



Town of Beloit WWTP
3629 S. Walters Rd. | Beloit, WI, 53511

Town of Beloit Water Quality Trading Plan

June 2019



Prepared by:

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Donohue Project No.: 13267

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ABBREVIATIONS

BOD	Biochemical Oxygen Demand
HUC	Hydrologic Unit Code
mg/L	milligrams/liter
mgd	Million Gallons per Day
MDV	Multi-Discharger Variance
No.	Number
ppd	Pounds per Day
RA	Running Average
TBEL	Technology Based Effluent Limit
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TPW	Total Present Worth
TSS	Total Suspended Solids
UV	Ultraviolet
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System
WQBEL	Water Quality Based Effluent Limit
WQT	Water Quality Trading
WWTP	Wastewater Treatment Plant

1. BACKGROUND

1.1 GENERAL INFORMATION

Permittee WPDES Permit Number: WI-0026930-08-0

Permittee Contact Information: Joe Rose
Public Works Director
Town of Beloit WWTP
3629 S Walters Road
Beloit, WI 53511

Pollutant for which credits will be generated: Phosphorus

1.2 INTRODUCTION

The Town of Beloit, Wisconsin owns and operates the Beloit Wastewater Treatment Plant (WWTP), which serves a population of approximately 7,800. The plant has an average day design flow capacity of 1.0 million gallons per day (mgd). The treatment plant operates under the Wisconsin Pollution Discharge Elimination System Permit (WPDES) permit No. WI-0026930-08-0. The permit was reissued on January 1, 2015. As part of the permit, the WWTP is required to meet a monthly average effluent total phosphorus (TP) interim limit of 1.0 mg/L. The permit also included water quality based effluent limits (WQBEL) derived from the Rock River Total Maximum Daily Load (TMDL) allocations for the Rock River Basin as shown in Table 1. The Rock River TMDL-derived effluent limits become effective on January 1, 2024. Lastly, a compliance schedule and required actions for meeting the limits are also in the permit. A Final Compliance Alternatives Plan was submitted on March 31, 2019. The Plan outlined the final strategy to achieve phosphorus compliance. Specifically, the Plan selected WQT to achieve compliance, and identified the City of Columbus WWTP as a potential trade partner. This report is being submitted as a follow-up to the Final Compliance Alternatives Plan and outlines how the proposed trading will comply with s. 283.84, Wis. Stats., that credits are generated in an acceptable manner and correctly calculated, and that the permittee will comply with their WQBELs. The Town of Beloit notice of intent (NOI) for WQT is provided in Appendix A and the WQT checklist is provided in Appendix B.

Table 1. Future WPDES Monthly Average TMDL Allocations

Month	Monthly Average TP Effluent Limit (ppd)
January	1.95
February	2.07
March	1.82
April	1.95
May	1.85
June	1.79
July	1.39
August	1.20
September	1.09
October	1.19
November	1.44
December	1.74

1.3 EXISTING CONDITIONS

The WWTP consists of raw wastewater screening and grit removal, nitrifying activated sludge treatment in two package plants, and ultraviolet (UV) disinfection. Phosphorus is removed chemically by multi-point alum addition. Specifically, chemical is added to preliminary treatment and to the activated sludge systems via the clarifier inlets. Waste activated sludge is aerobically digested. The digested biosolids are stored on site in a tank and are land applied to local agricultural land, most of which is owned by the Town and leased to local farmers. Stored biosolids thicken and separate over time. Decant from the top of the tanks is occasionally pumped back to preliminary treatment. Figure 1 presents a simple flow schematic of the plant. As for phosphorus removal, the Town uses alum addition (i.e., chemical phosphorus removal) in combination with activated sludge secondary treatment to achieve compliance. For the period of record, the Town has fed an average of 50 gallons per day of alum for phosphorus removal.

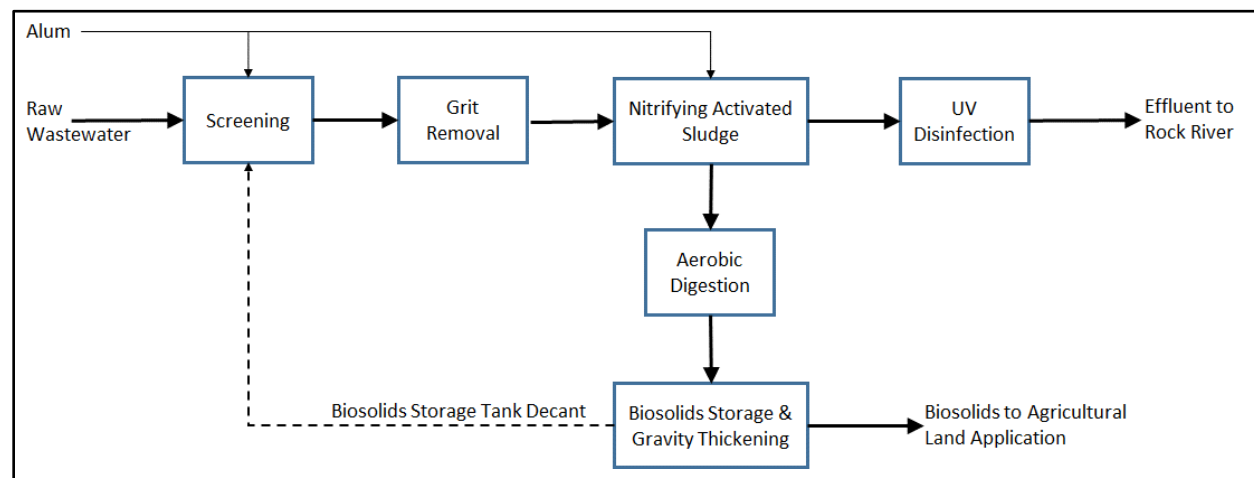


Figure 1. Beloit WWTP Flow Diagram

1.3.1 CURRENT FACILITY LOADINGS & PERFORMANCE

Table 2 provides an updated summary of current influent and effluent flows and loadings for the Town of Beloit WWTP from January 1, 2015 to August 31, 2018. As discussed in the Preliminary Compliance Alternatives Plan, Loadings are consistent with a primarily domestic wastewater, both in terms of per capita flow and average influent concentration. Table 2 shows that from 2015 through 2018, effluent phosphorus has consistently been below the interim effluent limit. The effluent phosphorus 30-day running average (RA), which is used to approximate average monthly performance capabilities, ranged from 0.55 mg/L to as high as 1.03 mg/L. However, the 1.03 mg/L 30-day RA straddled two months, both of which had monthly averages below the interim permit limit of 1.0 mg/L. The Town uses alum addition (i.e., chemical phosphorus removal) in combination with activated sludge secondary treatment to achieve compliance. For the period of record, the Town has fed an average of 50 gallons per day of alum for phosphorus removal. Influent and effluent TP concentrations and masses from January 1, 2015 to August 31, 2018 are shown graphically in Figures 2, 3, 4, and 5.

Table 2. Beloit WWTP Influent and Effluent Flows and Loadings (2015-2018)

Location	Flow	BOD5	TSS	TP
Influent Wastewater	0.512 mgd	252 mg/L 1,081 ppd	255 mg/L 1,094 ppd	3.9 mg/L 16.4 ppd
Final Effluent	0.460 mgd	12.3 mg/L 45.1 ppd	10.9 mg/L 37.7 ppd	0.81 mg/L 3.1 ppd

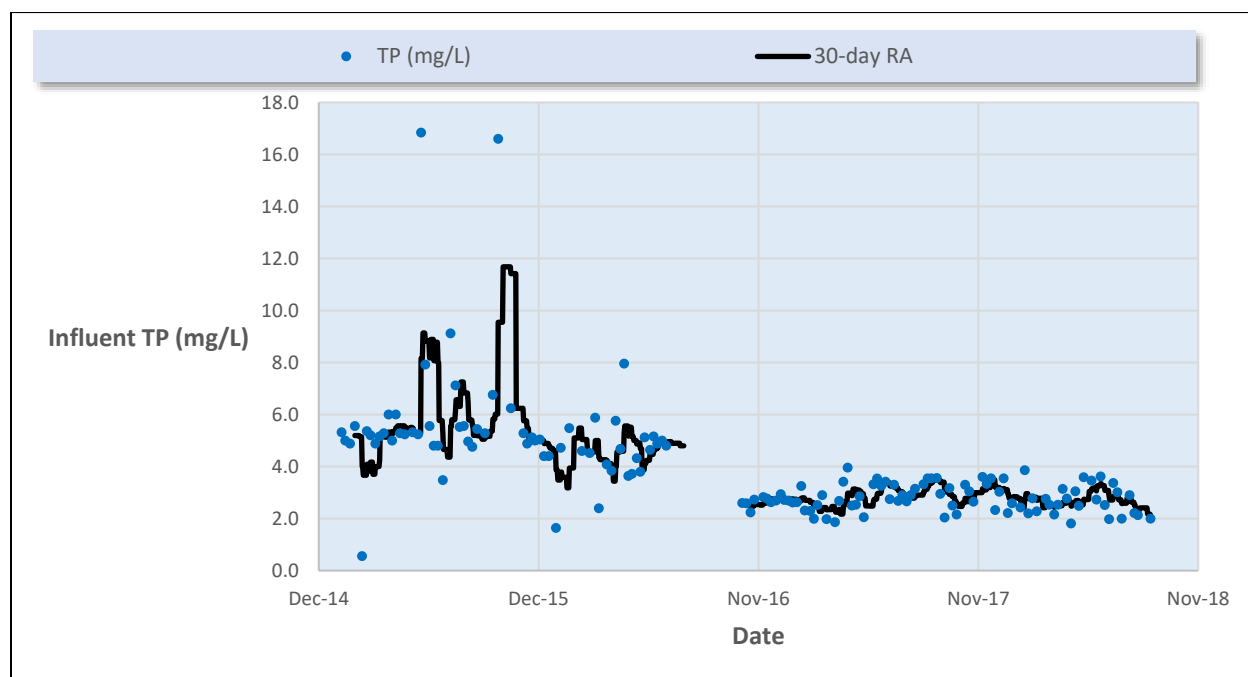


Figure 2. Beloit WWTP Influent TP (mg/L)

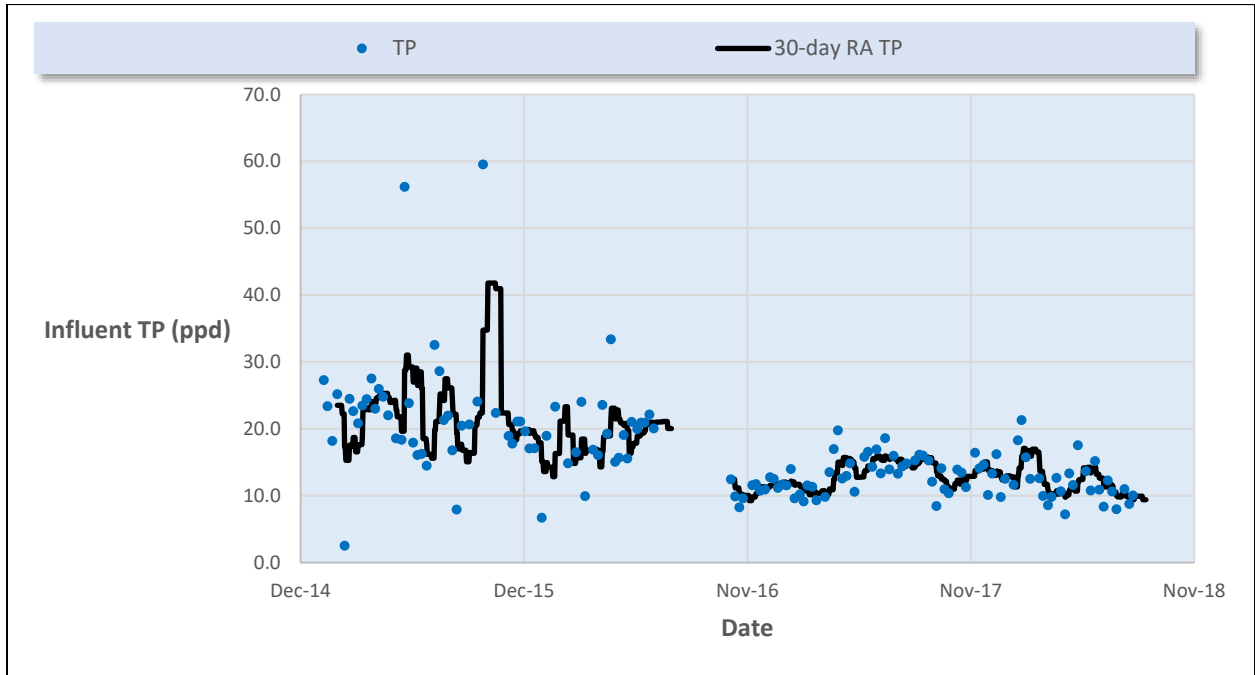


Figure 3. Beloit WWTP Influent TP (ppd)

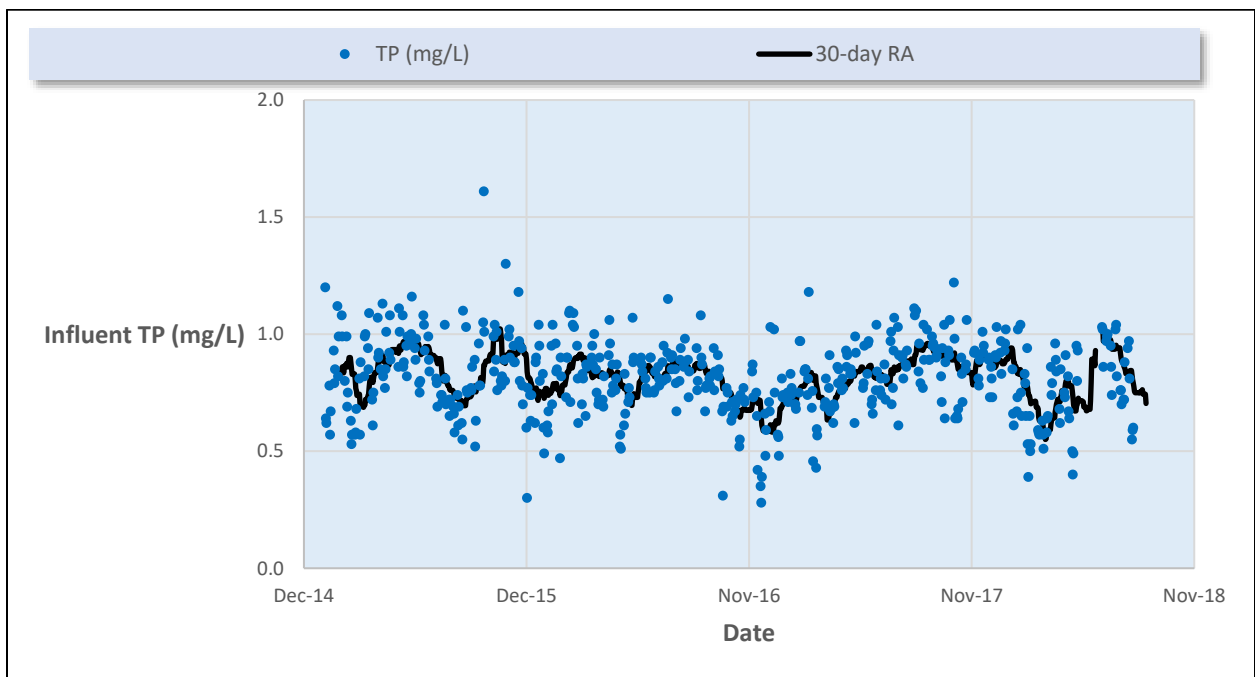


Figure 4. Beloit WWTP Effluent TP (mg/L)

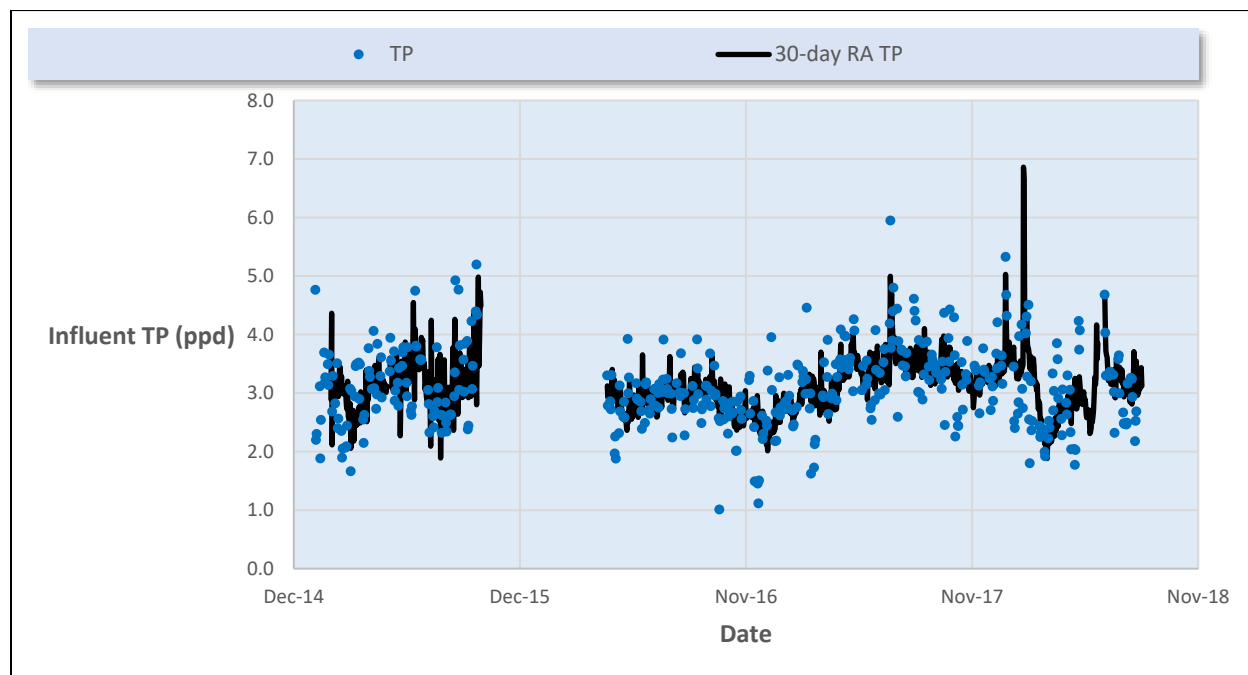


Figure 5. Beloit WWTP Effluent TP (ppd)

1.3.2 HISTORICAL PHOSPHORUS LOADINGS

The average monthly flows, TP loadings, and TP concentrations for the most recent complete year (2017) of data are provided in Table 3. Also provided in Table 3 is a comparison of the average monthly phosphorus loadings compared to the pending TMDL. The annual offset, which was also calculated on the 2017 total annual effluent phosphorus loadings and pending TMDL allocations, is provided in Table 4. This offset is the amount of phosphorus that the facility would need to mitigate in the future to meet the TMDL. The required annual offset was calculated to be 606 lb/yr. Data from 2017 was used because it is the most recent complete year of data and because phosphorus concentrations and loadings remain consistent from 2016 to 2018.

Table 3. 2017 Average Monthly flows and TP Loadings and Concentrations

Month	Influent Flow (mgd)	Effluent Flow (mgd)	Influent TP (mg/L)	Influent TP (ppd)	Effluent TP (mg/L)	Effluent TP (ppd)	TMDL TP Allocation (ppd)	Comparison to Pending TMDL
January	0.534	0.465	12.0	53.6	0.734	2.84	1.95	Greater Than
February	0.525	0.450	11.3	49.6	0.777	2.91	2.07	Greater Than
March	0.554	0.472	10.3	47.8	0.730	2.87	1.82	Greater Than
April	0.606	0.501	15.0	76.0	0.756	3.16	1.95	Greater Than
May	0.612	0.521	12.7	65.1	0.840	3.65	1.85	Greater Than
June	0.559	0.469	15.9	74.2	0.833	3.26	1.79	Greater Than
July	0.624	0.526	15.5	80.5	0.847	3.71	1.39	Greater Than
August	0.564	0.484	14.4	68.0	0.927	3.74	1.20	Greater Than
September	0.524	0.444	14.9	65.0	0.916	3.39	1.09	Greater Than
October	0.531	0.460	11.0	48.6	0.890	3.41	1.19	Greater Than
November	0.522	0.449	12.9	56.2	0.836	3.13	1.44	Greater Than
December	0.515	0.438	13.8	59.3	0.888	3.24	1.74	Greater Than
Average	0.556	0.473	13.324	61.988	0.831	3.277	1.623	-

Table 4. Required TP Offset Based on 2017 Flows and TP Loadings and Concentrations

Month	Influent Flow (mgd)	Effluent Flow (mgd)	Effluent TP (ppd)	TMDL TP Allocation (ppd)	Monthly TP Offset (ppd)	Monthly TP Offset (lb)
January	0.534	0.465	2.84	1.95	0.89	27.7
February	0.525	0.450	2.91	2.07	0.84	23.6
March	0.554	0.472	2.87	1.82	1.05	32.6
April	0.606	0.501	3.16	1.95	1.21	36.2
May	0.612	0.521	3.65	1.85	1.80	55.9
June	0.559	0.469	3.26	1.79	1.47	44.0
July	0.624	0.526	3.71	1.39	2.32	72.1
August	0.564	0.484	3.74	1.20	2.54	78.9
September	0.524	0.444	3.39	1.09	2.30	69.0
October	0.531	0.460	3.41	1.19	2.22	69.0
November	0.522	0.449	3.13	1.44	1.69	50.7
December	0.515	0.438	3.24	1.74	1.50	46.5
Total Offset =					606	lb/yr

1.4 SUMMARY OF PREVIOUS OPTIMIZATION ACTIVITIES

The Town of Beloit implemented several activities aimed at assessing the ability of the existing WWTP to be optimized to reduce effluent phosphorus and potentially meet the future WQBELs without further upgrade of the plant. These activities are listed below and were summarized in the Preliminary Compliance Alternatives Plan. An update was provided in the Final Compliance Alternatives Plan.

- Increase Alum Dosage
- Implement Multi-Point Alum Feed
- Install an Effluent Orthophosphate Analyzer

- Characterize Effluent Phosphorus as Dissolved or Suspended

One of the main conclusions drawn from the optimization actions was that optimized chemical polishing would be able to convert much of the reactive phosphorus to particulate, which would then be amenable to meeting the WQT scenarios, which were outlined in the Final Compliance Alternatives Plan and will be discussed later in this Plan.

2. WATER QUALITY TRADING

WQT is a compliance method consisting of directly adjusting permit levels to be less restrictive by reducing pounds of phosphorus discharged into the water body elsewhere. These trades can be with point sources or non-point sources. Non-point source and point source trading were evaluated as part of the Preliminary and Final Compliance Alternatives Plan. Nonpoint credits can be generated by implementing agricultural BMPs, dredging, lake treatment, wetland restoration, and through urban practices to reduce phosphorus from entering the Rock River. Due to limited areas for improvement, and thus, limited potential for significant credit generation, non-point source options were eliminated in the Preliminary Compliance Alternatives Plan and not pursued further in the Final Plan. Point source WQT was identified as the recommended alternative to achieve phosphorus compliance in the Final Compliance Alternatives Plan and will be discussed in more detail in this section.

The first step in assessing WQT involves quantifying the pounds of phosphorus that need to be offset through a trade. Several scenarios were evaluated in the Final Compliance Alternatives Plan with varying levels of chemical treatment and water quality trading. The estimated current and design required phosphorus offsets for WQT for the selected scenario is provided in Table 5. Design conditions were quantified by adjusting the monthly average flows by the same factor, so the annual average of all twelve months equaled the design average flow of 1.0 mgd. It should be noted that the offsets in Table 5 do not include any trade ratio factors. The actual mass to be traded would have to be greater to account for trade ratios, which will be discussed later in this plan.

Table 5. Required Phosphorus Offsets for WQT Trading

Month	Required Phosphorus Offsets	
	Current ¹ (lbs P)	Design ¹ (lbs P)
January	27.7	125.8
February	23.6	114.4
March	32.6	131.6
April	36.2	141.6
May	50.5	170.6
June	40.2	149.5
July	65.7	186.9
August	63.0	174.5
September	56.2	160.3
October	58.3	164.2
November	46.7	151.6
December	36.6	137.5
Total	537	1,808

¹. Offsets do not include a point source trade ratio.

2.1 IDENTIFIED POINT SOURCE WQT PARTNERS

Potential point source credit generators include WWTPs, industrial dischargers, and MS4s. No significant industrial or MS4 dischargers were identified as potential credit generators. However, there are several WWTPs upstream of the Town of Beloit WWTP discharge in a position to generate phosphorus credits and

possibly trade. Of the potential WWTP that can generate credits, the City of Columbus was selected as the optimal, mutually beneficial trading partner. Note that the City of Columbus already has an established trade with NASCO. Figure 6 provides the location of the City of Columbus with respect to the Town of Beloit.

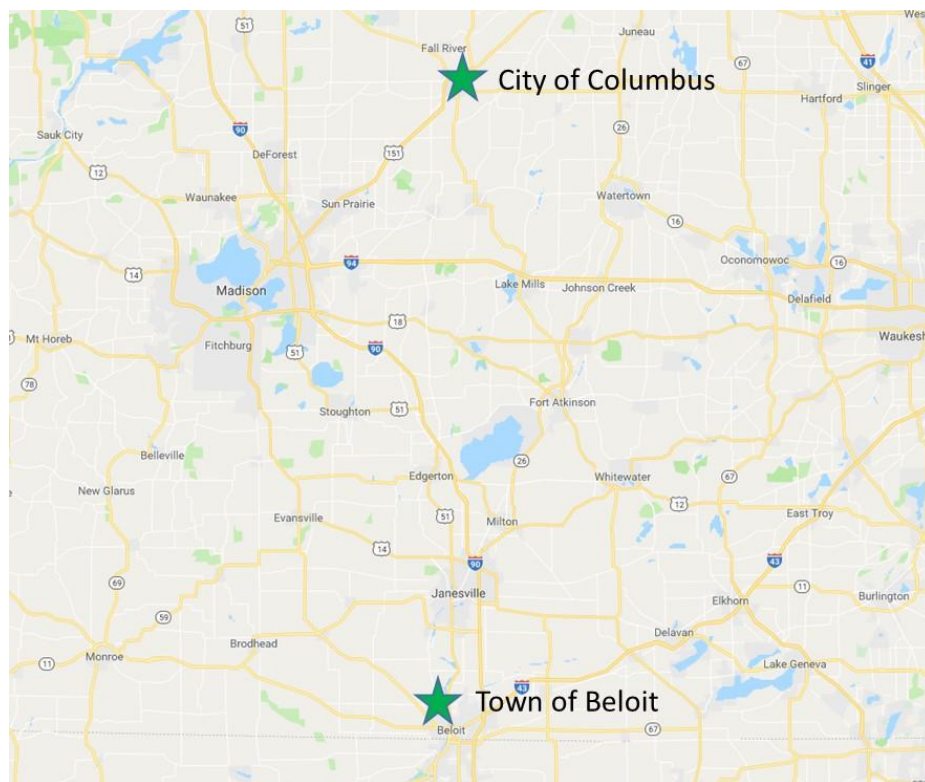


Figure 6. Location of Credit Generator

2.2 TRADE RATIO CALCULATION AND CREDIT QUANTIFICATION

The trade ratio for the potential point source phosphorus credit generators can be calculated using the equation below.

$$\text{Trade Ratio} = (\text{Delivery} + \text{Downstream} + \text{Equivalency} + \text{Uncertainty} - \text{Habitat Adjustment}):1$$

Delivery = A factor determined using the USGS SPARROW model that accounts for trading partners located in a different HUC-12

Downstream = A factor used if the credit generator is downstream of the credit user

Equivalency = A factor used for trades involving pollutants other than TSS or phosphorus

Uncertainty = A factor used to account for uncertainties associated with nonpoint source trades that originate from climatic variability, potential inaccuracies in field testing or modeling of the

amount of pollutant controlled by a management practice, and the reliability of the management practice to perform

Habitat Adjustment = A factor that accounts for aquatic habitat restoration efforts that meet applicable WDNR and Natural Resource Conservation Service (NRCS) technical standards

For upstream point source credit generators, the City of Columbus, the Downstream, Equivalency, and Habitat Adjustment factors are 0. The delivery factor is also set to 0, as the TMDL did not assume a delivery factor, although the City of Columbus is located in a different HUC-12. The Town of Beloit HUC-12 is 070900021502. The HUC-12 of the City of Columbus is 070900011001. The only factor taken into account in the trade ratio equation is uncertainty, which is set to 1 for traditional point sources. Thus, the estimated trade ratio is set at the minimum of 1.1:1. It is also important to note that any credits generated by point source need to be used in the same month they are generated in.

Based on a trade ratio of 1.1:1, the estimated monthly credits available for trade at current and design flows from the City of Columbus, is provided in Table 6. Table 6 shows that sufficient credits are available from the City of Columbus to offset all of the phosphorus in exceedance of the TMDL allocations.

Table 6. Estimated Credits at Current and Future Flows from the City of Columbus WWTP

Facility Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Current Flows												
City of Columbus WWTP Credits Generated	445	516	514	411	390	370	383	422	423	422	418	395
Town of Beloit WWTP Credits Required	27.7	23.6	32.6	36.2	50.5	40.2	65.7	63.0	56.2	58.3	46.7	36.6
Future Flows												
City of Columbus WWTP Credits Generated	440	511	509	405	385	365	377	417	418	417	413	390
Town of Beloit WWTP Credits Required	126	114	132	142	171	150	187	175	160	164	152	126

Again, the City of Columbus WWTP can provide sufficient credits for the Town of Beloit WWTP to achieve phosphorus compliance. Table 7 shows the annual estimate of required total annual credits required for the next 5 years. A trade ratio of 1.1:1 was again used. To estimate future credit requirements, flows were assumed to increase linearly from current 2017 flows to the design flow (1.0 mgd) by year 2032. Flows from 2032 to 2037 were then assumed to increase at the same rate. Thus, credits required increased linearly from current (2017) to design by year 2032, and increased at the same rate thereafter to 2037.

Table 7. Five Year Estimate of Required Total Annual Required Credits Generated

Year #	Required Credits Generated
0	591
1	684
2	777
3	871
4	964
5	1,057 (permit cycle 1)

A trading agreement should be set up in five-year increments and be sufficiently conservative to cover monthly credits generated over the five-year period. Thus, for the first permit cycle (five years), the total annual credits required would be 1,100. Table 8 shows the distribution of the 1,100 required credits on a monthly basis. The credits in Table 8 were distributed based on the distribution of The Town of Beloit's future monthly average TMDL allocations, as shown in Table 1.

Table 8. Monthly Distribution of Required Credits

Month	Required Credits Generated
January	112.4
February	107.8
March	104.9
April	108.8
May	106.7
June	99.9
July	80.1
August	69.2
September	60.8
October	68.6
November	80.4
December	100.3
Total	1,100

With the required credits in Table 8 and a trade ratio of 1.1:1, the Town of Beloit will be reissued a permit with the TMDL limits in Table 9. The City of Columbus will also be reissued a permit. The Current City of Columbus WPDES monthly average TMDL allocations are provided in Table 10. The TMDL allocations in Table 10 include the existing trade with NASCO, which accounts for 0.28 ppd of credits. The adjusted TMDL limits in the reissued permit for the City of Columbus are shown in Table 11.

Table 9. Town of Beloit Future WQT Adjusted WPDES Monthly Average TMDL Allocations

Month	Adjusted Monthly Average TP Effluent Limit (ppd)
January	5.2
February	5.6
March	4.9
April	5.2
May	5.0
June	4.8
July	3.7
August	3.2
September	2.9
October	3.2
November	3.9
December	4.7

Table 10. Current City of Columbus WPDES Monthly Average TMDL Allocations

Month	Monthly Average TP Effluent Limit (ppd)
January	16.11
February	20.60
March	18.55
April	15.37
May	14.15
June	13.88
July	13.89
August	15.30
September	15.83
October	15.30
November	15.65
December	14.33

Table 11. WQT Adjusted City of Columbus WPDES Monthly Average TMDL Allocations

Month	Monthly Average TP Effluent Limit (ppd)
January	12.48
February	16.75
March	15.16
April	11.74
May	10.71
June	10.55
July	11.30
August	13.07
September	13.80
October	13.09
November	12.97
December	11.09

2.3 PROJECT TIMELINE

The Final WQT Plan and WQT Agreement will be submitted to the WDNR by July 1, 2019. WQT will begin January 1, 2020 with the reissuance of the Town of Beloit's next permit.

2.4 DURATION OF WQT AGREEMENT

A copy of the Draft WQT Agreement is provided in Appendix C. The WQT Agreement is expected to be approved in July of 2019 and will expire in 20 years on December 31, 2040. Both parties to the WQT Agreement will have an opportunity to amend and/or modify the WQT Agreement every five years.

2.5 METHOD FOR QUANTIFYING CREDITS

Because the Town of Beloit and City of Columbus WWTP will be reissued permits with new TMDL limits that account for the WQT, the facilities will only need to meet the new permit limits to verify sufficient credits have been generated and used.

2.6 TRACKING AND VERIFICATION PROCEDURES

The Town of Beloit and City of Columbus WWTPs will verify credits required and generated through effluent monitoring reported to the WDNR on their respective monthly discharge monitoring reports (DMRs). WQT Certification

The Town of Beloit certifies that the information contained in this Water Quality Trading Plan and its attachments are accurate and correct to the best of their knowledge.

Signature: _____



Date: _____

6-24-19

Joe Rose
Public Works Director
Town of Beloit WWTP
3629 S Walters Road
Beloit, WI 53511

APPENDIX A

WATER QUALITY TRADING NOTICE OF INTENT

Notice: Pursuant to s. 283.84, Wis. Stats., and ch. NR 217 Wis. Adm. Code, this form must be completed by any WPDES permittee that is using water quality trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information				
Permittee Name Town of Beloit WWTP		Permit Number WI- 0026930-08-0		Facility Site Number
Facility Address 271 South Afton Road			City Beloit	State WI
			ZIP Code 53511	
Project Contact Name (if applicable) Joe Rose		Address 3629 S. Walters Road		
		City Beloit		State WI
				ZIP Code 53511
Project Name Water Quality Trading Plan				
Receiving Water Name Rock River		Parameter(s) being traded Phosphorus		HUC 12(s) 070900021502

Is the permittee in a point or nonpoint source dominated watershed? Point source dominated
 (See PRESTO results - <http://dnr.wi.gov/topic/surfacewater/presto.html>) Nonpoint source dominated

Credit Generator Information

Credit generator type (select all that apply):

<input checked="" type="checkbox"/> Permitted Discharge (non-MS4/CAFO)	<input type="checkbox"/> Urban nonpoint source discharge
<input type="checkbox"/> Permitted MS4	<input type="checkbox"/> Agricultural nonpoint source discharge
<input type="checkbox"/> Permitted CAFO	<input type="checkbox"/> Other - Specify: _____

Are any of the credit generators in a different HUC 12 than the applicant? Yes; HUC 12: 070900011001
 No
 Unsure

Are any of the credit generators downstream of the applicant? Yes
 No
 Unsure

Will a broker/exchange be used to facilitate trade? Yes; Name: _____
 No
 Unsure

Point to Point Trades (Traditional Municipal / Industrial Discharge, MS4, CAFO)

Discharge Type	Permit Number	Name	Contact Address	Is the point source credit generator currently in compliance with their permit requirements?
<input checked="" type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO	WI-0021008-08-0	City of Columbus Wastewater Treatment Facility	PO Box 192, 105 North Dickason Boulevard	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unsure
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unsure
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unsure
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unsure
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unsure

Notice of Intent to Conduct Water Quality Trading

Form 3400-206 (1/14)

Page 2 of 2

Point to Nonpoint Trades (Non-permitted Agricultural, Non-Permitted Urban, etc.)

List the practices that will be used to generate credits:

Method for quantifying credits generated: Monitoring
 Modeling, Names: _____
 Other: _____

Projected date credits will be available:

The preparer certifies all of the following:

- I am familiar with the specifications submitted for this application, and I believe all applicable items in this checklist have been addressed.
- I have completed this document to the best of my knowledge and have not excluded pertinent information.

Signature of Preparer

Ryan M. Allen

Date Signed

4/17/19

Authorized Representative Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative

Joe Rose

Date Signed

6-24-19

APPENDIX B

WATER QUALITY TRADING CHECKLIST

Notice: Pursuant to s. 283.84, Wis. Stats., this form must be completed by any WPDES permittee that intends to pursue pollutant trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information				
Permittee Name Town of Beloit WWTP		Permit Number WI- 0026930-08-0		Facility Site Number
Facility Address 271 South Afton Road			City Beloit	State WI
Project Contact Name (if applicable) Joe Rose			Address 3629 S. Walters Road	City Beloit
			State WI	ZIP Code 53511
Project Name Water Quality Trading Plan				
Receiving Water Name Rock River		Parameter(s) being traded Phosphorus		HUC 12(s) 070900021502

Credit Generator Information	
Credit generator type (select all that apply):	<input checked="" type="checkbox"/> Permitted Discharge (non-MS4CAFO) <input type="checkbox"/> Urban nonpoint source discharge <input type="checkbox"/> Permitted MS4 <input type="checkbox"/> Agricultural nonpoint source discharge <input type="checkbox"/> Permitted CAFO <input type="checkbox"/> Other - Specify: _____
Are any of the credit generators in a different HUC 12 than the applicant?	<input checked="" type="radio"/> Yes; HUC 12: 070900011001 <input type="radio"/> No
Are any of the credit generators downstream of the applicant?	<input type="radio"/> Yes <input checked="" type="radio"/> No
Will a broker/exchange be used to facilitate trade?	<input type="radio"/> Yes (include description and contact information in WQT plan) <input checked="" type="radio"/> No

Point to Point Trades (Traditional Municipal / Industrial, MS4, CAFO)	
Are each of the point source credit generators identified in this section in compliance with their WPDES permit requirements?	<input checked="" type="radio"/> Yes <input type="radio"/> No

Discharge Type	Permit Number	Name	Contact Information	Trade Agreement Number
<input checked="" type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO	WI-0021008-08-0	City of Columbus WWTF	537 River Road, Columbus, WI 53925	
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				
<input type="radio"/> Traditional <input type="radio"/> MS4 <input type="radio"/> CAFO				

Water Quality Trading Checklist

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Point to Point Trades (Traditional Municipal / Industrial, MS4, CAFO) cont.

Does plan have a narrative that describes:		Plan Section
a. Summary of discharge and existing treatment including optimization	<input checked="" type="radio"/> Yes <input type="radio"/> No	Section 1.3
b. Amount of credit being generated	<input checked="" type="radio"/> Yes <input type="radio"/> No	Section 2.2
c. Timeline for credits and agreements	<input checked="" type="radio"/> Yes <input type="radio"/> No	Section 2.3
d. Method for quantifying credits	<input checked="" type="radio"/> Yes <input type="radio"/> No	Section 2.5
e. Tracking and verification procedures	<input checked="" type="radio"/> Yes <input type="radio"/> No	Section 2.6
f. Location of credit generator in proximity to receiving water and credit user	<input checked="" type="radio"/> Yes <input type="radio"/> No	Figure 6
g. Other: _____	<input type="radio"/> Yes <input type="radio"/> No	

Point to Nonpoint Trades (Non-Permitted Urban, Agricultural, Other)

Discharge Type	Practices Used to Generate Credits	Method of Quantification	Trade Agreement Number	Have the practice(s) been formally registered?
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part
<input type="radio"/> Urban NPS <input type="radio"/> Agricultural NPS <input type="radio"/> Other				<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Only in part

Does plan have a narrative that describes:		Plan Section
a. Description of existing land uses	<input type="radio"/> Yes <input type="radio"/> No	
b. Management practices used to generate credits	<input type="radio"/> Yes <input type="radio"/> No	
c. Amount of credit being generated	<input type="radio"/> Yes <input type="radio"/> No	
d. Description of applicable trade ratio per agreement/management practice	<input type="radio"/> Yes <input type="radio"/> No	
e. Location where credits will be generated	<input type="radio"/> Yes <input type="radio"/> No	
f. Timeline for credits and agreements	<input type="radio"/> Yes <input type="radio"/> No	
g. Method for quantifying credits	<input type="radio"/> Yes <input type="radio"/> No	

Water Quality Trading Checklist

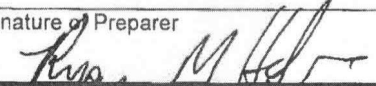
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Does plan have a narrative that describes:		Plan Section
h. Tracking procedures	<input type="radio"/> Yes <input type="radio"/> No	
i. Conditions under which the management practices may be inspected	<input type="radio"/> Yes <input type="radio"/> No	
j. Reporting requirements should the management practice fail	<input type="radio"/> Yes <input type="radio"/> No	
k. Operation and maintenance plan for each management practice	<input type="radio"/> Yes <input type="radio"/> No	
l. Location of credit generator in proximity to receiving water and credit user	<input type="radio"/> Yes <input type="radio"/> No	
m. Practice registration documents, if available	<input type="radio"/> Yes <input type="radio"/> No	
n. History of project site(s)	<input type="radio"/> Yes <input type="radio"/> No	
o. Other: _____	<input type="radio"/> Yes <input type="radio"/> No	

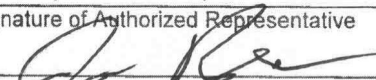
The preparer certifies all of the following:

- I am familiar with the specifications submitted for this application, and I believe all applicable items in this checklist have been addressed.
- I have completed this document to the best of my knowledge and have not excluded pertinent information.
- I certify that the information in this document is true to the best of my knowledge.

Signature of Preparer 	Date Signed 6/21/19
--	------------------------

Authorized Representative Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative 	Date Signed 6-24-19
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APPENDIX C

WATER QUALITY TRADING AGREEMENT

WATER QUALITY TRADING AGREEMENT

This Water Quality Trading Agreement ("Agreement") is made by and between the Town of Beloit, Wisconsin ("Town") and the City of Columbus, Wisconsin ("City"), also referred to as the "parties." In consideration for the obligations and covenants set forth below, the parties agree as follows:

A. Water quality trading ("WQT") is an alternative compliance option for Wisconsin Pollutant Discharge Elimination System ("WPDES") permit holders and it is authorized by Section 283.84 of the Wisconsin Statutes.

B. The Wisconsin Department of Natural Resources ("WDNR") has issued Water Quality Trading Guidance ("Guidance"). The most recent version was published in August, 2013 and the United States EPA accepted it.

C. This Agreement sets forth an arrangement to meet the terms and requirements of WQT as set forth in Section 283.841 of the Wisconsin Statutes, so that the Town shall achieve compliance with its WPDES permit.

D. Funds exchanged as part of this Agreement shall be used to purchase credits that will reduce pollutant loads identified in the Rock River Total Maximum Daily Load ("TMDL").

E. Before WDNR can modify or reissue WPDES permits that allow trading, the Town must submit a trading plan ("WQT Plan") and checklist ("WQT Checklist"). The Town submitted its WQT Plan and WQT Checklist to WDNR by July 1, 2019.

F. The Town is a WPDES permit holder (Permit No. WI-0026930-08-0) that discharges to the Rock River. The Town will purchase total phosphorus ("TP") credits pursuant to this Agreement to fulfill its permit requirements.

G. The City is a WPDES permit holder (Permit No. WI-0021-008-09-0) in the Nolan Creek-Crawfish River Watershed and the City shall generate and sell TP credits pursuant to this Agreement to the Town.

H. All water quality credits generated and purchased pursuant to this Agreement shall be used for compliance within the month and year that the credits are generated and are not available for use before they are actually generated.

1. Purchase and Sale of TP Credits.

Subject to the conditions set forth in this Agreement, the City agrees to sell to the Town and the Town agrees to purchase from Seller 1,100 TP credits annually. The initial price per credit shall be \$55. The price per credit shall increase on January 1, 2021 and on January 1 every year thereafter during the term of this Agreement by the percent increase in the unit price used in the Multi-Discharger Variance (MDV) as calculated by the Wisconsin Department of Natural Resources (WDNR), or 2%, whichever is less. In the event that the MDV is no longer used by the WDNR, the increase shall be 2%. The City shall generate and otherwise make TP credits available for purchase pursuant to the Agreement no later than January, 2020.

2. Payment Terms.

The Town shall make two installments every year to the City for its TP credits. The first installment shall be made no later than January 31 of each year. The second installment shall be made no later than June 30 of each year.

The Town shall be prepaying for its annual TP credits.

If this Agreement fails to become effective within sixty (60) days of the Town making its initial payment to the City, the City shall reimburse the Town for the entire amount of its initial payment within ninety (90) days. If this Agreement terminates, regardless of the reason, and funds remain on account with the City for which TP credits have not yet been generated, the City shall refund to the Town the balance of the funds, prorated based on a monthly basis of pounds used, within thirty (30) days. The City shall notify The Town within ten (10) days of the City becoming aware that pollutant reduction credits provided by the City are unavailable for whatever reason.

3. Verification of Credit.

The City shall verify credit generation through effluent monitoring reported to the WDNR on monthly discharge monitoring reports ("DMRs"), with concentrations converted to a monthly mass, said mass to be compared to the monthly mass limit provided by the City's WPDES permit. The City shall comply with the WQT Plan submitted by the Town by July 1, 2019, subject to any conditions of approval by WDNR.

4. Agreement Timing, Termination and Renewal.

This Agreement shall be effective upon execution by the parties.

This Agreement shall expire on December 31, 2040, which is twenty (20) years from its start date of January 1, 2020, the date on which the Town begins to apply TP credits to meet its daily TMDL TP allocation. This Agreement may be mutually extended by both parties if done so in writing.

This Agreement may be modified only by a written amendment signed by both parties, or their agents.

The City may not opt out of the Agreement unless it provides the Town with three (3) years written notice of termination to the Town.

Every five (5) years during the term of this Agreement, the parties shall address any issues with this Agreement and amend, modify or mutually terminate as needed.

This Agreement and the terms contained herein shall be binding on and enforceable against the parties, their successors, and assigns for as long as this Agreement remains in effect.

5. City's Warranties.

The City hereby represents and warrants to the Town and such warranties shall be applicable and in full force and effect throughout the entire term of this Agreement:

a. The City has the authority to enter into this Agreement and to fulfill its obligations contemplated herein.

b. The City has not entered into any other Agreement that would impede the TP credit generation required by this Agreement. Should, for whatever reason, the City fail to generate the TP credits required in this Agreement, the Town shall be held harmless and not responsible for any detrimental results for the City's failure.

c. The City agrees to generate the TP credits in exchange for payment as outlined in this Agreement.

6. Default, Remedies and Dispute Resolution.

In the event that the parties are unable to reconcile a dispute arising out of or related to this Agreement, the parties agree to first submit the claim to mediation. The parties shall mutually agree on a mediator. The mediation process shall be held in the State of Wisconsin.

All disputes arising out of or relating to this Agreement not otherwise settled in mediation shall then move to arbitration.

The parties shall be responsible for their own attorney's fees related to mediation and/or arbitration, unless the mediator or arbitrator determine otherwise. The parties shall share equally the common costs associated with mediation and/or arbitration.

For any litigation arising out of or relating to this Agreement, including but not limited to enforcement of any term or condition of this Agreement, the prevailing party in any action brought for the purpose of enforcing this Agreement shall be entitled to recover attorney's fees, reasonable expenses and other costs associated with enforcement from the non-prevailing party.

Failure by either party to enforce any term or condition of this Agreement shall not constitute a waiver of that term or condition or of any other term or condition of this Agreement.

The parties agree that a cause of action for breach of any provision of this Agreement shall not accrue until the non-breaching party actually discovers the breach.

The breaching party agrees to indemnify, defend and hold the non-breaching party harmless from and for any and all losses, damages, penalties or fines incurred as a result of the breaching party's breach of this Agreement.

7. Representations.

The parties each make the following representations, as applicable:

a. Each party may authorize an agent to represent it on its behalf. Such agents must have notarized authorization to act on behalf of the City or the Town.

b. The parties (or their agents) warrant that the person signing this Agreement is individually authorized and competent to enter into this Agreement and bind his/her party to the terms herein.

c. The parties have read this Agreement and agree to be bound by its terms.

d. If either party knowingly makes a false or incorrect representation, upon which the other party materially relies, then such a false or incorrect representation shall constitute a material breach of this Agreement and the non-breaching party may terminate this Agreement or seek equitable relief, along with any other appropriate relief.

8. Miscellaneous.

This Agreement shall be governed under and construed pursuant to the laws of the State of Wisconsin and, as applicable, the laws of the United States. Each party acknowledges that it has been given the opportunity to obtain counsel, or that it is represented by counsel, and it has reviewed the entire Agreement and are fully informed of the contents and legal effects thereof.

This Agreement shall be terminated if the WDNR issues a letter disapproving the WQT Plan associated with this Agreement.

If any provisions of this Agreement are held illegal, invalid or unenforceable by a court of competent jurisdiction, such provision(s) shall be deemed severable and the remaining provisions of this Agreement shall remain in full force and effect.

This Agreement constitutes the entire agreement by the parties and supersedes all prior written or oral communications.

Except where specifically provided otherwise in this Agreement, whenever any notice, demand or request is required or provided for under this Agreement, such notice, demand or request shall be made in writing by either email, postage prepaid, certified or registered mail.

Town of Beloit
Town Administrator
2871 South Afton Road
Beloit, Wisconsin 53511
608-364-2980

City of Columbus
City Administrator
105 North Dickason Boulevard
Columbus, Wisconsin 53925
920-623-5900

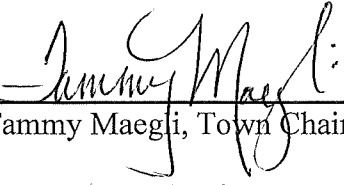
This Agreement may be executed in two or more counterparts, each of which is deemed original, but all constitute one and the same instrument. The parties agree that a facsimile copy of a signature, including a PDF of such signature, shall be deemed an original and binding.

By executing this Agreement, each party grants the other permission to share the price of pollution credits sold and purchased pursuant to the Agreement.

SIGNATURES

Town of Beloit:

City of Columbus

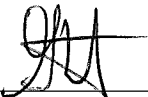


Tammy Maegli, Town Chair

Michael Thom, City Mayor

Date: 6-17-19

Date: _____



Gene Wright, Town Administrator

Patrick Vander Sanden, City Administrator

Date: 6-17-19

Date: _____

Attest:

Attest:



Karry DeVault, Town Clerk

Patricia Goebel, City Clerk