		

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
KATHERINE GATLIN						
7141						
11424	REC CONTRACT DANCE INSTRUCTION	01552117	11/04/2024	3,048.00	461408	11/12/2024
Total KATHERINE GATLIN:				3,048.00		
KATHRYN KELLER						
555604						
1	REFUND PLUMBING PERMIT #24-151 - DUPLICATE FOR 5	01435153	11/06/2024	77.00	461409	11/12/2024
Total KATHRYN KELLER:				77.00		
KAYSER CHRYSLER CENTER OF WATERTOWN						
11090						
GN13493-2025 FORD EX	2025 FORD EXPL 1FM5K8AB3SGA03107	05521170	11/06/2024	46,075.44	461379	11/08/2024
GN13493-2025 FORD EX	2025 FORD EXPL 1FM5K8AB3SGA03107	05521170	11/06/2024	46,075.44-		
Total KAYSER CHRYSLER CENTER OF WATERTOWN:				.00		
KIMBALL MIDWEST						
11383						
102737918	SHOP SUPPLIES	01541120	10/25/2024	158.18	461351	11/05/2024
102792968	SHOP STOCK SUPPLIES	01541120	11/13/2024	277.78	461496	11/19/2024
Total KIMBALL MIDWEST:				435.96		
KWIK TRIP EXTENDED NETWORK						
11971						
NP67395624	PD - FUEL / CAR WASH	01521140	11/04/2024	40.00	461410	11/12/2024
NP67395648	FUEL	14531342	11/04/2024	29.71	461352	11/05/2024
Total KWIK TRIP EXTENDED NETWORK:				69.71		
KYLE FINLEY						
55070						
18-059400-01	REFUND UTILITY OVERPAYMENT	99001105	10/30/2024	72.69	461497	11/19/2024
Total KYLE FINLEY:				72.69		
LAKESIDE INTERNATIONAL TRUCKS						
12048						
7274296P	BRAKE DRUMS (4) VEH #52	01541120	11/04/2024	580.00	461498	11/19/2024
8301979P	SENSOR AND GAUGE VEH #18	17581720	11/12/2024	223.39	461498	11/19/2024
8302031P	ANTIFREEZE SWITCH VEH #18	17581720	11/12/2024	70.42	461498	11/19/2024
CM8301979P	GAUGE RETURN	17581720	11/12/2024	100.94-	461498	11/19/2024
Total LAKESIDE INTERNATIONAL TRUCKS:				772.87		
LANGUAGE LINE SERVICES						
12115						
11430491	OVER THE PHONE INTERPRETATION	01521117	10/31/2024	72.70	461411	11/12/2024
Total LANGUAGE LINE SERVICES:				72.70		
LEMKE FENCE OF JEFFERSON INC						
12318						
17919	CHAIN LINK FENCE & GATES	24517120	10/28/2024	4,998.00	461412	11/12/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
Total LEMKE FENCE OF JEFFERSON INC:				4,998.00		
LICETH RAMIREZ						
555607						
111224	REFUND SECURITY DEPOSIT	01271970	11/12/2024	200.00	461499	11/19/2024
Total LICETH RAMIREZ:				200.00		
LIFE ASSIST						
553503						
1506143	EMS SUPPLIES FIRE	01523154	09/03/2024	838.73	461413	11/12/2024
1508671	EMS SUPPLIES FIRE	01523154	09/10/2024	87.50	461413	11/12/2024
1508968	EMS SUPPLIES FIRE	01523154	09/11/2024	278.84	461413	11/12/2024
1523314	DISPOSABLE BLADES FD	01523154	10/28/2024	298.86	461353	11/05/2024
1523701	IV SET FIRE	01523154	10/29/2024	300.00	461353	11/05/2024
1524228	EMS SUPPLIES FIRE	01523154	10/30/2024	1,644.83	461353	11/05/2024
1524229	EMS SUPPLIES FIRE	01523154	10/30/2024	237.08	461353	11/05/2024
1525099	EMS SUPPLIES FIRE	01523154	11/01/2024	219.36	461413	11/12/2024
1527280	EMS BLADES AND HANDLES FIRE	01523154	11/10/2024	121.60	461500	11/19/2024
1528483	EMS SUPPLIES FIRE	01523154	11/21/2024	157.90	461557	11/26/2024
1529288	EMS SUPPLIES FIRE	01523154	11/18/2024	172.41	461557	11/26/2024
Total LIFE ASSIST:				4,357.11		
LINCOLN CONTRACTORS SUPPLY INC						
12372						
J24118	WACKER PUMP CARB KIT	01541120	10/11/2024	374.10	461501	11/19/2024
Total LINCOLN CONTRACTORS SUPPLY INC:				374.10		
LISA SCHWARTZ						
19380						
102424 SCHWARTZ	MILEAGE REIMBURSEMENT HR	01516024	10/24/2024	75.04	461354	11/05/2024
Total LISA SCHWARTZ:				75.04		
LRS						
554437						
0005504496	TRASH DISPOSAL AIRPORT - NOV	01545318	10/31/2024	76.23	461502	11/19/2024
Total LRS:				76.23		
LUKAS SAEGER						
552558						
SAEGER 11052024	SAFETY BOOT REIMBURSEMENT	01543159	11/05/2024	100.00	461503	11/19/2024
Total LUKAS SAEGER:				100.00		
LWMMI						
12009						
WM000142910377A	LIABILITY CLAIM REIMBURSEMENT (WM000142910377)	03994018	09/18/2024	1,253.83	461504	11/19/2024
Total LWMMI:				1,253.83		
MAAS BROS CONSTRUCTION CO						

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
13028						
23300-00006	FIRE STATION - PAYMENT #6	05523170	10/29/2024	1,871,647.41	461505	11/19/2024
Total MAAS BROS CONSTRUCTION CO:				1,871,647.41		
MACQUEEN EQUIPMENT & EMERGENCY						
554177						
P38110	REAIR FACEMASK FIRE	24581105	10/31/2024	465.26	461414	11/12/2024
Total MACQUEEN EQUIPMENT & EMERGENCY:				465.26		
MARGARET CHECKAI - PETTY CASH						
27109						
101424 LIB	ADULT SLC	11581218	10/14/2024	29.10	461446	11/14/2024
102124 LIB	POSTAGE	11581218	10/21/2024	5.38	461446	11/14/2024
110624 LIB	TRAVEL - PARKING	11581224	11/06/2024	5.00	461446	11/14/2024
111224 LIB	ADULT SLC	11581218	11/12/2024	10.99	461446	11/14/2024
111224 LIB	ADULT SLC	11581218	11/12/2024	2.50	461446	11/14/2024
111324 LIB	ADULT SLC	11581218	11/12/2024	23.75	461446	11/14/2024
201719	DONATION PURCHASE, FRIENDS WOW	11581250	11/08/2024	99.00	461446	11/14/2024
Total MARGARET CHECKAI - PETTY CASH:				175.72		
MARINE CORP LEAGUE DETACHMENT 349						
13091						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	100.00	461558	11/26/2024
Total MARINE CORP LEAGUE DETACHMENT 349:				100.00		
MARION BODY WORKS INC						
13089						
150970	E61 LABEL FOR PUMP PANEL FIRE	01523142	11/11/2024	39.65	461506	11/19/2024
Total MARION BODY WORKS INC:				39.65		
MARSHFIELD CLINIC HEALTH SYSTEM INC						
554669						
3764-31121	DRUG SCREEN HODEL PARK	01554159	10/30/2024	42.00	461416	11/12/2024
Total MARSHFIELD CLINIC HEALTH SYSTEM INC:				42.00		
MARTELLE WATER TREATMENT						
13099						
28152	CHEMICALS-CL2 & HFSA - WTR	03644140	10/30/2024	4,021.43	461415	11/12/2024
Total MARTELLE WATER TREATMENT:				4,021.43		
MASON BECKER						
554555						
111924 BECKER	REIMBURSEMENT FOR PARKING BECKER SIDC	60510524	11/19/2024	16.00	461559	11/26/2024
Total MASON BECKER:				16.00		
MEAD AND HUNT INC						
554744						
375081	PROJ R4667475-231187.01 MASONIC TEMPLE STABILITY	05581140	10/14/2024	14,636.89	461355	11/05/2024
376103	PROJ R4667475-231187.01 MASONIC TEMPLE STABILITY	05581140	11/06/2024	5,680.93	461417	11/12/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
376836	R4666751-232328.01 2024 WTR & SWR GIS - WTR	03999998	11/13/2024	1,652.00	461507	11/19/2024
376836	R4666751-232328.01 2024 WTR & SWR GIS - WW	02973000	11/13/2024	2,549.00	461507	11/19/2024
Total MEAD AND HUNT INC:				24,518.82		
MEBULBS PREMIUM QUALITY LIGHTING						
555374						
47881308-1	MUNI BLDG - LIGHT BULBS	01517118	11/18/2024	609.55	461560	11/26/2024
Total MEBULBS PREMIUM QUALITY LIGHTING:				609.55		
MENARDS INC						
13384						
77079	PAINT - PARKS	01554118	09/10/2024	2,878.56	461508	11/19/2024
78594	REFUND TRIM CRATE	24554120	10/11/2024	79.99-	461508	11/19/2024
79288	WASH MACHINE - WTR	03993018	10/25/2024	568.00	461356	11/05/2024
79428	BATTERIES-CAMERA EQUIP - WW	02831045	10/28/2024	40.93	461356	11/05/2024
79428	BLDG & GRNDS SUPPLIES - WW	02820018	10/28/2024	74.70	461356	11/05/2024
79668	ELECTION SUPPLIES	01514118	11/12/2024	146.74	461508	11/19/2024
80267	REPAIR SUPPLIES-UV WRKSTN/FERRIC ALRM - WW	02820018	11/14/2024	63.89	461561	11/26/2024
Total MENARDS INC:				3,692.83		
METRON FARNIER LLC						
553985						
100003683	2" SPOOL(6)-LG MTR PIPING - WTR	03666318	04/12/2024	1,402.62	461562	11/26/2024
Total METRON FARNIER LLC:				1,402.62		
MID-STATE EQUIPMENT						
13424						
D82923	BOBCAT PIN KIT-PARKS	01554142	10/24/2024	70.60	461357	11/05/2024
Total MID-STATE EQUIPMENT:				70.60		
MIDWEST TAPE						
27469						
506140034	ADULT TALKING BOOKS	11581246	10/04/2024	45.99	461447	11/14/2024
506273314	DATABASE - HOOPLA	11581246	10/31/2024	1,191.97	461447	11/14/2024
Total MIDWEST TAPE:				1,237.96		
MILWAUKEE BREWERS BASEBALL CLUB						
13516						
CI000000012047	JULY 4 PARADE PARTICIPANT	24581110	10/28/2024	875.00	461358	11/05/2024
Total MILWAUKEE BREWERS BASEBALL CLUB:				875.00		
MINNESOTA MUTUAL LIFE INS CO						
13558						
002932L DEC	EMPLOYEE LIFE INSURANCE ER DEC	01213167	11/01/2024	3,727.11	1129245	11/22/2024
002932L DEC	EMPLOYEE LIFE INSURANCE EE DEC	01213167	11/01/2024	2,358.57	1129245	11/22/2024
002932L DEC	EMPLOYEE LIFE INSURANCE EE DEC ZIRBES	01213167	11/01/2024	17.82-	1129245	11/22/2024
Total MINNESOTA MUTUAL LIFE INS CO:				6,067.86		

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
MULCAHY SHAW WATER INC						
13870						
326344	ORTHO P ANALYZER REPAIR - WW	02850020	11/20/2024	686.29	461563	11/26/2024
Total MULCAHY SHAW WATER INC:				686.29		
NAPA AUTO PARTS-WATERTOWN						
14085						
316323	FUEL FILTER VEH #20	17581720	10/23/2024	25.93	461359	11/05/2024
Total NAPA AUTO PARTS-WATERTOWN:				25.93		
NEW BEGINNINGS APFV						
555147						
WTPD DONUT DASH-202	2024 DONUT DASH DONATION	24581113	11/19/2024	3,292.40	461564	11/26/2024
Total NEW BEGINNINGS APFV:				3,292.40		
NEW RESTORATION AND RECOVERY SERVICES						
555600						
APPL FOR PAYMENT No.	STORM SEWER CLEANING & TV - 2024	16581643	10/28/2024	207,949.81	461360	11/05/2024
Total NEW RESTORATION AND RECOVERY SERVICES:				207,949.81		
NICOLE HESPE						
8378						
NHSAS11624	HYGIENIST SEAL A SMILE - LEB 9/25/24 3.5	18531817	11/06/2024	147.00	461418	11/12/2024
NHSAS11624	HYGIENIST SEAL A SMILE - SCHURZ 10/2/24 4	18531817	11/06/2024	168.00	461418	11/12/2024
NHSAS11624	HYGIENIST SEAL A SMILE - SCHURZ 10/9/24 4.25	18531817	11/06/2024	178.50	461418	11/12/2024
NHSAS11624	HYGIENIST SEAL A SMILE - SCHURZ 10/16/24 4	18531817	11/06/2024	168.00	461418	11/12/2024
NHSAS11624	HYGIENIST SEAL A SMILE - SCHURZ 10/23/24 3.5	18531817	11/06/2024	147.00	461418	11/12/2024
NHSAS11624	HYGIENIST SEAL A SMILE - LINCOLN 4.5	18531817	11/06/2024	189.00	461418	11/12/2024
NHSAS11624	HYGIENIST SEAL A SMILE - LINCOLN 3.5	18531817	11/06/2024	147.00	461418	11/12/2024
Total NICOLE HESPE:				1,144.50		
OFFICE PRO						
15275						
713354-0	SHRED SERVICES	01514018	11/21/2024	50.00	461565	11/26/2024
Total OFFICE PRO:				50.00		
OLSEN SAFETY EQUIPMENT CORP						
15575						
0420136-IN	HEAVY & DRIVER GLOVES	01543159	10/22/2024	135.36	461361	11/05/2024
0420136-IN	HEAVY & DRIVER GLOVES	16581641	10/22/2024	135.36	461361	11/05/2024
Total OLSEN SAFETY EQUIPMENT CORP:				270.72		
PARTNER2LEARN LLC						
555538						
1629	CS ASSESSMENT, SESSIONS, AND TEAM LEARNING FIR	01523148	10/25/2024	1,690.44	461419	11/12/2024
1629	CS ASSESSMENT, SESSIONS, AND TEAM LEARNING FIR	24581119	10/25/2024	3,000.00	461419	11/12/2024
1638	INDIVIDUAL SESSION BRAUNSCHWEIG FIRE	01523119	11/12/2024	490.00	461509	11/19/2024
1639	COACHING SESSIONS FIRE	01523148	11/12/2024	7,840.00	461509	11/19/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
Total PARTNER2LEARN LLC:				13,020.44		
PASSENGER TRANSIT INC						
16165						
1886	TAXI RIDES-SR CTR	24581107	11/06/2024	87.00	461510	11/19/2024
1888	5 VOUCHERS	01531218	11/12/2024	20.00	461510	11/19/2024
1894	CAB SERVICE REVENUE - OCT 2024	13427375	11/07/2024	29,202.00-	461566	11/26/2024
1894	CAB SERVICE EXPENSE - OCT 2024	13571146	11/07/2024	77,383.49	461566	11/26/2024
Total PASSENGER TRANSIT INC:				48,288.49		
PATRICIA WERNER						
554509						
111224	SECURITY DEPOSIT REFUND	01271970	11/12/2024	100.00	461511	11/19/2024
Total PATRICIA WERNER:				100.00		
PAYNE & DOLAN INC						
16185						
APPL FOR PYMT No. 3	#6-24 BITUMINOUS SURFACING	05581169	11/22/2024	110,274.81	461567	11/26/2024
APPL FOR PYMT No. 4	#6-24 BITUMINOUS SURFACING	05581169	11/22/2024	249,023.49	461567	11/26/2024
APPL FOR PYMT No. 5	#6-24 BITUMINOUS SURFACING	08580431	11/22/2024	196,222.67	461567	11/26/2024
Total PAYNE & DOLAN INC:				555,520.97		
PERSONNEL EVALUATION INC						
16281						
53114	PD NEW EMPL EXAM	01521117	10/31/2024	136.00	461568	11/26/2024
Total PERSONNEL EVALUATION INC:				136.00		
PETER SEIBEL						
554973						
111824	REIMBURSE SAFETY BOOTS	01554159	11/18/2024	100.00	461569	11/26/2024
Total PETER SEIBEL:				100.00		
PITNEY BOWES BANK INC RESERVE ACCOUNT						
18450						
NOV2024	POSTAGE FOR RESERVE ACCOUNT 20774378	01212118	11/04/2024	4,000.00	461423	11/12/2024
Total PITNEY BOWES BANK INC RESERVE ACCOUNT:				4,000.00		
PLAYAWAY PRODUCTS LLC						
554731						
479575	ADULT TALKING BOOKS	11581246	10/28/2024	577.13	461448	11/14/2024
480904	CHILDREN AUDIO	11581246	11/08/2024	74.99	461448	11/14/2024
Total PLAYAWAY PRODUCTS LLC:				652.12		
POCKETALK INC						
555215						
005828	POCKETALK TRANSLATION UNIT-FINANCE	01514018	10/30/2024	314.00	461420	11/12/2024
005828	POCKETALK TRANSLATION UNIT-WATER	03992317	10/30/2024	628.00	461420	11/12/2024
005828	POCKETALK TRANSLATION UNIT-STREET	01542118	10/30/2024	314.00	461420	11/12/2024
005828	POCKETALK TRANSLATION UNIT-STORM WATER	16581618	10/30/2024	314.00	461420	11/12/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
Total POCKETALK INC:				1,570.00		
PRINTELECT						
16752						
34929	ELECTION SUPPLIES	01514160	11/01/2024	88.80	461512	11/19/2024
34930	ELECTION SUPPLIES	01514160	11/01/2024	269.13	461512	11/19/2024
Total PRINTELECT:				357.93		
PROHEALTH MEDICAL GROUP INC						
16681						
324303	BRUNET NEW HIRE TESTS FIRE	01523119	11/01/2024	615.00	461421	11/12/2024
Total PROHEALTH MEDICAL GROUP INC:				615.00		
R A SMITH & ASSOCIATES INC						
18002						
184096	PROJ 1240004 ONE-WAY CONVERSION STUDY 3RD, 4TH	24541026	10/25/2024	17,213.00	461513	11/19/2024
Total R A SMITH & ASSOCIATES INC:				17,213.00		
R&R INSURANCE SERVICES INC						
18005						
3113442	LIABILITY PACKAGE - LWMMI	01519440	11/01/2024	18,780.50	461570	11/26/2024
3113443	WORKER COMP INSURANCE	01519446	11/01/2024	24,202.00	461570	11/26/2024
Total R&R INSURANCE SERVICES INC:				42,982.50		
RAISERIGHT						
555609						
I26821756	SCRIP CARDS-SR CTR	24581107	11/08/2024	1,265.00	461514	11/19/2024
Total RAISERIGHT:				1,265.00		
RAY O HERRON CO INC						
15450						
2372557	TRAINING-AMMO	01521156	10/21/2024	1,491.00	461422	11/12/2024
Total RAY O HERRON CO INC:				1,491.00		
READY 2 DANCE						
554957						
0000015	WELLNESS GRANT CLASS	01516018	10/20/2024	75.00	461362	11/05/2024
16	WELLNESS GRANT CLASS	01516018	11/05/2024	75.00	461571	11/26/2024
Total READY 2 DANCE:				150.00		
REDFORD DATA SERVICES LLC						
18371						
462	OCONNELL TWR RADIO - WTR	03993331	11/06/2024	235.32	461515	11/19/2024
462	SCADA SYSTEM UPGRADE - WW	02850060	11/06/2024	4,414.13	461515	11/19/2024
Total REDFORD DATA SERVICES LLC:				4,649.45		
REINDERS INC						

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
18388						
6063304-00	BALL JOINTS-PARKS	01554142	11/04/2024	184.58	461516	11/19/2024
Total REINDERS INC:				184.58		
RHYME BUSINESS PRODUCTS						
4092						
37783307	COPIER MAINT FEE-	01521120	10/31/2024	100.26	461517	11/19/2024
37908918	COPIER MAINT FEE-BS&Z	01524126	11/18/2024	35.86	461573	11/26/2024
AR786540	RETURN OF REPLACED COPIERS	01514018	11/18/2024	350.00	461574	11/26/2024
Total RHYME BUSINESS PRODUCTS:				486.12		
ROBERT J ESKE						
5700						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	10/31/2024	1,000.00	461575	11/26/2024
Total ROBERT J ESKE:				1,000.00		
ROB'S PERFORMANCE MOTORSPORTS LLC						
555557						
4687215	SKI DOO BELT & COVER	05554170	10/24/2024	441.98	461363	11/05/2024
Total ROB'S PERFORMANCE MOTORSPORTS LLC:				441.98		
RUEKERT MIELKE INC						
18891						
154000	PROJ 79-10040 TIF #4 POND RETROFIT	16581647	10/31/2024	450.00	461424	11/12/2024
Total RUEKERT MIELKE INC:				450.00		
RYAN MILLER						
555608						
547103	SAFETY SHOE REIMBURSEMENT - WTR	03992118	11/04/2024	100.00	461425	11/12/2024
Total RYAN MILLER:				100.00		
SABEL MECHANICAL LLC						
554385						
240801	LAUNDER COVER INSTLL COMPLETE - WW	02973012	10/17/2024	28,434.60	461364	11/05/2024
Total SABEL MECHANICAL LLC:				28,434.60		
SAFETY KLEEN SYSTEMS INC						
19061						
95745254	OIL RECYCLING	17581741	10/29/2024	490.00	461518	11/19/2024
Total SAFETY KLEEN SYSTEMS INC:				490.00		
SCHAEFER SOFT WATER INC						
19255						
T25081	JANITORIAL SUPPLIES	11581220	11/01/2024	192.60	461449	11/14/2024
Total SCHAEFER SOFT WATER INC:				192.60		
SCOTT CONTRUCTION INC						

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
19401						
APPL FOR PYMT No. 1 FI	SEAL COATING STREETS 2024 #3-24	05581192	10/23/2024	79,954.56	461365	11/05/2024
Total SCOTT CONTRUCTION INC:				79,954.56		
SCOTT LANGE						
12114						
111224	REFUND SECURITY DEPOSIT	01271970	11/12/2024	200.00	461519	11/19/2024
Total SCOTT LANGE:				200.00		
SHORT ELLIOTT HENDRICKSON INC						
19563						
6969.75	INSTALLMENT OF STATION DESIGN FEE FIRE	05523170	11/12/2024	6,969.75	461576	11/26/2024
Total SHORT ELLIOTT HENDRICKSON INC:				6,969.75		
SIGNWORKS						
552469						
22153	FIRE STA: MONUMENT SIGN-REMAINDER	05523170	11/18/2024	9,440.34	461577	11/26/2024
Total SIGNWORKS:				9,440.34		
SILVER LAKE AUTO & TIRE CENTER						
19572						
P-32660	TOWING-PD	01521149	11/07/2024	99.00	461426	11/12/2024
P-32764	TOWING-PD	01521149	11/16/2024	130.00	461578	11/26/2024
Total SILVER LAKE AUTO & TIRE CENTER:				229.00		
STATE OF WI - COURT FINES & SURCHARGES						
19788						
OCT2024	COURT FINES DUE STATE - OCTOBER 2024	01436100	11/22/2024	8,971.64	461579	11/26/2024
Total STATE OF WI - COURT FINES & SURCHARGES:				8,971.64		
STEPHANIE JUHL						
554820						
103124	REIMBURSE FOR ORNAMENTS	01552118	10/31/2024	7.91	461427	11/12/2024
Total STEPHANIE JUHL:				7.91		
STEVEN CHESEBRO						
554202						
10.21.2024	MILEAGE REIMBURSEMENT-CA	01516124	10/21/2024	10.72	461520	11/19/2024
10/30/2024	MILEAGE REIMBURSEMENT-CA	01516124	10/30/2024	21.44	461366	11/05/2024
Total STEVEN CHESEBRO:				32.16		
STRAND ASSOCIATES INC						
19850						
0218112	ON-DEMAND SERV-PLSL&WEST TWR - WTR	03999999	11/13/2024	2,344.47	461580	11/26/2024
0218113	1550.011-ELEVATED TANK PROJECT - WTR	03999998	11/13/2024	6,080.89	461580	11/26/2024
Total STRAND ASSOCIATES INC:				8,425.36		

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
STRYKER SALES CORPORATION						
19870						
9207517668	LUCAS BATTERY CHARGER FIRE	24581118	10/23/2024	1,212.90	461428	11/12/2024
Total STRYKER SALES CORPORATION:				1,212.90		
SUGAR LLAMA COOKIES LLC						
555594						
000070	BOO BASH COOKIES	26554341	10/24/2024	300.00	461429	11/12/2024
Total SUGAR LLAMA COOKIES LLC:				300.00		
TAYLOR & JESSE FAUBEL						
555610						
7-021300-04	REFUND UTILITY OVERPAYMENT	99001105	10/29/2024	220.67	461521	11/19/2024
Total TAYLOR & JESSE FAUBEL:				220.67		
TELEFLEX LLC						
552733						
9509147842	IO NEEDLES FIRE	01523154	10/30/2024	550.00	461522	11/19/2024
Total TELEFLEX LLC:				550.00		
THALIA TINOCO VARGAS						
54011						
111224	REFUND SECURITY DEPOSIT	01271970	11/12/2024	200.00	461523	11/19/2024
Total THALIA TINOCO VARGAS:				200.00		
THE CORRAL TRAILER SALES INC						
554265						
17025	TRAILER EQUALIZERS	01541120	10/29/2024	157.00	461367	11/05/2024
Total THE CORRAL TRAILER SALES INC:				157.00		
TIM HAYDEN						
554470						
WWOA1022-2524TH	REIMBURSE WWOA TRAVEL/MEALS - WW	02820024	10/29/2024	439.90	461368	11/05/2024
Total TIM HAYDEN:				439.90		
TIM THEDER LANDSCAPE CONTRACTOR INC						
555160						
24-865	TS PARK MAINT	26554320	11/07/2024	1,000.00	461524	11/19/2024
Total TIM THEDER LANDSCAPE CONTRACTOR INC:				1,000.00		
TINA PEERENBOOM						
27615						
TP110824 LIB	MILEAGE REIMBURSEMENT	11581224	11/08/2024	160.80	461450	11/14/2024
Total TINA PEERENBOOM:				160.80		
TKK ELECTRONICS						
20014						
141799	DOCK AND TOUGHBOOK FOR 4102 TAHOE FIRE	05523170	09/13/2024	2,558.00	461525	11/19/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
Total TKK ELECTRONICS:				2,558.00		
TOM NICKELS						
14412						
NICKELS 110272024	REIMBURSE SAFETY BOOTS-STREET	01543159	10/27/2024	100.00	461526	11/19/2024
Total TOM NICKELS:				100.00		
TOMMIE J HOWELL						
8698						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	1,200.00	461581	11/26/2024
Total TOMMIE J HOWELL:				1,200.00		
TONY ROCKER ENTERPRISES						
18699						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	450.00	461582	11/26/2024
Total TONY ROCKER ENTERPRISES:				450.00		
TOP PACK DEFENSE LLC						
552646						
14420	PD - BALLISTIC VEST - GALLEGOS	01521154	10/23/2024	1,036.00	461369	11/05/2024
14513	CSO - JACKET, HAT	01521154	11/04/2024	348.98	461527	11/19/2024
Total TOP PACK DEFENSE LLC:				1,384.98		
TRITECH SOFTWARE SYSTEMS						
20825						
423932	SOFTWARE SUBSCRIPTION-FIRE	01523128	11/01/2024	483.00	461430	11/12/2024
Total TRITECH SOFTWARE SYSTEMS:				483.00		
TRUCK COUNTRY OF WI						
20845						
X201894196:01	SIGNAL/TURN LAMP VEH #33	01541120	10/29/2024	86.42	461370	11/05/2024
Total TRUCK COUNTRY OF WI:				86.42		
TURBO TECHNOLOGIES INC						
555589						
33654	400 GAL HYDROSEEDER	05541170	10/22/2024	4,445.00	461371	11/05/2024
33654	400 GAL HYDROSEEDER	24554160	10/22/2024	10,000.00	461371	11/05/2024
Total TURBO TECHNOLOGIES INC:				14,445.00		
TVG AUTOMATION LLC						
20013						
10698	EQUIP CALIBRATION - WW	02831030	10/22/2024	1,587.30	461372	11/05/2024
Total TVG AUTOMATION LLC:				1,587.30		
U.S. BANK						
552451						
0173 112524	REC ADMIN COMMAND HOOKS	01552018	11/25/2024	8.98	1130241	11/30/2024
0173 112524	REC FAMILY BINGO SUPPLIES	01552118	11/25/2024	79.00	1130241	11/30/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
0173 112524	REC FAMILY BINGO SUPPLIES	01552118	11/25/2024	89.81	1130241	11/30/2024
0173 112524	SR CTR EVENT SUPPLIES	24581107	11/25/2024	6.86	1130241	11/30/2024
0173 112524	REC DECK THE HOUSE ORNAMENTS	01552118	11/25/2024	49.48	1130241	11/30/2024
0173 112524	REC CANVA SUBSCRIPTION	01552022	11/25/2024	119.99	1130241	11/30/2024
0236 112524	DESK FOR HR ASST. HUMAN RESOURCES	01516060	11/25/2024	1,040.00	1130241	11/30/2024
0312 112524	REC ADMIN BLDG URINAL DEODORIZERS	01552026	11/25/2024	54.60	1130241	11/30/2024
0312 112524	REC ADMIN BLDG FLASHING, ELEC BOX, ETC	01552020	11/25/2024	52.45	1130241	11/30/2024
0312 112524	REC ADMIN BLDG FLOOR CLEANER	01552026	11/25/2024	111.00	1130241	11/30/2024
0312 112524	REC ADMIN BLDG MISC HARDWARE	01552020	11/25/2024	9.10	1130241	11/30/2024
0312 112524	REC SPORTS WHISTLES	01552118	11/25/2024	14.99	1130241	11/30/2024
0312 112524	BFTS STRING LIGHTS, SNOWFLAKES	26554341	11/25/2024	90.98	1130241	11/30/2024
0312 112524	REC HOLIDAY LIGHT UP SALE ITEMS	01552118	11/25/2024	134.60	1130241	11/30/2024
0312 112524	SR CTR NETFLIX	24581107	11/25/2024	16.34	1130241	11/30/2024
0312 112524	SR CTR VETERAN'S DAY CAKE	24581107	11/25/2024	56.78	1130241	11/30/2024
0312 112524	REC ADMIN FACIAL TISSUE	01552018	11/25/2024	60.25	1130241	11/30/2024
0312 112524	REC ADMIN LAUNDRY DETERGENT	01552018	11/25/2024	1.25	1130241	11/30/2024
0312 112524	REC ADMIN BLDG MOUSE TRAPS, LIGHTBULB	01552026	11/25/2024	46.61	1130241	11/30/2024
0312 112524	SR CTR COFFEE CUPS	24581107	11/25/2024	44.52	1130241	11/30/2024
0312 112524	SR CTR HOLIDAY TREE TOPPERS	24581107	11/25/2024	12.78	1130241	11/30/2024
0312 112524	REC ADMIN BLDG FLOOR CLEANER	01552026	11/25/2024	77.73	1130241	11/30/2024
0312 112524	SR CTR POPCORN TRAYS	24581107	11/25/2024	28.42	1130241	11/30/2024
0312 112524	REC ADMIN BLDG DOOR HINGES	01552026	11/25/2024	39.00	1130241	11/30/2024
0727 112524	SUPPLIES - TELESCOPING LEVEL ROD - FORESTRY SUP	16581619	11/25/2024	194.71	1130241	11/30/2024
0731 112524	PARKING FOR FINAL TENDER INSPECTION FIRE	01525118	11/25/2024	45.00	1130241	11/30/2024
1217 112524	STAFF LUNCH - ELECTIONS	01514118	11/25/2024	48.48	1130241	11/30/2024
1217 112524	STAFF LUNCH - ELECTIONS	01514118	11/25/2024	132.52	1130241	11/30/2024
1217 112524	PHONE - CITY HALL	01517132	11/25/2024	140.22	1130241	11/30/2024
1217 112524	PHONE - POLICE	01521132	11/25/2024	205.74	1130241	11/30/2024
1217 112524	PHONE - FIRE	01523132	11/25/2024	66.42	1130241	11/30/2024
1217 112524	PHONE - HEALTH	01531232	11/25/2024	47.97	1130241	11/30/2024
1217 112524	PHONE - STREET	01542132	11/25/2024	51.66	1130241	11/30/2024
1217 112524	PHONE - LIBRARY	11581232	11/25/2024	62.73	1130241	11/30/2024
1217 112524	PHONE - SENIOR CENTER	01552032	11/25/2024	47.97	1130241	11/30/2024
1217 112524	PHONE - WASTEWATER	02820032	11/25/2024	59.04	1130241	11/30/2024
1217 112524	PHONE - WATER	03992118	11/25/2024	55.35	1130241	11/30/2024
1217 112524	PHONE - ENVIRO HEALTH	14531332	11/25/2024	14.76	1130241	11/30/2024
1797 112524	SR CENTER EVENT PLATES	24581107	11/25/2024	89.02	1130241	11/30/2024
1797 112524	REC PUZZLE HUSTLE	01552118	11/25/2024	79.17	1130241	11/30/2024
1797 112524	SR CENTER EVENT CUPS RETURN	24581107	11/25/2024	25.64-	1130241	11/30/2024
2084 112524	PRMNT BLK FINE MRK(2DOZ)/2" EXP MANILA FILE JCKT 5	03992118	11/25/2024	43.16	1130241	11/30/2024
2084 112524	FERRIC CHLORIDE SOLUTION - WW	02820060	11/25/2024	10,338.28	1130241	11/30/2024
2084 112524	REFUND SALES TAX - WTR	03992118	11/25/2024	5.50-	1130241	11/30/2024
2084 112524	REFUND SALES TAX - WW	02850044	11/25/2024	5.50-	1130241	11/30/2024
2084 112524	ICLOUD 50GB STORAGE-DEPT HEAD TABLET - WW	02850044	11/25/2024	.99	1130241	11/30/2024
2084 112524	ICLOUD 200GB STORAGE-COLL SYSTM TABLET - WW	02850044	11/25/2024	2.99	1130241	11/30/2024
2084 112524	FILTER FOR LAB WTR SOFTNER SYSTEM - WW	02820018	11/25/2024	19.00	1130241	11/30/2024
2084 112524	PORTABLE TOILET RENTAL FEE - WTR	03992318	11/25/2024	130.00	1130241	11/30/2024
2084 112524	NE TOWER CELLULAR DATA PLAN - WTR	03992318	11/25/2024	400.00	1130241	11/30/2024
2084 112524	FLUORIDE TESTING (1) - WTR	03644218	11/25/2024	29.00	1130241	11/30/2024
2084 112524	DNR ANNUAL DRINKING WATER - WTR	03992318	11/25/2024	357.78	1130241	11/30/2024
2084 112524	WASTEWATER ANALYSES/SLUDGE TESTING - WW	02820049	11/25/2024	1,416.24	1130241	11/30/2024
2084 112524	PROBE FOR TESTING DRINKING WATER - WTR	03666218	11/25/2024	635.33	1130241	11/30/2024
2084 112524	CTP CLAY VALVES-WELL 6 - WTR	03600318	11/25/2024	217.87	1130241	11/30/2024
2084 112524	OIL FLTR-BOBCAT UTV - WW	02820018	11/25/2024	41.87	1130241	11/30/2024
2084 112524	SENSOR FOR HANDHELD METER - WW	02820018	11/25/2024	814.75	1130241	11/30/2024
2084 112524	PARTS-ALLERMAN LS PUMP 2 CHK VLV - WW	02831020	11/25/2024	129.30	1130241	11/30/2024
2701 112524	BUSINESS CARDS FOR BRIAN ZIRBES & MICHAEL DAUE	01524118	11/25/2024	160.00	1130241	11/30/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
2701 112524	WIRELESS KEYBOARD & MOUSE FOR MIKE JACEK	01524118	11/25/2024	17.99	1130241	11/30/2024
2701 112524	BUSINESS CARDS FOR MIKE JACEK	01524118	11/25/2024	80.00	1130241	11/30/2024
2701 112524	FLASHLIGHT	01524118	11/25/2024	9.49	1130241	11/30/2024
2701 112524	ROOM FOR BRIAN ZIRBES DURING EWUG CONFERENC	01524124	11/25/2024	98.00	1130241	11/30/2024
2701 112524	MONTHLY PLANNER AND LARGE BINDER CLIPS	01524118	11/25/2024	17.44	1130241	11/30/2024
2701 112524	WALL CALENDAR FOR BSZ	01524118	11/25/2024	15.79	1130241	11/30/2024
3547 112524	BFTS STRING LIGHTS	26554341	11/25/2024	266.80	1130241	11/30/2024
3547 112524	BFTS STRING LIGHTS	26554341	11/25/2024	80.12	1130241	11/30/2024
3547 112524	BFTS STRING LIGHTS	26554341	11/25/2024	17.91	1130241	11/30/2024
3547 112524	REC ADMIN SCOTCH TAPE	01552018	11/25/2024	10.48	1130241	11/30/2024
3547 112524	REC TREE LIGHTING TABLECOVERS	01552118	11/25/2024	11.87	1130241	11/30/2024
3547 112524	BFTS STRING LIGHTS	26554341	11/25/2024	125.47	1130241	11/30/2024
3698 112524	HOTEL FOR WEHA - TYLER	14531323	11/25/2024	196.00	1130241	11/30/2024
3698 112524	HOTEL FOR WEHA - HOLLY	14531323	11/25/2024	196.00	1130241	11/30/2024
3698 112524	WEHA REGISTRATION	14531323	11/25/2024	350.00	1130241	11/30/2024
3698 112524	HOTEL REFUND	14531323	11/25/2024	196.00-	1130241	11/30/2024
3698 112524	HOTEL REFUND	14531323	11/25/2024	68.00-	1130241	11/30/2024
3698 112524	SUPPLIES	14531344	11/25/2024	52.49	1130241	11/30/2024
3698 112524	SHARPS	01531226	11/25/2024	189.00	1130241	11/30/2024
3698 112524	STAMPS	01531218	11/25/2024	29.99	1130241	11/30/2024
3698 112524	EH LUNCH	14531323	11/25/2024	6.94	1130241	11/30/2024
3698 112524	CHAIRS - ARPA	01531218	11/25/2024	449.97	1130241	11/30/2024
3698 112524	CHAIRS - ARPA	01531218	11/25/2024	529.90	1130241	11/30/2024
3698 112524	POWER STANDS - ARPA	14531318	11/25/2024	809.98	1130241	11/30/2024
3698 112524	HEALTH TELEPHONE	01531232	11/25/2024	192.01	1130241	11/30/2024
3698 112524	EH TELEPHONE	14531332	11/25/2024	174.32	1130241	11/30/2024
3698 112524	WELL WATER LETTER	14531318	11/25/2024	2.30	1130241	11/30/2024
3736 112524	SUBSCRIPTION	01521122	11/25/2024	12.99	1130241	11/30/2024
3769 112524	LAPTOPS HEALTH	01518618	11/25/2024	2,773.08	1130241	11/30/2024
3769 112524	COMPUTERS BSZ	16581618	11/25/2024	2,711.31	1130241	11/30/2024
3921 112524	TRAINING	01531223	11/25/2024	48.00	1130241	11/30/2024
4062 112524	OFFICE SUPPLIES - STREET DEPT (CN) CALENDAR	01542118	11/25/2024	16.59	1130241	11/30/2024
4062 112524	OFFICE SUPPLIES - ST W UT	16581618	11/25/2024	189.19	1130241	11/30/2024
4062 112524	OFFICE SUPPLIES - ST W UT	16581618	11/25/2024	17.89	1130241	11/30/2024
4062 112524	OFFICE SUPPLIES - ST W UT SPEAKER - ENG CONF RO	16581618	11/25/2024	59.21	1130241	11/30/2024
4062 112524	OFFICE SUPPLIES - ST W UT	16581618	11/25/2024	68.98	1130241	11/30/2024
4068 112524	REGISTRATION FOR COMMERCIAL BUILDING INSPECTO	01524122	11/25/2024	15.00	1130241	11/30/2024
4068 112524	SERVICES FEE FOR REGISTRATION FOR COMMERCIAL	01524122	11/25/2024	.34	1130241	11/30/2024
4481 112524	NETGEAR 5-PORT GIGABIT ETHERNET UNMANGED SWI	01516118	11/25/2024	17.92	1130241	11/30/2024
4481 112524	SUBSCRIPTION CHARGE-OCT 2024	01516118	11/25/2024	284.00	1130241	11/30/2024
4481 112524	SALES TAX REFUND-CA	01516118	11/25/2024	.93-	1130241	11/30/2024
4789 112524	PORTABLE TOILET RENTAL AT YARDWASTE SITE	16581619	11/25/2024	130.00	1130241	11/30/2024
4789 112524	CDL SCHOOL FOR MIKE APPENFELDT	17581759	11/25/2024	2,974.00	1130241	11/30/2024
4789 112524	CREDIT FOR WRONG PRICE ON PREVIOUS INVOICE	05581140	11/25/2024	538.00-	1130241	11/30/2024
4789 112524	WINTER GLOVES FOR EMPLOYEES	01543159	11/25/2024	71.98	1130241	11/30/2024
4789 112524	VARIOUS PARTS FOR STREET EQUIPMENT	01541120	11/25/2024	865.15	1130241	11/30/2024
4789 112524	VARIOUS PARTS FOR STORM WATER EQUIPMENT	16581622	11/25/2024	30.13	1130241	11/30/2024
4789 112524	VARIOUS PARTS FOR SOLID WASTE EQUIPMENT	17581720	11/25/2024	35.98	1130241	11/30/2024
4789 112524	CABLE SERVICE (2 MONTHS) AT STREET DIVISION	01542118	11/25/2024	153.80	1130241	11/30/2024
4789 112524	BULBS FOR STREET LIGHTS ON S. WATER STREET	01544220	11/25/2024	372.25	1130241	11/30/2024
4789 112524	HEATER HOSE FOR STREET EQUIPMENT	01541120	11/25/2024	65.98	1130241	11/30/2024
4789 112524	HI VIS SHIRTS FOR NEW EMPLOYEES	01543159	11/25/2024	27.56	1130241	11/30/2024
4789 112524	HI VIS SHIRTS FOR NEW EMPLOYEES	01543159	11/25/2024	26.76	1130241	11/30/2024
4789 112524	BATTERIES FOR EXIT LIGHTS IN STREET DIVISION BUIL	01541218	11/25/2024	29.07	1130241	11/30/2024
4789 112524	OFFICE CHAIR FOR FRONT DESK AT STREET DIVISION	01542118	11/25/2024	76.99	1130241	11/30/2024
4789 112524	ROLL OF STAMPS & POSTAGE	17581718	11/25/2024	75.04	1130241	11/30/2024
4945 112524	ICLOUD MAYOR PHONE	01513118	11/25/2024	.99	1130241	11/30/2024

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5083 112524	SALES TAX REFUND - WW	02820024	11/25/2024	66.35-	1130241	11/30/2024
5083 112524	WORK PANT(4)-PB - WTR	03992118	11/25/2024	173.58	1130241	11/30/2024
5083 112524	HEX WASHER 12-24X3/4(1) - WTR	03993218	11/25/2024	10.41	1130241	11/30/2024
5083 112524	GENERATOR MAINT KIT-SPAULDING ST LS - WW	02820029	11/25/2024	38.99	1130241	11/30/2024
5083 112524	CAMERA FOR WATER TOWER - WTR	03667218	11/25/2024	239.98	1130241	11/30/2024
5083 112524	4" DUCTILE IRON ELBOW - WW	02831020	11/25/2024	461.49	1130241	11/30/2024
5083 112524	HOSE NOZEL SET 2PK(1)-2NDRY BLDG - WW	02820018	11/25/2024	17.56	1130241	11/30/2024
5083 112524	SEROLOFICAL PIPETTE 100PK(1) - WW	02820048	11/25/2024	39.74	1130241	11/30/2024
5083 112524	FIRE HOSE 1.5" ADPTR/60" V-BELT - WW	02820018	11/25/2024	320.23	1130241	11/30/2024
5083 112524	CONTRACTOR 55GAL BAG 16PK(2) - WW	02820018	11/25/2024	35.34	1130241	11/30/2024
5083 112524	VLV BODY FOR POLYMER FEED - WW	02831042	11/25/2024	2,334.33	1130241	11/30/2024
5083 112524	COMPUTER MONITOR(1)-DC - WW	02850060	11/25/2024	258.00	1130241	11/30/2024
5083 112524	EXTRA LONG HEX BIT SOCKET SET - WW	02820018	11/25/2024	27.99	1130241	11/30/2024
5083 112524	COMPUTER MONITOR CABLE(1) - WW	02850060	11/25/2024	19.59	1130241	11/30/2024
5083 112524	HETONIC RADIO SYSTEM-CRANE TRUCK - WW	02831010	11/25/2024	1,034.95	1130241	11/30/2024
5083 112524	HETONIC RADIO SYSTEM-CRANE TRUCK - WW	02831010	11/25/2024	1,171.95	1130241	11/30/2024
5083 112524	RPL IMPACT DRILL(1)-DISTRIBUTION - WTR	03666218	11/25/2024	288.35	1130241	11/30/2024
5083 112524	OFFICE CHAIR-AG - WW	02850044	11/25/2024	101.99	1130241	11/30/2024
5083 112524	REFUND OUT OF STOCK RADIO SYSTEM - WW	02831010	11/25/2024	1,034.95-	1130241	11/30/2024
5083 112524	BSHNG/TAP/PLUG-FERRIC SYSTEM - WW	02831042	11/25/2024	17.19	1130241	11/30/2024
5083 112524	STORAGE BOX 12PK(1) - WW	02850044	11/25/2024	40.38	1130241	11/30/2024
5083 112524	DIESEL ENGINE OIL - WW	02820029	11/25/2024	352.20	1130241	11/30/2024
5083 112524	DIESEL ENGINE OIL - WW	03623218	11/25/2024	352.20	1130241	11/30/2024
5083 112524	LED SHOP LIGHT 6PK(2) - WW	02820018	11/25/2024	398.00	1130241	11/30/2024
5083 112524	INNER FLANGE-MILW ANGLE GRNDR - WW	02820018	11/25/2024	15.29	1130241	11/30/2024
5083 112524	WORK APPAREL-POLO SHRT(10) - WTR	02820018	11/25/2024	359.90	1130241	11/30/2024
5083 112524	DRYER VENT COVER - WW	02820018	11/25/2024	9.68	1130241	11/30/2024
5083 112524	MULTI-FOLD PAPER TOWELS - WW	02850044	11/25/2024	167.96	1130241	11/30/2024
5083 112524	FASTENERS(4)-SHOP - WW	02820018	11/25/2024	10.36	1130241	11/30/2024
5083 112524	TRANSMITTER-WTP DEHUMIDIFIER - WTR	03999998	11/25/2024	1,992.94	1130241	11/30/2024
5083 112524	SHIP YSI CABLE FOR REPAIR - WW	02820018	11/25/2024	14.37	1130241	11/30/2024
5369 112524	GAS CAN FIRE	01523118	11/25/2024	39.99	1130241	11/30/2024
5369 112524	GAS FOR BOAT FIRE	01523140	11/25/2024	35.48	1130241	11/30/2024
5369 112524	RUNG KIT FOR EQUIPMENT FIRE	01523120	11/25/2024	204.88	1130241	11/30/2024
5369 112524	STABILIZER/KEY PAD FOR RADIOS FIRE	01523126	11/25/2024	212.50	1130241	11/30/2024
5515 112524	SHOP TOWELS	01541218	11/25/2024	119.90	1130241	11/30/2024
5515 112524	RATCHET TIE DOWN HOOKS	01541120	11/25/2024	24.99	1130241	11/30/2024
5515 112524	SHOVELS AND MAGNETIC HOOKS	01543154	11/25/2024	35.86	1130241	11/30/2024
5515 112524	GARDEN HOSE FOR SOLID WASTE TRUCKS	17581718	11/25/2024	44.97	1130241	11/30/2024
5515 112524	VARIOUS ITEMS FOR MAINT. SHOP	01541120	11/25/2024	54.95	1130241	11/30/2024
6201 112524	BOO BASH ADVERTISING BLAST	01552118	11/25/2024	3.21	1130241	11/30/2024
6201 112524	CERTIFICATION FEES FOR WATER EX INSTRUCTORS	01552223	11/25/2024	76.00	1130241	11/30/2024
6201 112524	SCHEDULING SOFTWARE SUBSCRIPTION FOR POOL	01552318	11/25/2024	64.60	1130241	11/30/2024
6323 112524	LED BULBS	01517118	11/25/2024	69.99	1130241	11/30/2024
6323 112524	MUNI SUPPLIES	01517118	11/25/2024	338.28	1130241	11/30/2024
6323 112524	POST DRIVER, POSTS	01517118	11/25/2024	101.84	1130241	11/30/2024
6323 112524	FD - STOVE REPAIR	01517126	11/25/2024	80.24	1130241	11/30/2024
6323 112524	LED BULBS	01517118	11/25/2024	165.97	1130241	11/30/2024
6550 112524	COFFEE - TRAINIGN	01521117	11/25/2024	100.00	1130241	11/30/2024
6650 112524	CLEANING SUPPLIES	01517118	11/25/2024	58.33	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	4.14	1130241	11/30/2024
6650 112524	DRY GAS CAN	01521144	11/25/2024	150.00	1130241	11/30/2024
6650 112524	DOOR SWEEP, MAGNUM LOCK	01517118	11/25/2024	61.78	1130241	11/30/2024
6650 112524	KEY	01517118	11/25/2024	3.32	1130241	11/30/2024
6650 112524	LIGHT CONTROL	01517118	11/25/2024	14.55	1130241	11/30/2024
6650 112524	FASTENERS	01517118	11/25/2024	1.52	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	4.28	1130241	11/30/2024

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6650 112524	POSTAGE	01521118	11/25/2024	4.28	1130241	11/30/2024
6650 112524	FLASH DRIVES	01521155	11/25/2024	34.22	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	8.30	1130241	11/30/2024
6650 112524	KEYS	01521118	11/25/2024	1.66	1130241	11/30/2024
6650 112524	FLASH DRIVES	01521155	11/25/2024	34.11	1130241	11/30/2024
6650 112524	TRAINING - BOHLMAN	01521156	11/25/2024	46.80	1130241	11/30/2024
6650 112524	AUXILIARY NAME TAGS	01521117	11/25/2024	99.00	1130241	11/30/2024
6650 112524	CLEANING SUPPLIES	01517118	11/25/2024	58.33	1130241	11/30/2024
6650 112524	CREDIT	01521155	11/25/2024	34.22-	1130241	11/30/2024
6650 112524	TOURNIQUETS	01521144	11/25/2024	52.18	1130241	11/30/2024
6650 112524	GLOVES	01521118	11/25/2024	59.90	1130241	11/30/2024
6650 112524	FD GARBAGE DISPOSAL	01517118	11/25/2024	168.33	1130241	11/30/2024
6650 112524	CREDIT	01517118	11/25/2024	168.33-	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	4.28	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	4.28	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	4.28	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	4.28	1130241	11/30/2024
6650 112524	MODEMS	01521132	11/25/2024	193.46	1130241	11/30/2024
6650 112524	BACKGROUND CHECKS	01514018	11/25/2024	308.00	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	8.35	1130241	11/30/2024
6650 112524	PBT TUBES	01521144	11/25/2024	140.00	1130241	11/30/2024
6650 112524	CLEANING SUPPLIES	01517118	11/25/2024	58.33	1130241	11/30/2024
6650 112524	SGT STRIPES	01521154	11/25/2024	87.89	1130241	11/30/2024
6650 112524	BATTERIES	01521118	11/25/2024	22.03	1130241	11/30/2024
6650 112524	POSTAGE	01521118	11/25/2024	4.28	1130241	11/30/2024
6650 112524	NAME TAGS	01521117	11/25/2024	54.00	1130241	11/30/2024
6822 112524	TRAUMA KITS - ARPA	14531318	11/25/2024	556.26	1130241	11/30/2024
6822 112524	TYVEK SUITS	01531218	11/25/2024	395.00	1130241	11/30/2024
6822 112524	LYSOL SPRAY	01531218	11/25/2024	29.99	1130241	11/30/2024
6822 112524	MONITORS, TYVEK- ARPA	01531218	11/25/2024	396.87	1130241	11/30/2024
6822 112524	POCKETALK - ARPA	14531318	11/25/2024	1,176.00	1130241	11/30/2024
6822 112524	LYSOL WIPES	01531218	11/25/2024	50.39	1130241	11/30/2024
6822 112524	PRIME	01531218	11/25/2024	14.99	1130241	11/30/2024
6822 112524	MEAL	01531223	11/25/2024	23.05	1130241	11/30/2024
6822 112524	OFFICE CHAIR - ARPA	01531218	11/25/2024	119.99	1130241	11/30/2024
6822 112524	FOOD	01531218	11/25/2024	44.45	1130241	11/30/2024
6822 112524	TOTES FOR BASEMENT - ARPA	01531218	11/25/2024	140.00	1130241	11/30/2024
6822 112524	AIRPODS	14531318	11/25/2024	119.00	1130241	11/30/2024
6822 112524	REPAIRS FOR 2014 & 2019 CARS	01531243	11/25/2024	148.68	1130241	11/30/2024
6822 112524	CASH REGISTER TAPE	01531218	11/25/2024	19.99	1130241	11/30/2024
6822 112524	CHAIR RETURN	01531218	11/25/2024	119.99-	1130241	11/30/2024
7235 112524	BATTERIES FIRE	01523118	11/25/2024	115.62	1130241	11/30/2024
7235 112524	EMS BILLING TRAINING HOTEL FIRE	01523156	11/25/2024	149.19	1130241	11/30/2024
7235 112524	EMS BILLING TRAINING HOTEL FIRE	01523156	11/25/2024	123.98	1130241	11/30/2024
7235 112524	APPARATUS SUPPLIES FIRE	01523142	11/25/2024	94.96	1130241	11/30/2024
7235 112524	PHONE FIRE INSPECTOR	24581105	11/25/2024	84.28	1130241	11/30/2024
7235 112524	EM GAUGES	01525118	11/25/2024	27.60	1130241	11/30/2024
7235 112524	PHONES IPADS FIRE	24581105	11/25/2024	3,353.41	1130241	11/30/2024
7235 112524	AIRCARE WICK FIRE	01523118	11/25/2024	74.99	1130241	11/30/2024
7235 112524	SUPPLIES FIRE	01523118	11/25/2024	39.96	1130241	11/30/2024
7235 112524	TOOLS FIRE	01523120	11/25/2024	105.65	1130241	11/30/2024
7235 112524	TOOLS/BAG FIRE	01523120	11/25/2024	75.97	1130241	11/30/2024
7235 112524	COUPLERS CHAIN PADLOCK FIRE	01523118	11/25/2024	47.60	1130241	11/30/2024
7235 112524	COUPLER KEY FIRE	01523118	11/25/2024	63.91	1130241	11/30/2024
7235 112524	SUBSCRIPTION FOR DEVICE CONTROL FIRE	01523122	11/25/2024	360.00	1130241	11/30/2024
7235 112524	OFFICE SUPPLIES FIRE	01523144	11/25/2024	50.46	1130241	11/30/2024
7235 112524	GREETING CARDS FIRE	01523118	11/25/2024	46.33	1130241	11/30/2024

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7235 112524	SCREEN PROTECTOR CASE FIRE	01523118	11/25/2024	35.83	1130241	11/30/2024
7235 112524	OFFICE SUPPLIES FIRE	01523144	11/25/2024	44.31	1130241	11/30/2024
7235 112524	KEY TAGS FIRE	01523118	11/25/2024	34.92	1130241	11/30/2024
7235 112524	CULLIGAN WATER BOTTTLES FIRE	01523118	11/25/2024	45.00	1130241	11/30/2024
7235 112524	SUPPLIES FOR PARADE FIRE	01523118	11/25/2024	96.04	1130241	11/30/2024
7235 112524	OFFICE SUPPLIES FIRE	01523144	11/25/2024	22.79	1130241	11/30/2024
7235 112524	OFFICE SUPPLIES FIRE REFUND	01523144	11/25/2024	4.97-	1130241	11/30/2024
7235 112524	OFFICE SUPPLIES FIRE	01523144	11/25/2024	65.48	1130241	11/30/2024
7235 112524	TV INTERNET FIRE	01523118	11/25/2024	211.88	1130241	11/30/2024
7235 112524	CLOUD STORAGE PETERS	01523128	11/25/2024	24.25	1130241	11/30/2024
7235 112524	EQUIPMENT FIRE	01523120	11/25/2024	258.86	1130241	11/30/2024
7535 112524	PARK HOLIDAY SUPPLIES	01554118	11/25/2024	32.60	1130241	11/30/2024
7535 112524	WAC PRIMER, CLEANER, HARDWARE	01552220	11/25/2024	54.48	1130241	11/30/2024
7535 112524	PARK GLOVES	01554118	11/25/2024	13.97	1130241	11/30/2024
7535 112524	WASHINGTON PARK PLUMBING SUPPLIES	24554120	11/25/2024	58.40	1130241	11/30/2024
7535 112524	FORESTRY 5 GALLON POTS	05581110	11/25/2024	168.93	1130241	11/30/2024
7535 112524	PARK IMPACT WRENCH & BATTERY	01554118	11/25/2024	299.00	1130241	11/30/2024
7535 112524	PARK HYDROSEEDER TOOL BOX	01554118	11/25/2024	5.99	1130241	11/30/2024
7535 112524	WASHINGTON PARK PLUMBING SUPPLIES	01554120	11/25/2024	33.70	1130241	11/30/2024
7535 112524	BFTS U-POST	26554320	11/25/2024	47.88	1130241	11/30/2024
7535 112524	BFTS FLOOR CORD COVER	26554320	11/25/2024	275.76	1130241	11/30/2024
7535 112524	BFTS PIPES FOR TREES	26554320	11/25/2024	22.61	1130241	11/30/2024
7535 112524	BFTS TREE STANDS	26554320	11/25/2024	13.89	1130241	11/30/2024
7535 112524	BFTS CONE TREE REEL	26554320	11/25/2024	6.83	1130241	11/30/2024
7535 112524	BFTS PIPES FOR TREES	26554320	11/25/2024	14.25	1130241	11/30/2024
7535 112524	WASHINGTON PARK PLUMBING TAILPIECE	01554120	11/25/2024	30.48	1130241	11/30/2024
7535 112524	PARK SHOP FASTENERS	01554120	11/25/2024	154.20	1130241	11/30/2024
7535 112524	BFTS SANTA HOUSE ADAPTER	26554320	11/25/2024	8.75	1130241	11/30/2024
7535 112524	PARK DIAMOND SAW BLADE	24554120	11/25/2024	20.23	1130241	11/30/2024
7535 112524	BFTS EXTENSION CORDS, KEY	26554320	11/25/2024	292.68	1130241	11/30/2024
7535 112524	PARK SNOW BLOWER AUGERS, SCRAPER BARS	01554142	11/25/2024	412.98	1130241	11/30/2024
7535 112524	FORESTRY HOOK, CHAIN	01561120	11/25/2024	20.40	1130241	11/30/2024
7535 112524	FORESTRY HOOKS	01561120	11/25/2024	7.20	1130241	11/30/2024
7535 112524	PARK CUT WIRE/ROPE	01554142	11/25/2024	4.72	1130241	11/30/2024
7535 112524	PARK MISC FASTENERS	01554142	11/25/2024	3.40	1130241	11/30/2024
7535 112524	PARK CHOKE KNOB, BATTERY FILLER	01554142	11/25/2024	6.47	1130241	11/30/2024
7535 112524	PARK KNOB/LEVER	24554120	11/25/2024	50.87	1130241	11/30/2024
7535 112524	PARK BELT, SKID	01554142	11/25/2024	35.29	1130241	11/30/2024
7535 112524	PARK KEY, LOCK, DUSTER	01554118	11/25/2024	36.00	1130241	11/30/2024
7535 112524	PARK RESTROOM LOCKS	24554120	11/25/2024	605.00	1130241	11/30/2024
7535 112524	PARK STRING LIGHT CREDIT	01554118	11/25/2024	3.65-	1130241	11/30/2024
7535 112524	PARK ICE SCRAPERS, WIPER BLADES	01554118	11/25/2024	183.92	1130241	11/30/2024
7535 112524	FORESTRY CLIMBERS, LANYARD, HARNESS, HANDSAW,	01561160	11/25/2024	2,195.95	1130241	11/30/2024
8428 112524	TOOLS FIRE	01523120	11/25/2024	20.27	1130241	11/30/2024
8428 112524	SAFETY EQUIPMENT TESTING FIRE	01523159	11/25/2024	224.94	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	14.24-	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	78.12	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	33.95	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	170.00	1130241	11/30/2024
8745 112524	MATERIALS, NON-BOOKS	11581246	11/25/2024	19.95	1130241	11/30/2024
8745 112524	DUES, FEES (WLA, DANIELLE)	11581222	11/25/2024	127.36	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	19.99	1130241	11/30/2024
8745 112524	OFFICE & LIBRARY SUPPLIES	11581218	11/25/2024	2.99	1130241	11/30/2024
8745 112524	REFERENCE: MATERIALS	11581246	11/25/2024	295.00	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	7.99	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	19.15	1130241	11/30/2024
8745 112524	OFFICE & LIBRARY SUPPLIES	11581218	11/25/2024	159.96	1130241	11/30/2024

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8745 112524	TEEN PROGRAMS	11581218	11/25/2024	50.94	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: COFFEE)	11581250	11/25/2024	300.00	1130241	11/30/2024
8745 112524	MAKERSPACE	11581218	11/25/2024	108.82	1130241	11/30/2024
8745 112524	OFFICE & LIBRARY SUPPLIES	11581218	11/25/2024	24.95	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	96.77	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	8.99	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	13.99	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	17.59	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	35.90	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	24.08	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	39.92	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	3.10-	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	8.99	1130241	11/30/2024
8745 112524	OFFICE & LIBRARY SUPPLIES	11581218	11/25/2024	27.75	1130241	11/30/2024
8745 112524	TRAVEL (WLA MEALS)	11581224	11/25/2024	33.26	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	219.34	1130241	11/30/2024
8745 112524	MATERIALS, NON-BOOKS	11581246	11/25/2024	7.72	1130241	11/30/2024
8745 112524	TRAVEL (WLA PARKING)	11581224	11/25/2024	11.00	1130241	11/30/2024
8745 112524	TRAVEL (WLA MEALS)	11581224	11/25/2024	71.02	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	9.63	1130241	11/30/2024
8745 112524	TRAVEL (WLA LODGING, JH)	11581224	11/25/2024	278.00	1130241	11/30/2024
8745 112524	TRAVEL (WLA LODGING, TP)	11581224	11/25/2024	278.00	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	14.96	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	173.12	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	23.98	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	50.97	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	14.96	1130241	11/30/2024
8745 112524	DONATION PURCHASE (SP)	11581250	11/25/2024	17.89	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: COFFEE)	11581250	11/25/2024	105.50	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	41.23	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	28.46	1130241	11/30/2024
8745 112524	JANITORIAL SUPPLIES	11581220	11/25/2024	1,262.79	1130241	11/30/2024
8745 112524	ADULT NONFICTION	11581246	11/25/2024	605.66	1130241	11/30/2024
8745 112524	CHILDREN BOOKS	11581246	11/25/2024	421.74	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: B4B)	11581250	11/25/2024	76.80	1130241	11/30/2024
8745 112524	LARGE PRINT	11581246	11/25/2024	24.21	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	367.25	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	642.75	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	432.38	1130241	11/30/2024
8745 112524	CHILDREN BOOKS	11581246	11/25/2024	270.40	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: B4B)	11581250	11/25/2024	76.80	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	148.01	1130241	11/30/2024
8745 112524	ADULT NONFICTION	11581246	11/25/2024	349.65	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	32.56	1130241	11/30/2024
8745 112524	MATERIALS, NON-BOOKS	11581246	11/25/2024	7.72-	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	54.41	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	21.66	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	41.26	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	12.26	1130241	11/30/2024
8745 112524	OFFICE & LIBRARY SUPPLIES	11581218	11/25/2024	26.95	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	4.99-	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	15.55	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	61.95	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	9.99	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	68.33	1130241	11/30/2024
8745 112524	JANITORIAL SUPPLIES	11581220	11/25/2024	24.99	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	19.40	1130241	11/30/2024

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8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	37.98	1130241	11/30/2024
8745 112524	DONATION PURCHASE (BRIDGES INNOVATIONS)	11581250	11/25/2024	12.94	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	42.47	1130241	11/30/2024
8745 112524	DONATION PURCHASE (BRIDGES INNOVATIONS)	11581250	11/25/2024	99.20	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	57.00	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	120.05	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	12.59	1130241	11/30/2024
8745 112524	ADULT SLC	11581218	11/25/2024	31.36	1130241	11/30/2024
8745 112524	CHILDREN PROGRAMS	11581218	11/25/2024	31.36	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	47.94	1130241	11/30/2024
8745 112524	CHILDREN BOOKS	11581246	11/25/2024	88.51	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	307.66	1130241	11/30/2024
8745 112524	YOUNG ADULT BOOKS	11581246	11/25/2024	35.73	1130241	11/30/2024
8745 112524	ADULT NONFICTION	11581246	11/25/2024	378.44	1130241	11/30/2024
8745 112524	MATERIALS, NON-BOOKS	11581246	11/25/2024	4.47	1130241	11/30/2024
8745 112524	DONATION PURCHASE (FRIENDS: MISC)	11581250	11/25/2024	53.97	1130241	11/30/2024
8745 112524	ADULT FICTION	11581246	11/25/2024	36.19	1130241	11/30/2024
8745 112524	REFERENCE: SUBSCRIPTIONS (MOBILE BEACON)	11581246	11/25/2024	1,080.00	1130241	11/30/2024
8745 112524	LARGE PRINT	11581246	11/25/2024	196.94	1130241	11/30/2024
8745 112524	LARGE PRINT	11581246	11/25/2024	25.97	1130241	11/30/2024
8745 112524	LARGE PRINT	11581246	11/25/2024	166.49	1130241	11/30/2024
8745 112524	BOOK SUPPLIES	11581218	11/25/2024	23.10	1130241	11/30/2024
8745 112524	OFFICE & LIBRARY SUPPLIES	11581218	11/25/2024	5.00	1130241	11/30/2024
8745 112524	LARGE PRINT	11581246	11/25/2024	160.37	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	5.00	1130241	11/30/2024
8745 112524	CHILDREN PROGRAMS	11581218	11/25/2024	39.74	1130241	11/30/2024
8745 112524	ADULT SLC	11581218	11/25/2024	91.60	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	3.99	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	16.03	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	25.90	1130241	11/30/2024
8745 112524	DVD	11581246	11/25/2024	16.99	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	31.64	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	36.81	1130241	11/30/2024
8745 112524	TEEN PROGRAMS	11581218	11/25/2024	6.79	1130241	11/30/2024
8745 112524	ADULT SLC	11581218	11/25/2024	11.99	1130241	11/30/2024
8747 112524	BOO BASH - CANDY	01521117	11/25/2024	79.52	1130241	11/30/2024
8877 112524	CLOUD STORAGE	01518422	11/25/2024	9.99	1130241	11/30/2024
8877 112524	CABLE TV SERVICE	01518422	11/25/2024	83.93	1130241	11/30/2024
8877 112524	EMAIL MARKETING	01518422	11/25/2024	47.48	1130241	11/30/2024
9084 112524	ELECTION WORKER SNACKS	01514118	11/25/2024	221.04	1130241	11/30/2024
9084 112524	GLUE STICKS	01514118	11/25/2024	8.27	1130241	11/30/2024
9084 112524	ZOOM: E MCFARLAND	01513118	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ZOOM: M STEVENS	01514018	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ZOOM: D BROWER	01521118	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ZOOM: B ZIRBES	01524118	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ZOOM: C QUEST	01531218	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ZOOM: A BEYER	01541018	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ZOOM: K BUTTERIS	01552018	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ZOOM: M BECKER	60510518	11/25/2024	15.99	1130241	11/30/2024
9084 112524	ELECTION WORKER LUNCH	01514118	11/25/2024	340.94	1130241	11/30/2024
9084 112524	EGOLDFAX PORTING FEES	01514018	11/25/2024	225.50	1130241	11/30/2024
9084 112524	EGOLDFAX SERVICE FEES	01518644	11/25/2024	35.99	1130241	11/30/2024
9084 112524	ELECTION WORKER SUPPER	01514118	11/25/2024	162.94	1130241	11/30/2024
9084 112524	EGOLDFAX SERVICE FEES	01518644	11/25/2024	35.99	1130241	11/30/2024
9084 112524	ELECTION SUPPLIES	01514118	11/25/2024	43.01	1130241	11/30/2024
9084 112524	QTR LEASE PAYMENT	01514026	11/25/2024	198.66	1130241	11/30/2024
9190 112524	FLOWERS FOR FUNERAL CITY	01519552	11/25/2024	76.54	1130241	11/30/2024

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9190 112524	PENS FOR MARKETING CITY	22551225	11/25/2024	239.11	1130241	11/30/2024
9190 112524	WELLNESS CLASS	01516018	11/25/2024	35.00	1130241	11/30/2024
9190 112524	WELLNESS CLASS	01516018	11/25/2024	35.00	1130241	11/30/2024
9190 112524	SUPPLIES FOR EMPLOYEE LUNCH	01519552	11/25/2024	6.07	1130241	11/30/2024
9190 112524	HR ASSIST KEYBOARD	01516018	11/25/2024	54.99	1130241	11/30/2024
9190 112524	SHIPPING	01523118	11/25/2024	18.37	1130241	11/30/2024
Total U.S. BANK:				72,756.66		
UNITED ELECTRIC INC						
21526						
89367	AIRPORT: PANEL SURGE PROTECTOR & POWER STRIP	01545320	10/15/2024	734.37	461528	11/19/2024
89950	REPLACE/REPAIR FIXTURES	01517120	11/07/2024	1,972.61	461583	11/26/2024
Total UNITED ELECTRIC INC:				2,706.98		
UNITED INDUSTRIAL AUTOMATION						
21496						
2470	INST CUST CVR(3)-NETP SS MCC BCKTS - WTR	03992318	10/28/2024	624.06	461373	11/05/2024
Total UNITED INDUSTRIAL AUTOMATION:				624.06		
UNIVERSAL RECYCLING TECHNOLOGIES LLC						
21538						
ARINV220795	ELECTRONIC, TV, APPLIANCE RECYCLINGCLING	17581741	10/31/2024	855.66	Multiple	Multiple
Total UNIVERSAL RECYCLING TECHNOLOGIES LLC:				855.66		
USIC LOCATING SERVICES LLC						
553098						
694346	DIGGERS HOTLINE TICKET LOCATING - STREET	01543118	10/31/2024	76.18	461431	11/12/2024
694346	DIGGERS HOTLINE TICKET LOCATING - STORM	16581632	10/31/2024	1,665.89	461431	11/12/2024
694346	DIGGERS HOTLINE TICKET LOCATING - WTR	03992318	10/31/2024	1,665.89	461431	11/12/2024
694346	DIGGERS HOTLINE TICKET LOCATING - WW	02850020	10/31/2024	1,665.90	461431	11/12/2024
Total USIC LOCATING SERVICES LLC:				5,073.86		
USPS WATERTOWN						
21522						
SF110124	PERMIT #93 PRE-PMT - WTR	03903018	11/04/2024	2,500.00	461432	11/12/2024
Total USPS WATERTOWN:				2,500.00		
VANDEWALLE & ASSOCIATES						
22160						
202410016	PLANNING SERVICES FOR 1225 N. FOURTH STREET	01540913	10/17/2024	33.75	461375	11/05/2024
202410017	PUBLIC DRAFT OVERLAY ZONING TEXT AND MAP FOR 2	01540913	10/17/2024	140.00	461375	11/05/2024
202410018	DRAFT ZONING ORDINANCE DIAGNOSITC FOR ZONING	01540913	10/17/2024	2,025.00	461375	11/05/2024
202410083	OSBOURNE & GREYWOLF DEVELOPMENT	60510526	10/17/2024	421.25	461375	11/05/2024
202410083	TID 8	23580748	10/17/2024	202.50	461375	11/05/2024
202410083	TID 9 PROFESSIONAL SERVICES	60510526	10/17/2024	3,728.12	461375	11/05/2024
Total VANDEWALLE & ASSOCIATES:				6,550.62		
VIRGINIA DOWNS						
555593						
DOWNS 10212024	DODWNS-REIMB TRAINING EXPENSE	01521156	10/31/2024	14.97	461337	11/05/2024

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Total VIRGINIA DOWNS:				14.97		
VISU-SEWER INC						
22540						
7-24CIPP PR1	2024 CIPP CONTRACT #7-24 - WW	02973011	10/31/2024	361,904.64	461376	11/05/2024
Total VISU-SEWER INC:				361,904.64		
WALDEN NEITZKE AND KUHARY S C						
555237						
05259	LEGAL FEES	11581218	11/04/2024	1,397.50	461451	11/14/2024
Total WALDEN NEITZKE AND KUHARY S C:				1,397.50		
WASTE MANAGEMENT						
23112						
0020475-1704-6	WASTE HAULING - DAILY ROUTE	17581742	11/01/2024	24,376.12	461529	11/19/2024
2097090-2280-7	DUMPSTER -CONST DEBRIS	17581741	11/01/2024	1,010.68	461529	11/19/2024
Total WASTE MANAGEMENT:				25,386.80		
WATERTOWN BLUE REVUE INC						
2442						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	400.00	461584	11/26/2024
Total WATERTOWN BLUE REVUE INC:				400.00		
WATERTOWN HIGH SCHOOL BAND						
23201						
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	300.00	461585	Multiple
CHRISTMAS PARADE 202	HOLIDAY PARADE PARTICIPANT	24581110	11/12/2024	300.00-		
Total WATERTOWN HIGH SCHOOL BAND:				.00		
WATERTOWN REGIONAL MEDICAL CENTER LLC						
23400						
103124 WRMC	101524 DRUG SCREEN HODEL PARK	01554159	11/02/2024	30.00	461533	11/19/2024
103124 WRMC	101824 DRUG SCREEN NEW HIRE KURZYNKSI BSZ	01524118	11/02/2024	40.00	461533	11/19/2024
103124 WRMC	102524 DRUG SCREEN NEW HIRE LETOURNEAU	01543159	11/02/2024	30.00	461533	11/19/2024
Total WATERTOWN REGIONAL MEDICAL CENTER LLC:				100.00		
WATERTOWN TOURISM COMMISSION						
23461						
092024	ROOM TAZ PAID - SEPTEMBER 2024	22551205	11/08/2024	21,442.62	461433	11/12/2024
Total WATERTOWN TOURISM COMMISSION:				21,442.62		
WATERTOWN VETERANS COUNCIL						
23484						
111824	PAVER AT VETERAN'S PARK-SR CTR	24581107	11/18/2024	150.00	461586	11/26/2024
Total WATERTOWN VETERANS COUNCIL:				150.00		
WATERTOWN WATER DEPT						

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23487						
11152024	WATER-SOLID WASTE	17581731	11/15/2024	247.64	461530	11/19/2024
11152024	WATER-OTHER MISC BLDGS	01517231	11/15/2024	14.51	461530	11/19/2024
11152024	WATER-PARK	01554131	11/15/2024	2,737.44	461530	11/19/2024
11152024	WATER-BUBBLER	01554148	11/15/2024	168.37	461530	11/19/2024
11152024	WATER-WASTEWATER	02820031	11/15/2024	4,695.93	461530	11/19/2024
11152024	WATER-WATER DEPT	03993218	11/15/2024	633.98	461530	11/19/2024
11152024	WATER-FUTURE FUND	26554331	11/15/2024	385.13	461530	11/19/2024
111524 LIB	WATER - LIBRARY	11581231	11/15/2024	354.26	461587	11/26/2024
11202024	WATER-CITY HALL	01517131	11/08/2024	530.13	461434	11/12/2024
11202024	WATER-MISC BLDGS	01517231	11/08/2024	530.13	461434	11/12/2024
11202024	WATER-HEALTH BLDG	01531231	11/08/2024	80.28	461434	11/12/2024
11202024	WATER-STREETS	01541231	11/08/2024	993.24	461434	11/12/2024
11202024	WATER-AIRPORT	01545331	11/08/2024	4,106.99	461434	11/12/2024
11202024	WATER-SOLID WASTE	17581731	11/08/2024	35.13	461434	11/12/2024
11202024	WATER-PARKS	01552231	11/08/2024	548.86	461434	11/12/2024
11202024	WATER-REC ADMIN	01552031	11/08/2024	162.08	461434	11/12/2024
11202024	WATER-PARK	01554131	11/08/2024	1,449.70	461434	11/12/2024
11202024	WATER-WW BILLING	02840000	11/08/2024	20,000.00	461434	11/12/2024
11202024	WATER-WATER DEPT	03993218	11/08/2024	593.67	461434	11/12/2024
Total WATERTOWN WATER DEPT:				38,267.47		
WE ENERGIES						
23530						
5245604772	WE ENERGIES GAS/ELECTRIC	01554130	11/06/2024	105.98	1129246	11/29/2024
5248931842	WE ENERGIES GAS/ELECTRIC	01523130	11/08/2024	6.80	1129246	11/29/2024
5249364304	GAS-MUNI BLDG	01517128	11/08/2024	908.21	1129246	11/29/2024
5249364304	GAS-HEALTH	01531228	11/08/2024	41.34	1129246	11/29/2024
5249364304	GAS-STREET GARAGES	01541228	11/08/2024	67.31	1129246	11/29/2024
5249364304	ELECTRIC-STREET	01544230	11/08/2024	70.49	1129246	11/29/2024
5249364304	GAS-AIRPORT	01545328	11/08/2024	24.35	1129246	11/29/2024
5249364304	GAS-SOLID WASTE	17581728	11/08/2024	84.50	1129246	11/29/2024
5249364304	GAS-LIBRARY	11581228	11/08/2024	186.85	1129246	11/29/2024
5249364304	GAS-AQ CENTER	01552228	11/08/2024	33.04	1129246	11/29/2024
5249364304	GAS-REC ADMIN	01552028	11/08/2024	137.86	1129246	11/29/2024
5249364304	GAS-PARK	01554128	11/08/2024	41.31	1129246	11/29/2024
5249364304	GAS-WW	02820028	11/08/2024	539.75	1129246	11/29/2024
5249364304	GAS-WW LIFT STATION	02820029	11/08/2024	11.08	1129246	11/29/2024
5249371674	WE ENERGIES GAS/ELECTRIC	03622330	11/08/2024	17,068.26	1129246	11/29/2024
5251531417	ELECTRIC-MUNI BLDG	01517130	11/12/2024	8,239.44	1129246	11/29/2024
5251531417	ELECTRIC-FIRE DEPT	01523130	11/12/2024	18.19	1129246	11/29/2024
5251531417	ELECTRIC-HEALTH DEPT	01531230	11/12/2024	433.02	1129246	11/29/2024
5251531417	ELECTRIC-STREET GARAGE	01541230	11/12/2024	2,183.66	1129246	11/29/2024
5251531417	ELECTRIC-TRAFFIC SIGNALS	01542430	11/12/2024	1,221.04	1129246	11/29/2024
5251531417	ELECTRIC-STREET LIGHTING	01544230	11/12/2024	43,492.32	1129246	11/29/2024
5251531417	ELECTRIC-AIRPORT	01545330	11/12/2024	1,787.27	1129246	11/29/2024
5251531417	ELECTRIC-SR CTR	01552030	11/12/2024	1,353.04	1129246	11/29/2024
5251531417	ELECTRIC-AQUATIC CTR	01552230	11/12/2024	552.28	1129246	11/29/2024
5251531417	ELECTRIC-PARKS DEPT	01554130	11/12/2024	3,681.40	1129246	11/29/2024
5251531417	WASHINGTON PARK LIGHTS-PARK	01554144	11/12/2024	483.36	1129246	11/29/2024
5251531417	POWER FOR PUMPING/LIFT STATION-WW	02820029	11/12/2024	2,002.76	1129246	11/29/2024
5251531417	ELECTRIC-PLANT-WW	02820030	11/12/2024	19,503.48	1129246	11/29/2024
5251531417	FUEL FOR POWER-WATER	03622330	11/12/2024	5,619.52	1129246	11/29/2024
5251531417	ELECTRIC-LIBRARY	11581230	11/12/2024	3,727.57	1129246	11/29/2024
5251531417	BLDG ELECTRIC-SOLID WASTE	17581730	11/12/2024	392.64	1129246	11/29/2024
5251531417	ELECTRICITY-BENTZIN TOWN SQUARE	26554330	11/12/2024	138.61	1129246	11/29/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
Total WE ENERGIES:				114,156.73		
WELDERS SUPPLY COMPANY						
23581						
3132874	WELDING RENTAL PARKS	01554118	10/31/2024	19.22	461435	11/12/2024
Total WELDERS SUPPLY COMPANY:				19.22		
WEPCO PRINTING INC						
23585						
43181	HOLIDAY TREE LIGHTING POSTER	26554319	10/22/2024	19.50	461377	11/05/2024
43199	BRIDGES GRANT: WELCOME SIGNS	11581250	10/28/2024	394.40	461452	11/14/2024
43228	LAMINATED MAPS - ELECTIONS	01514118	10/31/2024	80.00	461377	11/05/2024
Total WEPCO PRINTING INC:				493.90		
WI DEPT OF JUSTICE						
23731						
G3488 102024	NEW HIRE BACKGROUND KURZYNSKI BSZ	01524118	11/01/2024	7.00	461436	11/12/2024
G3488 102024	NEW HIRE BACKGROUND SCHNEIDER/DUARTE RECREA	01552022	11/01/2024	14.00	461436	11/12/2024
G3488 102024	NEW HIRE BACKGROUND SCHEARER LIBRAY	11581218	11/01/2024	7.00	461436	11/12/2024
G3488 102024	NEW HIRE BACKGROUND LETOURNEAA STREET	01542118	11/01/2024	7.00	461436	11/12/2024
Total WI DEPT OF JUSTICE:				35.00		
WI DEPT OF TRANSPORTATION						
23795						
395-0000366451	PROJ 39530500401 MAIN ST BRIDGE DESIGN	05581140	09/03/2024	3,011.09	461531	11/19/2024
Total WI DEPT OF TRANSPORTATION:				3,011.09		
WINDOW GENIE OF SOUTH WISCONSIN						
555499						
366333	WINDOW FILM-COURT CLERK	01517160	10/26/2024	192.00	461378	11/05/2024
Total WINDOW GENIE OF SOUTH WISCONSIN:				192.00		
WISCONSIN AVIATION INC						
23646						
RYV23-206069	MOWER TIRE; THERMOHYDROMETER; FURNACE FILTE	01545318	10/31/2024	386.98	461532	11/19/2024
RYV23-206069	2 HOTEL ROOMS: WAMA CONFERENCE	01545324	10/31/2024	636.00	461532	11/19/2024
RYV23-206069	AIRPORT FUEL	01545328	10/31/2024	574.42	461532	11/19/2024
RYV23-206069	AIRPORT ELECTRIC GATE; AWOS; PEDESTAL	01545330	10/31/2024	78.82	461532	11/19/2024
RYV24-206438	AIRPORT MANAGER FEES - NOV 2024	01545310	10/31/2024	4,812.00	461532	11/19/2024
RYV24-206561	AIRPORT WINTER MAINT; CHANGE FURNACE FILTERS; L	01545318	10/31/2024	310.80	461532	11/19/2024
RYV24-206561	MOWING; WEED WACKING	01545336	10/31/2024	2,179.80	461532	11/19/2024
RYV24-206561	NAV AID LIGHT CHECK & REPLACEMENT	01545338	10/31/2024	420.00	461532	11/19/2024
Total WISCONSIN AVIATION INC:				9,398.82		
WOLFF PACK APPAREL & PROMOTIONS						
23904						
3280	NEW HIRE SHIRTS LORD LIBRARY	11581218	10/30/2024	29.50	461339	11/05/2024
3280	NEW HIRE SHIRTS BRUNET/WALKER/ZAHORIK FIRE	01523119	10/30/2024	47.87	461339	11/05/2024
3303	NEW EMPLOYEE SHIRT JACEK BSZ	01524118	11/11/2024	28.50	461474	11/19/2024
3314	NEW HIRE SHIRT LETOURNEAU STREET	01543159	11/21/2024	9.88	461545	11/26/2024

Invoice Number	Description	GL Account	Invoice Date	Invoice Amount	Check Number	Check Issue Date
Total WOLFF PACK APPAREL & PROMOTIONS:				115.75		
ZBM INC						
26005						
30303	JANITORIAL SUPPLIES	11581220	10/29/2024	69.58	461453	11/14/2024
30304	PAPER & CLEANING PRODUCTS - AIRPORT	01545318	10/29/2024	168.97	461534	11/19/2024
30333	CLEANING CONTRACT	01517126	11/10/2024	2,300.00	461534	11/19/2024
Total ZBM INC:				2,538.55		
ZUERN BUILDING PRODUCTS INC						
26900						
3091435	WOOD, DECK SCREWS, ADHESIVE	01554118	10/23/2024	150.67	461437	11/12/2024
3091445	WOOD LINCOLN GARDEN SIGN	01554120	10/23/2024	14.66	461437	11/12/2024
593037	OUTSIDE CLOSURE STRIP	24554120	10/03/2024	16.88	461588	11/26/2024
600312	TREATED DECKING WOOD	24554120	10/28/2024	23.64	461588	11/26/2024
91907	OUTSIDE CLOSURE STRIP CREDIT	24554120	10/03/2024	16.88-	461588	11/26/2024
Total ZUERN BUILDING PRODUCTS INC:				188.97		
Grand Totals:				4,523,639.13		

PAYROLL SUMMARIES

For the Period of: 11/13/2024 11/26/2024

Department	Employees FT	Employees PT	Regular Hours	Overtime Hours	Overtime Costs this Pay Period	Y-T-D Overtime Costs	Overtime Budget	Total Payroll
Police	53	3	4,075.50	235.25	12,036.01	234,176.13	114,000.00	167,430.19
Fire	28	3	3,206.50	457.75	17,996.25	154,547.17	150,000.00	106,887.88
Municipal Court	1	1	100.00	-	-	-	-	3,693.02
Mayor	1	-	80.00	-	-	-	-	3,425.85
Bldg. Inspection	4	4	377.50	-	-	112.80	1,000.00	13,028.26
Attorney	2	1	220.00	-	-	-	-	7,614.40
Finance	6	73	1,948.75	-	-	1,603.99	1,500.00	32,209.10
Media	1	3	124.50	-	-		-	3,074.65
Administration	2	2	242.00	-	-		-	7,614.62
Engineering	4	2	349.00	-	-		-	9,722.34
Health	8	3	715.25	-	-	-	10,500.00	24,064.96
Library	9	13	1,094.75	-	-	315.29	-	25,443.65
Municipal Building	1	-	80.00	-	-	1,429.28	1,000.00	1,859.20
Solid Waste	8	-	625.00	-	-	1,096.67	3,000.00	15,733.42
Street	24	-	1,859.75	3.00		14,602.76	39,200.00	59,414.41
Park	9	-	720.00	6.00	219.42	6,931.07	18,000.00	20,422.25
Forestry	2	-	160.00	-		-	-	4,382.40
Park/Rec Admin	8	1	590.75	-	-	-	400.00	17,098.82
Recreation and Pools	-	34	275.00	-	-	1,674.40	500.00	3,949.41
Wastewater	10	-	800.00	11.75	474.56	10,557.33	18,000.00	24,835.02
Water Dept.	9	-	720.00	11.25	449.85	10,450.76	23,500.00	26,181.84
Crossing Guards	-	9	111.00	-	-	-	-	1,248.75
Police Reserve	-	4	14.50	-	-	-	-	167.61
Alderpersons (2nd PR)	-	-	-	-	-	-	-	-
TOTALS	**190 FT**	**156 PT**	**18,489.75**	**725.00**	**31,176.09**	**437,821.79**	**380,600.00**	**579,502.05**

THE CITY OF WATERTOWN

Office of the
Clerk
106 Jones Street
PO Box 477
Watertown, WI 53094-0477
(920) 262-4006

December 13, 2024

TO: Members of the Common Council

The following application has been recommended for ***denial* by the Licensing Board due to Cat I and II of the City of Watertown Licensing Guidelines:**

Application for operator's license from Ashley E Grimm

CATEGORY I. *(Any applicant who has been convicted of, released from incarceration in a federal or state prison system or a county jail, or released from parole or probation status for an offense substantially related to the license sought within the last five (5) years (Exception: a statutory Class A felony conviction may be considered a lifetime disqualifier) will not be eligible for a license. Such offenses include, but are not limited to the following:*

a. Violent offenses against the person of another, including but not limited to homicide, aggravated battery, sexual assault, injury by negligent use of a weapon, injury by negligent use of a vehicle, or injury by intoxicated use of a vehicle.

b. Offenses involving cooperation with law enforcement officials including but not limited to, any offense of false alarms, obstructing a police officer, harassment of a police officer, resisting arrest, bribery of public officers or employees, misconduct in public office, perjury, false swearing, assault by prisoner, escape from custody, bail jumping or bomb scares.

c. Offenses involving dishonesty, theft or misappropriation of funds, including but not limited to, burglary, entry into a locked vehicle, theft, fraud on hotel or restaurant keeper, issue of more than one worthless check, receiving or transferring stolen property, loan sharking, robbery, forgery and retail theft.

d. *Offenses involving children, including but not limited to, any abuse of children, sexual assault to a child, contributing to the delinquency of a minor, receiving stolen property from children, selling drugs to children, or any crime involving child pornography.*

e. *Drug-related felony offenses, including but not limited to, any offense involving the sale of narcotics or other controlled substances, whether to adults or juveniles.)*

CATEGORY II.

Any applicant who has been convicted of, released from incarceration in a federal or state prison system or county jail, or released from parole or probation status for any of the following offenses within the last five years will not be eligible for a beverage operator's license:

a. Alcohol beverage offenses, including but not limited to, sale of alcohol beverages without a license or permit, furnishing alcoholic beverages to underage persons, furnishing alcoholic beverages to intoxicated persons, or any other violation of Chapter 125 of the Wisconsin Statutes or a local ordinance enacted in conformity therewith;

b. Drug related misdemeanors;

c. Drug related municipal ordinance offenses arising from two or more separate incidents.

However, the furnishing of alcoholic beverages to an underage individual, unless the licensee has committed two (2) such violations within one (1) year, shall not be a reason for a denial of a license.)

Respectfully Submitted,

Megan Dunneisen, City Clerk

AN ORDINANCE

TO AMEND CHAPTER 550: ZONING CODE, THROUGH THE AMENDMENTS OF LANGUAGE TO SECTIONS §550-38, §550-39, §550-40, §550-41; §550-42, §550-43, and §550-150, and §550-152 and to CHAPTER 532: FLOOD PLAIN and SHORELAND-WETLAND ZONING CODE

SPONSOR: MAYOR MCFARLAND, CHAIR

FROM: PLAN COMMISSION WITH POSITIVE RECOMMENDATION

THE COMMON COUNCIL OF THE CITY OF WATERTOWN DOES ORDAIN AS FOLLOWS:

SECTION 1. Section § 550-38 is hereby repealed and replaced with:

§ 550-38 Planned Development Overlay District.

A. Description and purpose. This district is intended to provide more incentives for redevelopment in areas of the community which are experiencing a lack of reinvestment, or which require flexible zoning treatment because of factors specific to the site. This district is designed to forward both aesthetic and economic objectives of the City by controlling the site design and the land use, appearance, density or intensity of development within the district in a manner that is consistent with sound land use, urban design and economic revitalization principles. The application of these standards will ensure long-term progress and broad participation toward these principles. Refer to § 550-152 for the procedures applicable to proposal review in this overlay zoning district.

B. Development standards. Development standards are flexible within this overlay zoning district. Refer to § 550-152B for the range of development standards potentially available in this overlay zoning district.

* * * * * *

SECTION 2. Section § 550-152 is hereby repealed and replaced with:

§ 550-152 Planned Development Procedures.

A. Purpose.

(1) The purpose of this section is to provide regulations that govern the procedure and requirements for the review and approval, or denial, of proposed planned developments and to provide for the possible relaxation of certain development standards pertaining to the underlying overlay zoning district.

(2) Planned developments are intended to provide more incentives for infill development and redevelopment in areas of the community that are experiencing a lack of significant reinvestment. Furthermore, planned developments are designed to forward both the aesthetic and economic development objectives of the City by controlling the site design and the appearance, density or intensity of development in terms of more flexible requirements for land uses, density, intensity, bulk, landscaping and parking requirements. In exchange for such flexibility, the planned development shall provide a much higher level of site design, architectural control and other aspects of aesthetic and functional excellence than normally required for other developments.

(3) Planned developments have the potential to create undesirable impacts on nearby properti develop simply under the general requirements of this chapter. In addition to such potential, planned developments also have the potential to create undesirable impacts on nearby properties which potentially cannot be determined except with a binding site plan, landscape plan and architectural plan, and on a case-by-case basis. In order to prevent this from occurring, all planned developments are required to meet certain procedural requirements applicable only to planned developments, in addition to the general requirements of this chapter. A public hearing process is required to review a request for a planned development.

B. Provision of flexible development standards for planned developments.

(1) Permitted location. Planned developments shall be permitted with the approval of a Planned Development Overlay Zoning District specific to the approved planned development.

(2) Flexible development standards. The following exemptions to the development standards of the underlying zoning district may be provided with the approval of a planned development:

(a) Land use requirements. All land uses listed as "residential," "institutional" or "commercial" may be permitted within a planned development. Industrial land uses may only be allowed in Planned Developments that use an underlying zoning district which specifically list industrial uses as permitted or conditional uses.

(b) Density and intensity requirements. All requirements listed for residential density and nonresidential intensity may be waived within a planned development.

(c) Bulk requirements. All residential and nonresidential bulk requirements may be waived within a planned development.

(d) Landscaping requirements. All landscaping requirements may be waived within a planned development.

(e) Parking and loading requirements. All requirements for off-street parking, traffic circulation, and off-street loading may be waived within a planned development.

(f) Waterway Overlay District requirements. All Waterway Overlay District requirements may be waived within a planned development.

(3) Requirements to depict all aspects of development. Only development which is explicitly depicted on the required site plan approved by the Common Council as part of the approved planned development shall be permitted, even if such development (including all aspects of land use, density and intensity, bulk, landscaping, and parking and loading) is otherwise listed as permitted. Requested exemptions from these standards shall be made explicit by the applicant in the application and shall be recommended by the Plan Commission and approved explicitly by the Common Council. If not so requested and approved, such exemptions shall not be permitted.

C. Initiation of request for approval of a planned development. Proceedings for approval of a planned development shall be initiated by:

(1) An application of the owner(s) of the subject property, lease holders or contract purchasers.

(2) A recommendation of the Plan Commission and action by the Common Council, relative to City-owned property.

D. PD Process Step 1: Preapplication conference.

(1) The applicant shall contact the Zoning Administrator to schedule a discussion regarding the potential PD application and to obtain informal feedback regarding the application and the PD process.

(2) Appropriate topics for discussion may include the location of the PUD, general project themes, the general mix of dwelling unit types and/or land uses being considered, approximate residential densities and non-residential intensities, the general treatment of natural features, the general relationship to nearby properties and public streets, and relationship to the Comprehensive Plan. The discussion should also include a review of the justification for use of the PD overlay and whether alternative options such as rezoning to a standard zoning district or amending the proposed development plans are advised.

(3) Points of discussion and conclusions reached in this stage of the process shall in no way be binding upon the applicant or the City but should be considered as the informal nonbinding basis for proceeding to the next step.

E. PD Process Step 2: Optional concept plan.

(1) Optional review may be pursued at the request of the applicant or the Zoning Administrator. The applicant shall provide the Zoning Administrator with a draft PD concept plan submittal packet for a determination of completeness prior to placing the proposed PD on the Plan Commission agenda for concept plan review. This submittal packet shall contain all of the following items, prior to its acceptance by the Zoning Administrator and placement of the item on a Plan Commission agenda for concept plan review:

(a) A location map of the subject property and its vicinity at 11 inches by 17 inches.

(b) A general written description of the proposed PD, including:

[1] General project themes and images;

[2] The general mix of dwelling unit types and/or land uses;

[3] Approximate residential densities and nonresidential intensities as described by dwelling units per acre, floor area ratio and impervious surface area ratio;

[4] The general treatment of natural features;

[5] The general relationship to nearby properties and public streets;

[6] The general relationship of the project to the Comprehensive Plan; and

[7] An initial draft list of zoning standards which will not be met by the proposed PUD and the location(s) in which they apply and a complete list of zoning standards which will be more than met by the proposed PUD and the location(s) in which they apply shall be identified. The purpose of this listing shall be to provide the Plan Commission with information necessary to determine the relative merits of the project in regard to private benefit versus public benefit and in regard to the mitigation of potential adverse impacts created by design flexibility.

(c) A conceptual plan drawing (at 11 inches by 17 inches) of the general land use layout and the general location of major public streets and/or private drives.

(2) Points of discussion and conclusions reached in this stage of the process shall in no way be binding upon the applicant or the City but should be considered as the informal nonbinding basis for proceeding to the next step. The preferred procedure is for one or more iterations of Plan Commission review of the concept plan to occur prior to introduction of the formal petition for rezoning which accompanies the general development plan (GDP) application.

F. PD Process Step 3: General development plan (GDP).

(1) The applicant shall provide the Zoning Administrator with a GDP plan submittal packet for a determination of completeness prior to placing the proposed GDP on the Plan Commission agenda for GDP review.

This submittal packet shall contain all of the following items prior to its acceptance Administrator and placement of the item on a Plan Commission agenda for GDP review:

(a) A location map of the subject property and its vicinity at 11 inches by 17 inches.

(b) A map of the subject property, showing all lands for which the planned infill development is proposed and all other lands within 200 feet of the boundaries of the subject property. Said map shall clearly indicate the current zoning of the subject property and its environs. Said map and all its parts and attachments shall be submitted in a form which is clearly reproducible with a photocopier and shall be at a scale which is not less than one-inch equals 800 feet. All lot dimensions of the subject property, a graphic scale, and a North arrow shall be provided.

(c) A general written description of proposed PD, including:

[1] General project themes and images.

[2] The general mix of dwelling unit types and/or land uses.

[3] Approximate residential densities and nonresidential intensities as described by dwelling units per acre, floor area ratio and impervious surface area ratio.

[4] The general treatment of natural features.

[5] The general relationship to nearby properties and public streets.

[6] The general relationship of the project to the Comprehensive Plan.

[7] A statement of rationale as to why PD zoning is proposed. This shall identify barriers that the applicant perceives in the form of requirements of standard zoning districts and opportunities for community betterment that the applicant suggests are available through the proposed PD zoning.

[8] A complete list of zoning standards which will not be met by the proposed PUD and the location(s) in which they apply and a complete list of zoning standards which will be more than met by the proposed PD and the location(s) in which they apply shall be identified. The purpose of this listing shall be to provide the Plan Commission with information necessary to determine the relative merits of the project in regard to private benefit versus public benefit and in regard to the mitigation of potential adverse impacts created by design flexibility.

[9] A written description of potentially requested exemptions from the requirements of the underlying zoning district, in the following order:

[a] Land use exemptions.

[b] Density and intensity exemptions.

[c] Bulk exemptions.

[d] Landscaping exceptions.

[e] Parking and loading requirements exceptions.

(d) A general development plan drawing at a minimum scale of one inch equals 100 feet (reduction of 11 inches by 17 inches) of the proposed project shall also be provided by the applicant), showing at least the following information in sufficient detail to make an evaluation against criteria for approval:

[1] A conceptual plan drawing (at 11 inches by 17 inches) of the general land use layout and the general location of major public streets and/or private drives.

[2] Location of recreational and open space areas and facilities, and specifically descr are to be reserved or dedicated for public acquisition and use;

[3] Statistical data on minimum lot sizes in the development, the approximate areas of large development lots and pads, density/intensity of various parts of the development, floor area ratio, impervious surface area ratio and landscape surface area ratio of various land uses, expected staging, and any other plans required by the Plan Commission or Common Council; and

[4] Notations relating the written information provided in Subsection G(1)(c)[1] to [6] above to specific areas on the GDP drawing.

(e) A general conceptual landscaping plan for subject property, noting approximate locations of foundation, street, yard and paving, landscaping and the compliance of development with all landscaping requirements of this chapter (except as noted in the listing of exceptions), and the use of extra landscaping and bufferyards.

(f) A general signage plan for the project, including all project identification signs and concepts for public fixtures and signs (such as streetlight fixtures and/or poles or street sign faces and/or poles) which are proposed to vary from City standards or common practices.

(g) Written justification for the proposed planned development.

(h) Written demonstration of financial capability to complete all public and private improvements associated with the proposed PD.

(2) The process and fees for review and approval of the GDP shall require a public hearing before the Plan Commission preceded by a Class II notice. The Plan Commission shall hold the formal public hearing, review the application, and make a recommendation for action on the application. The Mayor or Council representative on the Plan Commission may request an additional public hearing to be held by the Common Council. The Common Council shall take final action on consideration of the application.

(3) All portions of an approved GDP not fully developed within five years of final Common Council approval shall lapse, and no additional PD-based development shall be permitted. Prior to the end of the five-year period, the property owner may request reapproval of the GDP for up to five additional years or shall request amendment of the GDP. Reapproval or amendment requests shall obtain a recommendation from the Plan Commission and approval from the Common Council following a public hearing held before the Plan Commission. If an application for renewal or amendment is not submitted, the Zoning Administrator may propose rezoning to the underlying zoning district or another standard zoning district. In the case of an expired PD, the base zoning district shall remain in effect and no development under the prior PD approvals may proceed.

G. PD Process Step 4: Precise implementation plan (PIP).

(1) After the effective date of the rezoning to GDP, the applicant may file an application for a proposed precise implementation plan (PIP) with the Plan Commission. Alternatively, a combination GDP and PIP application may be submitted if authorized by the Zoning Administrator and if all information required for both the GDP and PIP submittal is also included. In the case of a combination GDP/PIP, a public hearing is required in accordance with GDP procedures. Any PIP submittal packet shall contain all of the following items, prior to its acceptance by the Zoning Administrator and placement of the item on a Plan Commission agenda for PD review:

(a) A location map of the subject property and its vicinity at 11 inches by 17 inches.

(b) A map of the subject property, showing all lands for which the planned infill development is proposed and all other lands within 200 feet of the boundaries of the subject property. Said map shall clearly

indicate the current zoning of the subject property and its environs. Said map and a attachments shall be submitted in a form which is clearly reproducible with a photocopier and shall be at a scale not less than one-inch equals 800 feet. All lot dimensions of the subject property, a graphic scale, and a North arrow shall be provided.

(c) A general written description of the proposed PIP, including:

[1] Specific project themes and images.

[2] The specific mix of dwelling unit types and/or land uses.

[3] Specific residential densities and nonresidential intensities as described by dwelling units per acre, floor area ratio and impervious surface area ratio.

[4] The specific treatment of natural features.

[5] The specific relationship to nearby properties and public streets.

(d) A precise implementation plan drawing at a minimum scale of one inch equals 100 feet (reduction of 11 inches by 17 inches) of the proposed project shall also be provided by the applicant, showing at least the following information in sufficient detail to make an evaluation against criteria for approval:

[1] A PIP site plan conforming to any and all the requirements of the site plan review and approval procedures. If the proposed planned development is a cluster development or a group development, a proposed preliminary plat or conceptual plat shall be provided in addition to the required site plan;

[2] Location of recreational and open space areas and facilities and specifically describing those that are to be reserved or dedicated for public acquisition and use;

[3] Statistical data on minimum lot sizes in the development, the precise areas of all development lots and pads, density/intensity of various parts of the development, floor area ratio, impervious surface area ratio and landscape surface area ratio of various land uses, expected staging, and any other plans required by the Plan Commission or Common Council; and

[4] Notations relating the written information provided in Subsection G(1)(c)[1] to [6] above to specific areas on the GDP drawing.

(e) A landscaping plan for the subject property, specifying the location, species and installed size of all trees and shrubs. This plan shall also include a chart, which provides a cumulative total for each species, type and required location (foundation, yard, street, paved area or bufferyard) of all trees and shrubs.

(f) A series of building elevations for the entire exterior of all buildings in the planned development, including detailed notes as to the materials and colors proposed.

(g) A general signage plan for the project, including all project identification signs, concepts for public fixtures and signs (such as streetlight fixtures and/or poles or street sign faces and/or poles), and group development signage themes which are proposed to vary from City standards or common practices.

(h) A general outline of the intended organizational structure for a property owners' association, if any; deed restrictions and provisions for private provision of common services, if any.

(i) A written description which demonstrates the full consistency of the proposed PIP with the approved GDP.

(j) Any and all variations between the requirements of the applicable GDP zoning district an PIP development.

(2) The applicant shall submit proof of financial capability pertaining to construction, maintenance, and operation of all public and private improvements associated with the proposed PD.

(3) The area included in a precise implementation plan may be only a portion of the area included in a previously approved general implementation plan.

(4) The precise implementation plan (PIP) submission may include site plan and design information, allowing the Plan Commission to combine design review and review of the PIP. Design review may, at the choice of the applicant, be deferred until a later time when specific site and building developments will be brought forth.

(5) The Plan Commission or Common Council may specify other plans, documents or schedules that must be submitted prior to consideration or approval of the PIP, as such may be relevant to review.

(6) The process and fees for review and approval of a PIP shall be identical to that GDP approvals per this chapter

(7) All portions of an approved PIP not fully developed within five years of final Common Council approval shall lapse, and no additional PD-based development shall be permitted. The Common Council may extend this period up to five additional years via a majority vote following a public hearing. The applicant may also request reapproval or amendment of a previously approved PIP before the applicable five-year period lapses. In the case of an expired PIP, procedures shall be identical to that for GDP expirations per this Chapter.

* * * * * *

SECTION 3. Section § 550-39 is hereby repealed and replaced with:

§ 550-39 Purpose and Mapping of Natural Resource Protection Overlays

A. This section introduces overlay zoning districts which regulate areas in which natural resource protection requirements apply. Each type of natural resource regulated by this chapter is represented by an overlay zoning district bearing its name. Natural resource protection overlay districts include:

(1) Floodplain Overlay Districts.

(2) Shoreland-Wetland Overlay District.

(3) Waterway Overlay District.

(4) Woodland Overlay District.

(5) Steep Slope Overlay District.

B. Natural resource protection overlay zoning districts established by this chapter are shown on the Official Zoning Map of the City of Watertown which, together with all the explanatory material thereon, is hereby made part of this chapter. For specific natural resource protection overlay district designation criteria, see Sections 550-41 through 550-43.5 of this chapter and also Chapter 532, Floodplain and Shoreland-Wetland Zoning.

C. Purpose. The purpose of this article is to set forth the requirements for the mandatory protection of natural resources and permanently protected green space areas within the jurisdiction of this chapter (see § 500-9).

The provisions of this article interact closely with the provisions of § 550-58 (Natural resource required mitigation standards), § 550-73 (Required natural resources site evaluation), and §§ 550-74 and 550-75 which provide residential and nonresidential development standards. Section 550-76 provides a complete overview of the interrelationship between the above-listed sections. Appendix B provides a table of permitted land uses in permanently protected green space areas.[1] In part, the provisions of this article are designed to ensure the implementation of the City of Watertown Comprehensive Plan and §§ 62.231 and 87.30, Wis. Stats.

D. How to use this article. This article contains the standards that govern the protection, disturbance and mitigation of disruption of all natural resources and other permanently protected green space areas. The provisions of this article are intended to supplement those of the City of Watertown, Dodge and/or Jefferson County, the State of Wisconsin, and the Federal Government of the United States that pertain to natural resource protection. Prior to using the provisions of this article to determine the permitted disruption of such areas, the requirements provided below should be reviewed. This article recognizes the important and diverse benefits that natural resource features provide in terms of protecting the health, safety and general welfare of the community. Each of the following sections is oriented to each natural resource type and is designed to accomplish several objectives:

(1) First, a definition of the natural resource is provided.

(2) Second, the specific purposes of the protective regulations governing each natural resource type are provided.

(3) Third, the required method of identifying and determining the boundaries of the natural resource area is given.

(4) Fourth, mandatory protection requirements are identified. Note: protection requirements for specific land uses and natural resource types designed to minimize disruption of natural resource functions are presented in § 550-58.

E. Where an apparent discrepancy exists between the location of the outermost boundary of the flood-fringe district or the floodplain district shown on the Official Zoning Map and actual field conditions, the location shall be initially determined by the Zoning Administrator using the criteria described in Subsections F and G below. Where the Zoning Administrator finds that there is a significant difference between the map and the actual field conditions, the map shall be amended using the procedures established in § 550-141. Disputes between the Zoning Administrator and the applicant over the location of the district boundary line shall be settled using the procedures outlined in § 550-156H.

F. Where flood profiles exist, the location of the district boundary line shall be determined by the Zoning Administrator using both the scale appearing on the map and the elevations shown on the water surface profile of the regional flood. Where a discrepancy exists between the map and actual field conditions, the regional flood elevations shall govern. A map amendment is required where there is a significant discrepancy between the map and actual field conditions. The Zoning Administrator shall have the authority to grant or deny a land use permit on the basis of a district boundary derived from the elevations shown on the water surface profile of the regional flood, whether or not a map amendment is required. The Zoning Administrator shall be responsible for initiating any map amendments required under this section within a reasonable period of time.

G. Where flood profiles do not exist, the location of the district boundary line shall be determined by the Zoning Administrator using the scale appearing on the map, visual on-site inspection and any available information provided by the Department of Natural Resources. Where there is a significant difference between the map and actual field conditions, the map shall be amended. Where a map amendment has been approved by both the Common Council and the Department of Natural Resources, the Zoning Administrator shall have the authority to grant or deny a land use permit.

* * * * * *

SECTION 4. Section § 550-40 is hereby repealed and replaced with:

Section § 550-40 Floodway, Flood-Fringe, and Floodplain Overlay Districts

See Chapter 532, Floodplain and Shoreland-Wetland Overlay Zoning.

* * * * * *

SECTION 5. Section § 550-41 is hereby repealed and replaced with:

Section § 550-41 Shoreland-Wetland Overlay District

See Chapter 532, Floodplain and Shoreland-Wetland Overlay Zoning.

* * * * * *

SECTION 6. Section § 550-42 is hereby repealed and replaced with:

Section § 550-42 Waterways Overlay District

A. Definition. Waterways are navigable or non-navigable, aboveground watercourses, detention basins and/or their environs which are identified by the presence of one or more of the following:

(1) All areas within 75 feet of the ordinary high-water mark of a "perennial stream," as shown on a detailed on-site survey prepared by the applicant [see § 550-145C(8)].

(a) Where an existing development pattern exists, the waterway setback for a proposed principal structure may be reduced to the average waterway setback of the principal structure on each adjacent lot, but the waterway setback may not be reduced to less than 35 feet from the ordinary high-water mark of any "perennial stream."

(2) All areas within 50 feet of the ordinary high-water mark of an "intermittent stream" or "open channel waterway," as shown on a detailed on-site survey prepared by the applicant [see § 550-145C(8)].

(a) Where an existing development pattern exists, the waterway setback for a proposed principal structure may be reduced to the average waterway setback of the principal structure on each adjacent lot, but the waterway setback may not be reduced to less than 35 feet from the ordinary high-water mark of an "intermittent stream" or "open channel waterway."

B. Purpose of waterway protection requirements. Waterways serve in the transporting of surface runoff to downstream areas. As such, waterways serve to carry surface waters, supplement floodplain, wetland and lakeshore water storage functions in heavy storm or melt events, filter waterborne pollutants and sediments, promote infiltration and groundwater recharging, and provide a unique habitat at the land/water margin. Waterway protection requirements preserve each of these functions as well as greatly reducing the potential for soil erosion along waterways by protecting vegetative ground cover in areas which are susceptible to variable runoff flows and moderate-to-rapid water movement.

C. Determination of waterway boundaries. General waterway boundaries are depicted on the Official Zoning Map. Upon the proposal of development activity on any property which contains a waterway depicted on the Official Zoning Map, the petitioner shall prepare a detailed site analysis per the requirements of § 550-145C(8). This analysis shall depict the location of all waterway areas on the subject property as related to the provisions of Subsection A above.

D. Mandatory waterway protection requirements. Waterways shall remain in an undisturbed state except for the land uses permitted in Appendix B per the requirements in § 550-58. Vegetation clearing to maintain waterway functions is permitted with the written approval of the Public Works Director/City Engineer. All areas

designated as waterways shall be located within a public easement or dedication for maintenance to preserve proper drainage flow.

* * * * * *

SECTION 7. Section § 550-43 is hereby repealed and replaced with:

Section § 550-43 Woodland Overlay District

A. Definition. Woodlands are areas of trees whose combined canopies cover a minimum of 80% of an area of one acre or more, as shown on a detailed on-site survey prepared by the applicant [see § 550-145C(8)].

B. Purpose of woodland protection requirements. Woodlands provide a wide variety of environmental functions. These include atmospheric benefits such as removing airborne pollutants, carbon dioxide uptake, oxygen production, and evapotranspiration returns. Water quality benefits include substantial nutrient uptake rates (particularly for nitrogen and phosphorus) and surface runoff reduction in terms of both volumes and velocities. Woodlands provide unique wildlife habitats and food sources. Woodlands are excellent soil stabilizers, greatly reducing runoff-related soil erosion. Woodlands also serve to reduce wind velocities which further reduces soil erosion. Finally, under proper management techniques, woodlands serve as regenerative fuel sources.

C. Determination of woodland boundaries. General woodland boundaries are depicted on the Official Zoning Map. Upon the proposal of development activity on any property which contains a woodland depicted on the Official Zoning Map, the petitioner shall prepare a detailed site analysis per the requirements § 550-145C(8). This analysis shall depict the location of all woodland areas on the subject property as related to the provisions of Subsection A above.

D. Mandatory woodland protection requirements. Woodlands shall remain in an undisturbed state except for the land uses permitted in Appendix B per the requirements of § 550-58 and areas subject to the following mitigation requirements:

(1) Selective cutting operations are permitted by right in all woodland areas (per the requirements of § 550-50F).

(2) Clear-cutting is permitted as a conditional use in all woodland areas (per the requirements of § 550-50G).

* * * * * *

SECTION 8. Section § 550-43.1 is hereby created to read as follows:

Section § 550-43.1 Steep Slope Overlay District

A. Definition. Steep slopes are areas which contain a gradient of 12% or greater (equivalent to a ten-foot elevation change in a distance of 83 feet or less), as shown on a detailed on-site survey prepared by the applicant [see § 550-145C(8)].

B. Purpose of steep slope protection requirements. Steep slopes are particularly susceptible to damage resulting from site disruption, primarily related to soil erosion. Such damage is likely to spread to areas which were not originally disturbed. Such erosion reduces the productivity of the soil, results in exacerbated erosion downhill, and results in increased sedimentation in waterways, wetlands, streams, ponds and lakes. Beyond adversely affecting the environmental functions of these resources areas, such sedimentation also increases flood hazards by reducing the floodwater storage capacity of hydrological system components, thus elevating the flood level of the drainage system in affected areas. Beyond these threats to the public safety, disruption

of steep slopes also increases the likelihood of slippage and slumping, unstable soil moveme threaten adjacent properties, buildings and public facilities such as roads and utilities.

C. Determination of steep slope boundaries. General steep slope boundaries are depicted on the Official Zoning Map. Upon the proposal of development activity on any property which contains a steep slope depicted on the Official Zoning Map, the petitioner shall prepare a detailed site analysis per the requirements of § 550-145C(8). This analysis shall depict the location of all steep slope areas on the subject property as related to the provisions of Subsection A above.

D. Mandatory steep slope protection requirements. Steep slopes shall remain in an undisturbed state except for the land uses permitted in Appendix B[1] per the requirements of § 550-58.

SECTION 9. Section § 550-43.2 is hereby created to read as follows:

Section § 550-43.2 Downtown Historic Preservation Overlay Zoning District

A. Purpose. This district is intended to implement the urban design recommendations of the Comprehensive Plan by preserving and enhancing the historical quality of the downtown and by attaining a consistent visually pleasing image for the downtown area. As emphasized by said plan, this district is designed to forward both aesthetic and economic objectives of the City by controlling the site design and appearance of development within the district in a manner that is consistent with sound land use, urban design and economic revitalization principles. The application of these standards will ensure long-term progress and broad participation toward these principles. Refer to § 550-149 for the procedures applicable to proposal review in this overlay district.

SECTION 10. Section § 550-43.3 is hereby created to read as follows:

Section § 550-43.3 Community Entry Corridor Design Overlay Zoning District

A. Purpose. This district is intended to implement the urban design recommendations of the Comprehensive Plan by preserving and enhancing the historical quality of the STH 19 corridor west and east of the downtown, STH 26 south of the downtown and the STH 16 corridor north of the downtown by enhancing the economic redevelopment potential of the STH 26 corridor north and south of the downtown. As emphasized by the plan, this district is designed to forward both aesthetic and historic preservation objectives of the City by controlling the site design and appearance of development within the district in a manner that is consistent with sound land use, urban design and economic revitalization principles. The application of these standards will ensure long-term progress and broad participation toward these principles. Refer to § 550-150 for the procedures applicable to proposal review in this overlay district.

SECTION 11. Section § 550-150 is hereby repealed and replaced with:

Section § 550-150 Community Entry Corridor Overlay Zoning District

The following requirements shall be effective upon the date of adoption date of depicting these overlay zoning districts on the Official Zoning Map. Any new development, other than single-family and two-family residential.

A. Requirement of compatibility. Proposed site design and construction within this district, including new structures and building additions, shall be reviewed per § 550-145, Site plan review and approval procedures, by the Plan Commission. The building setback, height, mass, roof form, exterior materials, exterior surface appurtenances, exterior colors, landscaping and lighting shall be compatible with the following general design theme, as determined by the Plan Commission.

B. Design standards for multi-family residential development. The general design theme f residential development within the Community Entry Corridor Overlay Zoning District shall be designed to accommodate typical impacts of transportation and nearby nonresidential development, particularly through the use of building orientation, door and window location and design, and on-site landscaping and related buffering structures or berms. Above and beyond such concerns, particular attention shall be devoted to ensuring that selected multi-family residential design components complement nearby residential styles with high-quality building materials, in an attractive manner as becoming an entry corridor, and as determined by the Plan Commission. Where a detailed neighborhood plan has been adopted, it should be used to provide additional guidance in the design review process.

C. Design standards for nonresidential development. The general design theme for nonresidential development within the Community Entry Corridor Overlay Zoning District shall be characterized by high-quality building materials, architectural design, site design and on-site landscaping. Prominent urban design elements and architectural details, which are decorative and functional, shall be considered as a required component of each site within the district. Above and beyond such concerns, particular attention shall be devoted to ensuring that selected nonresidential design components complement nearby nonresidential styles and reflect positively on the character of the community, as becoming an entry corridor, and as determined by the Plan Commission. Where a detailed neighborhood plan has been adopted, it should be used to provide additional guidance in the design review process.

(1) Building exterior materials shall be of high quality on all sides of the structure, including glass, brick, decorative concrete block or stucco, Decorative architectural metal with concealed fasteners may be approved with special permission from the city.

(2) Building exterior design shall be unified in design and materials throughout the structure and shall be complementary to other structures in the vicinity. However, the development shall employ varying building setbacks, height, roof, treatments, door and window openings, and other structural and decorative elements to reduce the apparent size and scale of the structure. A minimum of 20% of the combined facades of the structure shall employ actual facade protrusions or recesses. A minimum of 20% of the combined linear roof eave or parapet lines of the structure shall employ differences in height of eight feet or more. Roofs with particular slopes may be required by the City to complement existing buildings or otherwise establish a particular aesthetic objective.

(3) Mechanical equipment, refuse containers and any permitted outdoor storage shall be fully concealed from on-site and off-site ground-level views with materials identical to those used on the building exterior.

(4) Public entryways shall be prominently indicated from the building's exterior design and shall be emphasized by on-site traffic flow patterns. All sides of the building that directly face or abut a public street shall have public entrances.

(5) Parking lot design shall employ interior landscaped islands with a minimum of 400 square feet at all parking islands, and in addition shall provide a minimum of one landscaped island of a minimum of 400 square feet in each parking aisle for every 20 cars in that aisle. Aisle-end islands shall count toward meeting this requirement. Landscaped medians shall be used to break large parking areas into distinct pods, with a maximum of 100 spaces in any one pod.

(6) On-site landscaping shall be provided per the landscaping requirements of this chapter, except that building foundation landscaping and paved area landscaping shall be provided at 1.5 times the required landscape points for development in the zoning district.

(7) The entire development shall provide for full and safe pedestrian and bicycle access within the development and shall provide appropriate connections to the existing and planned pedestrian and bicycle facilities in the community and in surrounding neighborhoods, including sidewalk connections to all building entrances from all public streets. The development shall provide secure bicycle parking and

pedestrian furniture in appropriate quantities and location. A central pedestrian gatherin provided.

(8) The Plan Commission may waive any of the above standards by a three-fourths' vote of members in attendance, but only if supplemental design elements or improvements are incorporated into the project that compensate for the waiver of the particular standard.

* * * * * *

SECTION 12. Section § 550-43.4 is hereby created to read as follows:

Section § 550-43.4 Airport Overlay Zoning District

A. Purpose. This district is intended to implement height limitations for preservation of the City of Watertown Municipal Airport approach zones. The application of these standards will ensure long-term viability and safety of airport operations. Refer to Chapter 211 for procedures applicable to proposal review in this overlay district.

* * * * * *

SECTION 13. Article IX Natural Resource Protection Regulations will be repealed entirely:

~~**Article IX Natural Resource Protection Regulations**~~

~~550-86 Purpose~~

~~550-87 How to use this article;~~

~~550-88 Floodway, Flood-Fringe, and Floodplain Overlay Zoning District~~

~~550-89 Shoreland-Wetland Overlay Zoning District~~

~~550-90 Drainageway/Waterway Overlay Zoning District~~

~~550-91 Woodland Overlay Zoning District~~

~~550-92 Steep Slope Overlay Zoning District~~

* * * * * *

SECTION 14. Chapter 532 shall be amended as follows:

Chapter 532 Floodplain and Shoreland-Wetland Overlay Zoning

* * * * * *

SECTION 15. Chapter 532 shall be amended as follows:

Chapter 532 Article III Shoreland-Wetland Overlay Zoning District

* * * * * *

SECTION 16. Chapter 532 shall be amended as follows:

Chapter 532 Article IV Floodplain Overlay Zoning District

* * * * * *

SECTION 17. All ordinances or parts of ordinances inconsistent with the provisions of this ordinance are hereby repealed.

* * * * * *

SECTION 18. This ordinance shall take effect and be in force the day after its passage and publication.

DATE:	*Dec. 17, 2024*		*Jan. 7, 2025*	
READING:	*1ST*		*2ND*	
	YES	*NO*	*YES*	*NO*
DAVIS				
LAMPE				
BOARD				
BARTZ				
BLANKE				
SMITH				
SCHMID				
WETZEL				
MOLDENHAUER				
MAYOR MCFARLAND				
TOTAL				

ADOPTED January 7, 2025

_____

CITY CLERK

APPROVED January 7, 2025

_____

MAYOR

EXHIBIT A

City of Watertown Overlay Zoning Map

DRAFT

- Rail
- City of Watertown Boundary
- Historic District Overlay
- Community Corridors (Includes Parcel Frontages on Both Sides)

Airport Overlay*

- Maximum Elevation between 968 and 1005 ft
- Airport Height Limit - Max. Elevation b/t 865 and 968 ft

- Shoreland-Wetland Overlay
- Woodland Overlay
- General Floodplain Overlay
- Flood Fringe Overlay
- Floodway Overlay
- Waterway Overlay
- Steep Slopes Overlay
- Water

*Note: Please see Figure 2.11, "Elevation Limitations", from the Watertown Municipal Airport Masterplan for detailed delineations of building height limits within this boundary.
Height limits range from 865 feet to 1005 feet depending on location.

N W E S

0 0.375 0.75 1.5 Miles

Date: 11/13/2024

Sources: City of Watertown, Dodge County, Jefferson County, US Census Bureau, State of WI, FEMA, WI DNR, USDA-NRCS, MSA

ORDINANCE TO AMEND SECTION 500-3 B. STOP INTERSECTIONS OF THE CITY OF WATERTOWN GENERAL ORDINANCES

SPONSOR: DANA DAVIS, CHAIR
FROM: PUBLIC SAFETY AND WELFARE COMMITTEE

WHEREAS, The City of Watertown Public Safety & Welfare Committee at its December 4, 2024 meeting approved placement of a stop sign at the intersection of Deer Trail and Willow Creek Parkway.

THE COMMON COUNCIL OF THE CITY OF WATERTOWN DOES ORDAIN AS FOLLOWS:

SECTION 1. Amend Section 500-3 B., Stop intersections to include the following:

Intersection	Corners	Restriction
Deer Trail and Willow Creek Parkway	Northeast	Willow Creek Parkway shall stop for Deer Trail

SECTION 2. All ordinances or parts of ordinances inconsistent with the provisions of this ordinance are hereby repealed.

SECTION 3. This ordinance shall take effect and be in force the day after its passage and publication.

DATE:	*December 17, 2024*		*January 7, 2025*	
READING:	*1ST*		*2ND*	
	YES	*NO*	*YES*	*NO*
DAVIS				
LAMPE				
BOARD				
BARTZ				
BLANKE				
SMITH				
SCHMID				
WETZEL				
MOLDENHAUER				
MAYOR MCFARLAND				
TOTAL				

ADOPTED ____January 7, 2025

_____

CITY CLERK

APPROVED ___ January 7, 2025

_____

MAYOR

RESOLUTION TO AUTHORIZE A JOINT POWERS AGREEMENT COUNTY 911 EMERGENCY SYSTEM WITH DODGE COUNTY

SPONSOR: MAYOR MCFARLAND

WHEREAS, the attached Joint Powers Agreement County 911 Emergency System with Dodge County has been deemed appropriate;

NOW, THEREFORE, BE IT RESOLVED by the Common Council of the City of Watertown, Wisconsin:

Section 1. That the proper City of Watertown official(s) are hereby authorized to execute the attached Agreement;

Section 2. That this Resolution shall be in full force and effect upon its passage and adoption.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

CITY CLERK

APPROVED December 17, 2024

MAYOR

JOINT POWERS AGREEMENT
COUNTY 911 EMERGENCY SYSTEM

WHEREAS, Dodge County and the municipalities located within the boundaries of Dodge County have implemented an Emergency 911 System for the purposes of providing emergency services to residents and visitors of these municipalities, including fire fighting, law enforcement, ambulance, medical and other emergency services; and

WHEREAS, Sec. 256.35(9), Wis. Stats., "Joint Powers Agreement," requires that in implementing a 911 system as has been done in Dodge County, municipalities shall annually enter into a Joint Powers Agreement, which Agreement shall be applicable on a daily basis and which shall provide that if an emergency services vehicle is dispatched in response to a request through the Dodge County 911 System, such vehicle shall render its services to the persons needing the services, regardless of whether the vehicle is operating outside the vehicle's normal jurisdictional boundaries.

THEREFORE, in consideration of the mutual promises, agreements, and conditions contained herein, it is hereby jointly agreed between Dodge County and the City of Watertown, "municipality," as follows:

1. That effective January 1, 2025, this Agreement shall, thereafter, be applicable on a daily basis from said date through December 31, 2025.

2. That if an emergency services vehicle operated by the municipality, or operated by an agency with which the municipality contracts for that particular emergency service, is dispatched in response to a request through the Dodge County Emergency 911 System, such vehicle (whether owned and operated by the municipality or by the agency) shall render its services to the persons needing the services, regardless of whether the vehicle is operating outside the vehicle's normal jurisdictional (or as defined by contract) boundaries.

3. That a copy of this Agreement shall be filed with the State Department of Justice, as required by Sec. 256.35(9)(c), Wis. Stats.

DODGE COUNTY
(dispatching agency)

By: _____
(County Clerk)

City of Watertown
(participating agency)

By: _____
(Chairman/Mayor/President/Clerk)

RESOLUTION TO AUTHORIZE A JOINT POWERS AGREEMENT COUNTY 911 EMERGENCY SYSTEM WITH JEFFERSON COUNTY

SPONSOR: MAYOR MCFARLAND

WHEREAS, the attached Joint Powers Agreement County 911 Emergency System with Jefferson County has been deemed appropriate;

NOW, THEREFORE, BE IT RESOLVED by the Common Council of the City of Watertown, Wisconsin:

Section 1. That the proper City of Watertown official(s) are hereby authorized to execute the attached Agreement;

Section 2. That this Resolution shall be in full force and effect upon its passage and adoption.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

CITY CLERK

APPROVED December 17, 2024

MAYOR

JOINT POWERS AGREEMENT
COUNTY 911 EMERGENCY SYSTEM

WHEREAS, Jefferson County and the municipalities located within the boundaries of Jefferson County have implemented an Emergency 911 System for the purposes of providing emergency services to residents and visitors of these municipalities, including fire fighting, law enforcement, ambulance, medical and other emergency services; and

WHEREAS, Sec. 256.35(9)(a)(b), Wis. Stats. "Joint Powers Agreement," requires that in implementing a 911 system as has been done in Jefferson County, municipalities shall annually enter into a Joint Powers Agreement, in which Agreement shall be applicable on a daily basis and which shall provide that if an emergency services vehicle is dispatched in response to a request through the Jefferson County 911 System, such vehicle shall render its service to the persons needing the services, regardless of whether the vehicle is operating outside the vehicle's normal jurisdictional boundaries.

THEREFORE, in consideration of the mutual promises, agreements, and conditions contained herein, it is hereby jointly agreed between Jefferson County and the **City of Watertown, Wisconsin** as follows:

1. Effective as of January 1, 2024, this Agreement shall, thereafter, be applicable on a daily basis for one year.

2. That if an emergency services vehicle operated by the municipality, or operated by an agency with which the municipality contracts for that particular emergency services, is dispatched in response to a request through the Jefferson County Emergency 911 System, such vehicle (whether owned and operated by the municipality or by the agency) shall render its services to the persons needing the services, regardless of whether the vehicle is operating outside the vehicle's normal jurisdictional (or as defined by contract) boundaries.

3. That a copy of this Agreement shall be filed with the State Department of Justice, as required by Sec. 256.35(9)(c), Wis. Stats.

JEFFERSON COUNTY (Dispatching agency)

By: _____ dated: 12-2-24
Travis W. Maze, Sheriff

JEFFERSON COUNTY CLERK

By: _____ dated: _____
Audrey McGraw

CITY OF WATERTOWN (Participating agency)
(~~Town~~/City/~~Village~~ of)

By: _____ dated: 12/9/24
Emily McFarland, Mayor

PRELIMINARY PLAT
OF
HUNTER OAKS ENCLAVE

BEING A REDIVISION OF LOT 1 OF CERTIFIED SURVEY MAP NO. 3941, LOT 1 OF CERTIFIED SURVEY MAP NO. 3939 AND VACATED BELMONT DRIVE, LOCATED IN A PART OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 6, TOWN 8 NORTH, RANGE 15 EAST, IN THE CITY OF WATERTOWN, JEFFERSON COUNTY, WISCONSIN.

CURVE TABLE:							
NO.	RADIUS	CENTRAL ANGLE	ARC	CHORD	CHORD BEARING	TANGENT IN	TANGENT OUT
C1	160.00	22°50'08"	63.77	63.35	N80°22'41"E	S88°12'15"E	N68°57'37"E
C2	170.00	20°27'50"	60.72	60.40	N79°11'32"E	N68°57'37"E	N89°25'27"E
C3	167.00	41°19'45"	120.46	117.87	N64°25'15.5"W	N85°05'08"W	N43°45'23"W
C4	170.00	17°33'24"	52.09	51.89	S47°25'40"W	S38°38'58"W	S56°12'22"W
C5	170.00	35°35'23"	105.60	103.91	S74°00'03.5"W	S56°12'22"W	N88°12'15"W

ENGINEER / SURVEYOR:
TRIO ENGINEERING, LLC
4100 N. CALHOUN ROAD, SUITE 300
BROOKFIELD, WISCONSIN 53005
PHONE: (262) 790-1480
FAX: (262) 790-1481

DEVELOPER:
BIELINSKI HOMES
1830 MEADOW LANE
SUITE "A"
PEWAUKEE, WI 53072
PHONE: (262) 548-5570

SCALE: 1"=50'
0 25 50 100

LEGEND

	INDICATES SOIL BORING LOCATION
	INDICATES PROPOSED FIRE HYDRANT
W W	INDICATES EXISTING WATERMAIN
	INDICATES PROPOSED WATERMAIN
SAN	INDICATES EXISTING SANITARY SEWER
	INDICATES PROPOSED SANITARY SEWER
ST	INDICATES EXISTING STORM SEWER
	INDICATES PROPOSED STORM SEWER
800	INDICATES EXISTING CONTOUR

VISION CORNER EASEMENT DETAIL

SITE DATA

- **Parcel Area:** 13.1354 Acres
- **Proposed: 43 Plat Lots**
  + 4 CSM Lots
  47 Single Family Lots
- Density: 13.13 / 47 = 0.28 acres/lot
- Proposed Setbacks:
  - Street (Front) = 24'
  - Street (Corner) = 20'
  - Side= 8'
  - Rear= 25'
- Min. Lot Width = 50'

DEVELOPMENT SUMMARY:

1. Tax Key No. 291-0815-0642-006 and 291-0815-0642-007
2. Subdivision contains approximately 13.1354 Acres.
3. Subdivision contains 47 Lots and 2 Outlots.
4. All lots to be served by Sanitary Sewer and Watermain.
5. Public Roads to have Concrete Curb and Gutter & Asphalt Pavement with Storm Sewer.
6. All lots to have Underground Telephone, Electric, and Gas Service. Utility Easements shall be determined by the Utility Companies and included on the Final Plat.
7. Proposed Zoning = PUD
8. Outlot 1 contains Utilities and Open Space.
9. Outlot 2 contains Stormwater Management Facilities and Open Space.
10. The Owners of all Lots within this Subdivision shall each own an equal undivided fractional interest in all Outlots of this Subdivision. Jefferson County shall not be liable for fees or special charges in the event they become the owner of any Lot or Outlot in the Subdivision by reason of tax delinquency.
11. Stormwater Management Facilities are located on Outlot 2 of this Subdivision. The Owners of all Lots within this Subdivision shall each be liable for an equal undivided fractional share of the cost to repair, maintain or restore said Stormwater Management Facilities. Said repairs, maintenance and restoration shall be performed by the Subdivision Master Association.

VISION CORNER EASEMENT: (V.C.E.)

Corner Lots & Outlots are herein subject to a Vision Corner Easement in that the height of planting berms, fences, signs & any other structure within the Easement is restricted to 24" above the intersection elevation. There shall be no direct vehicular access from the Lots and Outlots in this Subdivision to the public Roads across the Vision Corner Easement.

BASEMENT RESTRICTION FOR GROUNDWATER:

Although all Lots in the Subdivision have been reviewed and approved for development with single-family residential use in accordance with Section 236 Wisconsin Statutes, some Lots contain soil conditions that, due to the possible presence of groundwater near the surface, may require additional soil engineering and foundation design with regard to basement construction. It is recommended that a licensed professional engineer design a basement and foundation that will be suitable to withstand the various problems associated with saturated soil conditions on basement walls or floors or that other special measures be taken. Soil conditions should be subject to each owner's special investigation prior to construction and no specific representation is made herein.

HORIZONTAL DATUM PLANE:

All bearings are referenced to the Jefferson County Coordinate System, in which the West line of the Southeast 1/4 of Section 6, Town 8 North, Range 15 East, Bears North 01°47'45" East.

VERTICAL DATUM PLANE:

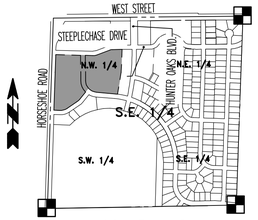
All elevations are referenced to the North American Vertical Datum of 1988 (12).

AGENCIES HAVING THE AUTHORITY TO OBJECT:

- State of Wisconsin, Department of Administration
- Jefferson County, Planning and Zoning Department

APPROVING AUTHORITY:

- City of Watertown



LOCALITY MAP:
S.E. 1/4, SEC. 6, T. 8 N., R. 15 E.
SCALE: 1"=1000'

SURVEYOR'S CERTIFICATE:

I hereby certify that this preliminary plat is a correct representative of all existing land divisions and features and that I have fully complied with the provisions of the subdivision regulations of the City of Watertown.

Date: 8/19/2024
Date: 10/08/2024

WISCONSIN GRADY L GOSSER S-2972 MENOMONEE FALLS, WI LAND SURVEYOR

Grady L. Gosser
Grady L. Gosser, P.L.S.
Professional Land Surveyor S-2972

WISCONSIN GRADY L. GOSSER S-2972 MENOMONEE FALLS, WI LAND SURVEYOR

DESIGN • LAND SURVEYING TRIO CIVIL ENGINEERING

4100 N. CALHOUN ROAD, SUITE 300
BROOKFIELD, WI 53005
PHONE: (262) 790-1480
FAX: (262) 790-1481
EMAIL: ggosser@trioeng.com

PROJECT:
HUNTER OAKS ENCLAVE
SINGLE FAMILY RESIDENTIAL SUBDIVISION
CITY OF WATERTOWN, WISCONSIN
BY: BIELINSKI HOMES
1830 MEADOW LANE, SUITE "A"
PEWAUKEE, WI 53072
PHONE: (262) 548-5570

REVISION HISTORY	
DATE	DESCRIPTION
8/19/2024	INITIAL SUBMITTAL
10/8/2024	REVISED PARCELS

DATE:
OCTOBER 8, 2024

JOB NUMBER:
22-059-1155-01

DESCRIPTION:
PRELIMINARY PLAT

SHEET
1 OF 1

I:\C3001\966\16046-01-HUNTER OAKS\SURVEY\PLATS\150PRP01.DWG

RESOLUTION TO APPROVE THE PRELIMINARY PLAT FOR HUNTER OAKS ENCLAVE SUBDIVISION SPONSOR: MAYOR EMILY MCFARLAND FROM: PLAN COMMISSION

WHEREAS, the City of Watertown Plan Commission & Site Plan Review Committee have reviewed and made recommendations with conditions on December 9, 2024 to the Common Council on the preliminary plat known as Hunter Oaks Enclave Subdivision; and,

WHEREAS, the Site Plan Review Committee & Plan Commission have made the following conditions:

1. Add minimum Street Frontage of 45 ft per amended PD-GDP/PIP to 'Site Data Table'.
2. Change listed zoning information in 'Development Summary Table' to Single-Family Residential with PD Overlay.
3. Add subsurface soil, rock, and water conditions including depth to bedrock and average depth to groundwater to the plat.
4. Add drainage easements for individual lots to the plat.
5. Add a note to the plat that indicates permanent improvements to the existing stormwater ponds meeting current stormwater standards will be completed as part of Phase 2 of the plat.
6. Add Airport Approach Protection Zone maximum elevations to the plat.

WHEREAS, the action of the Common Council shall be noted on three copies of the preliminary plat: one (1) copy of which shall be returned to the developer (Bielinski Homes) with the date and action endorsed thereon, one (1) copy of which shall be retained by the Engineering Department, and one (1) copy of which shall be retained by the City of Watertown's Assessor; and,

WHEREAS, the developer (Bielinski Homes) shall provide a copy of the approved preliminary plat to the following utility providers or their successor company(ies) for their comments prior to the drawing of the final plat: WE Energies, AT&T, Spectrum; and,

WHEREAS, the developer (Bielinski Homes) has agreed to enter into a contract for improvements as required by Article III of Chapter 545 of the City of Watertown Municipal Code. Prior to the signing of said contract by the Mayor and the City Clerk, the developer (Bielinski Homes) shall pay to the City all required fees, area charges and deposits, and provide any required performance bonds.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN:

That the preliminary plat of Hunter Oaks Enclave Subdivision is hereby approved with the conditions identified by the City of Watertown's Plan Commission and Site Plan Review Committee.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

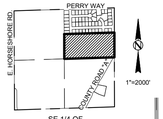
APPROVED December 17, 2024

_____

MAYOR

EXHIBIT A

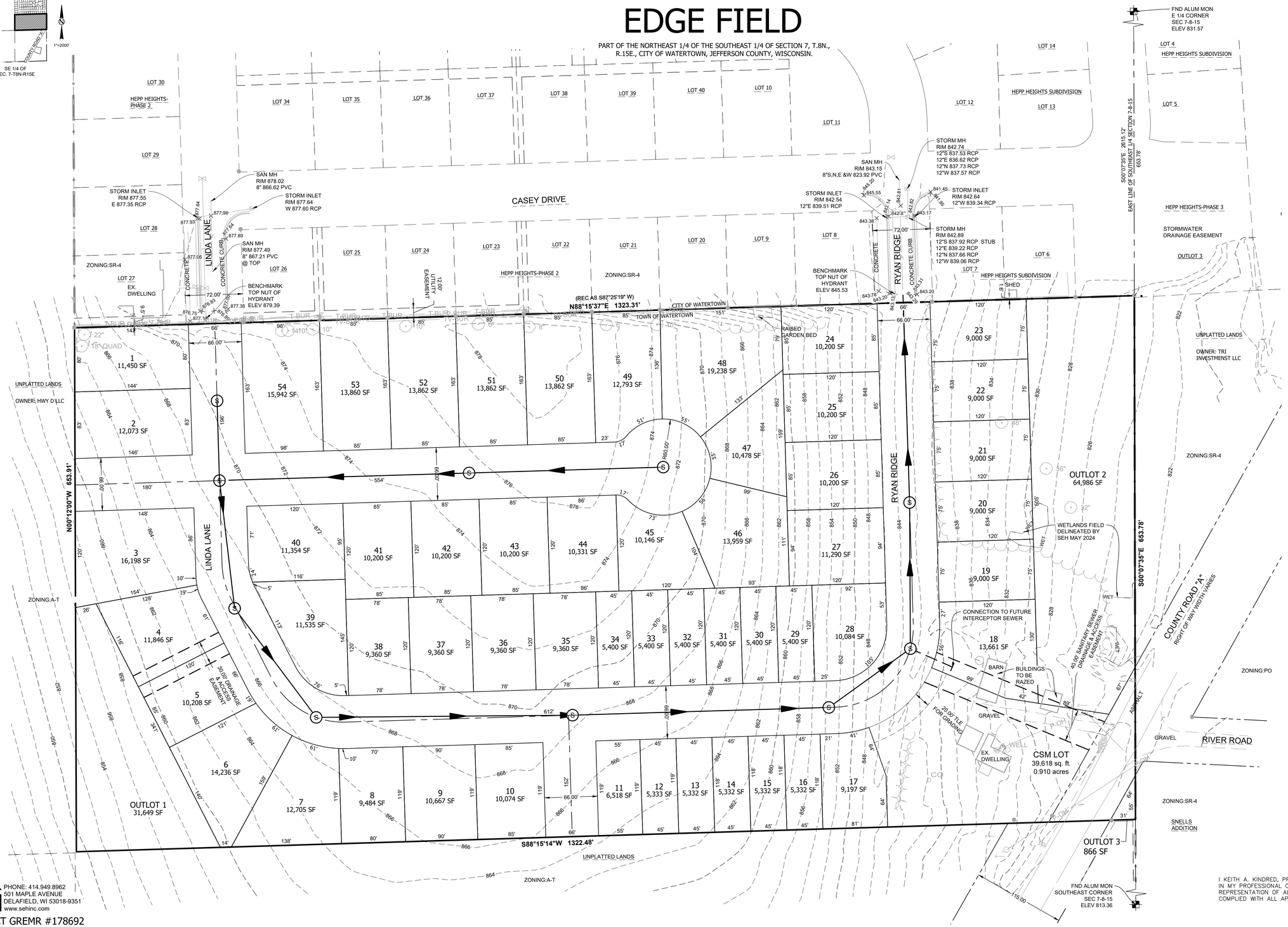
LOCATION MAP



PRELIMINARY PLAT OF

EDGE FIELD

PART OF THE NORTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 7, T.8N., R.15E., CITY OF WATERTOWN, JEFFERSON COUNTY, WISCONSIN.



BEARINGS ARE REFERENCED TO THE JEFFERSON COUNTY COORDINATE SYSTEM OF WHICH THE EAST LINE OF THE SE 1/4 OF SECTION 7-8-15 IS ASSUMED TO BEAR S00°07'35"E. VERTICAL DATUM BASED ON NGVD 88.

DISTANCES ARE COMPUTED TO THE NEAREST 0.01' AND MEASURED TO THE NEAREST 0.01'

ANGLES ARE COMPUTED TO THE NEAREST 00°00'00.5" AND MEASURED TO THE NEAREST 00°00'05"

SCALE: 1" = 60'

0 30 60 120

SURVEYOR:
KEITH A. KINDRED, PLS S-2082
SEH, INC.
501 MAPLE AVE.
DELAFIELD, WI 53018
(414) 949-8919
KKINDRED@SEHINC.COM

SURVEY FOR:
GREMAR LLC
435 VILLAGE WALK LANE 2A
JOHNSON CREEK, WI 53038
920-543-5403

WISCONSIN
KEITH A. KINDRED
S-2082
OSHKOSH, WI
LAND SURVEYOR

DATED THIS 7TH DAY OF OCTOBER, 2024.

I KEITH A. KINDRED, PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY THAT IN MY PROFESSIONAL OPINION PRELIMINARY PLAT IS A CORRECT REPRESENTATION OF ALL EXISTING LAND DIVISION FEATURES, AND THAT I HAVE COMPLIED WITH ALL APPLICABLE ORDINANCES IN PREPARING THE SAME.

SEH
PHONE: 414.949.8962
501 MAPLE AVENUE
DELAFIELD, WI 53018-9351
www.sehinc.com

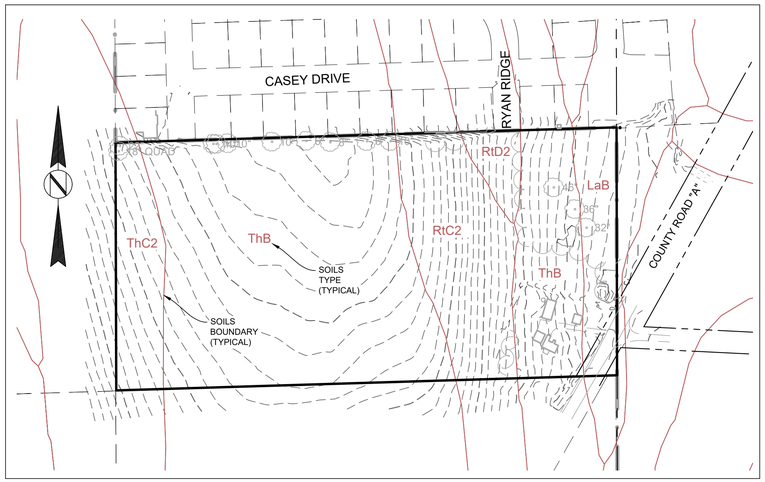
PROJECT GREMR #178692

SHEET 1 OF 2

PRELIMINARY PLAT OF

EDGE FIELD

PART OF THE NORTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 7, T.8N., R.15E., CITY OF WATERTOWN, JEFFERSON COUNTY, WISCONSIN.



SOILS MAP

SCALE:1"=200'

LEGEND

- SANITARY SEWER AND MANHOLE
- CLEANOUT
- WATER MAIN, HYDRANT, VALVE AND CURB STOP
- STORM SEWER, MANHOLE AND CATCH BASIN
- CULVERT
- BURIED FIBER OPTIC CABLE AND MANHOLE
- BURIED PHONE CABLE, PEDESTAL AND MANHOLE
- BURIED TV CABLE, PEDESTAL AND MANHOLE
- BURIED ELECTRIC AND METER
- OVERHEAD WIRE, POLE AND GUY WIRE
- LIGHT POLE
- SIGN
- DECIDUOUS AND CONIFEROUS TREE
- EDGE OF WOODED AREA
- WETLAND
- WOOD FENCE

GENERAL NOTES:

1) ALL EASEMENTS ARE GRANTED TO THE CITY OF WATERTOWN UNLESS OTHERWISE STATED.

2) OUTLOT 2 IS RESERVED FOR FUTURE PARK.

3) JEFFERSON COUNTY SHALL NOT BE LIABLE FOR ANY FEES OR SPECIAL ASSESSMENTS IN THE EVENT THEY BECOME THE OWNER OF ANY LOT IN THE SUBDIVISION BY REASON OF TAX DELINQUENCY.

4) NO POLES, PADS BOXES OR BURIED CABLES ARE TO BE PLACED SUCH THAT THE INSTALLATION WOULD DISTURB ANY SURVEY STAKE. THE DISTURBANCE OF A SURVEY STAKE BY ANYONE IS A VIOLATION OF SECTION 236.32 OF WISCONSIN STATUTES.

5) AREA SHOWN IS ZONE X, AREA OF MINIMAL FLOODING, PER FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER 55055C0067F, EFFECTIVE DATE FEBRUARY 4, 2015.

6) THE OVERALL AREA OF THIS PRELIMINARY PLAT IS 864,637 SQ. FT., 19.849 ACRES

7) ALL ROADS WITHIN THE SUBDIVISION ARE DEDICATED TO THE PUBLIC.

8) ALL LOTS TO BE SERVED BY PUBLIC SEWER AND WATER.

WISCONSIN
KEITH A. KINDRED
S-2082
OSHKOSH, WI
LAND SURVEYOR

DATED THIS 7TH DAY OF OCTOBER, 2024.

I KEITH A. KINDRED, PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY THAT IN MY PROFESSIONAL OPINION PRELIMINARY PLAT IS A CORRECT REPRESENTATION OF ALL EXISTING LAND DIVISION FEATURES, AND THAT I HAVE COMPLIED WITH ALL APPLICABLE ORDINANCES IN PREPARING THE SAME.

SURVEYOR:
KEITH A. KINDRED, PLS S-2082
SEH, INC.
501 MAPLE AVE.
DELAFIELD, WI 53018
(414) 949-8919
KKINDRED@SEHINC.COM

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920-543-5403

SEH
PHONE: 414.949.8962
501 MAPLE AVENUE
DELAFIELD, WI 53018-9351
www.sehinc.com

PROJECT GREMR #178692

RESOLUTION TO
APPROVE THE PRELIMINARY PLAT FOR
EDGE FIELD SUBDIVISION
SPONSOR: MAYOR EMILY MCFARLAND
FROM: PLAN COMMISSION

WHEREAS, the City of Watertown Plan Commission & Site Plan Review Committee have reviewed and made recommendations with conditions on December 9, 2024 to the Common Council on the preliminary plat known as Edge Field Subdivision; and,

WHEREAS, the Site Plan Review Committee & Plan Commission have made the following conditions:

1. Add all road names to the plat.
2. Add to the plat a dedication of Milford St / CTH A ROW and a third outlot to include the small remnant property east of the dedicated ROW.
3. Add to the plat notes indicating which lots are paired up for twin homes.
4. Add subsurface soil, rock, and water conditions including depth to bedrock and average depth to groundwater to the plat.
5. Add stormwater BPM locations, drainage easements, drainage restrictions, and basement/groundwater considerations to the plat as detailed at the Site Plan Review Committee.
6. Add Airport Approach Protection Zone maximum elevations to the plat.
7. Obtain Erosion Control and Storm Water Runoff Permit review and approval.
8. Perform a Traffic Impact Analysis on the plat and surrounding area.
9. Include an extension of River Road west to Ryan Ridge on the plat to provide a connection to Milford St/CTH A.
10. Apply for rezoning of Twin Home lots to Two-Family Residential (TR-6) to run concurrently with Final Plat approval.
11. Remove future park designation from Outlot 2
12. West and South stub streets shall be platted but not constructed; and,

WHEREAS, the action of the Common Council shall be noted on three copies of the preliminary plat: one (1) copy of which shall be returned to the developer (Gremar, LLC) with the date and action endorsed thereon, one (1) copy of which shall be retained by the Engineering Department, and one (1) copy of which shall be retained by the City of Watertown's Assessor; and,

WHEREAS, the developer (Gremar, LLC) shall provide a copy of the approved preliminary plat to the following utility providers or their successor company(ies) for their comments prior to the drawing of the final plat: WE Energies, AT&T, Spectrum; and,

WHEREAS, the developer (Gremar, LLC) has agreed to enter into a contract for improvements as required by Article III of Chapter 545 of the City of Watertown Municipal Code. Prior to the signing of said contract by the Mayor and the City Clerk, the developer (Gremar, LLC) shall pay to the City all required fees, area charges and deposits, and provide any required performance bonds.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN:

That the preliminary plat of Edge Field Subdivision is hereby approved with the conditions identified by the City of Watertown's Plan Commission and Site Plan Review Committee.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

RESOLUTION TO

ENTER INTO AGREEMENT WITH MEAD-HUNT FOR ENGINEERING DESIGN AND CONSTRUCTION SERVICES FOR WASTEWATER BIOSOLIDS DRYER PROJECT

SPONSOR: ALDERPERSON BOARD
FROM: PUBLIC WORKS COMMISSION

WHEREAS, the City of Watertown owns and operates a municipal wastewater utility, and;

WHEREAS, the wastewater utility has been working with Mead-Hunt since 2020 on various projects related to the biosolids process and the anerobic digesters, and;

WHEREAS, The wastewater utility is currently working with Mead-Hunt on administering a solar array project that was tied to the biosolids dryer concept and a Department of Energy Grant award, and other support as needed related to the wastewater utility, and;

WHEREAS, The wastewater utility included funds in the 2025 budget for this biosolids dryer project and recommends Mead-Hunt to continue as our consultant based on their knowledge of our system and experience working with the City of Watertown, and;

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN: that the proper City Officials be and are hereby authorized to enter into the contractual agreement which includes engineering and other specialty services with Mead-Hunt based in Milwaukee, Wisconsin for $344,000.

Said money to be charged to the following account: Wastewater 02-97-30-12

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

(December 17, 2024) Exhibit #9691

October 22, 2024

Mr. Pete Hartz
Water System Manager
City of Watertown
800 Hoffmann Drive
Watertown, WI 53094

Subject: Proposal for Engineering Services to Complete Detailed Design and Bid Documents
For Installing a Biosolids Dryer
City of Watertown, Wisconsin | Wastewater Treatment Plant
Mead & Hunt Proposal No. M4666751-242245.01

Dear Mr. Hartz,

Mead & Hunt, Inc. (Mead & Hunt) is pleased to present this proposal to the City of Watertown, Wisconsin (Watertown), for engineering services for the detailed design and installation of a biosolids dryer at its wastewater treatment plant (WWTP). The engineering services will include finalizing the design, creating bid documents for a biosolids dryer, and providing services to support bidding for this project to general contractors.

This proposal was prepared upon the authorization of the Watertown Public Works Board during the September 24, 2024, meeting. It builds upon two previous biosolids dryer projects completed in 2024 by Mead & Hunt for Watertown.

Project Understanding and Approach

Watertown owns and operates a municipal WWTP with an average day design flow of 5.29 MGD. The wastewater treatment is based on an extended aeration-activated sludge process. Regular operation of the treatment process produces approximately 220,000 gallons of primary solids and waste-activated sludge, which are pumped to anaerobic digesters. Digested sludge (averaging about 200,000 gallons per day) is periodically removed and then dewatered for land application. Land disposal of solids is becoming a more challenging solution.

In January 2024, Mead & Hunt completed a study of sludge drying technologies for Watertown. Conclusions from the feasibility study include:

- Sludge drying is viable for Watertown
- Several different types of dryers can be integrated into the existing treatment process

All sludge dryers have the potential to generate a product that meets the State of Wisconsin's Class A requirements. Class A sludge increases the number of land application sites. No sludge dryer can remove per- and polyfluoroalkyl substances (PFAS) from sludge. Still, most dryers are compatible with pyrolysis, an advanced sludge treatment process that has shown promise for removing PFAS from solids.

In October 2024, Mead & Hunt completed a second project that developed conceptual designs of four different biosolids drying approaches. The four alternative approaches were:

- A 'typical' sludge drying approach using a single direct-fired belt dryer to serve as a baseline.
- All electric sludge drying approach using the Shincci sludge dryer/dehumidifier
- A unique 'biological' drying approach using the Bioforcetech drum dryer
- A new sludge destruction technological approach using supercritical water oxidation (SCWO) equipment from 374Water.

The outcome of this conceptual design work was a recommendation to finalize the design of a biosolids dryer that follows the typical sludge drying approach, modified to avoid using a direct-fired dryer. This recommendation was presented to the Public Works Board (Board) on September 24, 2024, and received the Board's support.

Mead & Hunt will complete a detailed design and create bid documents for a biosolids dryer process train located in the existing sludge storage building (sometimes referred to as "the barn") at Watertown's WWTP. Sludge conveying will be added to the existing conveying equipment to redirect dewatered biosolids from the centrifuges to the new dryer(s). Provisions will be included to return operation to the existing sludge processing approach whenever the sludge dryer train is offline for routine, periodic maintenance. A sludge hopper may be included to assist with balancing the dewatering process with the sludge drying process. Dried biosolids will be transferred from the dryer train over a divider wall to a storage area. A new electrical room will be designed to house all the electrical power and instrument control equipment. The new electrical room will be in the barn and will include dedicated HVAC equipment to minimize dust and control temperature within the room.

Scope of Services

Mead & Hunt proposes the following Scope of Services to complete this project.

Task 1 | Site Visit for the Design Team and Data Collection

The design team visiting the WWTP will include the project manager and electrical/controls and mechanical/utility engineers. The design team will initially meet with WWTP staff for a kickoff meeting to review the project and confirm the project goals, objectives, schedule, and project deliverables. Following the meeting, the design team will conduct a walk-through of the existing facility to help familiarize the design staff with the existing treatment process train and any areas that could become part of this project. The design team will be on-site for approximately one day.

Deliverable(s)

- Meeting notes
- Site visit summary

Task 2 | Finalize Process and Instrumentation Diagrams

The design team will use the process flow diagram that was developed as part of the conceptual design as the basis for the process and instrumentation diagrams (P&IDs) that will show the conveying systems, sludge hopper, biosolids dryer(s), utilities, and all instruments that will be used to monitor/control this sludge dryer train. Draft copies of the P&IDs will be sent to WWTP staff for review and comment. The design team will review all comments from WWTP staff and either make changes to the P&IDs or prepare a written response for WWTP staff to review.

Deliverable(s)

- Draft P&IDs
- Any written responses to review comments

Task 3 | Finalize Selection and Sizing of Treatment Equipment

The design team will build on the work completed during the conceptual design project to finalize the sizing and selection of the sludge drying equipment. Critical items that must be selected include the conveyors, sludge hopper, and dryer. The design team will, whenever possible, identify at least three potential suppliers for any critical selected equipment unless otherwise directed by Watertown. The design team will obtain updated or revised quotations and catalog cut sheets for the critical equipment. This information will be used to develop the final engineer's planning level cost estimate and to prepare detailed drawings for the new system.

A dryer equipment workshop will review the most reasonable dryer equipment options for this project and discuss procurement options. Clear direction for the dryer equipment will be necessary to obtain clear direction to support the preparation of plans and equipment specifications.

WWTP staff will be provided with a summary table of equipment for review and comment. The design team will review the remarks from WWTP staff and adjust the equipment selection based on comments or prepare written responses for WWTP staff to review when we do not implement the comments.

Deliverable(s)

- Notes from the Dryer equipment workshop
- Summary table of equipment

Task 4 | Detailed Engineering Stage 1 (30% Complete)

The design team will use the information from Tasks 1 through 3 to begin Stage 1 of the detailed design for the sludge drying system. Equipment location and components will be shown on plans that will form the basis for the final bid set for the construction of the system. The design team will provide enough detail to define the project's scope, the major equipment's location, and other critical project elements.

Stage 1 of the detailed design will include:

- Task 4A - Site Civil/Site Design
    - The site civil/site design will include the following:
        - Overall site plan
        - Location of all sludge drying equipment
        - Coordination with access and general traffic flow and patterns
    - Note that surveying and geotechnical work are not included in this scope of work but may be required.
- Task 4B - Structural Design
    - Stage 1 detailed design of the modifications to the barn floor to add foundation pads for the dryer and sludge hopper along with pads for the conveyor. Design of the partition wall separating the dryer equipment of the dried biosolids storage area will be started. The structural design of the electrical room will also be completed as part of this task.
- Task 4C - Process Mechanical Design & Yard Piping
    - The design team will initiate the layout of the conveyors, hopper, dryer, and other mechanical components to support the biosolids dryer. Generalized sizing and material selection, primary heat trace needs (if any), and insulation requirements will all be part of this process design. Process mechanical design will include the following:
        - Dewater sludge conveyor to the hopper
        - Sludge hopper
        - Sludge conveyor from hopper to dryer
        - Biosolids dryer
        - Dried solids conveyor from drier to storage area
        - All utilities (excluding electrical and controls) such as water, ventilation, and floor drains
- Task 4D - Electrical Design
    - The design team will complete Stage 1 of the detailed electrical power design for the dryer treatment train. Power for the system will come from the existing power panel within the dewatering area. Design services for a new power feed system have not been included but can be added if needed. This electrical design task will entail developing a detailed load list of the sludge drying equipment. This equipment list will be used to evaluate an overall WWTP electrical load and the size of power distribution equipment.

- Task 4E - Controls Concept
    - The new dryer train will require modifications to the existing plant-wide control network. The design team will work with WWTP staff to determine and define hardware and software preferences to help make sure the dryer train interfaces with the existing control network. The preliminary control strategy is based on the following:
        - The dryer treatment train will operate 24 hours a day, 7 days a week, using the sludge hopper to balance loading between the existing dewatering equipment and the biosolids dryer.
        - The instrumentation's primary function is to control, monitor, and report the biosolids drying operation. Startup and shutdown of the dryer treatment train will be a manual operation.
    - The design team will develop control network diagrams to represent the control system.

Deliverable(s) for Task 4

- 30% Complete plan set to include:
    - Preliminary structural installation and removal drawings, including site layout, foundation plans, equipment supports, and in-ground concrete structures
    - Preliminary floor drain installation drawings of the immediate project area, along with interconnection to the existing sludge building drain network
    - Preliminary process mechanical installation and removal drawings, P&IDs, and 2D plans
    - Preliminary process electrical and instrumentation (PEI) installation drawings, plan, input/output (I/O), and single-line diagrams, panelboard schedule
    - Preliminary process mechanical, process electrical, and general construction scopes of work
    - Preliminary equipment list
    - Preliminary description of operations (DOO)

Task 5 | Project Workshop

The design team will host an in-person project workshop for WWTP staff to review Stage 1 of the detailed design. The design work represented by the draft plans represents the 30% complete design of the project. The purpose of this workshop is to review information developed from Tasks 2, 3, and 4. Draft copies of the plan set will be provided to staff a minimum of 3 days before this workshop. The meeting minutes will note all questions and comments from WWTP staff. The objective of this meeting is to have a general agreement on the detailed design with WWTP staff to support advancing to finalizing the detailed design.

Deliverable(s)

- Meeting minutes

Task 6 | Detailed Design Completion Stage 2 (90% Complete)
The design team will use the information from Tasks 2 through 5 to complete the detailed design of the dryer treatment system or train consisting of sludge conveying, drying, and dried biosolids storage. This stage advances the design to meet the Wisconsin Department of Natural Resources (WDNR) or other permit application level of detail requirements.

Copies of the Stage 2 detailed design plans will be provided to WWTP staff for review and comment. The design team will review comments from WWTP staff and either make changes to the plan set or prepare written responses for WWTP staff to review.

Deliverable(s)

- 90% complete plan set including:
    - Final structural installation and removal drawings, including site layout, foundation plans, equipment supports, and in-ground concrete structures
    - Final floor drain installation drawings of the immediate project area, along with interconnection to the existing sludge building drain network
    - Final process mechanical installation and removal drawings, P&IDs, and 2D plans
    - Final process electrical and instrumentation (PEI) installation drawings, plan, input/output (I/O), and single-line diagrams, panelboard schedule
    - Final process mechanical, process electrical, and general construction scopes of work
    - Final equipment list
    - Final description of operations (DOO)
- Any written responses to review comments

Task 7 | Prepare Budgetary Estimate and Construction Schedule
Using the plan set developed in Task 6, the design team will develop a final planning-level construction cost estimate that would include a level of accuracy of ±25% for Watertown to use for project budgeting. The cost will be based on quotations for major equipment, construction trade labor, and equipment/tools/materials for projects of this type. Estimates for contingency, construction-related services, and contractor equipment markup will also be included.

The design team will prepare a preliminary schedule for the project's construction using a weekly time increment.

Deliverable(s)

- Final planning-level construction cost estimate (+/-25%)
- Preliminary Construction Schedule

Task 8 | Completion of Bid Documents (100% Complete)

The design team will advance the detailed design to the final bid documents for this project. Written project specifications will be provided for the sludge drying equipment. The specification booklet would follow the general standards of practice using 16 divisions as follows:

- Division 0 – Bidding and Contract Requirements
- Division 1 – General Requirements
- Division 2 – Site Work
- Division 3 – Concrete
- Division 4 – Masonry
- Division 5 – Metals
- Division 6 – Wood and Plastic
- Division 7 – Thermal and Moisture Control
- Division 8 – Doors and Windows
- Division 9 – Finishes
- Division 10 – Specialties
- Division 11 – Equipment
- Division 12 – Furnishings
- Division 13 – Instrumentation
- Division 14 – Conveying Systems
- Division 15 – Mechanical
- Division 16 - Electrical

It is anticipated that not all of these divisions will be necessary for this project. The final number of divisions used will be determined after detailed design is complete.

It is assumed that Watertown will provide all front-end documents that comprise Divisions 0 and 1 in an electronic format compatible with Microsoft Word for the design team to add to the project specifications. If such documents are unavailable, the design team will provide Watertown copies of Divisions 0 and 1 from other municipal projects for review to be tailored to this specific project.

The design team estimates that the plan set for the bid documents will include approximately 38 pages comprised of the following:

- Cover page with the project location
- Standard key and legend sheets (6)
- P&ID (1)
- Major Equipment Tables (1)
- Instrumentation and Controls (2)
- Demolition (2)
- Mechanical (3)

- Plumbing/Utilities (2)
- Civil/structural (8)
- Electrical (3)
- Details (9)

WWTP staff will be provided electronic copies of the bid documents. Printed copies would be available upon request.

Deliverable(s)

- Bid documents, including equipment specifications and project plans

Task 9 | Application for WWTP Improvements to the WDNR
The design team will complete the application to the WDNR for approval to improve the WWTP. Mead & Hunt will prepare an engineering report summarizing the reason for improving the WWTP if necessary. After submitting the application, the design team will follow up on the WDNR review process to answer questions or comments.

Deliverable(s)

- WDNR application with supporting documents

Task 10 | Project Bidding Services
The design team will lead the contractor bidding process using a traditional design-bid-build format. The design team will:

- Advertise the project per WDNR requirements
- Host one in-person pre-bid meeting at the WWTP to help contractors become familiar with the project
- Respond to any questions from contractors that may be received.
- Issue addendums as necessary (assumed to be no more than two)
- Lead the contractor bid opening meeting
- Prepare a bid tabulation of any contractor bids that are received
- Complete a review of the apparent low bidder's documentation for conformance with the project requirements
- Issue an award recommendation to Watertown
- Prepare a notice of award to the selected contractor as directed by Watertown

Deliverable(s)

- Project Advertisement
- Host Pre-bid meeting
- Respond to Contractors questions

- Prepare Addendums, if needed
- Lead Bid opening and prepare bid tabulation
- Prepare an award recommendation to Watertown
- Prepare the Notice of Award to the selected contractor as directed by Watertown

Once the contract for this project is awarded, the design team will provide Watertown with a separate proposal for engineering services during construction to include equipment submittal review, contractor requests for information, review, and approval of pay requests, site work progress inspections, equipment checkout, final walkthrough of the project, start-up, and preparation of an operation and maintenance manual complete with as-built drawings.

Assumptions

The following assumptions apply to this proposal and are not included in the project schedule or cost.

- WWTP staff familiar with the current dewatering and dewatered sludge storage areas will be available to answer questions from the design team during the site visit and thereafter.
- Plan sets of the existing buildings and equipment are available in an electronic format and will be provided within 1 week after the kickoff meeting
- All utilities are available to meet the equipment needs. The various utilities required to support the wastewater treatment system will not require capacity upgrades.

Exclusions

The following exclusions apply to this proposal and are not included in the project schedule or cost.

- Engineering services during construction (ESDC).
- Dedicated electrical power feed to the new motor control center.
- Geotechnical and site survey studies.
- Sampling and testing labor and fees.
- Environmental permitting, permit submittal, and permit application fees.
- Equipment procurement
- Contracts for any subcontractors
- Construction management
- As-built documents
- Programming (such as the facility supervisory control and data acquisition (SCADA), PLC, human-machine interface (HMI), or other).
- Training of operators.

Project Schedule

Mead & Hunt is prepared to begin work on this project within 2 weeks of receiving a signed contract and notice to proceed. The total project should be completed in approximately 6 months. The following is an estimate of the schedule:

Project Schedule

Task	Descriptions	Anticipated Completion/Duration
1	Site visit and data collection	Within 2 weeks of contract issuance and execution
2	P&ID Completion	Within 2 weeks of contract issuance and execution
3	Final Equipment Selection	Within 3 weeks of site visit
4	30% Complete	8 weeks after Tasks 2 & 3 are finished
5	30% Review Workshop	Within 2 weeks after Task 4 is completed
6	90% Complete	8 weeks after Task 5 is complete
7	Planning Level Cost	4 weeks after Task 6 is complete
8	Bid Documents (100% Complete)	4 weeks after Task 6 is complete
9	WDNR Application	2 weeks after Task 8 is complete
10	Bid Support	2 weeks after Task 8 is complete

Compensation

Mead & Hunt is pleased to provide the services summarized in Tasks 1 through 10 on a time and material basis, not to exceed a total project cost of $344,000 without prior written authorization by Watertown.

Mead & Hunt will provide Watertown with monthly updates regarding the work performed, budget, and schedule.

If required, out-of-scope services requested by Watertown will be performed on a time and materials. Before executing any out-of-scope services, Mead & Hunt will issue a change order for Watertown to sign authorizing the out-of-scope work.

The costs in this proposal exclude any sales and use tax, goods and services tax, gross receipts tax, value-added tax, or similar taxes. Upon award of the contract, and prior to work starting, Mead & Hunt requires that Watertown provide either a signed tax exemption certificate, or the applicable sales tax rate, for the project. The final cost of the project will increase to include the cost of all applicable taxes if exemptions do not apply.

Authorization

The Scope of Services and Compensation stated in this proposal are valid for a period of thirty (30) days from date of submission. If authorization to proceed is not received during this period, this proposal may be withdrawn or modified by Mead & Hunt.

Signatures of authorized representatives of Watertown and Mead & Hunt shall convert this proposal to an Agreement between the two parties, and receipt of one signed copy shall be considered authorization to proceed with the work described in the Scope of Services. All services shall be performed in accordance with the agreement attached as Attachment A, hereto.

We appreciate the opportunity to offer our services for this project. We welcome any questions regarding this proposal and look forward to working with you on this and future projects.

Sincerely,

MEAD & HUNT, INC.

Jonathan Butt, PE
Market Leader – MW One Water

Manish Shrestha, PE, PMP
Business Unit Leader – One Water

MEAD & HUNT PROPOSAL NO. M4666751-242245.01 ACCEPTED BY:

CLIENT:_____

SIGNATURE: _____

TITLE: _____

DATE: _____

Attachment A

Professional Services Terms and Conditions of Agreement

MEAD AND HUNT, INC.
PROFESSIONAL SERVICES TERMS AND CONDITIONS OF AGREEMENT

These Terms and Conditions of Agreement form the Agreement under which services are to be performed by Mead and Hunt, Inc. (hereinafter "Consultant") upon acceptance of the attached Proposal by the Client. The Scope of Work, Project Cost and Project Schedule sections of the attached Proposal are incorporated by reference into these Terms and Conditions of Agreement and are part of the Agreement.

Article 1. Scope of Work

It is understood that the Scope of Work and the Project Schedule defined in the Proposal are based, in part, on the information provided by the Client. If this information is incomplete or inaccurate, or if site conditions are encountered which materially vary from those indicated by the Client, or if the Client directs Consultant to change the original Scope of Work established by the Proposal, a written amendment to this Agreement equitably adjusting the costs and/or performance time thereunder, shall be executed by the Client and Consultant as soon as practicable in accordance with Article 30 below. In the event that the Client and Consultant cannot agree upon the terms and conditions of such amendment, either party may terminate this Agreement immediately upon written notice to the other in accordance with Article 10, Termination.

Consultant shall perform only the services specified in the Scope of Work portion of the Proposal or an amendment thereto as referenced above. Services provided by Consultant shall be subject to the provisions of this Agreement, including these Terms and Conditions of Agreement, any supplemental conditions incorporated herein, and any written amendments as referenced above. Consultant shall invoice its costs, and Client shall provide payment for all services provided in accordance with Article 2 below.

Article 2. Fees, Billing and Payment

Unless otherwise limited in the Proposal, purchase order, or work order, Consultant's fee estimate is effective for thirty (30) days from the date of the Proposal. Thereafter, Consultant shall have the right to modify its fee estimate.

The fees stated in a Proposal, purchase order, or work order constitute an estimate of the tasks and fees required to perform the Scope of Work. The Scope of Work often cannot be fully defined during the initial planning stages of a project. As the Project progresses, facts uncovered may reveal a change in direction, which may alter the Scope of Work. If Client requests modifications or changes in the Scope of Work related to the Project, or if the during Project development the Scope of Work changes resulting in changes to the estimated tasks and fees required to perform the Scope of Work, then the time of performance of the services by Consultant and the fees associated therewith shall be revised and accepted in accordance with Article 30 before Consultant undertakes any additional work beyond the originally defined Scope of Work.

The Client recognizes that Consultant's fee estimate does not include potentially applicable sales and use taxes. Tax-exempt certificates are to be provided by the Client in connection with the acceptance of the Proposal or the applicable purchase order or work order. Taxes will be added to all invoices as applicable,

unless/until a properly completed and valid tax-exemption form is received.

To the extent applicable, the Client recognizes meal costs will be charged based on per diem basis and construction managers and site engineers will charge hotel and meal costs on a per diem basis.

The Client recognizes that time is of the essence with respect to payment of Consultant's invoices, and that timely payment is a material part of the consideration of this Agreement.

Invoices will be submitted by Consultant monthly, and shall be due and payable within thirty (30) calendar days of the invoice date. If the Client objects to all or any portion of an invoice, the Client shall so notify Consultant within fourteen (14) calendar days of the invoice date, identify the cause of disagreement, and pay when due that portion of the invoice, if any, not in dispute. In the event that Consultant and the Client cannot resolve the dispute regarding invoiced amounts within thirty (30) days after receipt by Consultant of the aforementioned notice, the dispute shall be submitted to dispute resolution pursuant to Article 12, below.

Payment shall be made via electronic means (EFT/ACH) directly to Consultant. A remittance advice or payment notification to accountsreceivable@meadhunt.com is required. Where electronic means are not available or not feasible, payment shall be mailed to:

Mead and Hunt, Inc.
Attn: Accounts Receivable, Mead & Hunt
2440 Deming Way
Middleton, WI 53562

The Client shall pay an additional charge of one-and-one-half (1.5) percent (or the maximum percentage allowed by law, whichever is lower) of the invoiced amount per month for any payment received by Consultant more than thirty (30) calendar days from the date of the invoice, excepting any portion of the invoiced amount in dispute or resolved in favor of Client. Payment of invoices is in no case subject to unilateral discounting or setoffs by the Client.

Application of the percentage rate indicated above as a consequence of the Client's late payments does not constitute any willingness on Consultant's part to finance the Client's operation and no such willingness should be inferred.

If the Client fails to pay undisputed invoiced amounts within thirty (30) calendar days of the date of the invoice, Consultant may at any time, without waiving any other claim against the Client or the right to pursue any other remedy against the Client and without thereby incurring any liability to the Client, suspend this Agreement, as provided for in Article 9, Suspension, or terminate this Agreement, as provided for in Article 10, Termination.

Article 3. Confidentiality

Consultant and Client shall hold confidential all business or technical information marked as confidential or proprietary obtained from the other or its affiliates under this Agreement for a period of five (5) years after obtaining such information, and during that period shall not disclose such information without the other's consent except to the extent required for (1) performance of services under this Agreement; (2) compliance with professional standards of conduct for preservation of the public safety, health and welfare; (3) compliance with any law, regulation, ordinance, subpoena, court order or governmental request; or (4) protection of the disclosing party against claims or liabilities arising from performance of services under this Agreement. In the event disclosure may be required for any of the foregoing reasons, the disclosing party will, except where immediate notification is required by law or regulation or is, in the judgement of the receiving party's counsel required to limit that party's liability, notify the other party in advance of disclosure. The confidential information does not include any data or information which the receiving party can prove (a) was in the receiving party's lawful possession prior to its disclosure by the disclosing party; (b) is later lawfully obtained by the receiving party from a third party without notice to the receiving party of any obligation of confidentiality or other restrictions with respect to use thereof; (c) is independently developed by the receiving party; (d) is, or later becomes, available to the public through no breach of an obligation of confidentiality by the receiving party; or (e) is approved for disclosure in writing by the disclosing party. Notwithstanding anything to the contrary herein, one archive copy of confidential information or documents containing confidential information may be retained by legal counsel of receiving party for the sole purpose of identifying its obligations under this Agreement and any copy may be retained pursuant to any statute, regulation, administrative opinion or any similar legal requirement or to evidence compliance with a professional duty.

Article 4. Independent Contractor Relationship

The relationship between the Client and Consultant created under this Agreement is that of principal and independent contractor. Consultant shall serve as an independent contractor to the Client and shall be responsible for selecting the means and methods that services will be provided under this Agreement. It is specifically understood that, irrespective of any assignability provisions, Consultant may retain subcontractors to perform services usually and customarily performed by subcontractors. Should Consultant determine it appropriate or necessary to rely on a subcontractor where it is not customary to do so, Consultant shall obtain prior written approval or subsequent written confirmation from the Client.

Article 5. Standard of Care

Consultant will perform the Services in accordance with the standards of care and diligence normally practiced by consulting firms performing services of a similar nature in the same locale.

Article 6. Opinions on Cost

Consultant may be asked to provide opinions of probable Project or construction cost costs as part of the professional services under this Agreement. Consultant's opinions of cost are based on Consultant's

experience and judgment. Provided, however, Consultant cannot and does not guarantee that construction proposals, bids or actual construction or Project costs will not exceed estimates provided by Consultant. Consultant is not responsible for variations between actual construction bids or costs and Consultant's opinions regarding probable construction costs.

Article 7. Timeliness of Performance

Consultant acknowledges that timely performance of its services is an important element of this Agreement. Consultant will put forth reasonable efforts to complete the work according to the schedule attached in the Proposal.

If Consultant discerns that the schedule shall not be met for any reason, it shall so notify the Client as soon as practically possible so that a mutually agreed on revised schedule can be established.

Article 8. Force Majeure

Consultant shall not be considered in default because of any delays in the completion of the work due to causes beyond the control and without the fault or negligence of Consultant or its subcontractors, including but not restricted to, an act of God or of a public enemy, civil unrest, fire, flood, area-wide strike, freight embargo, unusually severe weather, governmental action, pandemic, epidemic or supplier delay. In the event Consultant has knowledge of any actual or potential delay, Consultant shall notify Client in writing of such cases of delay and their probable extent and, upon such notification, Consultant's performance obligations hereunder shall be suspended.

Article 9. Suspension

Upon fourteen (14) calendar days written notice to Consultant, the Client may suspend Consultant's work.

If payment of Consultant's invoices is not maintained on a thirty (30) calendar-day current basis by the Client, Consultant may, by fourteen (14) calendar days' written notice to the Client, suspend further work until payment is restored to a current basis.

Suspension for any reason exceeding forty-five (45) calendar days shall, at Consultant's option, make this Agreement subject to renegotiation or termination, as provided for elsewhere in this Agreement. Any suspension shall extend the time schedule for performance in a manner that is satisfactory to both the Client and Consultant, and Consultant shall be compensated for services performed and charges incurred prior to the suspension date, regardless of the reason for the suspension.

Article 10. Termination

The Client or Consultant may terminate this Agreement with or without cause, and such termination shall be effective upon fourteen (14) days' written notice to the other party.

Either party may also terminate this Agreement upon written notice to the other party in the event that the other party becomes insolvent; files a petition in bankruptcy; is adjudicated bankrupt; has an assignee; referee, receiver or trustee appointed in any creditor action; has a petition in bankruptcy filed against it which is not vacated within thirty (30) days or suffers any action analogous thereto.

In the event such termination becomes necessary, the party effecting termination shall so notify the other party, and termination will become effective fourteen (14) calendar days after receipt of the termination notice. Irrespective of which party shall effect termination or the cause therefor, the Client shall within thirty (30) calendar days of termination remunerate Consultant for services rendered and costs reasonably incurred, in accordance with Consultant's fee schedule. Costs shall include those incurred up to the time of termination.

Article 11. Notice to Parties

All notices required or permitted under this Agreement shall be in writing and shall be made to the parties' below:

Consultant's Project Manager:
Jon Butt, PE
6737 W Washington Streeet, Suite 3500
West Allis, WI 53214
Jon.Butt@meadhunt.com

Client Project Manager:
Pete Hartz
800 Hoffmann Drive
Watertown, WI 53094s
phartz@watertownwi.gov

For Notices made pursuant to Article 12:
Legal Department: Mead and Hunt, Inc.
6737 W Washington Street, Suite 3500
West Allis, WI 53214
notices@meadhunt.com

For Notices made pursuant to Article 12:
Client Legal Department (optional)
Address
Address
Email

Article 12. Dispute Resolution

Client and Consultant shall provide written notice of a dispute within a reasonable time after the event giving rise to the dispute. Client and Consultant agree to negotiate any dispute between them in good faith for a period of thirty (30) days following such notice. Client and Consultant may agree to submit any dispute to mediation, but such mediation shall not be required as a prerequisite to initiating a lawsuit to enforce this Agreement. Either party shall have the right to litigate the claim, dispute or other matter in question in any state or federal court in the State in which the Project is located. In connection therewith, each party agrees to submit to the jurisdiction of such court.

In the event that legal action is brought by either party against the other in the Courts (including action to enforce or interpret any aspect of this agreement), each party shall be responsible for its own legal costs.

Client and Consultant agree to seek recourse only against each other as incorporated (or similar business entities) and not each other's officers, employees, directors or shareholders.

Article 13. Choice of Law

This Agreement shall be governed and construed in accordance with the laws of the State in which the Project is located, without reference to conflicts of law principles. Each party hereto consents to the exclusive jurisdiction of the state and federal courts in the State in which the Project is located for any actions, suits or proceedings arising out of or relating to this Agreement.

Article 14. Indemnification

Subject to the limitations provided in Article 15, Consultant agrees to indemnify and hold harmless Client, its directors, officers, stockholders, employees, agents, successors and assigns from and against any and all claims, demands, causes of action, liability and costs which arise out of or result from any negligent act, omissions or willful misconduct of Consultant or Consultant's employees, agents or subcontractors in the performance of services under this Agreement; provided, however, Consultant will not be obligated to indemnify Client with respect to costs or damages to the extent such costs or damages are caused by or incurred as a result of negligence or intentional misconduct of Client or Client's subcontractors, agents or employees.

Article 15. Limitation of Liability

NEITHER PARTY WILL BE LIABLE FOR OR REQUIRED TO INDEMNIFY THE OTHER FOR SPECIAL OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS, DELAY OR LIQUIDATED DAMAGES, LOSS OF INVESTMENT OR BUSINESS INTERRUPTION, REGARDLESS OF HOW CHARACTERIZED AND EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, WHICH ARISE FROM THE PERFORMANCE OF THIS AGREEMENT OR IN CONNECTION WITH THIS AGREEMENT, AND REGARDLESS OF THE FORM OF ACTION (WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE).

CLIENT AND CONSULTANT HAVE EVALUATED THE RISKS AND REWARDS ASSOCIATED WITH THIS PROJECT, INCLUDING CONSULTANT'S FEE RELATIVE TO THE RISKS ASSUMED, AND AGREE TO ALLOCATE CERTAIN OF THE RISKS SO, TO THE FULLEST EXTENT PERMITTED BY LAW, CONSULTANT'S LIABILITY, AND THAT OF ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS AND

SUBCONTRACTORS, ARISING OUT OF BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR ANY OTHER CAUSE OF ACTION, SHALL BE LIMITED TO $100,000 OR CONSULTANT'S FEE, WHICHEVER IS GREATER.

Article 16. Insurance

Consultant shall maintain the following insurance coverage during the time it is performing services hereunder. Consultant disclaims any duty to defend Client. Client agrees that it shall not tender the defense of any claim arising out of or related to this Agreement to Consultant.

A. Worker's Compensation:
of a form and in an amount as required by state law

B. Employer's Liability:
$1,000,000 each accident
$1,000,000 disease, each employee
$1,000,000 disease, policy limit

C. Automobile Liability (including all owned, hired and non-owned vehicles):
$1,000,000 each accident

D. Commercial General Liability (bodily injury and property damage — combined single limit):
$1,000,000 each incident
$2,000,000 annual aggregate

E. Errors and Omissions:
$5,000,000 each incident
$10,000,000 annual aggregate

Article 17. Review of Contractors Work

In the course of performing services under this Agreement, Consultant may be asked to review drawings, specifications, or pay applications from contractors engaged to perform work in connection with the project for which the Proposal is submitted or to observe such contractor's construction as it progresses. Any such review shall be limited to a review of the general conformance with the design concept of the project and the general compliance with information given in the contractor's documents and as may otherwise be noted by Consultant on such drawings and specifications. Such review shall in no way limit the liability of the contractor or be deemed an indication that Consultant has accepted or approved the drawings, specifications or work in any manner.

Article 18. Construction Means and Methods, Safety, and Conduct

Unless otherwise expressly stated in Consultant's Proposal, this Agreement shall not be construed as

imposing upon or providing to Consultant the responsibility or authority to direct or supervise construction means, methods, techniques, sequence or procedures of construction selected by the parties or subcontractors or the safety precautions and programs incident to the work of the parties or subcontractors.

Consultant shall be responsible for providing personal protective equipment and safety training for its own employees.

Client and Consultant understand their respective obligations to provide a respectful work environment for their employees. Both parties agree that harassment on the job (unwelcome verbal, physical or other behavior that is related to sex, race, age or other protected class status) will not be tolerated and will be addressed in a timely manner and in compliance with anti-harassment laws.

Article 19. Ownership and Use of Documents and Concepts

Client acknowledges that Consultant reports, drawings, boring logs, field data, field notes, laboratory test data, calculations, estimates and other similar documents ("Records") are instruments of professional services, not products.

Consultant will retain these Records for a period of three (3) years following completion of this Project. During this time, Consultant will reasonably make available these records to the Client.

Electronic files may contain viruses which can be inadvertently transmitted. It is the sole responsibility of Client to check for viruses before loading the files, and Client is solely responsible for intercepting and disabling any viruses which could be inadvertently transmitted with the electronic files. Client hereby agrees to indemnify and hold Consultant harmless against all claims of any nature resulting from viruses transmitted with the electronic files.

Consultant shall not be responsible for any deviations, alterations, modifications or additions in the electronic data in comparison to the documents originally released by the Consultant to the Client. Consultant shall not be responsible for any reuse of the electronic data by Client or any other party for this Project, or any other project without the prior express written consent of Consultant. Client shall defend, indemnify and hold completely harmless Consultant against any claims, damages or losses arising out of any deviations, alterations, modifications or additions in the electronic data in comparison to the documents originally released by the Consultant to the Client or any reuse of the electronic data without prior express written consent of Consultant.

All documents, including the electronic files that are transferred by Consultant to Client, are Instruments of Service of Consultant created for this Project only, and are not intended to be deemed a sale of the files and data, and NO REPRESENTATION OR WARRANTY IS MADE, EITHER EXPRESS OR IMPLIED, CONCERNING THE MERCHANTABILITY OF THE FILES AND DATA OR THEIR FITNESS FOR A PARTICULAR PURPOSE.

Copies of documents that may be relied upon by Client are limited to the originally released documents that

contain signatures and seals of the professional employee(s) of Consultant. Any damages resulting from deviations from such originally released and signed or sealed electronic files will be at the Client's sole risk.

Consultant is not responsible for damages arising out of the use by the Client or the Client's agents of any Consultant data or report for any purpose other than its original purpose as defined in the Proposal.

While Client agrees that any patentable or copyrightable concepts developed by Consultant as a result of this Agreement shall remain the sole and exclusive property of Consultant, Client shall retain a right, without the right to grant sublicenses under any patents or copyrights of Consultant, to use any information or recommendations generated by Consultant during the performance of this Agreement. Client shall have the right to assign such right to any party who buys from client the assets of Client relating to the information or recommendations generated by Consultant under this Agreement. Nothing in this Article 19 shall restrict Consultant from using any methods, techniques or concepts developed by it under this Agreement for its benefit or the benefit of any third party.

Article 20. Subsurface Exploration

In those situations where Consultant performs subsurface exploration, the Client, to the extent of its knowledge, will furnish to Consultant information identifying the type and location of utilities and other human-made objects beneath the surface of the Project site. Consultant will take reasonable precautions to avoid damaging these utilities or objects. Prior to penetrating the site's surface, Consultant will furnish Client a plan indicating the locations intended for penetration. Consultant will not be responsible for damages arising out of contact with unidentified subsurface utilities or objects.

Article 21. Extent of Study

Client recognizes that actual environmental or geological conditions may vary from conditions encountered at locations where Consultant makes visual observations, obtains samples or performs other explorations as part of its services under this Agreement. Consultant's failure to discover potential environmental contamination, geological conditions or other conditions through appropriate techniques does not guarantee the absence of environmental contamination, geological conditions or other conditions at a site.

Article 22. Hazardous Substances

In the event that services performed under this Agreement involve hazardous substances, as defined in 40 CFR Part 302, including hazardous waste, whether or not such involvement was known or contemplated at the time this Agreement was made or when services performed by Consultant commenced under this Agreement, the following additional terms and conditions shall apply to this Agreement.

Any and all samples collected or received by Consultant or its subcontractors on behalf of Client which contain hazardous substances including hazardous waste will be, after completion of testing and at Client's expense, either returned to Client, or using a manifest signed by Client as a generator, be transported to a location selected by Client for final disposal. Client shall pay all costs associated with the storage, transport

and disposal of all such samples. Client agrees and recognizes that Consultant is acting as a bailee and at no time assumes title to any such samples or substances.

Consultant warrants that when making hazardous waste determinations on behalf of Client, Consultant will use the standard of care and diligence normally practiced by consulting firms performing similar services in the same locale. Consultant, if requested by Client, will gather bids from various hazardous waste transporters and/or treatment, storage or disposal facilities (TSDFs) that are appropriately licensed or permitted by state, federal and/or local authorities to accept the waste generated by the Client. Client acknowledges that although Consultant may gather bids from various hazardous waste transporters or TSDFs, that Client has ultimately selected such transporter or TSDF. Client understands that Consultant has not conducted regulatory compliance audits on such transporters or TSDFs nor does Consultant make any other warranties or representations other than expressly written in this paragraph related to such transporters or TDSFs. Client acknowledges that Consultant at no time assumes title to waste generated from Client's facility or site.

Client acknowledges that Consultant has no responsibility as an operator, arranger, generator, treater, storer, transporter, disposer, emitter, discharger or releaser of hazardous substances, air or water pollutants or other contaminants found or identified in conjunction with work performed hereunder.

Article 23. Third Party Rights

Except as specifically stated in this Agreement, this Agreement does not create any rights or benefits to parties other than Client and Consultant. The services provided by Consultant hereunder are for the Client only.

Article 24. Assignment

Neither party to this Agreement shall assign its duties and obligations hereunder without the prior consent of the other party except as provided in Article 4.

Article 25. Lien Notice

Consultant hereby notifies Client that persons or companies performing, furnishing or procuring labor, services, materials, plans or specifications for construction on Client's land may have lien rights on Client's land and buildings if not paid.

Article 26. Waiver

No waiver by either party of any term or condition set forth herein or the breach by the other party of any such term or condition, whether by conduct or otherwise, in any one or more instances, shall be deemed or construed as a further or continuing waiver of any such term, condition or breach or a waiver of any other term, condition or breach.

Article 27. Headings

The subject headings in this Agreement are for convenience only and are not determinative of the substance of the subject clause.

Article 28. Entire Agreement

The parties agree that this Agreement, together with proposals and attachments as referenced or incorporated herein, represents the entire and integrated agreement between the Client and Consultant and supersedes all prior communications, negotiations, representations, quotations, offers or agreements, either written or oral between the parties hereto, with respect to the subject matter hereof, and no agreement or understanding varying or extending this Agreement shall be binding upon either Party, other than by a written agreement signed by both the Client and Consultant. If additional documents represent the agreement of the parties, such documents must be itemized in Consultant's proposal. The parties agree that the provisions of these terms and conditions of this Agreement shall control over and govern as to any subsequent form or document signed by the Parties, such as Client's purchase orders, work orders, task orders, etc. and that such documents may be issued by Client to Consultant as a matter of convenience to the parties without altering any of the terms or provisions hereof.

Article 29. Severability

If any provision or part of a provision of this Agreement is declared to be invalid by any tribunal of competent jurisdiction, such part shall be deemed automatically adjusted, if possible, to conform to the requirements for validity, but if such adjustment is not possible, it shall be deemed deleted from this Agreement as though it had never been included herein. In either case, the balance of any such provision and of this Agreement shall remain in full force and effect.

Article 30. Contract Amendments

Any amendments to the Proposal or these Terms and Conditions of Agreement shall be executed by means of a written contract amendment, signed by the Client and Consultant. Changes to the Agreement will not become effective until the contract amendment has been signed by both parties. The contract amendment will document the specific changes to the Agreement along with any resulting adjustment in cost and/or schedule.

Article 31. Execution of Agreement

These Terms and Conditions of Agreement are cross referenced in Consultant's Proposal and are accepted when the Proposal is executed by the Client or when the Client authorizes Consultant to proceed with the Scope of Work. Client's representative represents that he/she is duly authorized to enter into and sign this Agreement. The parties agree that Consultant's Proposal may be executed by Client and delivered to Consultant via facsimile or other electronic means, and such facsimile or other electronic copy will constitute an original.

RESOLUTION TO APPROVE US CELLULAR EQUIPMENT UPGRADES ON CITY HALL TOWER

SPONSOR: ALDERPERSON BOARD, CHAIR
FROM: PUBLIC WORKS COMMISSION

WHEREAS, the City of Watertown has multiple lease agreements with cellular providers and other entities for their equipment on the City Hall Tower; and,

WHEREAS, The City has a lease with US Cellular for them to have equipment on the City Hall Tower; and,

WHEREAS, US Cellular has requested the lease be amended to make changes to US Cellular's equipment on the City Hall Tower; and,

WHEREAS, the Engineering Division had their consultant, SEH, and the City Attorney's office review and approve the equipment upgrades for US Cellular; and,

WHEREAS, US Cellular has applied for and at the December 10, 2024 Public Works Commission meeting, the Public Works Commission has approved the Second Amendment to Tower and Ground Space Lease Agreement, attached hereto as Exhibit A, to perform upgrades to their equipment located on the City Hall Tower; and,

WHEREAS, US Cellular and/or their sub-contractors are liable and responsible to cover inspection costs and subsequent repairs for any and all damage (paint coatings, ground ruts, concrete cracks, ladder integrity, railing integrity, and/or other items not listed) that may occur to the City Hall Tower as explained in the lease terms.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN: that the proper City Officials be and are hereby authorized the amendment to the lease agreement for equipment upgrades performed by US Cellular and/or their sub-contractors.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

SECOND AMENDMENT TO TOWER AND GROUND SPACE LEASE

This Second Amendment to Tower and Ground Space Lease ("Second Amendment") made _____, 2024, modifies that certain Tower and Ground Space Lease dated May 17, 2000, as amended by the First Amendment Tower and Ground Space Lease January 22, 2015, (collectively, the "Lease"), by and between the City of Watertown, a Wisconsin municipal corporation, hereinafter referred to as "Watertown" and United States Cellular Operating Company LLC, a Delaware limited liability company, having an address at Attention: Real Estate Lease Administration, 8410 West Bryn Mawr Avenue, Chicago, Illinois 60631, hereinafter referred to as "U.S. Cellular".

WHEREAS, Watertown and U.S. Cellular entered into the Lease which provides U.S. Cellular with the right to occupy and use the Premises located at 106 Jones Street, Watertown, Wisconsin in return for consideration to Watertown; and

WHEREAS, Watertown and U.S. Cellular desire to amend the Lease to document U.S. Cellular's intended changes to the equipment ("Modifications") at said Site; and

NOW THEREFORE, in consideration of the terms of the Lease and this Second Amendment and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Watertown and U.S. Cellular agree that the Lease is now modified as follows:

I. Lease Exhibit A-1 is hereby deleted in its entirety and replaced with the Second Amendment Exhibit A-2.

II. Except as specifically modified herein, the Lease shall remain in full force and effect as originally executed. The Lease and this Second Amendment shall be binding on the successors and assigns of the parties hereto.

IN WITNESS WHEREOF, Watertown and U.S. Cellular have executed this Second Amendment as of the last signature below.

WATERTOWN:	U.S. CELLULAR:
City of Watertown	United States Cellular Operating Company LLC
By: _____	By: _____
Printed: _____	Printed: _____
Title: _____	Title: Vice President
Date: _____	Date: _____

[NOTARY PAGE TO FOLLOW]

STATE OF WISCONSIN)
)
COUNTY OF JEFFERSON)

I, the undersigned, a notary public in and for the State and County aforesaid, do hereby certify that _____, known to me to be the same person whose name is subscribed to the foregoing Second Amendment to Tower and Ground Space Lease, appeared before me this day in person and acknowledged that he/she signed the said Amendment as his/her free and voluntary act for the uses and purposes therein stated.

Given under my hand and seal this ____ day of _____, 202__.

_____

Notary Public

My commission expires _____

STATE OF ILLINOIS)
)
COUNTY OF COOK)

I, the undersigned, a notary public in and for the State and County aforesaid, do hereby certify that _____, Vice President, known to me to be the same person whose name is subscribed to the foregoing Second Amendment to Tower and Ground Space Lease, appeared before me this day in person and acknowledged that, pursuant to his/her authority, he/she signed the said Amendment as his/her free and voluntary act on behalf of theU.S. Cellular, for the uses and purposes therein stated.

Given under my hand and seal this ____ day of _____, 2024.

_____

Notary Public

My commission expires _____

EXHIBIT A-2

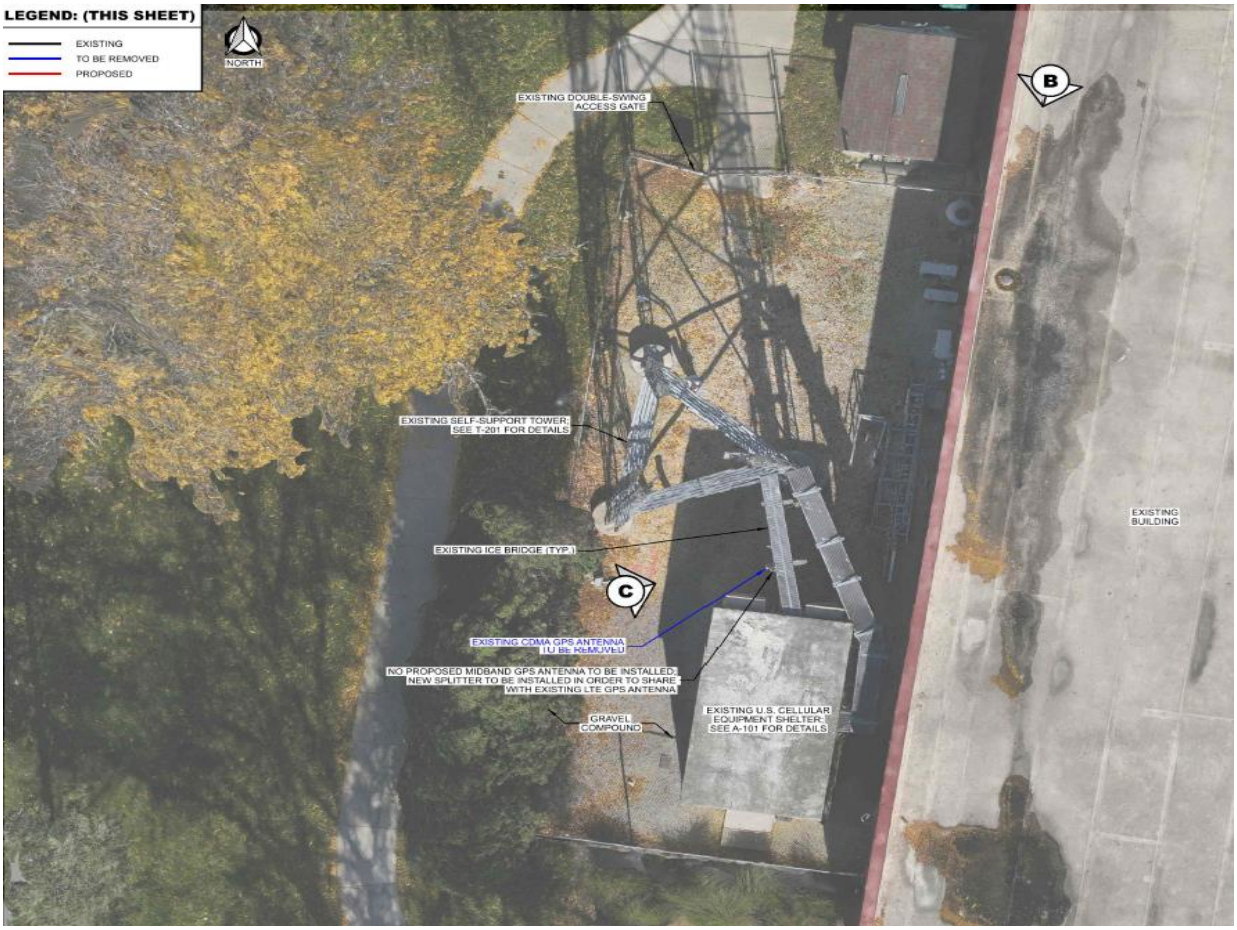

LEGEND: (THIS SHEET)
EXISTING
TO BE REMOVED
PROPOSED
NORTH
EXISTING DOUBLE-SWING ACCESS GATE
B
EXISTING SELF-SUPPORT TOWER; SEE T-201 FOR DETAILS
EXISTING BUILDING
EXISTING ICE BRIDGE (TYP.)
C
EXISTING CDMA GPS ANTENNA
NO PROPOSED MIDBAND GPS ANTENNA TO BE INSTALLED; NEW SPLITTER TO BE INSTALLED IN ORDER TO SHARE WITH EXISTING LTE GPS ANTENNA
GRAVEL COMPOUND
EXISTING U.S. CELLULAR EQUIPMENT SHELTER; SEE A-101 FOR DETAILS

EXHIBIT A-2 (continued)

C | **ICE BRIDGE**

EXHIBIT A-2 (continued)

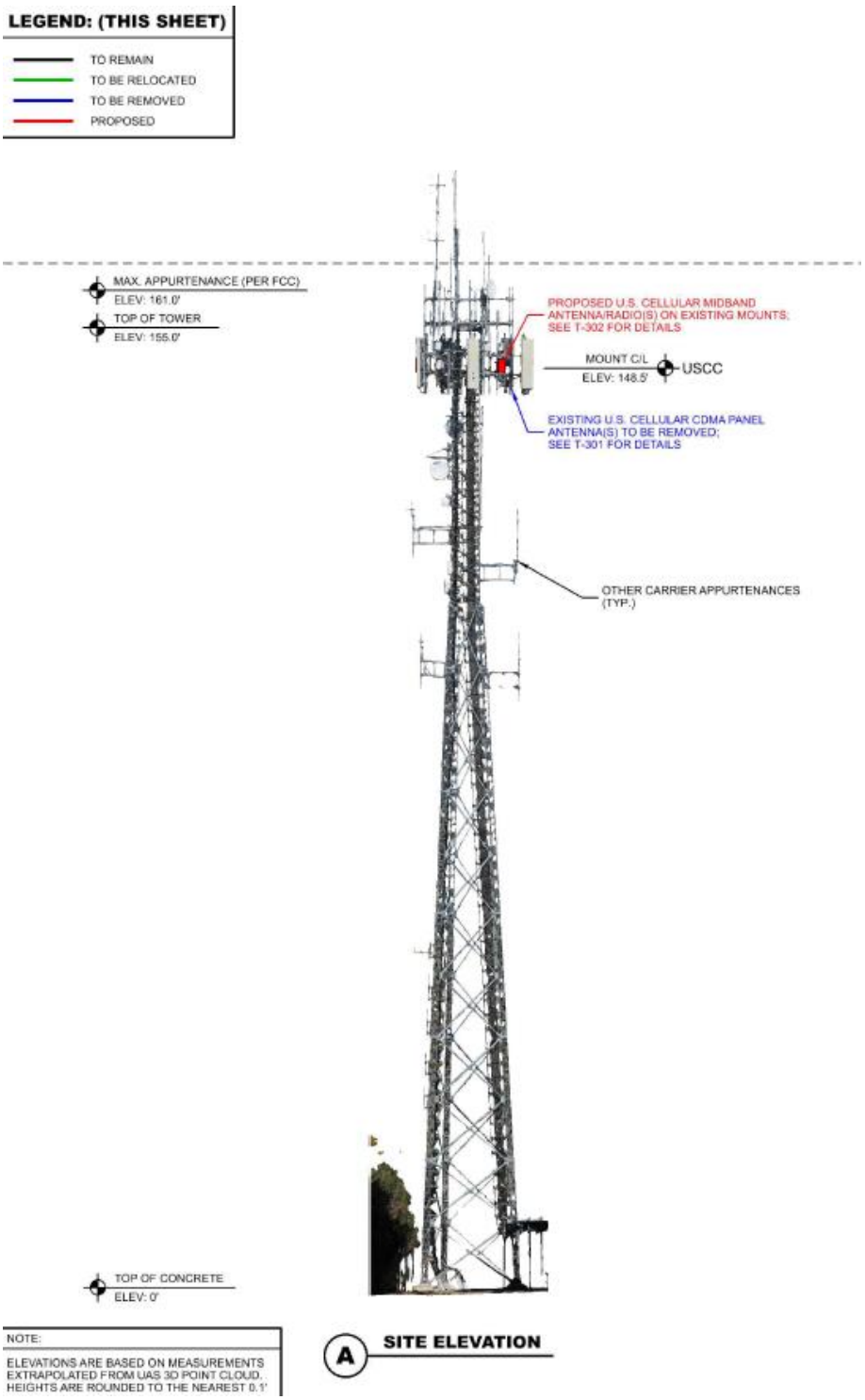
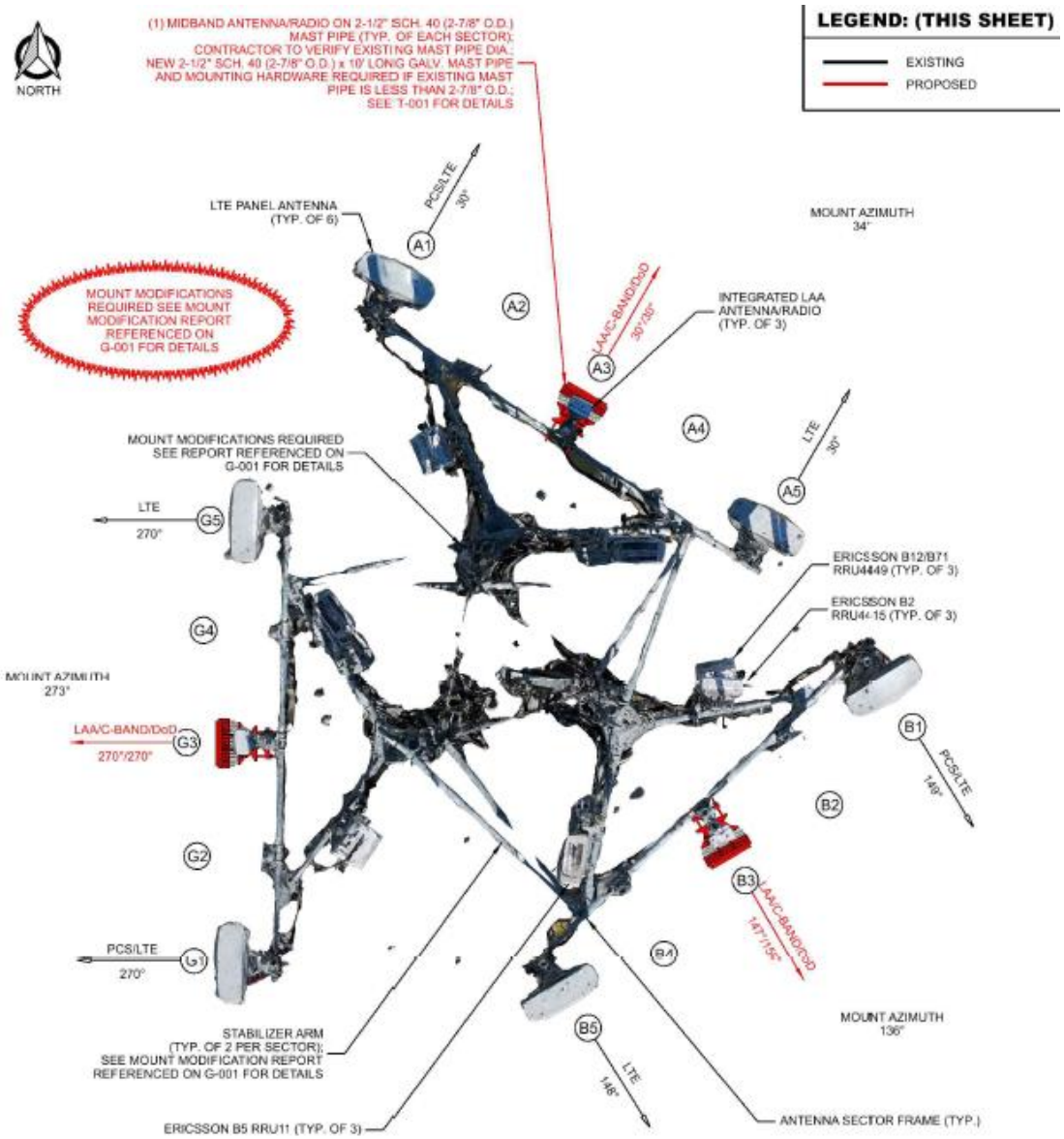


EXHIBIT A-2 (continued)



NOTES:

1. ALL ANTENNA AZIMUTHS TO BE FROM TRUE NORTH.
2. ANTENNA AZIMUTHS WERE OBTAINED ON-SITE WITH THE USE OF UNMANNED AIRCRAFT SYSTEMS (UAS) "DRONE", AND ROUNDED TO THE NEAREST DEGREE.

A PROPOSED ANTENNA LAYOUT

EXHIBIT A-2 (continued)

	Antenna Position	Technology	Antenna Model	Antenna Quantity	RAD Center	Azimuth	Surge Protector Qty.	B12/B71 Radio	Radio Qty.	B2/B66 Radio	Radio Qty.	B5 Radio	Radio Qty.	MidBand Radio	Radio Qty.	Cable Type	Cable Qty.
ALPHA	A1	PCS/LTE	Amphenol TWIN65BLU000G-T	1	148.5'	30°	1	RRU4449	1	RRU4415	1	-	-	-	-	1-1/4" Hybrid	1
	A2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	A3	LAA	Integrated Antenna/Radio	-	151.5'	30°	Shared	-	-	-	-	-	-	RRU2205	1	Shared	-
		DoD/C-Band	Integrated Antenna/Radio	-	148.5'	30°	Shared	-	-	-	-	-	-	AIR6472	1	Shared	-
	A4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	A5	LTE	Amphenol TWIN65BLU000G-T	1	148.5'	30°	Shared	-	-	-	-	RRU11	1	-	-	Shared	-
BETA	B1	PCS/LTE	Amphenol TWIN65BLU000G-T	1	148.5'	149°	1	RRU4449	1	RRU4415	1	-	-	-	-	1-1/4" Power	1
	B2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B3	LAA	Integrated Antenna/Radio	-	151.5'	147°	Shared	-	-	-	-	-	-	RRU2205	1	Shared	-
		DoD/C-Band	Integrated Antenna/Radio	-	148.5'	150°	Shared	-	-	-	-	-	-	AIR6472	1	Shared	-
	B4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B5	LTE	Amphenol TWIN65BLU000G-T	1	148.5'	148°	Shared	-	-	-	-	RRU11	1	-	-	Shared	-
GAMMA	G1	PCS/LTE	Amphenol TWIN65BLU000G-T	1	148.5'	270°	Shared	RRU4449	1	RRU4415	1	-	-	-	-	Shared	-
	G2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	G3	LAA	Integrated Antenna/Radio	-	151.5'	270°	Shared	-	-	-	-	-	-	RRU2205	1	Shared	-
		DoD/C-Band	Integrated Antenna/Radio	-	148.5'	270°	Shared	-	-	-	-	-	-	AIR6472	1	Shared	-
	G4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	G5	LTE	Amphenol TWIN65BLU000G-T	1	148.5'	270°	1	-	-	-	-	RRU11	1	-	-	1-1/4" Hybrid	1
Total:				6			3		3		3		3		6		3

Black Text = Existing Green Text = Relocated Red Text = Proposed

C PROPOSED ANTENNA & EQUIPMENT LOADING

RESOLUTION TO
PURCHASE A COMBINATION SEWER CLEANER TRUCK
WATER SYSTEMS WASTEWATER DIVISION

SPONSOR: ALDERPERSON BOARD
FROM: PUBLIC WORKS COMMISSION

WHEREAS, the following quotations were received for the purchase of a Combination Sewer Cleaner Truck, to be used by the City of Watertown DPW – Water Systems

Vendor	Base Price	Trade-In Value	Delivery	Demo Discount	Add Ons	Total Cost
# 1	$532,551.00	$ 51,000.00	$ -	$ 16,500.00	$ 10,257.00	$ 475,308.00
# 2	$ 566,250.00	$ 35,000.00	$ -	$ -	$ 9,738.65	$ 540,988.65
# 3	$ 515,777.00	$ 60,000.00	$ -	$ -	$ -	$ 455,777.00
# 4	$ 533,593.00	$ 60,000.00	$ -	$ -	$ -	$ 473,593.00
# 5	$ 646,232.00	$ 85,000.00	$ 2,895.00	$ -	$ -	$ 564,127.00
# 6	$ 526,652.00	$ 45,000.00	$ 2,895.00	$ -	$ -	$ 484,547.00

WHEREAS, staff reviewed the quotations, and shared their findings with the Public Works Commission. The Public Works Commission made the determination to move forward with the quote received from R.N.O.W Inc. for a total cost of $475,308.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN: That the proper City Officials be and are hereby authorized to purchase a Combination Sewer Cleaner Truck from R.N.O.W Inc. of West Allis, Wisconsin for $475,308.00

Said money is to be taken from the Wastewater Repair or Replace Account 02-97-30-12 in the 2025 budget year.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

RESOLUTION TO
ESTABLISH PAY FOR THE OFFICE OF ALDERPERSON
FOR TERMS BEGINNING ON OR AFTER APRIL 15, 2026

SPONSOR: MAYOR MCFARLAND
FROM: FINANCE COMMITTEE

WHEREAS, the salary for elected officials needs to be set prior to an election for the salary to take effect for that particular office; and,

WHEREAS, the salary for the Alderpersons was last adjusted for terms beginning on or after April 18, 2023.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN:
The following pay schedule be implemented for Alderpersons starting with pay following each April election:

April 2025	$6,242.40 ($520.17/mo) [approved 11/16/21]	2.0% incr
April 2026	$6,367 ($530.58/mo)	2.0% incr
April 2027	$6,494 ($541.17/mo)	2.0% incr
April 2028	$6,624 ($552.00/mo)	2.0% incr

That this Resolution shall be in full force and effect upon its passage and adoption.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

RESOLUTION TO
ESTABLISH PAY FOR THE MUNICIPAL JUDGE
FOR TERMS BEGINNING ON OR AFTER MAY 1, 2025

SPONSOR: MAYOR MCFARLAND
FROM: FINANCE COMMITTEE

WHEREAS, the municipal judge's term of office will expire on April 30, 2025, at which time the annual salary has been $30,078.88; and

WHEREAS, the salary for elected officials needs to be set prior to an election for the salary to take effect for that particular office (spring election in odd-numbered years for a term of four years); and,

WHEREAS, the salary schedule for the municipal judge was last determined for terms beginning on or after January 2015.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN:
The following annual pay schedule be implemented for the judge's position:

May 1, 2025	$33,000	9.7% incr
May 1, 2026	$33,660	2.0% incr
May 1, 2027	$34,333	2.0% incr
May 1, 2028	$35,020	2.0% incr

That this Resolution shall be in full force and effect upon its passage and adoption.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

RESOLUTION TO
ESTABLISH PAY FOR THE OFFICE OF MAYOR
FOR TERMS BEGINNING ON OR AFTER APRIL 15, 2025

SPONSOR: ALDER BARTZ
FROM: FINANCE COMMITTEE

WHEREAS, the Mayor's term of office will expire on April 15, 2025, at which time the annual salary will be $92,635; and

WHEREAS, the salary for elected officials needs to be set prior to an election for the salary to take effect for that particular office; and,

WHEREAS, the salary schedule for the Mayor was last determined for terms beginning on or after April 20, 2022.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN:
The following annual pay schedule be implemented for the Mayor's position:

January 1, 2025	$92,635 [approved 11/16/21]	4.0% incr
January 1, 2026	$94,488	2.0% incr
January 1, 2027	$96,378	2.0% incr
January 1, 2028	$98,306	2.0% incr

That this Resolution shall be in full force and effect upon its passage and adoption.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____
CITY CLERK

APPROVED December 17, 2024

_____
MAYOR

PAYROLL RESOLUTION

SPONSOR: MAYOR MCFARLAND
FROM: FINANCE COMMITTEE

A resolution adjusting the annual salary or hourly rates to be paid the following city officials, supervisory, and non-union personnel of the City of Watertown, Wisconsin.

The Common Council of the City of Watertown, Wisconsin, do ordain as follows:

SECTION 1: Effective January 1, 2025, all full-time and permanent part-time non-represented employees shall receive compensation based on the appropriate step and grade of the attached pay chart for dates effective January 1, 2025.

SECTION 2: The Mayor may modify the attached pay chart to include any new positions budgeted for and approved by the Common Council at a grade consistent with the budgeted amount or to change a job title, provided the grade does not change.

SECTION 3: The following part-time employees shall receive, effective January 1, 2025:

	Jan. 1
Police Auxiliary	$15.76
Police Auxiliary Capt. – additional per hour	.50
Police Auxiliary Sgt. – additional per hour	.25
Crossing Guard	11.25
Election Inspector	10.00
Chief Election Inspector	12.00
Election Assistant	15.00
Cable TV PT Staffer	12.50
Engineering Intern (HS)	10.00-14.00
Engineering Intern (College)	14.00-19.00
PT Sr. Center Office Aid	12.00

SECTION 4: Only full-time employees previously eligible for longevity as of December 31, 2011, are eligible for longevity, and shall receive, in addition to their salary, the following annual amounts:

After 8 years of continuous service	$175.50
After 12 years of continuous service	$351.00
After 16 years of continuous service	$526.50

SECTION 5: The City will contribute toward health insurance the following amounts for those employees who elect to receive it: Full-time single: $780.00 (88%); Full-time family: $1,920.00 (88%); Benefit eligible permanent part-time employees enrolled in WRS: 25 – 50% of the contracted plan dependent on the anticipated hours worked.

SECTION 6: The City will contribute toward dental insurance the following amounts for those employees who elect to receive it: Full-time single: $3.32 monthly (90%), Full-time family: $10.22 (90%)monthly.

SECTION 7: LIBRARY. Hourly rates and salaries paid to personnel employed by the Library shall be set by the Library Board.

SECTION 8: RECREATION DEPARTMENT. Hourly rates and contract amounts will be established by the Park, Recreation and Forestry Commission with the exception of seasonal maintenance employees, subject to council approval.

SECTION 9: STREET, PARK, FORESTRY AND WATER/WASTEWATER SEASONAL EMPLOYEES. Each person employed as a part-time seasonal maintenance employee shall be paid $15.00 per hour plus an additional $1.00 per year worked. Each person employed as a part-time seasonal office employee in these departments shall be paid $11.00 per hour.

SECTION 10: All unionized City employees shall be compensated according to the appropriate union contracts.

SECTION 11: Non-union paramedics will receive the paramedic add-on pay as listed in the union contract.

SECTION 12: Unless specified differently in a section, this resolution shall take effect January 1, 2025.

That this Resolution shall be in full force and effect upon its passage and adoption.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

CITY OF WATERTOWN

PAY TABLE EFFECTIVE: 1/1/2025 - HOURLY FORMAT (2080 HOURS)

1.50% COLA increase from 2024

Grade	Step 1	Step 2	Step 3	Step 4	Step 5	Control Point Step 6	Step 7	Step 8	Step 9	Step 10	Step 11
Y	$67.51	$69.44	$71.37	$73.30	$75.22	$77.15	$79.08	$81.01	$82.94	$84.87	$86.80
X	$63.47	$65.28	$67.10	$68.91	$70.72	$72.54	$74.35	$76.17	$77.98	$79.79	$81.61
W	$59.44	$61.14	$62.84	$64.54	$66.23	$67.93	$69.63	$71.33	$73.03	$74.73	$76.42
V	$55.41	$57.00	$58.58	$60.16	$61.74	$63.33	$64.91	$66.49	$68.08	$69.66	$71.24
U	$51.38	$52.85	$54.32	$55.79	$57.25	$58.72	$60.19	$61.66	$63.13	$64.60	$66.06
T	$48.35	$49.74	$51.12	$52.50	$53.88	$55.26	$56.64	$58.02	$59.41	$60.79	$62.17
S	$46.34	$47.67	$48.99	$50.32	$51.64	$52.96	$54.29	$55.61	$56.94	$58.26	$59.58
R	$44.33	$45.60	$46.87	$48.13	$49.40	$50.67	$51.93	$53.20	$54.47	$55.73	$57.00
Q	$42.30	$43.51	$44.72	$45.93	$47.14	$48.35	$49.56	$50.77	$51.97	$53.18	$54.39
P	$40.29	$41.45	$42.60	$43.75	$44.90	$46.05	$47.20	$48.35	$49.50	$50.66	$51.81
O	$38.28	$39.38	$40.47	$41.57	$42.66	$43.75	$44.85	$45.94	$47.04	$48.13	$49.22
N	$36.26	$37.29	$38.33	$39.36	$40.40	$41.44	$42.47	$43.51	$44.54	$45.58	$46.62
N (2912 Hrs) Battalion Chief	$25.90	$26.64	$27.38	$28.12	$28.86	$29.60	$30.34	$31.08	$31.82	$32.56	$33.30
M	$34.25	$35.22	$36.20	$37.18	$38.16	$39.14	$40.12	$41.10	$42.07	$43.05	$44.03
M (2053 Hrs) Sgt	$34.70	$35.69	$36.68	$37.67	$38.66	$39.65	$40.64	$41.64	$42.63	$43.62	$44.61
L	$32.24	$33.16	$34.08	$35.00	$35.92	$36.84	$37.76	$38.68	$39.60	$40.52	$41.45
K	$30.23	$31.09	$31.95	$32.82	$33.68	$34.54	$35.41	$36.27	$37.13	$38.00	$38.86
J	$28.20	$29.00	$29.81	$30.61	$31.42	$32.23	$33.03	$33.84	$34.64	$35.45	$36.25
I	$26.19	$26.94	$27.68	$28.43	$29.18	$29.93	$30.68	$31.42	$32.17	$32.92	$33.67
H	$24.18	$24.87	$25.56	$26.25	$26.94	$27.63	$28.32	$29.01	$29.70	$30.39	$31.08
G	$22.16	$22.79	$23.42	$24.06	$24.69	$25.32	$25.96	$26.59	$27.22	$27.86	$28.49
F	$20.14	$20.71	$21.29	$21.86	$22.44	$23.02	$23.59	$24.17	$24.74	$25.32	$25.89
E	$18.63	$19.17	$19.70	$20.23	$20.76	$21.29	$21.83	$22.36	$22.89	$23.42	$23.96
D	$17.62	$18.13	$18.63	$19.13	$19.64	$20.14	$20.64	$21.15	$21.65	$22.15	$22.66
C	$16.61	$17.09	$17.56	$18.04	$18.51	$18.99	$19.46	$19.94	$20.41	$20.89	$21.36
B	$15.61	$16.06	$16.51	$16.95	$17.40	$17.84	$18.29	$18.74	$19.18	$19.63	$20.07
A	$10.07	$10.36	$10.64	$10.93	$11.22	$11.51	$11.80	$12.08	$12.37	$12.66	$12.95

CITY OF WATERTOWN	
GRADE ORDER LIST	
GRADE	**JOB TITLE**
T	CITY ATTORNEY
T	DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
T	CHIEF OF FIRE/EMERGENECY OPERATIONS
T	POLICE CHIEF
S	WATER/WASTEWATER UTILITIES MANAGER
S	FINANCE DIRECTOR
R	PUBLIC HEALTH OFFICER
R	OPERATIONS MANAGER
Q	DEPUTY CHIEF-FD
Q	ASSISTANT POLICE CHIEF
Q	ASSISTANT CITY ENGINEER
P	POLICE CAPTAIN
P	LIBRARY DIRECTOR
O	RECREATION AND PARKS DIRECTOR
O	WATER/WASTEWATER UTILITIES ASSISTANT MANAGER
N	BATTALION CHIEF SHIFT COMMANDER
N	ENGINEERING PROJECT MANAGER
N	ZONING ADMINISTRATOR
N	STORMWATER PROJECT MANAGER/GRANT WRITER
N	WATER SYSTEMS MAINTENANCE AND FACILITIES FOREMAN
N	BUILDING INSPECTOR III
N	PARKS SUPERVISOR
M	BUILDING INSPECTOR II
M	PUBLIC WORKS PROJECT MANAGER
M	CIVIL STAFF ENGINEER
M	ASSISTANT OPERATIONS MANAGER
M	PUBLIC HEALTH ASSISTANT DIRECTOR
M	POLICE SERGEANT
M	CLERK
M	LAB MANAGER
M	MANAGER OF ECONOMIC DEVELOPMENT AND STRATEGIC INITIATIVES

M	HUMAN RESOURCES COORDINATOR
M	INFORMATION TECHNOLOGY COORDINATOR
L	BUILDING INSPECTOR I
L	BUILDING INSPECTOR (PT)
L	SR. CENTER AND ENRICHMENT DIRECTOR/OFFICE MANAGER
L	DISTRIBUTION CREW LEADER
K	ENVIRO HEALTH SANITARIAN (CERTIFIED)
K	EMERGENCY PREP/ENVIRO HEALTH SPECIALIST
K	PUBLIC HEALTH NURSE - RN
K	BILINGUAL COMMUNICATIONS SPECIALIST (PT)
K	DEPUTY TREASURER/CLERK
K	AQUATICS AND RECREATION MANAGER
K	PROGRAMMING EVENT COORDINATOR
K	WASTEWATER COLLECTIONS CREW LEADER
K	WASTEWATER OPERATIONS FOREMAN
K	WATER OPERATIONS FOREMAN
K	911 DISPATCH SUPERVISOR
K	MEDIA AND COMMUNICATIONS DIRECTOR
K	ADULT SERVICES LIBRARIAN
K	CHILDREN'S LIBRARIAN
J	PT CODE ENFORCEMENT
J	ENVIRO HEALTH SANITARIAN (NON-CERTIFIED)
J	CITY FORESTER/BUCKET TRUCK OPERATOR
J	WATER SYSTEMS OPERATOR
J	CIRCULATION SERVICES MANAGER
J	RECREATION PROGRAM MANAGER
J	STREET/STORMWATER WORKING FOREMAN
I	HEAVY EQUIPMENT OPERATOR
I	MECHANIC
I	911 DISPATCHER
I	911 DISPATCHER(PT)
H	PARALEGAL
H	HUMAN RESOURCES ASSISTANT (PT)
H	FIRE INSPECTOR (PT)
H	NURSE - LPN
H	ASSISTANT CITY FORESTER
H	MECHANIC/PARKS MAINTENANCE/POOL OPERATOR
H	PARKS SPECIALIZED MAINTENANCE
H	SPECIALIZED MAINTENANCE/LIGHT EQUIPMENT OPERATOR

H	SOLID WASTE COLLECTION - LEADMAN
H	OFFICE/PROGRAM COORDINATOR
H	UTILITY BILLING COORDINATOR
H	WATER DISTRIBUTION TECHNICIAN
H	WASTEWATER COLLECTIONS SPECIALIST
H	MEDIA PRODUCTIONS MANAGER
H	ACCOUNTING CLERK
H	ADMINISTRATIVE ASSISTANT III
G	COURT CLERK (MUNICIPAL)
G	COMMUNITY SERVICES OFFICER
G	GENERAL LABORER-STREETS
G	SOLID WASTE COLLECTION
G	INVESTIGATIONS SPECIALIST
G	RECORDS CLERK (POLICE)
G	ASSISTANT BILLING/UTILITY CLERK
G	WATER UTILITY TECHNICIAN
G	ADMINISTRATIVE ASSISTANT II
F	GENERAL LABORER-PARK RECREATION AND FORESTRY
F	MAINTENANCE CUSTODIAN
F	BUILDING AND GROUNDS MAINTENANCE SUPERVISOR/WASTEWATER RELIEF OPERATOR
F	LEGAL ASSISTANT (PT)
F	ADMINISTRATIVE ASSISTANT I
F	SENIOR LIBRARY ASSISTANT-CATALOGING & CIRCULATION
F	SENIOR LIBRARY ASSISTANT-TEEN SERVICES
C	LIBRARY ASSISTANT (PT)
C	CLERK/TYPIST
C	CUSTODIAN-PT

RESOLUTION TO
ENTER INTO AN EASEMENT AGREEMENT WITH ABLELIGHT INC.

SPONSOR: MAYOR EMILY MCFARLAND
FROM: FINANCE COMMITTEE

WHEREAS, Grantor owns and has title to the real estate located in the City of Watertown, Jefferson County, Wisconsin as described generally, under Exhibit A, attached hereto (as prepared by Short Elliott Hendrickson, Inc. (SEH)); and,

WHEREAS, the Grantee seeks to grade, construct, maintain, inspect, and reconstruct over and upon the property described above for the benefit of the Grantor and the residents of the City of Watertown; and,

WHEREAS, it may be necessary for the City of Watertown, its employees or agents acting on its behalf, from time to time, to gain access to the easement in order to grade, construct, maintain, inspect, and reconstruct the area pursuant to this Easement; and,

WHEREAS, the parties hereto, in consideration of the Grantee paying the sum of One Dollar ($1.00) to the Grantor, have agreed that the Grantor shall grant to the Grantee an easement of ingress and egress over the property owned by the Grantor described above in order to allow Grantee, its agents or assigns, to grade, construct, maintain, inspect, and reconstruct as granted pursuant to this Easement, at the above-described location.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF WATERTOWN, WISCONSIN:

That the proper City Officials be and are hereby authorized to enter into the Easement agreement a copy of which is attached hereto as Exhibit A.

That this Resolution shall be in full force and effect upon its passage and adoption.

	YES	*NO*
DAVIS		
LAMPE		
BOARD		
BARTZ		
BLANKE		
SMITH		
SCHMID		
WETZEL		
MOLDENHAUER		
MAYOR MCFARLAND		
TOTAL		

ADOPTED December 17, 2024

_____

CITY CLERK

APPROVED December 17, 2024

_____

MAYOR

EASEMENT

Document Number | Document Name

THIS EASEMENT, made this _____ day of December 2024, between Ablelight Inc. (formerly known as Bethesda Lutheran Communities, Inc.), Grantor, which expression shall include its administrators, agents or assigns where the context so requires or admits, and the City of Watertown, a Wisconsin municipal corporation, hereinafter, Grantee, which expression shall include its administrators, agents or assigns, where the context so requires or admits,

City of Watertown
Office of City Attorney
PO Box 477
Watertown, WI 53094

WITNESSETH:

WHEREAS, Grantor owns and has title to the real estate located in the City of Watertown, Jefferson County, Wisconsin as described generally, under Exhibit A, attached hereto (as prepared by Short Elliott Hendrickson, Inc. (SEH)); and,

291-0815-0432-020
Parcel Identification Number (PIN)

WHEREAS, the Grantee seeks to grade, construct, maintain, inspect, and reconstruct over and upon the property described above for the benefit of the Grantor and the residents of the City of Watertown; and,

WHEREAS, it may be necessary for the City of Watertown, its employees or agents acting on its behalf, from time to time, to gain access to the easement in order to grade, construct, maintain, inspect, and reconstruct the area pursuant to this Easement; and,

WHEREAS, the parties hereto, in consideration of the Grantee paying the sum of One Dollar ($1.00) to the Grantor, have agreed that the Grantor shall grant to the Grantee an easement of ingress and egress over the property owned by the Grantor described above in order to allow Grantee, its agents or assigns, to grade, construct, maintain, inspect, and reconstruct as granted pursuant to this Easement, at the above-described location.

NOW, THEREFORE, pursuant to this Agreement and for and in consideration of the sum of One Dollar ($1.00) paid the Grantee to the Grantor, receipt of which is hereby acknowledged, and of the mutual covenants, agreements, conditions and stipulations therein contained, it is mutually covenanted, stipulated and agreed by and between the parties as follows:

1. Grantor hereby grants to Grantee the right to change the grading of the Easement Property (including without limitation, to cut and fill, as necessary) and to adjust the existing improvements to the new grade, pursuant to and consistent with that certain Grading and Erosion Control Plan, prepared by Short Elliott Hendrickson, Inc. (SHE), as Exhibit B, attached hereto, as granted pursuant to this Easement, through the above-described property at the location described below.

2. Grantor hereby grants to Grantee the right to grade, construct, maintain, inspect, and reconstruct as granted pursuant to this Easement and/or any related structure and to remove any material, including for such purpose the right to operate the necessary equipment thereon, the right of ingress and egress, as long as required for such public purpose, including the right to preserve, protect, remove or plant thereon, any vegetation that the City authorities may deem necessary or desirable. Said easement is more particularly described as a triangle measuring 21.37 ft by 21.37 ft by 30.43 feet as further particularly described under Exhibit A, attached hereto (as prepared by Short Elliott Hendrickson, Inc. (SEH)).

3. It is further understood and agreed that the Easement granted herein is to be held by the Grantee, and assigns as appurtenant to the land owned by the Grantor.

4. It is further understood and agreed that the Grantee will hereby assume and agree to pay one hundred percent (100%) of the cost of maintaining the Easement.

IN WITNESS THEREOF, the parties have hereunto set their hands and seals this day and year as set forth above.

_____
City of Watertown, Grantee
By: Emily McFarland, Mayor

_____
City of Watertown, Grantee
By: Megan Dunneisen, Clerk

Subscribed to and sworn to before me
this _____ day of December 2024

_____
Notary Public, State of Wisconsin
My Commission Expires: _____

Ablelight, Inc., Grantor
By:

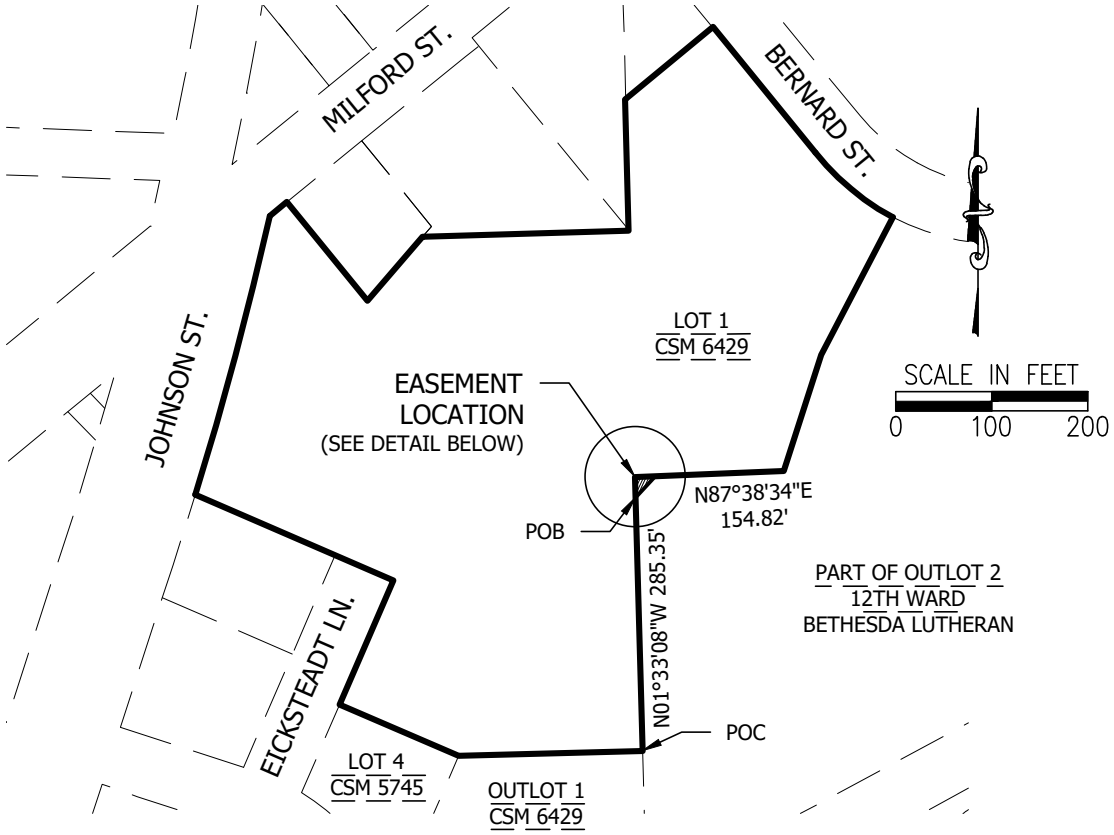
Subscribed to and sworn to before me
this _____ day of December 2024

_____
Notary Public, State of Wisconsin
My Commission Expires: _____

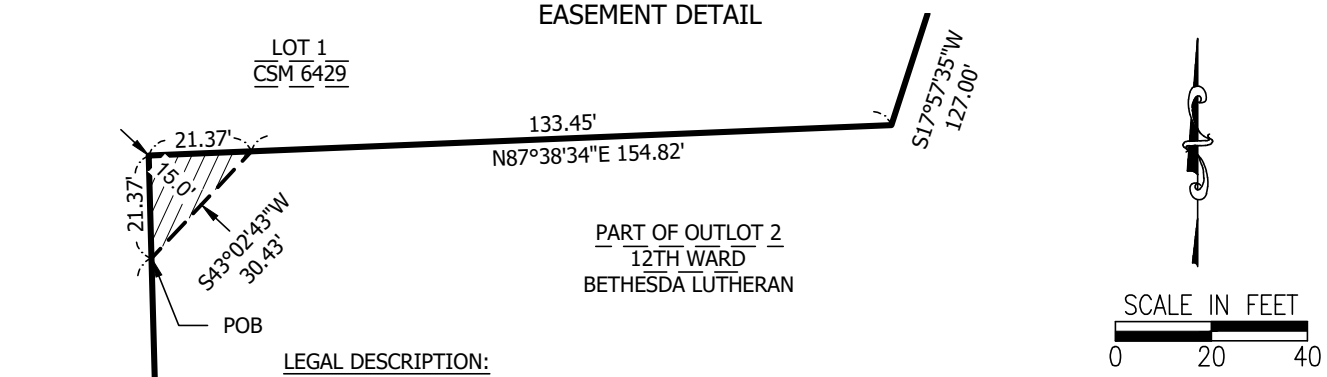
This instrument drafted by:
Attorney Steven T. Chesebro
City Attorney
State Bar No. 1074496

EXHIBIT

BEING A PART OF OUT LOT TWO (2) IN THE 12TH WARD, FORMERLY THE THIRD WARD, CITY OF WATERTOWN, ACCORDING TO MAP OF OUT LOTS AND SUBDIVISIONS OF LOTS, THIRD AND FOURTH WARDS, WATERTOWN, AS RECORDED IN VOLUME 61 OF DEEDS ON PAGE 640, LOCATED IN NW 1/4 OF THE SW 1/4 OF SECTION 4 TOWN 8 NORTH, RANGE 15 EAST, CITY OF WATERTOWN, JEFFERSON COUNTY, WISCONSIN.



EASEMENT DETAIL



LEGAL DESCRIPTION:

BEING A PART OF OUT LOT TWO (2) IN THE 12TH WARD, FORMERLY THE THIRD WARD, CITY OF WATERTOWN, ACCORDING TO MAP OF OUT LOTS AND SUBDIVISIONS OF LOTS, THIRD AND FOURTH WARDS, WATERTOWN, AS RECORDED IN VOLUME 61 OF DEEDS ON PAGE 640, LOCATED IN NW 1/4 OF THE SW 1/4 OF SECTION 4 TOWN 8 NORTH, RANGE 15 EAST, CITY OF WATERTOWN, JEFFERSON COUNTY, WISCONSIN.

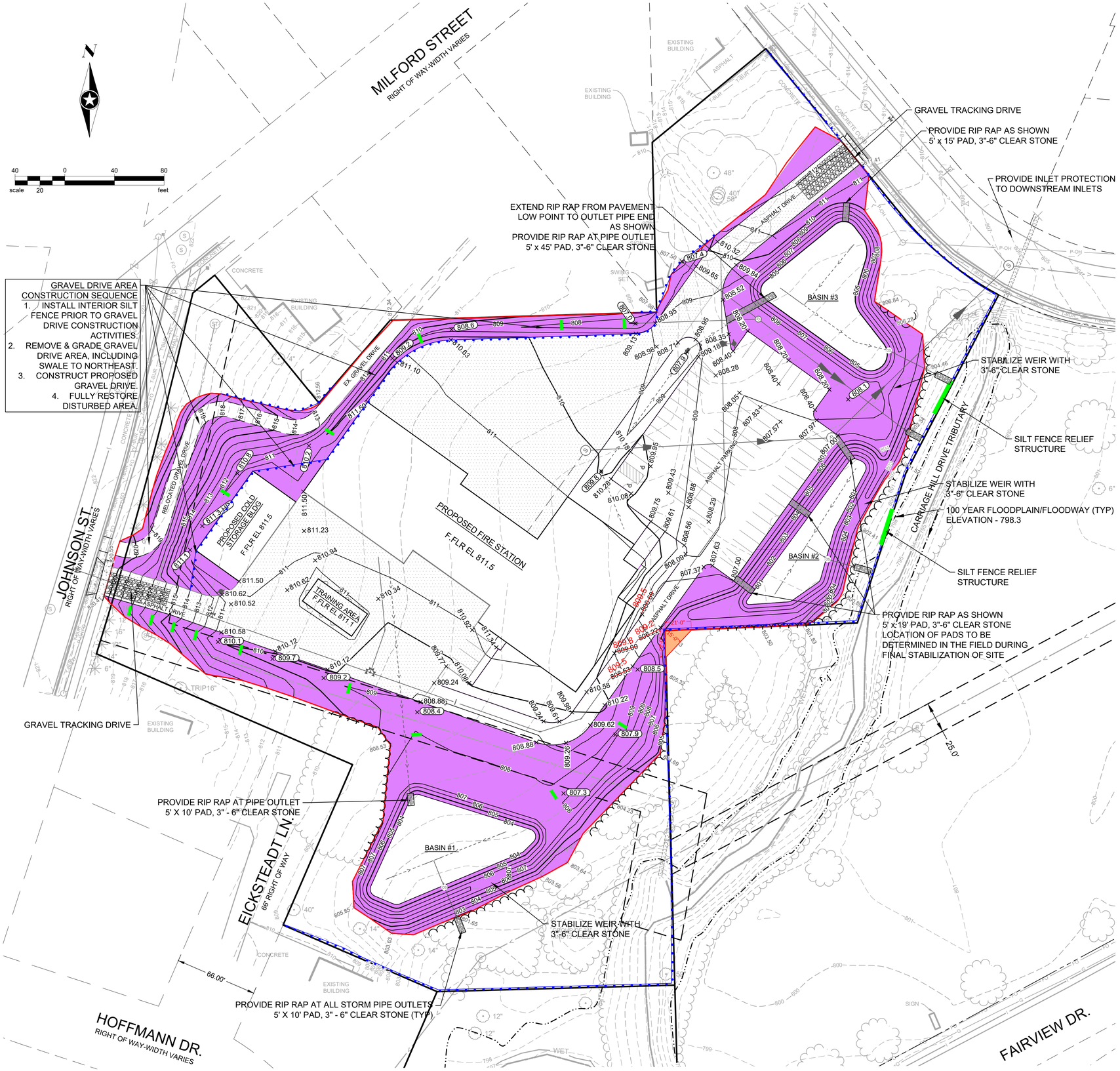
COMMENCING (POC) AT THE SE CORNER OF CERTIFIED SURVEY MAP (CSM) 6429; THENCE N01°33'08"W., 263.98 FEET ALONG THE EAST LINE OF THE SAID CSM 6429, TO THE POINT OF BEGINNING (POB);

THENCE CONTINUING N01°33'08"W., ALONG THE SAID EAST LINE OF THE SAID CSM 6429, A DISTANCE OF 21.37 FEET; THENCE N87°38'34"E., ALONG THE SOUTH LINE OF SAID CSM 6429, A DISTANCE OF 21.37 FEET; THENCE S43°02'43"W., 30.43 FEET TO THE POINT OF BEGINNING

SAID LANDS CONTAIN 228.24 SQUARE FEET.

263.98'
N01°33'08"W 285.35'
S88°26'52"W
191.48'
POC
OUTLOT 1
CSM 6429

SEH



EROSION CONTROL LEGEND

- CONSTRUCTION LIMITS
- SILT FENCE
- PROPOSED SILT FENCE
- PROPOSED CLEARING LIMITS
- EROSION MATTING
- HEAVY DUTY ASPHALT PAVEMENT
- ×809.50 PROPOSED PAVEMENT SPOT ELEVATION
- ×(809.5) PROPOSED TURF SPOT ELEVATION
- ⊹ 809.50 EXISTING SPOT ELEVATION
- SEDIMENT LOG

NOTES

1. SEE SHEET C400 FOR GRADING AND EROSION CONTROL NOTES AND CONSTRUCTION SEQUENCING
2. BASINS TO BE EXCAVATED AND UTILIZED AS SEDIMENT TRAPS DURING CONSTRUCTION. WEIR TO BE STABILIZED WITH 3 TO 6 INCH WASHED CLEAR STONE.
3. BASINS TO BE UTILIZED FOR DEWATERING DURING CONSTRUCTION AS NEEDED. ADDITIONAL DEWATERING MEASURES MAY BE REQUIRED.
4. APPROXIMATE EARTHWORK VOLUMES ARE NOTED BELOW. FINAL VOLUMES OF IMPORT AND EXPORT WILL BE DETERMINED DURING CONSTRUCTION BASED ON FIELD TESTING BY GEOTECHNICAL ENGINEER.

SEH

Project Owner

City of Watertown
WATERTOWN FIRE STATION
ADDRESS

SEH Project	WATRN_172202
Checked By	KB
Drawn By	PAL
Project Status	Issue Date
REVIEW DOCs	02/14/2024

REVISION SCHEDULE

REV. #	DESCRIPTION	DATE

GRADING & EROSION CONTROL PLAN

C 200