

NORTH ZUMBRO SANITARY DISTRICT
Joint Powers Executive Committee Regular Meeting
January 10th, 2024
11:00 A.M.
Zumbrota City Council Chambers
Zumbrota, MN

I. CALL TO ORDER

II. ROLL CALL

TB___ EH___ MB___ BG___

JM___ TR___ SO___ MO___

BA___ CB___ RS___

III. ADOPT AGENDA _____

***CONSENT AGENDA _____**

ALL ITEMS LISTED WITH AN ASTERISK (*) ARE CONSIDERED ROUTINE OR NON-CONTROVERSIAL BY THE EXECUTIVE COMMITTEE AND WILL BE APPROVED BY ONE MOTION. THERE WILL BE NO SEPARATE DISCUSSION ON THESE ITEMS UNLESS A DIRECTOR OR ENGINEER SO REQUESTS, IN WHICH CASE THE ITEM WILL BE REMOVED FROM THE CONSENT AGENDA AND BE CONSIDERED IN ITS NORMAL SEQUENCE ON THE AGENDA.

***A) Executive Committee Minutes = 12/6/2023**

***B) Technical Committee Notes = 1/9/2024**

***C) Bills-Accounts Payable 12/6/2023-1/9/2024**

1) WHKS Invoice #50167 for \$69,993.75

IV. PUBLIC COMMENTS

INDIVIDUALS MAY ADDRESS THE EXECUTIVE BOARD ABOUT ANY ITEM OF CONCERN. SPEAKERS MUST STATE THEIR NAME

AND LIMIT THEIR REMARKS TO FIVE MINUTES. GENERALLY, THE EXECUTIVE BOARD WILL NOT TAKE OFFICIAL ACTION ON THESE ITEMS BUT MAY REFER THE MATTER TO STAFF FOR A FUTURE REPORT OR DIRECT THAT THE MATTER BE SCHEDULED FOR A FUTURE MEETING AGENDA.

V. OLD BUSINESS

- A) Facility Plans – Deadline March 2024**
- B) Grant Agreement Update**
- C) Bonding Bill Language**

VI. NEW BUSINESS

- A) Technical Memorandum 2**
- B) Technical Memorandum 3**
- C) WIF Project Information Worksheet**
- D) Public Outreach Plan**
- E) DFA Meeting, 1/17/2024**

VII. CLOSED SESSION

- A) Purchase Agreement Discussion**

Pursuant to Minnesota Statutes, Section 13D.05, subdivision 3(c)(3), the meeting will be closed to discuss offers or counteroffers for the purchase or sale of real property by the NZSD, PID# 47.030.2000, 72.680.0021, and 72.680.0010.

VIII. ADJOURN

Time: _____ Motion: _____ Second: _____

NORTH ZUMBRO SANITARY DISTRICT
Joint Powers Executive Committee Regular Meeting
Wednesday, December 6, 2023 11:00 A.M.
Zumbrota City Council Chambers
Zumbrota, MN

CALL TO ORDER: Chair Elizabeth Howard.

PRESENT: Executive Committee Directors: Terri Anderson Buck - Goodhue, Elizabeth Howard – Pine Island, Michael Boulton – Wanamingo, and Brian Grudem - Zumbrota

Executive Committee Alternate Directors: Jason Mandelkow – Goodhue,
Todd Roberts – Pine Island, and Michael Olson - Zumbrota

ABSENT: Executive Committee Alternate Director: Stuart Ohr - Wanamingo

ALSO PRESENT: Bill Angerman – WHKS, Glenn Gustafson – WHKS, Brandon Theobald – WHKS, Craig Britton – Widseth, Blake Johnson – Prairie Island Indian Community, Andrea Rau – Winthrop & Weinstine, and Tom Hanson – Winthrop & Weinstine.

ADOPT AGENDA: Grudem motioned to approve, seconded by Buck. Passed 4-0-0.

CONSENT AGENDA: Boulton motioned to approve, Seconded by Buck. Consent Agenda Items include: November 1, 2023 Executive Committee Meeting Minutes, November 14, 2023 Technical Committee Meeting Notes, and WHKS \$78,331.65 Bills. Passed 4-0-0.

PUBLIC COMMENTS: N/A

OLD BUSINESS:

- A) Facilities Plan – Deadline March 2024.** Angerman stated that there were no significant updates this month. The MPCA has confirmed that there will be a requirement for four separate facility plans. Engineers team completed the master template for the facility plans of the collection system three Cities. The engineers are working on the division of labor for the three collection system plans. The wastewater treatment plant facility plan will be separate. This Facilities Plan will be an ongoing agenda item.
- B) Fully Executed Engineering Agreement** – Agerman stated that the agreement is signed and has been sent to Minnesota PFA. Anita Gallentine has acknowledged that she has received the agreement. Agerman and Boulton will circle back around with Gallentine regarding the next step with the grant agreement information along with the activation memo to access the bonding funds.

NEW BUSINESS:

- A) MNPFA Grant Application/PSIG Update – New Info** – Angerman provided information from a chain email and discussions with Corey Hower of the MPCA and Anita Gallentine from Minnesota PFA. Gallentine wrote the following:

1. We'd have to award the PSIG's in this project to the individual cities that qualify for the PSIG's, and only the costs associated with those cities (which would have to be presented after bidding, and be vetted by Corey at MPCA) would be eligible for PSIG reimbursement. We will only disburse PSIG funds to eligible entities for those costs, after we have full as-bid costs, and the remainder of the funding is in place. In order to disburse funds to those eligible entities, there has to be a clear, MPCA-approvable construction cost split at the time of funding. In order to determine/calculate the award, I (or my successor Katelyn, also cc'd on this) have to know the engineering/other costs associated with each entity. This can be done in a final

PSIG budget form for each eligible entity.

2. We can see a way to award a single loan for the non-PSIG share of the project (less future SPAPs) to the SSD, after all the funding kinks have been worked out, including the cities each issuing a bond to the SSD as a guarantee of payment for their shares. There should also be an legally-binding agreement with each participant city and the SSD that states that the SSD will be issuing debt for this project on behalf of the entity. These two documents would be the basis of the SSD's capital cost billing to the entities, as approved by MPCA. So, the SSD would be the borrower. All attorneys should be involved in determining what will be needed for this. We believe that if all four entities are on the IUP within fundable range, we can make the loan to the SSD, on their behalf.

3. We would not support any attempt by the SSD/entities to put a "set-aside" PSIG in a bonding bill. The PFA would strongly oppose any effort to circumvent the requirements of the existing PSIG program. The SSD's best bet is to keep working on bonding requests.

Angerman stated that all four entities will need to apply for the PSIG grants separately. The applications will need to be submitted one year prior to construction. This would mean that the applications would need to be submitted in June 2025. The cost sharing and planning of the plant makes PSIG a significant funding source. The hope is that all four cities are eligible and that we receive funding for three of the four applications. There are questions of how the funds will be distributed in the formula.

Angerman stated that the negative news is that MPCA and MN PFA reiterated their rules that PSIG funds to one community can only go toward community share of a joint project and cannot be shared or benefit another non qualifying entity. If all communities are not funded project costs be need to be split in a different manner that originally planned. Angerman stated that there were questions of mixing who pays other costs so that it comes out even. It was said that the MPCA will have to approve the cost sharing plan for construction. Pine Island is the least likely to get PSIG funds. The order for most likely PSIG funding would be Goodhue, Zumbrota, and then Wanamingo. The MPCA and MN PFA stated that they would oppose bonding bill or other bills language to change rules for PSIG funding. Angerman stated that a group from the JPA should set up a meeting with the MN PFA director to discuss the cross use of PSIG dollars in the project for everyone's benefit. Angerman stated that it would be beneficial to have Tom Hanson with during such a meeting. Angerman stated that the legislature funds the PSIG program every two years. Grudem stated that it would not be a problem if all four communities receive PSIG funding. Angerman agreed that all or no PSIG funding would help with cost sharing. Grudem stated that it should be argued that the communities are working together and be given extra points in the formula funding. Gustafson stated that there could be carry over PSIG dollars in 2026. Angerman stated that each community could continue to apply and be awarded. The problem is that the legislature needs to fund the program. If the legislature does not fund the program the application could be carried over. Angerman stated that Goodhue, Zumbrota, and Wanamingo qualify for PSIG funding, however the process is still competitive. Hanson thought the MPCA and MN PFA should make the funding process less difficult for PSIG because joint sewer projects are what the State wishes to see in the future. Hanson stated he would be willing to join a meeting with PFA and if necessary put language into a bill and make the case to the legislators.

B) Bonding Bill Language – Howard stated that bill language would need to be put together in the coming month for the \$44 million capital request. There will be need to discuss the PSIG funding strategy as well. Angerman stated that the bill should include the use of the funds for final design, construction, construction admin, equipment, and possibly PSIG and initial operation and maintenance costs (if allowed). Grudem asked about the timing of forming the sanitary sewer district and if it should be part of the capital request bill. Angerman stated that there would be questions regarding the rate payer timing in regards to operation and maintenance costs for potentially up to six months. Angerman stated that this could be hundreds of thousands of dollars

until rate payers are utilizing the new treatment system. Hanson asked if the Cities would have seed money or rate funds for initial operation and maintenance costs. Boulton stated that utility bills occur after monthly usage and are dependent on monthly water meter readings. Hanson will check into use of State funds for short-term operation and maintenance dollars. Howard asked for dates to set up a meeting to draft capital request bill. December 21st at 2:00PM was agreed upon for a meeting date and time. Howard asked if the Cities should be putting aside seed money for initial operation and maintenance costs. The preliminary feasibility study estimated that annual operation and maintenance costs would be around \$900,000. Angerman stated that there could be three to four months of operation and maintenance costs before operational to charge monthly rates. The City Administrators stated that City sewer rates should increase moving forward. Boulton stated that Wanamingo is planning toward a \$6/month base rate increase, which would be roughly a 10% increase to the monthly bill. Boulton stated that base rate and volume increases are proposed for 2025. Howard stated that Pine Island has a ten-year plan for sewer rate increases that was approved last year with a 4% increase to base and volumes fees. Howard stated that she would share Pine Island's plan with the communities. Grudem stated that Zumbrota is considering implementing recommended sewer rate increases as well. Boulton asked that each community send over 2024 rates so that the monthly rate cost sheet could be updated and planned to be shared as part of our lobbying efforts.

C) Senate Capital Investments Committee Recap - The JPA hosted the Minnesota Senate Capital Investment Committee Bonding Bill Tour – November 30th. Howard stated that the presentation went well and that the members were engaged. Boulton stated that there were only five committee members present. Rau stated that members are burnt out from the tours and that there had only been three on a previous leg of the tour. Hanson stated that Governor Walz and Lt. Governor Flanagan should be invited for a presentation and/or tour. Angerman stated that Chair Pappas had positive comments toward the project and good questions. Chair Pappas indicated the project was a matter of when and not if. Rau agreed with Angerman's reading. Hanson stated that Chair Pappas is straight forward and will give truthful feedback on her thoughts for capital requests. Theobald stated that Jasinski and Draskowski stated that this project was their number one priority for capital requests.

Closed Session – Purchase Agreement Discussion - Howard stated that pursuant to Minnesota Statutes, Section 13D.05, subdivision 3(c)(3), the meeting will be closed to discuss offers or counteroffers for the purchase or sale of real property by the NZSD, PID# 47.030.2000, 72.680.0021, and 72.680.0010 at 11:56PM. Meeting opened back up at 12:34PM.

REPORTS: N/A

*The next meeting will be January 3, 2024 at 11:00AM.

Adjourn: At 12:34PM a motion to adjourn was made by Buck and seconded by Boulton. Passed 4-0-0.

Signed:

Attest:

Elizabeth Howard, Chair

Michael Boulton, Secretary

TECHNICAL COMMITTEE MEETING

North Zumbro Sanitary Sewer District

Goodhue, Pine Island, Wanamingo, Zumbrota

MEETING DATE: January 9, 2024
MEETING TIME: 10:00 AM
MEETING LOCATION: Zumbrota City Hall

AGENDA ITEMS:

1. Sign In

- a. *Attendees: (In Person) Reese, Doug, Rick, Mike, Paul, Jeff, Brandon, Craig, Bill (Virtually) Glenn, Todd and Jason.*

2. Status Updates

- a. Land acquisition update
 - i. *Bill and Brian met with the property owner and presented the purchase agreement. The owner is currently reviewing the purchase agreement. Once the purchase agreement is signed by the owner it will be presented to the City Councils and Executive Committee for approval.*

3. Facilities Plans and PEL

- a. TM 2 – Design Flows
 - i. *TM-2 – Design Flows for AVG (Average), MWW (Max Wet Weather), PIWW (Peak Instantaneous Wet Weather) and PHWW (Peak Hourly Wet Weather) Conditions*
 - 1. *Average Daily Flow – Average flow for a 12-month consecutive period.*
 - a. *Historic residential flows were estimated by taking the total flow minus the estimated industrial flows.*
 - b. *Future flows in new growth areas were based on a rate of 100 GPCPD which is very close to the average historic per capita rate is 103 GPCPD.*
 - c. *Zumbrota and Pine Island have existing industries, Land O Lakes and DFA.*
 - d. *The Average Design flow total is 2.633 MGD*
 - 2. *Maximum Wet Weather Flows – Total maximum flow received in any 24-Hour period when groundwater is high and stormwater run-off is occurring.*
 - a. *The assumed ‘Growth GPCPD’ rates for MWW in new areas is 250 GPCPD for Pine Island, Zumbrota and Wanamingo and Goodhue’s is 148 GPCPD. Goodhue has low I&I values.*
 - b. *The MWW Design flow total is 6.639 MGD*
 - 3. *Peak Instantaneous Wet Weather Flow – Maximum flow received during one hour when the groundwater is high, stormwater run-off*

is occurring from the 25-Year storm event and the residential and industrial flows are at their peak. Peak Hourly Wet Weather Flow (PHWW) – Maximum one-hour flow includes all the same peak items as the PIWW, but is calculated during a 5-Year storm event.

- a. *PIWW values will be used to design the lift stations and forcemains.*
 - b. *The PIWW Design flow total is 8.237 MGD*
 - c. *The PHWW Design flow total is 7.356 MGD*
 4. *Question on I&I – If a City works on reducing I&I, O&M costs will be lowered in the future and the City would have more growth capacity.*
 5. *Question on Equalization – Estimating it to be in the 6M Gallon range.*
- b. **TM 3 – Design Loads**
 - i. **TM-3 – Design Loads for CBOD5 (Biochemical Oxygen Demand), TSS (Total Suspended Solids), TKN (Total Kjeldahl Nitrogen), TP (Total Phosphorus)**
 1. *Zumbrota – Difficult to determine Historic Industrial value. Assumed 25 mg/L for Average Day and 40 mg/L for Max Day for DFA.*
 2. *CBOD5 – Organic load received at the treatment plant.*
 - a. *Tables outline CBOD5 for Average Day, Monthly Maximum (Max 30 Days) and Maximum Day.*
 - b. *10 States Standard for CBOD5 for Average Day is 0.17 PPD, Max Month is 0.34 PPD (2.0 Peaking Factor) and Max Day is 0.43.*
 - c. *District could not take another DFA without pretreatment.*
 3. *TSS – Suspended solids load received at the treatment plant.*
 - a. *Tables for TSS include Average Day, Maximum Month and Maximum Day.*
 4. *TKN – Total organic and ammonia nitrogen load received at the treatment plant.*
 - a. *Tables for TKN include Average Day, Maximum Month and Maximum Day.*
 5. *TP – Total organic and inorganic phosphorus received at the treatment plant.*
 - a. *Tables for TP include Average Day, Maximum Month and Maximum Day.*
 - b. *Pine Island has an existing Phosphorus Limit*
 - c. *DFA has limited TP information. They had one sample of 3.72 mg/L in Nov '23. Design is 1 mg/L. There's a scheduled meeting with DFA to review values next week.*
 - d. *Used 10 States Standards of 0.0046 PPCPD for average day.*
 - e. *There are no textbook numbers for Max Month or Max Day. Therefore values in chart are based on the assumed average of 0.0046 PPCPD rate and each City's individual historic max : average ratios.*

- f. *It's possible that for up to the next 10 – 20 years excess capacity could be sold to Red Wing.*
 - ii. *Consensus from the Technical Committee is that Technical Memos 2 and 3 can be presented to the Executive Committee tomorrow (1/10/24) for approval.*
 - iii. *Technical Memo 4 will be regarding DFA Flows and Loadings. Meeting is taking place with the DFA next Wednesday 1/17.*
- c. TM 4 – DFA flows and loadings, in progress
 - i. Meeting 1/17
- d. Facilities plans – Due March 1
 - i. Main Facility
 - 1. Alternative Analysis – *Currently looking at three treatment options.*
 - a. *Sequencing Batch Reactor (SBR)*
 - b. *Oxidation Ditches*
 - c. *Extended Aeration Activated Sludge*
 - d. *Looked at Membrane BioReactor (MBR), but this would be a facility for very high treatment requirements. In addition, MBR's typically have higher operation and maintenance costs due to the membrane cleaning and eventual replacement.*
 - e. *The MPCA presented a verbal preliminary effluent limit of 30 mg/L for TSS.*
 - ii. Lift Stations and Forcemains
 - 1. Surveying
 - a. *Topo flight has occurred*
 - b. *Ground portion and processing*
 - i. *Gopher State One Calls are being called in to determine where existing utilities are located.*
 - 2. Route Selection – *Team is working on gathering information to help determine forcemain alignments. Final alignments are not required at the time of the facilities plan submittal. Alignments will likely be determined in the summer of 2024.*
 - a. Route through Wanamingo and Zumbrota
 - i. *Wanamingo – Council approved the extension of Hill Ave to Hwy 60. That is likely the alignment of the forcemain to Hwy 60.*
 - ii. *Hwy 60 corridor was driven and videoed. This will aid in determining which side of Hwy 60 the forcemain will be proposed.*
 - iii. *Forcemain alignment as it gets into Zumbrota could be 5th Street over to 4th Street, but is be under review.*
 - b. Township coordination – timing
 - i. *Once the purchase agreement is executed townships will be contacted to begin coordination.*

c. **Geotechnical Report**

ii. *The geotechnical report will be split into 2 phases.*

1. *Phase 1 – Will involve getting some borings at the proposed Main Facility. Will take place once the purchase agreement is executed.*
2. *Phase 2 – Will involve getting borings along the proposed forcemain routes and additional borings at the Main Facility. Will likely take place this summer.*

4. Open Discussion

- a. *TM 2 and TM 3 will be presented to the Executive Committee tomorrow.*
- b. *Bonding Bill request will be made within the next couple months.*
- c. *There is a required Public Hearing for the Facilities Plan and that will need to be held at the end of March or beginning of April*
- d. *Public Outreach outline will be discussed with the Executive Committee at their meeting tomorrow. The plan is to have the Executive Committee consider adopting a public outreach plan in February or March.*

5. Next Meeting – 2/13/24, 10:00 am Zumbrota City Hall

- a. *Facilities Plan will be the main agenda item.*



January 8, 2024
Project No: 09870.00
Invoice No: 50167

Elizabeth Howard
Executive Committee Chair
North Zumbro Joint Powers Sanitary Sewer District
250 South Main Street
Pine Island, MN 55963

Project 09870.00 North Zumbro Joint WWTF and Conveyance

Professional Engineering Services from November 25, 2023 through December 29, 2023

Phase 011 Project Management and Administration
Technical Services 14,602.88

Total this Phase \$14,602.88

Phase 013 Executive Committee Meetings
Technical Services 1,505.08

Unit Billing

Co Vehicle Mileage
36.03

Total this Phase \$1,541.11

Phase 022 Pine Island Facilities Plan
Technical Services 1,260.80

Total this Phase \$1,260.80

Phase 023 Zumbrota/District Facilities Plan
Technical Services 44,086.24

Total this Phase \$44,086.24

Phase 024 Wanamingo Facilities Plan
Technical Services 313.60

Total this Phase \$313.60

Phase 026 Prepare EAW
Technical Services 444.16

Total this Phase \$444.16

Phase 027 Establish Effluent Limits
Technical Services 2,562.63

Total this Phase \$2,562.63

Phase 031 Bonding Bill Assistance

Please remit payment to: WHKS & Co., P.O. Box 1467 Mason City, IA 50402-1467

Project	09870.00	North Zumbro Joint WWTF and Conveyance	Invoice	50167
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Technical Services	3,229.44
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Unit Billing

Co Vehicle Mileage	36.03
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Total this Phase	\$3,265.47
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Phase	051	Main Facility Land Acquisition Assistanc	
Technical Services			1,916.86

Total this Phase	\$1,916.86
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Billing Limits	Current	Prior	To-Date
Total Billings	69,993.75	228,777.45	298,771.20
Limit			8,500,000.00
Remaining			8,201,228.80
		Total this Invoice	\$69,993.75

Billings to Date

	Current	Prior	Total
Labor	69,921.69	226,930.82	296,852.51
Expense	0.00	1,561.67	1,561.67
Expense - Unit	72.06	284.96	357.02
Totals	69,993.75	228,777.45	298,771.20

TECHNICAL MEMORANDUM 2

TO: North Zumbro Sanitary Sewer District Technical Committee

FROM: Glenn Gustafson, P.E.

DATE: December 20, 2023

RE: **Design Flows for AVG, MWW, PIWW, PHWW Conditions**
North Zumbro Sanitary Sewer District

PURPOSE

Technical Memorandum 2 summarizes the proposed average daily flow (AVG), maximum wet weather (MWW), peak instantaneous wet weather (PIWW), and peak hourly wet weather (PHWW) design flows for the North Zumbro Sanitary Sewer District.

Average dry weather (ADW) and average wet weather (AWW) flow requests were submitted to the Minnesota Pollution Control Agency in September of 2023 as part of the Preliminary Effluent Limits request. These flows were presented in Technical Memorandum 1 dated 9/20/2023.

AVG

Average Daily Flow (AVG, Average Day) is the daily average flow for a 12-month consecutive period and is presented in Table 2. Daily flows from the cities' monthly reports from 2013-2022 were averaged to determine each city's historical AVG.

Historic residential flows were estimated by subtracting industrial contributions from cities' flows and are reported in the "Historic Residential AVG" column. Per capita flow equivalents were calculated from the average populations of the 2010 and 2020 Census counts; these are presented as "Historic Gallons per Capita per Day (GPCPD)". Future projections are calculated based on the assumption that existing city systems will maintain their Historic Residential AVG and Historic GPCPD rates for the existing population.

Projections of future flows in new growth areas were made with the assumption that the per capita flow rate for new areas, "Growth GPCPD", will be 100 GPCPD. This is a standard planning number that is close to the existing overall average historic per capita rate of 103 GPCPD.

The population growth and industry projections for Design Year 2045 are presented in Table 1. Land O' Lakes in Pine Island is abbreviated as LO'L, and Dairy Farmers of America in Zumbrota is abbreviated as DFA, below.

Table 1 Population Growth and Industry for Design Year 2045

City	Avg. Pop. 2010-2020	Pop. 2020	Historic Growth	Future Growth	Design Pop. 2045	Existing Industries	Industrial Growth Projection
Goodhue	1,211	1,245	2.4%	1.5%	1,800		
Pine Island	3,516	3,769	2.4%	2.5%	7,500	LO'L	LO'L + reserve
Wanamingo	1,100	1,113	0.5%	1.1%	1,500		
Zumbrota	3,489	3,726	1.5%	1.5%	5,400	DFA	DFA + reserve
Total	9,316	9,853	1.9%	2.0%	16,200		

The values in the “Design 2045 AVG” column in Table 2 is a summation of the historic AVG flows plus the projected growth rates for residential users and the design allocation for industrial users.

Table 2 Average Daily Flow (AVG) (Million Gallons per Day, MGD) for Design Year 2045

City	Historic Residential AVG	Historic / Growth GPCPD	Design 2045 Residential AVG	Historic Industrial AVG	Design 2045 Industrial AVG	Design 2045 AVG
Goodhue	0.066 MGD	54 / 100	0.122 MGD	0	0	0.122 MGD
Pine Island	0.309 MGD	88 / 100	0.681 MGD	0.040 MGD	0.350 MGD	1.031 MGD
Wanamingo	0.147 MGD	134 / 100	0.182 MGD	0	0	0.182 MGD
Zumbrota	0.435 MGD	125 / 100	0.603 MGD	0.261 MGD	0.695 MGD	1.298 MGD
Total	0.956 MGD	103 / 100	1.588 MGD	0.301 MGD	1.045 MGD	2.633 MGD

MWW

Maximum Wet Weather (MWW, Max Day) is the total maximum flow received in any 24-hour period when groundwater is high, and runoff is occurring. MWW is presented in Table 3. The maximum daily flow values from the cities’ monthly reports from 2013-2022 were evaluated using the Walsh Outlier test and extreme values were eliminated. The remaining values were used as each city’s historic MWW.

“Historic Residential MWW” flows and “Historic GPCPD” per capita rates were calculated in the same manner as for AVG. Future projections assume that existing areas will maintain their historic flows and per capita rates, i.e., no I&I reduction in existing areas is included in future projections.

Future projections assume per capita residential flows in new areas will be lower than in existing areas, based on modern sanitary construction materials and plumbing codes. The assumed “Growth GPCPD” rates for new areas is 250 GPCPD for all cities except Goodhue and is 148 GPCPD for Goodhue.

The values in the “Design 2045 MWW” are a summation of the historic MWW flows plus the projected growth rates for residential users and the design allocation for industrial users. This column is a simple summation of the flow projections for each city without any flow equalization or retention basin included.

Table 3 Max Wet Weather (MWW) Flows Generated by Cities (MGD) for Design Year 2045

City	Historic Residential MWW	Historic / Growth GPCPD	Design 2045 Residential MWW	Historic Industrial MWW	Design 2045 Industrial MWW	Design 2045 MWW
Goodhue	0.179 MGD	148 / 148	0.262 MGD	0	0	0.262 MGD
Pine Island	1.362 MGD	387 / 250	2.292 MGD	0.046 MGD	0.350 MGD	2.642 MGD
Wanamingo	0.734 MGD	667 / 250	0.822 MGD	0	0	0.822 MGD
Zumbrota	1.798 MGD	515 / 250	2.218 MGD	0.424 MGD	0.695 MGD	2.913 MGD
Total	4.073 MGD	437 / 241	5.594 MGD	0.470 MGD	1.045 MGD	6.639 MGD

PIWW, PHWW

Peak Instantaneous Wet Weather Flow (PIWW) is the maximum flow received during one (1) hour when the groundwater is high, runoff is occurring from the 25-year storm, and the domestic,

commercial, and industrial flows are at their peak. PIWW is used to size conveyance systems. PIWW is presented in Table 4.

Similarly, Peak Hourly Wet Weather Flow (PHWW) is the maximum one-hour flow including all the same peak contributions during a 5-year storm and is presented in Table 5.

PIWW and PHWW records do not exist for all the cities, so an investigation was conducted to produce approximate historic numbers. The investigation reviewed the existing treatment plant and interceptor sewer capacities and chart recorder logs, analyzed lift station pump curves, obtained histories of bypassing and surcharge through interviews with operators, calculated approximations of peak flows using documented MWW flows, and reviewed reference values from design standards and textbooks. The most reasonable values from the investigation were used as each city's historical PIWW and PHWW.

Values in the "Historic Residential PIWW (PHWW)" column were calculated by subtracting the Historic Industrial MWW flows from the cities' estimated historic PIWW (PHWW) flows. Land O' Lakes in Pine Island and Dairy Farmers of America (DFA) in Zumbrota currently discharge 24-hours per day, so the MWW industrial daily flow volume is the same as PIWW/PHWW hourly flow rate on equivalent 24-hour basis. Future projections assume that these industries will continue to discharge 24 hours per day.

Peaking Factors are a way to compare the ratio of peak to average flows. The values in the "Historic Peak Factors" column were calculated for residential flows by dividing historic residential PIWW (Table 4) or PHWW (Table 5) by historic residential AVG. Future projections assume that the existing areas will continue to produce their historic peaking factors, i.e., no I&I reduction in the existing systems.

Future projections assume that the "Growth Peaking Factor" rates for new areas will be 3.8-4.0 applied to 100 GPCPD based on the textbook reference values in Metcalf & Eddy (5th Ed.). These are standard textbook planning values based on population.

The Design 2045 PIWW (Table 4) and PHWW (Table 5) column is a summation of historic residential PIWW and PHWW flow rates plus growth projections for residential users and the MWW allocation for industrial flow.

Table 4 Peak Instantaneous Wet Weather (PIWW) Flows (MGD) for Design Year 2045

City	Historic Residential PIWW Est.	Historic / Growth Peak Factor	Design 2045 Residential PIWW	Historic Industrial MWW	Design 2045 Industrial MWW	Design 2045 PIWW
Goodhue	0.264 MGD	4.0 / 4.0	0.488 MGD	0	0	0.488 MGD
Pine Island	1.738 MGD	5.6 / 3.8	3.152 MGD	0.046 MGD	0.350 MGD	3.502 MGD
Wanamingo	0.976 MGD	6.6 / 4.0	1.116 MGD	0	0	1.116 MGD
Zumbrota	1.798 MGD	4.1 / 3.8	2.436 MGD	0.424 MGD	0.695 MGD	3.131 MGD
Total	4.776 MGD	5.2 / 3.8	7.192 MGD	0.470 MGD	1.045 MGD	8.237 MGD

Table 5 Peak Hourly Wet Weather (PHWW) Flows (MGD) for Design Year 2045

City	Historic Residential PHWW Est.	Historic / Growth Peak Factor	Design 2045 Residential PHWW	Historic Industrial MWW	Design 2045 Industrial MWW	Design 2045 PHWW
Goodhue	0.247 MGD	3.7 / 4.0	0.471 MGD	0	0	0.471 MGD
Pine Island	1.591 MGD	5.1 / 3.8	3.005 MGD	0.046 MGD	0.350 MGD	3.355 MGD
Wanamingo	0.881 MGD	6.0 / 4.0	1.021 MGD	0	0	1.021 MGD
Zumbrota	1.176 MGD	2.7 / 3.8	1.814 MGD	0.424 MGD	0.695 MGD	2.509 MGD
Total	3.895 MGD	4.5 / 3.8	6.311 MGD	0.470 MGD	1.045 MGD	7.356 MGD

PROPOSED DESIGN FLOWS

Based on the assumptions and calculations as outlined herein, the proposed design flows are as follows:

- **AVG: 2.64 MGD average daily flow (AVG)**
- **MWW: 6.64 MGD max wet weather, max day (MWW)**
- **PIWW: 8.24 MGD peak instantaneous wet weather (PIWW)**
- **PHWW: 7.36 MGD peak hour wet weather (PHWW)**

Note that these are the flows from the Cities. The final treatment facility will be sized to include a reduction in MWW to reflect equalization.

Submitted in Technical Memorandum 1 for PEL Request:

- **ADW: 2.52 MGD average dry weather (ADW)**
- **AWW: 4.100 average wet weather (AWW)**

TECHNICAL MEMORANDUM 3

TO: North Zumbro Sanitary Sewer District Technical Committee

FROM: Glenn Gustafson, P.E.

DATE: January 5, 2024

RE: **Design Loads for CBOD₅, TSS, TKN, TP**
North Zumbro Sanitary Sewer District

PURPOSE

Technical Memorandum 3 summarizes the historic and projected design loads for five-day carbonaceous biochemical oxygen demand (CBOD₅), total suspended solids (TSS), Total Kjeldahl Nitrogen (TKN), and Total Phosphorus (TP) for the North Zumbro Sanitary Sewer District.

POPULATION DESIGN PROJECTIONS

All loading projections use historical records and the cities' residential and industrial growth. The population growth and industry projections for Design Year 2045 are presented in Table 1. Land O' Lakes in Pine Island is abbreviated as LO'L, and Dairy Farmers of America in Zumbrota is abbreviated as DFA.

Table 1 Population Growth and Industry for Design Year 2045

City	Avg. Pop. 2010-2020	Pop. 2020	Historic Growth	Future Growth	Design Pop. 2045	Existing Industries	Industrial Growth Projection
Goodhue	1,211	1,245	2.4%	1.5%	1,800		
Pine Island	3,516	3,769	2.4%	2.5%	7,500	LO'L	LO'L + reserve
Wanamingo	1,100	1,113	0.5%	1.1%	1,500		
Zumbrota	3,489	3,726	1.5%	1.5%	5,400	DFA	DFA + reserve
Total	9,316	9,853	1.9%	2.0%	16,200		

CBOD₅

The five-day Carbonaceous Biochemical Oxygen Demand (CBOD₅) is the organic load received at the plant. Historic loads were summarized from the cities' monthly reports from 2013-2022 and reported for three key durations:

- CBOD₅ Average: average load for a continuous 12-month period as presented in Table 2.
- CBOD₅ Max Month: highest average load in a continuous 30-day period, Table 3.
- CBOD₅ Max Day: highest average load for a 24-hour period, Table 4.

For Zumbrota, the historic values were determined to not be a good basis for design because DFA's pretreatment system only recently became active resulting in major changes in Zumbrota's loads. Therefore the 'historic' Zumbrota values are based on a set of assumptions rather than historic data. The basis of all the historic values reported in these tables are included in the "Notes" columns.

Table 2 CBOD₅ Historic Average Day (CBOD₅ Average) (Pounds per Day, PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	112 PPD	0.09	Measured average 2013-2022, 100% residential	0	
Pine Island	378 PPD	0.11	Measured average 2013-2022, minus Industrial	7 PPD	Measured average 2013-22, LO'L
Wanamingo	158 PPD	0.14	Measured average 2013-2022, 100% residential	0	
Zumbrota	384 PPD	0.11	Assumed 0.11 PPCPD (Wtd Avg of other 3 cities) and Hist. Pop. 3,489	N/A	Assumed 40 mg/L and hist. avg. flow 0.261 MGD, DFA
Total	1,032 PPD	0.11		N/A	

Table 3 CBOD₅ Historic Max Month (CBOD₅ Max Month) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	207 PPD	0.17	Measured max month 2013-2022, 100% residential	0	
Pine Island	553 PPD	0.16	Measured max month 2013-2022, minus Industrial	17 PPD	Measured max month 2013-22, LO'L
Wanamingo	283 PPD	0.26	Measured max month 2013-2022, 100% residential	0	
Zumbrota	625 PPD	0.18	Assumed 0.18 PPCPD (Wtd Avg of other 3 cities) and Hist. Pop. 3,489	N/A	Assumed 40 mg/L and hist. AWW flow 0.393 MGD, DFA
Total	1,668 PPD	0.18		N/A	

Table 4 CBOD₅ Historic Max Day (CBOD₅ Max Day) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	351 PPD	0.29	Measured max day 2013-2022, 100% residential	0	
Pine Island	757 PPD	0.22	Measured max day 2013-2022, minus Industrial	112 PPD	Measured max day 2013-22 LO'L
Wanamingo	493 PPD	0.45	Measured max day 2013-2022, 100% residential	0	
Zumbrota	959 PPD	0.28	Assumed 0.27 PPCPD (Wtd Avg of other 3 cities) and Hist. Pop. 3,489	N/A	Assumed 40 mg/L and hist. MWW flow 0.424 MGD, DFA
Total	2,561 PPD	0.28		N/A	

Historic residential contributions and the average populations of the 2010 and 2020 Census counts were used to calculate the values shown in the "Historic Pounds per Capita per Day (PPCPD)" columns.

Future projections for all cities assume that existing residential contributors will maintain their historic PPCPD rates.

Table 5 presents the CBOD₅ future residential growth projections. Future residential projections for new growth areas were calculated based on the assumption that the CBOD₅ average per capita loading in new areas of all cities will be 0.17 PPCPD, which is the minimum recommended design loading per Ten States Standards. Max month (2.0 peaking factor) and max day (2.6 peaking factor) per capita loading in new areas is based on this assumed average load times Metcalf & Eddy textbook reference values for max:average ratios. The per-capita rates are shown as “Growth PPCPD” in the tables below. Max Month and Max Day loadings will be further evaluated during final design.

Table 5 CBOD₅ Residential Growth Projections for Average Day, Max Month, and Max Day

City	Residential Pop. Growth	CBOD ₅ <u>Average Day</u> Growth PPD (PPCPD)	CBOD ₅ <u>Max Month</u> Growth PPD (PPCPD)	CBOD ₅ <u>Max Day</u> Growth PPD (PPCPD)
Goodhue	+589 Pop.	+101 PPD (0.17)	+202 PPD (0.34)	+253 PPD (0.43)
Pine Island	+3,984 Pop.	+675 PPD (0.17)	+1,350 PPD (0.34)	+1,688 PPD (0.43)
Wanamingo	+400 Pop.	+62 PPD (0.17)	+123 PPD (0.34)	+154 PPD (0.43)
Zumbrota	+1,911 Pop.	+326 PPD (0.17)	+652 PPD (0.34)	+815 PPD (0.43)
Total	+6,884 Pop.	+1,164 PPD (0.17)	+2,328 PPD (0.34)	+2,910 PPD (0.43)

Table 6 presents the future CBOD₅ industrial load projections. The projections for Land O’ Lakes are equal to the limits in its current Significant Industrial User (SIU) agreement with the City of Pine Island. The projections for Dairy Farmers of America assume that its pretreatment system is active and discharges CBOD₅ at 25 mg/L for Average Day and 40 mg/L for Max Day effluent concentration at its design industrial flow allocation in Million Gallons per Day (MGD). Reserve capacities are based on typical domestic wastewater strength of 250 mg/L CBOD₅ and design industrial flow allocations in MGD.

Table 6 CBOD₅ Industrial Load Projections for Average Day and Max Day (PPD)

City	CBOD ₅ <u>Average Day</u> Industrial Load (PPD)	CBOD ₅ <u>Max Day*</u> Industrial Load (PPD)
Goodhue	0	0
Pine Island	LO’L: 100 PPD Avg limit, SIU Reserve: 250 mg/L and 0.25 MGD, equal to 521 PPD Total: 621 PPD	LO’L: 200 PPD Max limit, SIU Reserve: 250 mg/L and 0.25 MGD, equal to 521 PPD Total: 721 PPD
Wanamingo	0	0
Zumbrota	DFA: 25 mg/L and 0.600 MGD, equal to 125 PPD Reserve: 250 mg/L and 0.095 MGD, equal to 198 PPD Total: 323 PPD	DFA: 40 mg/L and 0.600 MGD, equal to 200 PPD Reserve: 250 mg/L and 0.095 MGD, equal to 198 PPD Total: 398 PPD
Total	944 PPD	1,119 PPD

*Max day values are used for Max month values in design calculations.

Table 7 through Table 9 present the CBOD₅ load projections for Design Year 2045. The values in the “Design 2045 CBOD₅” columns are a summation of the historic average residential CBOD₅ loads plus the projected residential growth and the design allocations for industrial.

Table 7 CBOD₅ Average Day (CBOD₅ Average) (PPD) for Design Year 2045

City	Historic Residential	CBOD ₅ Average Day Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 CBOD ₅ Avg
Goodhue	112 PPD	+101 PPD	213 PPD	0	213 PPD
Pine Island	378 PPD	+675 PPD	1,053 PPD	621 PPD	1,674 PPD
Wanamingo	158 PPD	+62 PPD	220 PPD	0	220 PPD
Zumbrota	384 PPD	+326 PPD	710 PPD	323 PPD	1,033 PPD
Total	1,032 PPD	+1,164 PPD	2,196 PPD	944 PPD	3,140 PPD

Table 8 CBOD₅ Max Month (CBOD₅ Max Month) (PPD) for Design Year 2045

City	Historic Residential	CBOD ₅ Max Month Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 CBOD ₅ Max Mo.
Goodhue	207 PPD	+202 PPD	409 PPD	0	409 PPD
Pine Island	553 PPD	+1,350 PPD	1,903 PPD	721 PPD	2,624 PPD
Wanamingo	283 PPD	+123 PPD	407 PPD	0	407 PPD
Zumbrota	625 PPD	+652 PPD	1,276 PPD	398 PPD	1,674 PPD
Total	1,668 PPD	+2,328 PPD	3,996 PPD	1,119 PPD	5,115 PPD

Table 9 CBOD₅ Max Day (CBOD₅ Max Day) (PPD) for Design Year 2045

City	Historic Residential	CBOD ₅ Max Day Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 CBOD ₅ Max Day
Goodhue	351 PPD	+253 PPD	604 PPD	0	604 PPD
Pine Island	757 PPD	+1,688 PPD	2,445 PPD	721 PPD	3,166 PPD
Wanamingo	493 PPD	+154 PPD	647 PPD	0	647 PPD
Zumbrota	959 PPD	+815 PPD	1,774 PPD	398 PPD	2,173 PPD
Total	2,561 PPD	+2,910 PPD	5,471 PPD	1,119 PPD	6,590 PPD

TSS

Total Suspended Solids (TSS) is the suspended solids load received at the plant. Historic loads were summarized from the cities' monthly reports from 2013-2022 and reported for three key durations:

TSS Average: average load for a continuous 12-month period as presented in

- Table 10.
- TSS Max Month: highest average load in a continuous 30-day period, Table 11.
- TSS Max Day: highest average load for a 24-hour period, Table 12.

Similar to CBOD₅, Zumbrota's 'historic' values for TSS were based on the assumptions noted below to account for the recent startup of DFA's pretreatment system.

Table 10 TSS Historic Average Day (TSS Average) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	146 PPD	0.12	Measured average 2013-2022, 100% residential	0	
Pine Island	592 PPD	0.17	Measured average 2013-2022, minus Industrial	19 PPD	Measured average 2013-22, LO'L
Wanamingo	207 PPD	0.19	Measured average 2013-2022, 100% residential	0	
Zumbrota	558 PPD	0.16	Assumed 0.16 PPCPD (Wtd Avg of the other cities) and Hist. Pop. 3,489	N/A	Assumed 40 mg/L and hist. avg. flow 0.261 MGD, DFA
Total	1,503 PPD	0.16		N/A	

Table 11 TSS Historic Max Month (TSS Max Month) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	407 PPD	0.34	Measured max month 2013-2022, 100% residential	0	
Pine Island	975 PPD	0.28	Measured max month 2013-2022, minus Industrial	93 PPD	Measured max month 2013-22, LO'L
Wanamingo	541 PPD	0.49	Measured max month 2013-2022, 100% residential	0	
Zumbrota	1,151 PPD	0.33	Assumed 0.33 PPCPD (Avg of the other cities) and Hist. Pop. 3,489	N/A	Assumed 50 mg/L and hist. AWW flow 0.393 MGD, DFA
Total	3,075 PPD	0.33		N/A	

Table 12 TSS Historic Max Day (TSS Max Day) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	673 PPD	0.56	Measured max day 2013-2022, 100% residential	0	
Pine Island	1,557 PPD	0.44	Measured max day 2013-2022, minus Industrial	723 PPD	Measured max day 2013-22 LO'L
Wanamingo	863 PPD	0.78	Measured max day 2013-2022, 100% residential	0	
Zumbrota	1,853 PPD	0.53	Assumed 0.53 PPCPD (Avg of the other cities) and Hist. Pop. 3,489	N/A	Assumed 50 mg/L and hist. MWW flow 0.424 MGD, DFA
Total	4,946 PPD	0.53		N/A	

Future projections for all cities assume that existing residential contributors will maintain their historic PPCPD rates.

Table 13 presents the TSS future residential growth projections for new growth areas. Residential per capita rate in new growth areas is assumed 0.20 PPCPD TSS, which is the Ten States Standards (10SS) recommended per capita loading rate. Max month (2.0 peaking factor) and max day (2.6 peaking factor) per capita loading in new areas is based on this assumed average load times Metcalf & Eddy textbook reference values for max:average ratios. Max Month and Max Day loadings will be further evaluated during final design.

Table 13 TSS Residential Growth Projections for Average Day, Max Month, and Max Day

City	Residential Pop. Growth	TSS <u>Average Day</u> Growth PPD (PPCPD)	TSS <u>Max Month</u> Growth PPD (PPCPD)	TSS <u>Max Day</u> Growth PPD (PPCPD)
Goodhue	+589 Pop.	+119 PPD (0.20)	+238 PPD (0.4)	+310 PPD (0.52)
Pine Island	+3,984 Pop.	+794 PPD (0.20)	+1,589 PPD (0.4)	+2,065 PPD (0.52)
Wanamingo	+400 Pop.	+73 PPD (0.20)	+145 PPD (0.4)	+189 PPD (0.52)
Zumbrota	+1,911 Pop.	+383 PPD (0.20)	+767 PPD (0.4)	+997 PPD (0.52)
Total	+6,884 Pop.	+1,369 PPD (0.20)	+2,739 PPD (0.4)	+3,561 PPD (0.52)

Table 14 presents the industrial projections and assumptions for future TSS loads. Like CBOD₅, load limits for Land O'Lakes that appear in its agreement with the City of Pine Island are identified with 'SIU'. Dairy Farmers of America projections assume a concentration of 40 mg/L for Average Day and 50 mg/L for Max Day. Reserve projections are based on typical domestic strength TSS concentration of 300 mg/L.

Table 14 TSS Industrial Load Projections for Average Day and Max Day (PPD)

City	TSS <u>Average Day</u> Industrial Load (PPD)	TSS <u>Max Day*</u> Industrial Load (PPD)
Goodhue	0	0
Pine Island	<u>LO'L</u> : 100 PPD Avg limit, SIU <u>Reserve</u> : 300 mg/L and 0.25 MGD, equal to 626 PPD <u>Total</u> : 726 PPD	<u>LO'L</u> : 200 PPD Avg limit, SIU <u>Reserve</u> : 300 mg/L and 0.25 MGD, equal to 626 PPD <u>Total</u> : 826 PPD
Wanamingo	0	0
Zumbrota	<u>DFA</u> : 40 mg/L and 0.600 MGD, equal to 200 PPD <u>Reserve</u> : 300 mg/L and 0.095 MGD, equal to 238 PPD <u>Total</u> : 438 PPD	<u>DFA</u> : 50 mg/L and 0.600 MGD, equal to 250 PPD <u>Reserve</u> : 300 mg/L and 0.095 MGD, equal to 238 PPD <u>Total</u> : 488 PPD
Total	1,163 PPD	1,313 PPD

*Max day values are used for Max month values in design calculations.

Table 15 through Table 17 present the TSS load projections for Design Year 2045. The values in the "Design 2045 TSS" columns are a summation of the historic average residential TSS loads plus the projected residential growth and the design allocations for industrial.

Table 15 TSS Average Day (TSS Average) (PPD) for Design Year 2045

City	Historic Residential	TSS Average Day Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TSS Avg
Goodhue	146 PPD	+119 PPD	265 PPD	0	265 PPD
Pine Island	592 PPD	+794 PPD	1,386 PPD	726 PPD	2,112 PPD
Wanamingo	207 PPD	+73 PPD	280 PPD	0	280 PPD
Zumbrota	558 PPD	+383 PPD	942 PPD	438 PPD	1,380 PPD
Total	1,503 PPD	+1,369 PPD	2,873 PPD	1,163 PPD	4,036 PPD

Table 16 TSS Max Month (TSS Max Month) (PPD) for Design Year 2045

City	Historic Residential	TSS Max Month Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TSS Max Mo.
Goodhue	407 PPD	+238 PPD	645 PPD	0	645 PPD
Pine Island	975 PPD	+1,589 PPD	2,564 PPD	826 PPD	3,389 PPD
Wanamingo	541 PPD	+145 PPD	686 PPD	0	686 PPD
Zumbrota	1,151 PPD	+767 PPD	1,918 PPD	488 PPD	2,406 PPD
Total	3,075 PPD	+2,739 PPD	5,813 PPD	1,313 PPD	7,127 PPD

Table 17 TSS Max Day (TSS Max Day) (PPD) for Design Year 2045

City	Historic Residential	TSS Max Day Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TSS Max Day
Goodhue	673 PPD	+310 PPD	983 PPD	0	983 PPD
Pine Island	1,557 PPD	+2,065 PPD	3,622 PPD	826 PPD	4,488 PPD
Wanamingo	863 PPD	+189 PPD	1,052 PPD	0	1,052 PPD
Zumbrota	1,853 PPD	+997 PPD	2,850 PPD	488 PPD	3,338 PPD
Total	4,946 PPD	+3,561 PPD	8,507 PPD	1,313 PPD	9,820 PPD

TKN

Total Kjeldahl Nitrogen (TKN) is the total organic and ammonia nitrogen load received at the plant. Estimated historic values are presented below for three key durations:

- TKN Average: average load for a continuous 12-month period as presented in Table 18
- TKN Max Month: highest average load in a continuous 30-day period, Table 19.
- TKN Max Day: highest average load for a 24-hour period, Table 20.

No substantial data exist for Goodhue, Pine Island, Zumbrota, or industries so 'historic' loads were estimated based on historic populations and pound per capita rates from Ten States Standards and textbook reference values (Metcalf & Eddy). Wanamingo, the only city with measured historic data, closely matches the textbook values.

Table 18 TKN Historic Average Day (TKN Average) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	44 PPD	0.036	Assumed 0.036 PPCPD (M&E) and Hist. Pop. 1,211	0	
Pine Island	127 PPD	0.036	Assumed 0.036 PPCPD (M&E) and Hist. Pop. 3,516	N/A	Assumed 50 mg/L and hist. avg. flow 0.040 MGD, LO'L
Wanamingo	42 PPD	0.038	Measured average 2013-2022, 100% residential	0	
Zumbrota	126 PPD	0.036	Assumed 0.036 PPCPD (M&E) and Hist. Pop. 3,489	N/A	Assumed 10 mg/L and hist. avg. flow 0.261 MGD, DFA
Total	337 PPD	0.036		N/A	

Table 19 TKN Historic Max Month (TKN Max Month) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	56 PPD	0.046	Assumed 0.046 PPCPD (M&E) and Hist. Pop. 1,211	0	
Pine Island	162 PPD	0.046	Assumed 0.046 PPCPD (M&E) and Hist. Pop. 3,516	N/A	Assumed 50 mg/L and hist. AWW flow 0.046 MGD, LO'L
Wanamingo	47 PPD	0.042	Measured max month 2013-2022, 100% residential	0	
Zumbrota	160 PPD	0.046	Assumed 0.046 PPCPD (M&E) and Hist. Pop. 3,489	N/A	Assumed 15 mg/L and hist. AWW flow 0.393 MGD, DFA
Total	425 PPD	0.046		N/A	

Table 20 TKN Historic Max Day (TKN Max Day) (PPD) 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	70 PPD	0.058	Assumed 0.058 PPCPD (M&E) and Hist. Pop. 1,211	0	
Pine Island	204 PPD	0.058	Assumed 0.058 PPCPD (M&E) and Hist. Pop. 3,516	N/A	Assumed 50 mg/L and hist. MWW flow 0.046 MGD, LO'L
Wanamingo	64 PPD	0.058	Measured max day 2013-2022, 100% residential	0	
Zumbrota	202 PPD	0.058	Assumed 0.058 PPCPD (M&E) and Hist. Pop. 3,489	N/A	Assumed 15 mg/L and hist. MWW flow 0.424 MGD, DFA
Total	541 PPD	0.058		N/A	

Future projections for all cities assume that existing residential contributors will maintain their estimated 'historic' PPCPD rates.

Table 21 presents the TKN future residential growth projections for new growth areas. Loading rates are based on the same Ten States Standards recommended per capita rates that were used for 'historic' values. Max month (1.3 peaking factor) and max day (1.6 peaking factor) per capita loading in new areas is based on this assumed average load times reference values for

max:average ratios (Max Month – Ten States Standards and Max Day – Metcalf and Eddy). Max Month and Max Day loadings will be further evaluated during final design.

Table 21 TKN Residential Growth Projections for Average Day, Max Month, and Max Day

City	Residential Pop. Growth	TKN Average Day Growth PPD (PPCPD)	TKN Max Month Growth PPD (PPCPD)	TKN Max Day Growth PPD (PPCPD)
Goodhue	+589 Pop.	+21 PPD (0.036)	+27 PPD (0.046)	+35 PPD (0.058)
Pine Island	+3,984 Pop.	+143 PPD (0.036)	+183 PPD (0.046)	+232 PPD (0.058)
Wanamingo	+400 Pop.	+13 PPD (0.036)	+17 PPD (0.046)	+21 PPD (0.058)
Zumbrota	+1,911 Pop.	+69 PPD (0.036)	+88 PPD (0.046)	+112 PPD (0.058)
Total	+6,884 Pop.	+247 PPD (0.036)	+316 PPD (0.046)	+399 PPD (0.058)

Table 22 presents the future TKN industrial load projections and assumptions. Future assumptions for all industries assume a discharge TKN concentration of 50 mg/L excluding DFA. DFA ran a test of their pretreatment system in November 2023 and measured approximately 3 mg/L ammonia and 1 mg/L nitrate in the pretreatment system effluent, but their tests did not include TKN. In the absence of TKN data, the projection for DFA future loads was based on the assumed concentration of 10 mg/L for Average Day and 15 mg/l for Max Day.

Table 22 TKN Industrial Load Projections for Average Day and Max Day (PPD)

City	TKN Average Day Industrial Load (PPD)	TKN Max Day Industrial Load (PPD)
Goodhue	0	0
Pine Island	LO'L: 50 mg/L and 0.100 MGD, equal to 42 PPD TKN Reserve: 50 mg/L and 0.25 MGD, equal to 104 PPD Total: 146 PPD	LO'L: 50 mg/L and 0.100 MGD, equal to 42 PPD TKN Reserve: 50 mg/L and 0.25 MGD, equal to 104 PPD Total: 146 PPD
Wanamingo	0	0
Zumbrota	DFA: 10 mg/L and 0.600 MGD, equal to 50 PPD TKN Reserve: 50 mg/L and 0.095 MGD, equal to 40 PPD Total: 90 PPD	DFA: 15 mg/L and 0.600 MGD, equal to 75 PPD TKN Reserve: 50 mg/L and 0.095 MGD, equal to 40 PPD Total: 115 PPD
Total	236 PPD TKN	261 PPD TKN

*Max day values are used for Max month values in design calculations.

Table 23 through Table 25 present the TKN load projections for Design Year 2045. The values in the "Design 2045 TKN" columns are a summation of the historic average residential TKN loads plus the projected residential growth rates for residential users and the design allocations for industrial.

Table 23 TKN Average Day (TKN Average) (PPD) for Design Year 2045

City	Historic Residential	TKN <u>Average Day</u> Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TKN Avg
Goodhue	44 PPD	+21 PPD	65 PPD	0	65 PPD
Pine Island	127 PPD	+143 PPD	270 PPD	146 PPD	416 PPD
Wanamingo	42 PPD	+13 PPD	55 PPD	0	55 PPD
Zumbrota	126 PPD	+69 PPD	195 PPD	90 PPD	285 PPD
Total	337 PPD	+247 PPD	584 PPD	236 PPD	821 PPD

Table 24 TKN Max Month (TKN Max Month) (PPD) for Design Year 2045

City	Historic Residential	TKN <u>Max Month</u> Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TKN Max Mo.
Goodhue	56 PPD	+27 PPD	83 PPD	0	83 PPD
Pine Island	162 PPD	+183 PPD	345 PPD	146 PPD	491 PPD
Wanamingo	47 PPD	+17 PPD	63 PPD	0	63 PPD
Zumbrota	160 PPD	+88 PPD	249 PPD	115 PPD	364 PPD
Total	425 PPD	+316 PPD	740 PPD	261 PPD	1,001 PPD

Table 25 TKN Max Day (TKN Max Day) (PPD) for Design Year 2045

City	Historic Residential	TKN <u>Max Day</u> Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TKN Max Day
Goodhue	70 PPD	+35 PPD	105 PPD	0	105 PPD
Pine Island	204 PPD	+232 PPD	436 PPD	146 PPD	582 PPD
Wanamingo	64 PPD	+21 PPD	85 PPD	0	85 PPD
Zumbrota	202 PPD	+112 PPD	314 PPD	115 PPD	429 PPD
Total	541 PPD	+399 PPD	940 PPD	261 PPD	1,201 PPD

TOTAL PHOSPHORUS (TP)

Total Phosphorus (TP) is the total organic and inorganic phosphorus received at the plant. Historic values are presented below for three key durations:

- TP Average: average load for a continuous 12-month period as presented in Table 26.
- TP Max Month: highest average load in a continuous 30-day period, Table 27.
- TP Max Day: highest average load for a 24-hour period, Table 28.

Like the previous sections, Zumbrota's 'historic' values for TP were based on the assumptions noted below to account for the recent startup of DFA's pretreatment system. We would prefer to have more data for DFA; their plant test in November 2023 is the sole source of 'historic' values.

Table 26 TP Average Day (TP Average) (PPD) Historic 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	5 PPD	0.0042	Measured average 2013-2022, 100% residential	0	
Pine Island	13 PPD	0.0037	Measured average 2013-2022, minus industrial	7 PPD	Measured average 2013-2022, LO'L
Wanamingo	5 PPD	0.0045	Measured average 2013-2022, 100% residential	0	
Zumbrota	14 PPD	0.0039	Assumed 0.0039 PPCPD (Wtd Avg of the other cities) and Hist. Pop. 3,489	N/A	3.72 mg/L Nov '23. Hist. avg. flow 0.197 MGD, DFA
Total	37 PPD	0.0039		N/A	

Table 27 TP Max Month (TP Max Month) (PPD) Historic 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	11 PPD	0.009	Measured max month 2013-2022, 100% residential	0	
Pine Island	25 PPD	0.007	Measured max month 2013-2022, minus industrial	13 PPD	Measured max month 2013-2022, LO'L
Wanamingo	9 PPD	0.008	Measured max month 2013-2022, 100% residential	0	
Zumbrota	27 PPD	0.008	Assumed 0.008 PPCPD (Wtd Avg of the other cities) and Hist. Pop. 3,489	N/A	3.72 mg/L Nov '23. Hist. AWW flow 0.393 MGD, DFA
Total	72 PPD	0.008		N/A	

Table 28 TP Max Day (TP Max Day) (PPD) Historic 2013-2022

City	Historic Residential	Historic PPCPD	Notes	Historic Industrial	Notes
Goodhue	24 PPD	0.020	Measured max day 2013-2022, 100% residential	0	
Pine Island	39 PPD	0.011	Measured max day 2013-2022, minus industrial	28	Measured max day 2013-2022, LO'L
Wanamingo	15 PPD	0.013	Assumed Max Day : Avg ratio 3.0	0	
Zumbrota	41 PPD	0.012	Assumed Max Day : Avg ratio 3.0	N/A	3.72 mg/L Nov '23. Hist. MWW flow 0.424 MGD, DFA
Total	119 PPD	0.012		N/A	

Future projections for all cities assume that existing residential contributors will maintain their historic PPCPD rates.

Table 29 through Table 31 present the TP future residential growth projections for new areas. The projected average loading rate used for all cities is the recommended design loading rate of 0.0046 PPCPD TP per Ten States Standards. Projected max month and max day rates are based on the assumed average 0.0046 PPCPD rate and each city's individual historic max:average ratios. Peaking factors for Max Month and Max Day vary and were derived from the historical max:average ratios for each City. Zumbrota's Max Month peaking factor was based on the weighted average of the other Cities. Max Month and Max Day loadings will be further evaluated during final design.

Table 29 TP Residential Growth Projections for Average Day, Max Month, and Max Day

City	Residential Pop. Growth	TP Average Day Growth PPD (PPCPD)	TP Max Month Growth PPD (PPCPD)	TP Max Day Growth PPD (PPCPD)
Goodhue	+589 Pop.	+3 PPD (0.0046)	+6 PPD (0.010)	+13 PPD (0.022)
Pine Island	+3,984 Pop.	+18 PPD (0.0046)	+35 PPD (0.009)	+55 PPD (0.014)
Wanamingo	+400 Pop.	+2 PPD (0.0046)	+3 PPD (0.008)	+5 PPD (0.014)
Zumbrota	+1,911 Pop.	+9 PPD (0.0046)	+17 PPD (0.009)	+26 PPD (0.014)
Total	+6,884 Pop.	+31 PPD (0.0046)	+61 PPD (0.009)	+99 PPD (0.016)

Table 30 presents the future TP industrial load projections and assumptions. Land O' Lakes is based on its current SIU agreement. Dairy Farmers of America is based on an assumed 1.0 mg/L TP and 0.600 MGD flow allocation. Reserves are based on assumed 8 mg/L TP and their industrial flow allocations.

Table 30 TP Industrial Load Projections for Average Day and Max Day (PPD)

City	TP Average Day Industrial Load (PPD)	TP Max Day Industrial Load (PPD)
Goodhue	0	0
Pine Island	LO'L: 10 PPD, SIU Reserve: 8 mg/L and 0.25 MGD, equal to 17 PPD Total: 27 PPD	LO'L: 15 PPD, SIU Reserve: 8 mg/L and 0.25 MGD, equal to 17 PPD Total: 32 PPD
Wanamingo	0	0
Zumbrota	DFA: 1.0 mg/L and 0.600 MGD, equal to 5 PPD. Reserve: 8 mg/L and 0.095 MGD, equal to 6 PPD Total: 11 PPD	DFA: 1.0 mg/L and 0.600 MGD, equal to 5 PPD. Reserve: 8 mg/L and 0.095 MGD, equal to 6 PPD Total: 11 PPD
Total	38 PPD TP	43 PPD TP

*Max day values are used for Max month values in design calculations.

Table 31 through Table 33 present the TP load projections for Design Year 2045. The values in the “Design 2045 TP” columns are a summation of the historic average residential TP loads plus the projected residential growth and the design allocations for industrial.

Table 31 TP Average Day (TP Average) (PPD) for Design Year 2045

City	Historic Residential	TP Average Day Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TP Avg
Goodhue	5 PPD	+3 PPD	8 PPD	0	8 PPD
Pine Island	13 PPD	+18 PPD	31 PPD	27 PPD	58 PPD
Wanamingo	5 PPD	+2 PPD	7 PPD	0	7 PPD
Zumbrota	14 PPD	+9 PPD	23 PPD	11 PPD	34 PPD
Total	37 PPD	+32 PPD	69 PPD	38 PPD	107 PPD

Table 32 TP Max Month (TP Max Month) (PPD) for Design Year 2045

City	Historic Residential	TP Max Month Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TP Max Month
Goodhue	11 PPD	+6 PPD	17 PPD	0	17 PPD
Pine Island	25 PPD	+35 PPD	60 PPD	32 PPD	92 PPD
Wanamingo	9 PPD	+3 PPD	12 PPD	0	12 PPD
Zumbrota	27 PPD	+17 PPD	44 PPD	11 PPD	55 PPD
Total	72 PPD	+61 PPD	133 PPD	43 PPD	176 PPD

Table 33 TP Max Day (TP Max Day) (PPD) for Design Year 2045

City	Historic Residential	TP Max Day Growth PPD	Design 2045 Residential	Design 2045 Industrial	Design 2045 TP Max Day
Goodhue	24 PPD	+13 PPD	37 PPD	0	37 PPD
Pine Island	39 PPD	+55 PPD	94 PPD	32 PPD	126 PPD
Wanamingo	15 PPD	+5 PPD	20 PPD	0	20 PPD
Zumbrota	41 PPD	+26 PPD	67 PPD	11 PPD	78 PPD
Total	119 PPD	+99 PPD	218 PPD	43 PPD	261 PPD

SUMMARY OF DESIGN LOADS

Based on the assumptions and calculations as outlined herein, the proposed design loads for the North Zumbro Sanitary Sewer District are summarized below in Table 34:

Table 34 NZSSD Proposed Loads for Design Year 2045

Load	Average Day (PPD)	Max Month (PPD)	Max Day (PPD)
CBOD ₅	3,141	5,115	6,590
TSS	4,036	7,127	9,820
TKN	820	1,001	1,201
TP	106	176	261



MINNESOTA

PUBLIC FACILITIES AUTHORITY

Date: December 27, 2023
To: Municipalities Seeking WIF Grants for Proposed Water Infrastructure Projects
From: Jeff Freeman, Executive Director
Subject: **2024 WIF Project Information Worksheet - DUE JANUARY 15, 2024**

The Minnesota Public Facilities Authority (PFA) is collecting preliminary information for proposed wastewater and drinking water projects that may be eligible for affordability-based grants under the state Water Infrastructure Funding (WIF) program. The information will be used to estimate potential WIF grant needs for the PFA's 2024 report to the Minnesota Legislature.

WIF grants can provide partial project funding in conjunction with PFA low interest loans, or to match funding provided by USDA Rural Development. To be eligible, projects must be listed on the Clean Water Project Priority List (prepared by the Minnesota Pollution Control Agency) or the Drinking Water Project Priority List (prepared by the Minnesota Department of Health).

The WIF program provides supplemental grants for high-cost wastewater and drinking water projects based on affordability criteria established in state law. Under the WIF program statutes (Minnesota Statutes, Section 446A.072) grant eligibility is calculated based on the average cost per household of the wastewater or drinking water system, including costs for operation and maintenance, existing debt service, and new project costs.

To assure we have accurate information, municipalities with projects on the 2024 Project Priority Lists that may meet the WIF affordability criteria are asked to submit a WIF Project Information Worksheet. A PDF sample of the worksheet is attached. However, the worksheet is available as an Excel spreadsheet and if possible, we ask that you fill it out and submit electronically.

The WIF project worksheet is available to download from the PFA website at www.mn.gov/pfa (*homepage under Announcements*). Instructions for filling out the worksheet are included. A separate worksheet should be submitted for each project. If you have questions, contact your PFA loan officer shown on the attached map.

Please submit your WIF project worksheet(s) electronically as an e-mail attachment and send to mn.pfa@state.mn.us. The e-mail should be sent by an authorized municipal official, or, if the form is sent by someone else, please send a separate e-mail or letter from an authorized municipal official indicating that they approve the submittal of the project information.

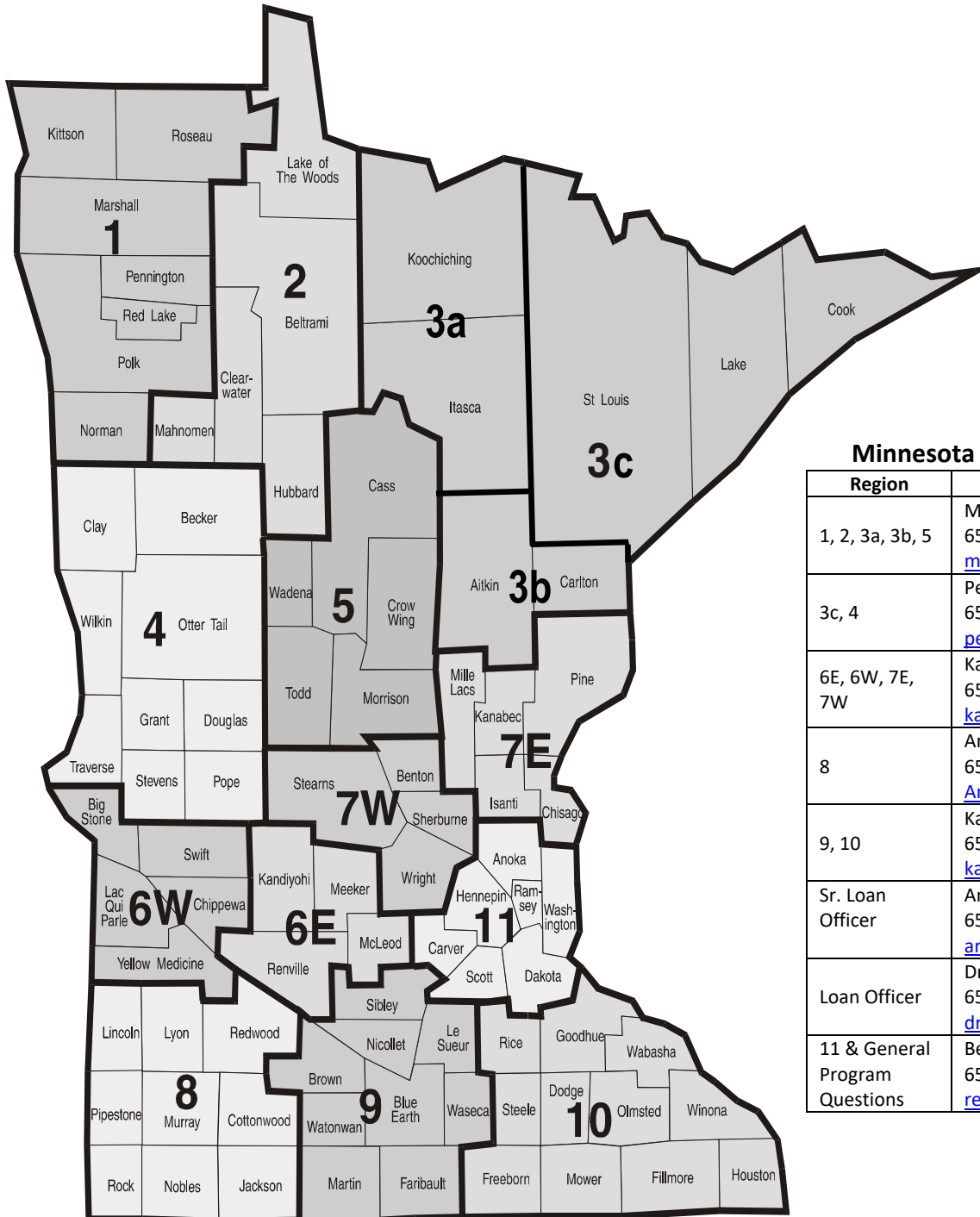
Please return the completed worksheet by January 15, 2024 to the email address above.

Minnesota Public Facilities Authority

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Minnesota Public Facilities Authority

Region	PFA Loan Officer
1, 2, 3a, 3b, 5	Mary Jane Schultz 651-259-7467 maryjane.schultz@state.mn.us
3c, 4	Peter Bradshaw 651-259-7689 peter.bradshaw@state.mn.us
6E, 6W, 7E, 7W	Kathe Barrett 651-259-7464 kathe.barrett@state.mn.us
8	Angela Berrens 651-259-7497 Angela.berrens@state.mn.us
9, 10	Katelyn Kanuit 651-259-7471 katelyn.kanuit@state.mn.us
Sr. Loan Officer	Anita Gallentine 651-259-7466 anita.gallentine@state.mn.us
Loan Officer	Drew Brooksbank 651-251-7131 drew.brooksbank@state.mn.us
11 & General Program Questions	Becky Sabie 651-259-7470 rebecca.sabie@state.mn.us

December 2023

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Return completed form to
PFA by Jan 15, 2024

Minnesota Public Facilities Authority
WIF Project Information Worksheet
(Instructions on next page)



1a. Project Type:
(drop-down list)

Click arrow for list

1b. 2024 PPL Rank,
Applicant name,
Description

Click arrow for list

2. Estimated year of construction start?

3. Has applicant applied to USDA-RD?

4. Applicant name:

5. Consultant (firm):

Contact Person:

Contact Person:

Title:

Title:

Phone:

Phone:

Address:

Address:

City | State | Zip:

City | State | Zip:

E-mail address:

E-mail address:

6. Brief Description of Project (area to be served, problem/need, proposed solution)

7. Estimated Project Costs

8. Existing Debt Service and O&M Costs (WW or DW)

Planning/Design

Other A/E, Legal

Land

Construction

Const Cntgncy (5%)

Total

\$ -

\$ -

A. Existing annual system debt service
10 yr average (see separate box)

B. Annual operation and maintenance cost
(do not include depreciation)

Current

When Project
Begins Operation

\$ -

9. Residential and Nonresidential Users

Current
Users

Estimated Users
When Project
Begins Operation

Estimated Users
in 20 years

A. Residential households (billed individually):

i) connections

ii) ERU's (equals residential HH connections):

iii) percentage of system use:

B. Other residential (multi-family, other residential facilities):

i) connections

ii) ERU's

iii) percentage of system use:

C. Nonresidential:

i) connections

ii) ERU's

iii) percentage of system use:

D. Total Users:

i) connections

ii) ERU's

iii) percentage of system use:

10. Municipalities (cities and townships) included in the
Project Area

Municipality Name

A.

B.

C.

D.

Totals (should match above):

Current System Users		Estimated Users When Project Begins Operation		Estimated Users in 20 years	
Connections	ERUs	Connections	ERUs	Connections	ERUs

11. Data Prepared and Authorized By

Worksheet Prepared By:

Title:

Phone:

Submittal Authorized By:
(Municipal Official)

Title:

Phone:

PFA

Loan

Officer :

PFA

Region :

Space for notes, if needed

Annual Debt Service On Existing WW or DW System Debt
(do not include estimated debt service for the proposed project)

DS Amt (P&I)	Year
\$ -	= 10 yr avg

Space for notes, if needed

Minnesota Public Facilities Authority WIF Project Information Worksheet

Instructions For Completing Electronic Spreadsheet Form

General instructions: Use the "Save As" command to save the worksheet to your computer with your municipality's name in the title. Fill in all information in the yellow highlighted fields. The non-highlighted fields have formulas that will calculate totals and percentages. When completed, return the worksheet as an e-mail attachment to the appropriate PFA loan officer. If the e-mail will be sent from someone other than an authorized municipal official, the authorized municipal official should send a separate e-mail or letter indicating they approve the submittal of the project information.

- 1a. Project type.** Select wastewater or drinking water. If applicant has a combined utility project that includes both, submit separate worksheets for each. Storm water projects are not eligible for the WIF grant program.
- 1b. 2024 PPL rank, applicant name, project description.** Click in the box and select project from the provided alphabetical listing of projects on the MPCA or MDH 2024 Project Priority List (PPL). If the applicant has more than one project on the PPL, submit a worksheet for each project.
- 2. Estimated year of construction.** Click box and select the year that project will be ready to start construction, assuming funding is available.
- 3. Has applicant applied to USDA Rural Development for funding?** Click box and select "Yes" if the applicant has applied for grant/loan funding from USDA Rural Development. (To be eligible for WIF assistance, applicants that are eligible for funding from USDA Rural Development must apply to USDA-RD.)
- 4. Applicant information.** Identify the municipality that will be the applicant for the project and information for the lead contact person.
- 5. Consultant information.** Identify consultant firm and information for the lead contact person.
- 6. Brief Description of Project.** Briefly describe the area to be served, the problem or need to be addressed, and the proposed solution.
- 7. Estimated Project Costs.** Enter the estimated project costs in the categories shown.
- 8. Existing Debt Service and O&M Costs (WW or DW)**
 - A. Existing annual system debt service; 10 yr average.** For existing system debt, use the box to the side of the main worksheet to enter the applicant's annual ww or dw system debt service payments scheduled for the ten year period beginning the year after expected construction start. The worksheet will automatically calculate the average annual debt service.
 - B. Annual operation and maintenance cost.** Enter the current annual operation and maintenance cost for the wastewater or drinking water system, and estimated future cost when the project begins operation. Include the annual amount budgeted for equipment replacement reserve. Do not include depreciation.
- 9. Residential and Nonresidential Users.** Enter the number of service connections and Equivalent Residential Users (ERUs) for current users, the estimated users when the project begins operation, and the estimated users in 20 years. If all or most of the project costs will be assessed only to users in the project service area, enter only those users. Note: If the municipality does not charge for service on the basis of ERUs, enter the approximate number of ERUs in each category that will provide the correct percentage of system use for that category (percentages will calculate automatically).
 - A. Residential Households (billed individually).** Enter the number of connections to residential households that are billed individually. The ERUs will calculate automatically to match the number of connections.
 - B. Other residential.** Enter the number of connections and ERUs for other residential users that may have one service connection but are billed for multiple ERUs such as apartment buildings and other residential facilities.
 - C. Nonresidential.** Enter the number of nonresidential connections and the number of ERUs based on their proportionate usage.
- 10. Municipalities Included In the Project Area.** List all municipalities (cities and townships) included in the project area. For each municipality, enter the total number of connections and ERU's for the current users, the estimated users when project operation begins, and the 20 year estimated users. The totals should match the corresponding totals shown above.
- 11. Data Prepared and Authorized By.** Enter the name, title and phone number of the person who prepared the worksheet, and if different, the municipal official who authorized submittal of the data to the PFA.