PHOSPHORUS OPTIMIZATION REPORT WORKSHEET

Facility Name: Whitewater Wastewater Treatment Facility

WPDES Permit #: WI-0020001-09-0

PART 1—BACKGROUND INFORMATION

(A) Briefly describe wastewater treatment facility processes and operations and the means of treating phosphorus, including any chemicals used. Attach a flow schematic which shows the point(s) of chemical addition for TP control. Include both liquid and solids treatment trains.

The City of Whitewater received a reissued Wisconsin Pollutant Discharge Elimination System (WPDES) permit effective April 1, 2017 from the Wisconsin DNR for its wastewater treatment facility (WWTF). Water quality based effluent limits for phosphorus were included in the permit, which are stated to become effective on April 1, 2026. The WWTF is required to meet a six-month average total phosphorus (TP) limit of 0.075 mg/L and a monthly average TP of 0.225 mg/L for the water quality based effluent limit (WQBEL) for Whitewater Creek. The permit also includes mass-based TP effluent limits based on Total Maximum Daily Load (TMDL) allocations for the Rock River (Table 1). Table 1 shows the calculated monthly effluent TP discharged from the WWTF for the baseline year of 2017 and compares the values to the future TMDL allocations from the permit. As shown in Table 1, the current WWTF exceeds the mass limits eight out of the twelve months of the year. Table 1 also shows the estimated effluent maximum TP concentration that would be required to meet the TMDL with the average monthly flow. As expected, these concentrations are greater than the 0.075 mg/L six-month average WQBEL. Thus, the 0.075 mg/L six-month average limit is more restrictive than the Rock River TMDL and will govern compliance. Table 2 shows the 2017 six-month average effluent flow and TP concentrations and loadings. The plant exceeded the 0.075 mg/L six-month average limit for both six month periods. A compliance schedule and required actions for meeting the limits were also in the permit. The first compliance action required in the permit is preparation of an Operational Evaluation Report (OER), which is provided herein. The OER includes a summary of current TP removal performance and a detailed description of optimization action items that the City of Whitewater WWTF can pursue over the next two years to optimize and reduce effluent TP. This report must be submitted to the Wisconsin DNR by March 31, 2018.

Plant Description

The City of Whitewater operates an advanced tertiary WWTF that discharges to Whitewater Creek. The majority of the WWTF facilities were constructed in 1982, with supplemental air blowers for the rotating biological contactors (RBCs) installed in 1989. In 1996, screening, grit removal, chemical phosphorus removal, and septage receiving facilities were constructed. A 2010 project replaced specific aging equipment at the WWTF and added UV disinfection. A digester gas fueled boiler was installed during a 2012 project. In 2014, a Facility Plan was completed to address aging equipment and infrastructure and maintain or enhance wastewater treatment performance, as well as, take an initial look at the impending low-level effluent TP limit. Based on the recommended improvement alternatives identified in the Facility Plan, the WWTF decided to move forward with a replacement of the existing rotating biological contactors (RBCs) with a biological phosphorus (bio-P) removal activated sludge system, as well as, several other significant improvements to the liquid train, including a new bar screen, new screenings conveyor, various

heating, ventilation, and air conditioning (HVAC) improvements, new grit washer, and new electrical switchgear, among other improvements. Construction for these improvements began in 2016 and are expected to be complete in 2018. The Facility Plan also evaluated and recommended a future project to add a new tertiary treatment process to meet low-level phosphorus effluent limits. The Facility Plan specifically evaluated disc filter and continuous backwash filters as alternatives. This future project would be timed to be implemented by 2026 to comply with the new permit requirements.

Table 1. 2017 average monthly effluent TP loadings compared to TMDL allocations.

Month	Effluent Flowrate (mgd)	Effluent TP (mg/L)	Effluent TP (lb/day)	TMDL TP Allocation (lb/day)	Comparison to Pending TMDL	Estimated Effluent Maximum TP Concentration Required to Meet TMDL (mg/L)
Jan	1.60	0.743	10.1	8.84	EXCEEDS	0.66
Feb	1.69	0.661	9.51	11.70	MEETS	0.83
Mar	1.80	0.715	10.6	11.70	MEETS	0.78
Apr	2.75	0.698	16.5	12.00	EXCEEDS	0.52
May	2.36	0.603	12.6	11.70	EXCEEDS	0.59
Jun	1.90	0.728	10.6	11.60	MEETS	0.73
Jul	2.33	0.573	11.5	9.20	EXCEEDS	0.47
Aug	1.56	0.595	7.96	7.80	EXCEEDS	0.60
Sep	1.58	0.704	9.50	6.60	EXCEEDS	0.50
Oct	1.55	0.674	9.00	7.24	EXCEEDS	0.56
Nov	1.38	0.726	8.67	7.33	EXCEEDS	0.64
Dec	1.21	0.559	5.86	8.38	MEETS	0.83
Annual Average	**1.81**	**0.66**	**10.20**	-	-	-

Table 2. 2017 six-month average effluent TP concentration compared to WQBEL.

6 Month Period	Effluent Flow Rate (mgd)	Effluent TP (mg/L)	Whitewater Creek TP WQBEL (mg/L)	Comparison to Pending WQBEL
Average (first 6 months)	2.02	0.69	0.075	EXCEEDS
Average (second 6 months)	1.60	0.64	0.075	EXCEEDS

The major unit processes prior to the Facility Plan improvements are listed below.

Liquid Train

- Raw wastewater pumping
- Screening
- Grit removal
- Chemical phosphorous removal
- Primary settling
- Rotating Biological Contactors (RBCs)

- Secondary settling
- Sand/Anthracite filtration
- Disinfection

Solids Train
- Co-settling of primary and waste activated sludge in the primary clarifiers
- Anaerobic digestion
- Liquid biosolids storage

The major unit processes that will be in place following the improvements outlined in the Facilities Plan, which is expected to be completed by the end of May of 2018, are listed below. A process flow diagram for the City of Whitewater WWTF solid and liquid trains with the Facility Plan improvements is provided in Figure 1.

Liquid Train (new unit processes are presented in **bold**)
- Raw wastewater pumping
- Screening
- Grit removal
- Primary settling
- **Bio-P activated sludge**
- Secondary settling
- Sand filtration
- UV Disinfection

Solids Train (new unit processes are presented in **bold**)
- **Thickening of waste activated sludge (WAS) with centrifuge**
- Anaerobic digestion
- **Digested sludge thickening with centrifuge**
- Liquid biosolids storage

Phosphorus Removal

Once completed, phosphorus will be primarily removed biologically. However, it is expected that some chemical phosphorus removal will be needed to supplement the biological process performance. The City of Whitewater WWTF will use alum for chemical precipitation of phosphorus. Alum can be added at several locations at the WWTF and are listed and described below:
- Primary influent – this is an existing alum dosage location and will be used for phosphorus trimming prior to entering the new active sludge system.
- Mixed liquor drop box – this is a new location with the most recent upgrades and serves as a backup for bio-P.
- Filter bypass box – this is new location with the most recent upgrades and may be used as part of a future tertiary treatment upgrade.
- Digester influent – this is a new location with the most recent upgrades and can be used for struvite control and centrate sidestream phosphorus control.
- Centrate from centrifuge – this is also a new location with the most recent upgrades and can be used for phosphorus control in the sidestream being recycled to the front of the WWTF.

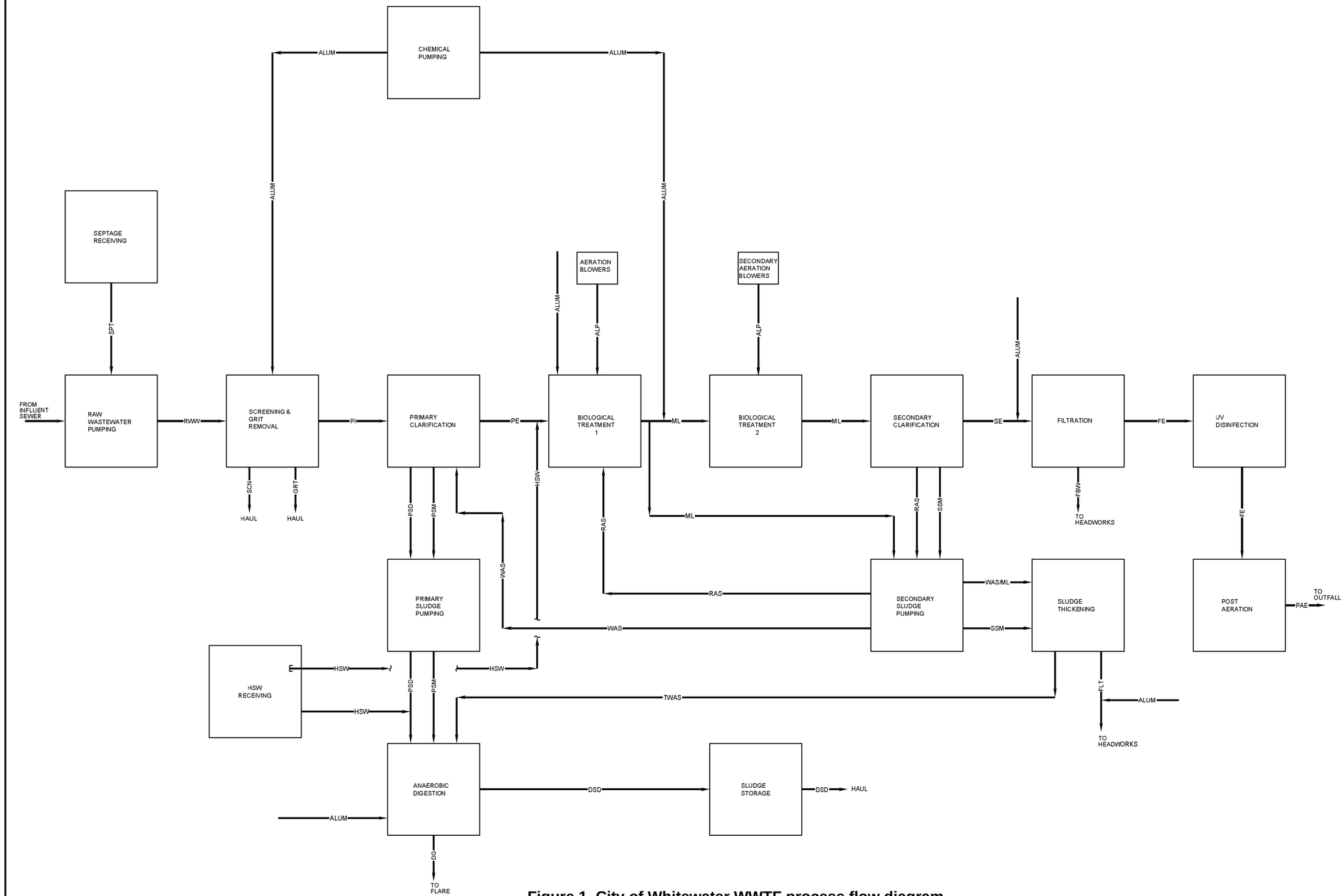

Figure 1. City of Whitewater WWTF process flow diagram.

(B) Baseline Year: 2017

The baseline year selected for this OER was 2017, as this was the most recent, complete year of data. However, construction of the Facility Plan improvements was not completed at the time this report was written, so the data provided in Table 3 do not include the Facility Plan improvements, including the switch to Bio-P activated sludge. Influent TP was not measured in 2017. Influent TP was measured approximately weekly from 2010 through May of 2014. The average influent TP measured during this time was 5.5 mg/L. Similarly, special sampling, which was carried out on 1/22/2014, 1/23/2014, and 1/26/2014, measured an average influent TP of 6.3 mg/L.

Table 3. 2017 average monthly influent and effluent flows and TP loadings and concentrations.

Month	Influent Flowrate (mgd)	Effluent Flowrate (mgd)	Effluent TP (mg/L)	Effluent TP (lb/day)
Jan	1.42	1.60	0.743	10.1
Feb	1.52	1.69	0.661	9.51
Mar	1.56	1.80	0.715	10.6
Apr	2.36	2.75	0.698	16.5
May	1.99	2.36	0.603	12.6
Jun	1.55	1.90	0.728	10.6
Jul	1.90	2.33	0.573	11.5
Aug	1.28	1.56	0.595	7.96
Sep	1.25	1.58	0.704	9.50
Oct	1.36	1.55	0.674	9.00
Nov	1.31	1.38	0.726	8.67
Dec	1.17	1.21	0.559	5.86
Average (first 6 months)	**1.73**	**2.02**	**0.69**	**11.66**
Average (second 6 months)	**1.38**	**1.60**	**0.64**	**8.75**
Annual Average	**1.56**	**1.81**	**0.66**	**10.20**

(C) Possible Contributors: For municipalities, list all possible industries, other commercial buildings and hauled in wastes that could be introducing phosphorus into the collection system.

Little information is currently available regarding industry and commercial sectors regarding phosphorus introduction. Two industries that previously ran phosphate paint lines have switched over to a zirconium type process in the last three years. A list of the top 11 sewer users was compiled for a User Rate Study completed by Donohue and Associates for the City of Whitewater in 2016 and is presented in Table 4. Note that the only entity identified in Table 4 as potentially contributing a significant level of phosphorus to the WWTF is the University of Wisconsin – Whitewater.

Table 4. 2013 Largest sewer users.

Customer	Customer Type	Volume (gal)	Potential Source of Phosphorus?
University of Wisconsin – Whitewater	School	47,789,948	Likely
Twin Oaks Mobile Home Park	Dwellings	11,246,440	Minimal due to domestic strength
Fairhaven Retirement Home	Retirement Home	6,682,308	Minimal due to domestic strength
Generac	Power generation products company	5,502,069	No
Whitewater Unified Schools	School	4,806,312	Minimal due to domestic strength
Harmony Apartments	Dwellings	4,200,839	Minimal due to domestic strength
Indian Village Apartments (DLK)	Dwellings	2,406,067	Minimal due to domestic strength
Husco International	Hydraulic and Electro-hydraulic component manufacturer	2,061,319	No
Regent Apartments (DLK)	Dwellings	1,847,090	Minimal due to domestic strength
Bieck Management Apartment Building	Dwellings	1,372,670	Minimal due to domestic strength
Springbrook Apartments	Dwellings	1,227,315	Minimal due to domestic strength

However, the City of Whitewater WWTF receives hauled septage, holding tank, pit water, leachate, and grease trap waste (Table 5). The hauled waste is periodically measured for biochemical oxygen demand (BOD), total suspended solids (TSS), ammonia (NH_3), and TP. Table 5 shows that septage makes up on average approximately 11.4% of the monthly WWTF TP effluent loading.

Table 5. Estimated hauler TP loading (2015 – 2017).

Month	Estimated Monthly TP Loading (lb/mo)					% of WWTF TP Effluent Loading				
	Sept	Holding	Pit	Leach	Grease	Sept	Holding	Pit	Leach	Grease
Jan	22.7	12.8	0.30	0.21	1.79	7.3%	4.1%	0.1%	0.1%	0.6%
Feb	32.5	12.0	0.59	0.11	1.32	12.2%	4.5%	0.2%	0.0%	0.5%
Mar	39.0	13.2	1.19	0.27	1.60	11.8%	4.0%	0.4%	0.1%	0.5%
Apr	24.0	13.0	0.77	0.57	1.92	4.9%	2.6%	0.2%	0.1%	0.4%
May	45.3	18.4	0.36	0.47	1.64	11.6%	4.7%	0.1%	0.1%	0.4%
Jun	42.0	21.4	0.64	0.37	2.39	13.2%	6.7%	0.2%	0.1%	0.8%
Jul	41.9	20.4	0.40	0.15	5.74	11.7%	5.7%	0.1%	0.0%	1.6%
Aug	41.7	22.8	0.54	0.11	9.44	16.9%	9.3%	0.2%	0.0%	3.8%
Sep	16.9	17.8	1.34	0.04	2.77	5.9%	6.3%	0.5%	0.0%	1.0%
Oct	23.6	15.1	0.42	0.04	3.21	8.5%	5.4%	0.2%	0.0%	1.1%
Nov	27.2	14.1	0.32	0.00	0.56	10.5%	5.4%	0.1%	0.0%	0.2%
Dec	40.3	15.9	0.82	0.06	3.85	22.2%	8.8%	0.4%	0.0%	2.1%
Average =						**11.4%**	**5.6%**	**0.2%**	**0.1%**	**1.1%**

Possible Contributors: For industrial users, list processes that could be introducing phosphorus into the collection system.

No industries, let alone industrial processes, have been identified that could introduce significant levels for phosphorus to the collection system (Table 6).

Table 6. Identified phosphorus contributing industrial processes.

Type of Process	Chemicals used?	Product containing P?
None		

Water supply: What are the phosphorus levels within your water supply? Does the water utility add phosphorus for corrosion control or iron and manganese sequestration?

The City of Whitewater does not add any phosphorus-based chemicals to the water system for corrosion control or iron/manganese sequestration.

PART 2 – OPTIMIZATION ACTION PLANS

List the items that will be addressed to reduce phosphorus in the effluent and provide a schedule for accomplishing each item. Note that all items must be completed no later than 3 years after the date of permit reissuance. For each optimization action fill out a separate plan sheet.

A summary of the optimization action items are provided in Table 7. The Action Items presented in Table 7 are covered in more detail in the following pages (plan sheets on pages 10 through 16). An overall optimization action plan schedule is provided in Figure 2.

Table 7. Optimization action plan summary table.

Action Item #	Action Item	Anticipated Benefits	Timeline
1	Bio-P Process Commissioning	• Provides time for staff to understand and become comfortable and familiar with operating new system. • Provides time for acclimation of the biological process and to reach a state of consistent, mostly predictable treatment performance.	Mar 18 – Nov 18
2	Regular influent TP monitoring	• Provides information regarding influent TP. • Allows for treatment adjustments to counter changes in influent TP.	Jun 18 – Mar 20
3	Phosphorus and nitrogen activated sludge profiling	• Tool for troubleshooting biological phosphorus removal. • Foundation for measuring effects of aeration basin configuration.	Apr 19 – Aug 19
4	Phosphorus mass balance	• Used to track phosphorus at all unit processes in WWTF • Used to measure effectiveness of phosphorus removal and identify areas with elevated phosphorus requiring further optimization or treatment.	Oct 18 – Mar 19
5	Monitoring of digested sludge thickening	• Determine the recycle loading impacts of digested sludge thickening and what procedures should be in place to minimize impact on phosphorus removal performance. • Development of a sidestream control procedure, including Alum dosage requirements if digested sludge thickening is continued.	Jul 19
6	Hauled waste monitoring	• Provides information to revisit hauling costs. • Provides information for more targeted source reduction.	Jun 18 – Mar 20
7	Commercial and Industrial Discharge Monitoring	• Improved understanding of phosphorus load contribution to WWTF from commercial and industrial entities. • Provides information for more targeted source reduction.	Jun 19 – Mar 20

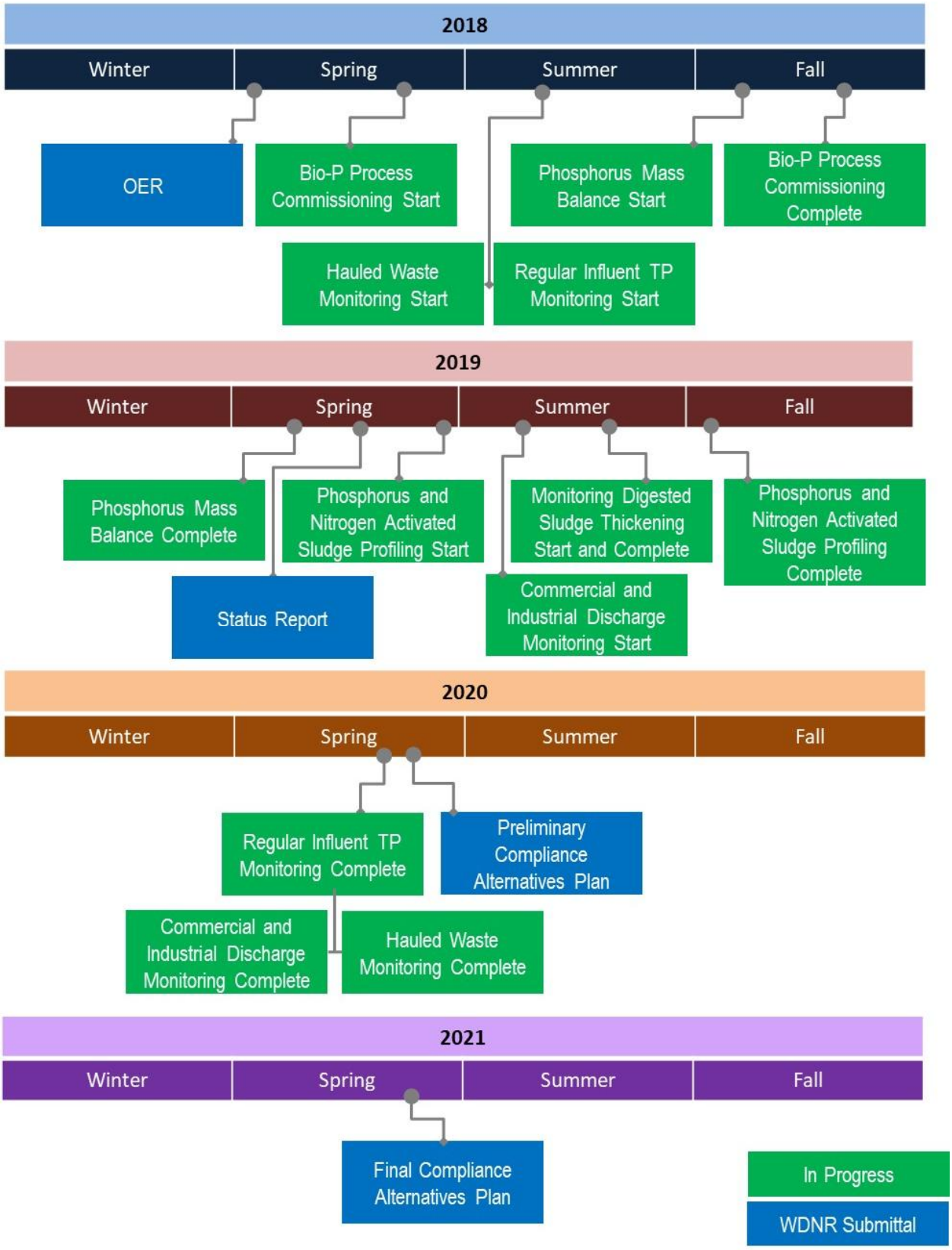

Figure 2. Phosphorus Optimization Plan Timeline.

PART 2 – OPTIMIZATION ACTION PLANS

Phosphorus Action Item 1

Optimization Action:

Bio-P Removal Commissioning

Briefly describe optimization action plan:

This action item consists of bringing the new bio-P activated sludge system fully online and then operating the system for an extended period of time to work out or address issues related to the startup or operation of a new system.

Collect the following data to establish baseline performance during commissioning period: Note that the sampling component of this action item is not anticipated to start until June 1, 2018.

Parameter	Frequency of Data Collection
Flow	Daily
Influent TP	1 week/quarter (Monday-Friday)
Effluent TP	3 days/week
Effluent orthophosphate (ortho-P)	Daily

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Complete construction and bring bio-P activated sludge system fully online	3/1/2016	5/31/2018
Operate the new bio-P system and work out startup issues	5/31/2018	11/30/2018
Establish baseline removal performance based on flow and phosphorus concentration data	6/1//2018	11/30/2018

Overall Optimization Action Plan Time Frame: March 1, 2018 through November 30, 2018.

Overall Completion Date: November 30, 2018.

Outcome hoping for:
This action item is expected to provide the City of Whitewater WWTF staff time to understand and become comfortable and familiar with the new system. This item will also provide time for acclimation of the biological process and to reach a state of consistent, mostly predictable treatment performance from which baseline phosphorus removal performance can be determined.

Anticipated reduction and/or comments:
The bio-P process is anticipated to reduce the effluent TP concentrations from the 2017 baseline presented in this report. The bio-P process was not designed to meet the future low level limitation; however, a new baseline of TP removal performance will be established to understand remaining future removal requirements.

PART 2 – OPTIMIZATION ACTION PLANS

Phosphorus Action Item 2

Optimization Action:

Regular influent TP monitoring

Briefly describe optimization action plan:

Action Item 2 consists of including influent TP monitoring as part of the City of Whitewater WWTF regular water quality monitoring program.

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Measure influent TP concentrations 1 week/quarter (Monday-Friday)	6/1/18	3/31/20
Summarize and interpret results	6/1/18	3/31/20

Overall Optimization Action Plan Time Frame: June 1, 2018 through March 31, 2020

Overall Completion Date: March 31, 2020

Outcome hoping for:
This action item is expected to provide the City of Whitewater WWTF with key operational information, particularly to determine overall TP removal performance. The data collected will also allow the WWTF make treatment adjustments to counter changes in influent TP, as well as, help determine if further source reduction methods are possible or needed.

Anticipated reduction and/or comments:
The anticipated reduction is undetermined. The outputs from this action plan can be used to identify, implement, and measure the effectiveness of other action items.

PART 2 – OPTIMIZATION ACTION PLANS

Phosphorus Action Item 3

Optimization Action:

Phosphorus and nitrogen activated sludge profiling

Briefly describe optimization action plan:

This Action Item consists of sampling the mixed liquor at various points along the length of the aeration basins and measure soluble phosphorous concentration, ammonia, and nitrate-nitrite (NO_X) at each location.

Perform sampling and analysis during average performance period in the spring or summer of 2019 and periodically thereafter during process upsets.

Proposed sampling locations.

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Establish baseline phosphorous and nitrogen profiles.	4/1/19	8/30/19
Conduct profile sampling during periods of higher than average phosphorous discharge	6/1/19	8/30/19

Overall Optimization Action Plan Time Frame: April 1, 2019 through August 30, 2019

Overall Completion Date: August 30, 2019

Outcome hoping for:
Action Item 3 is expected to provide insight to assist the City of Whitewater WWTF staff in troubleshooting bio-P performance. This Action Item will also establish a baseline for measuring effects of future operational modifications.

Anticipated reduction and/or comments:
The anticipated reduction is undetermined. The outputs from this action plan can be used to identify, implement, and measure the effectiveness of other action items.

PART 2 – OPTIMIZATION ACTION PLANS

Phosphorus Action Item 4

Optimization Action:

Phosphorus mass balance

Briefly describe optimization action plan:

This action item consists of developing a mass balance on phosphorus throughout the entire City of Whitewater WWTF. Samples from the influent, at each Alum dosage location, and the effluent will be collected and analyzed for quantities of:

- Soluble, reactive phosphorus
- Soluble, non-reactive phosphorus
- Particulate phosphorus

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Perform periodic sampling and analysis (once each month)	10/1/18	3/31/19

Overall Optimization Action Plan Time Frame: October 1, 2018 through March 31, 2019

Overall Completion Date: March 31, 2019

Outcome hoping for:
Action Item 4 will provide insight into the distribution of phosphorus among the fractions listed above for purposes of: (1) establishing current average speciation (2) understanding current trends in performance relative to speciation (3) understanding how operational changes affect phosphorus loading and discharge with respect to specific phosphorus fractions and (4) identify the best strategies for continued phosphorus removal improvement based on the nature of the phosphorus present. Sampling and speciation will be used to assemble a phosphorus mass balance for each unit process at the WWTF. The mass balance can be used as a tool for optimization and source minimization strategies. Non-reactive phosphorus contributions (the most difficult to remove through treatment) will also be assessed to identify any concerns with meeting a 0.075 mg/L limit.

Anticipated reduction and/or comments:
The anticipated reduction is undetermined. The outputs from this action plan can be used to identify, implement, and measure the effectiveness of other action items.

PART 2 – OPTIMIZATION ACTION PLANS

Phosphorus Action Item 5

Optimization Action:

Monitoring of digested sludge thickening

Briefly describe optimization action plan:

Action Item 5 consists of monitoring digested sludge thickening and collecting and analyzing ortho-P and ammonia-nitrogen data from the centrate sidestream recycled to the front of the WWTF.

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Perform sampling and analysis during digested sludge thickening	7/1/19	7/31/19

Overall Optimization Action Plan Time Frame: July 1, 2019 through July 31, 2019

Overall Completion Date: July 31, 2019

Outcome hoping for:
Action Item 4 will determine the impacts of digested sludge thickening on overall phosphorus removal performance. This action item will also establish a sidestream control procedure, including determining Alum dosage requirements, if required to control phosphorus loading.

Anticipated reduction and/or comments:
The anticipated reduction is undetermined. The outputs from this action plan can be used to identify, implement, and measure the effectiveness of other action items.

PART 2 – OPTIMIZATION ACTION PLANS

Phosphorus Action Item 6

Optimization Action:

Hauled waste monitoring

Briefly describe optimization action plan:

Action Item 7 consists of continued monitoring of flow and TP of hauled septage, holding tank, pit water, leachate, and grease trap waste.

Continue measuring flow and collecting and analyzing samples for TP, BOD, TSS, and NH_3.

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Measure flow and collect and analyze hauled waste samples.	6/1/18	3/31/20

Overall Optimization Action Plan Time Frame: June 1, 2018 through March 31, 2020

Overall Completion Date: March 31, 2020

Outcome hoping for:
Action Item 7 will further determine the impact of hauler waste on source phosphorus entering the WWTF. This information can then be used to revisit and reevaluate hauling costs, specifically based on phosphorus contribution.

Anticipated reduction and/or comments:
The anticipated reduction is undetermined. The outputs from this action plan can be used to identify, implement, and measure the effectiveness of other action items.

PART 2 – OPTIMIZATION ACTION PLANS

Phosphorus Action Item 7

Optimization Action:

Commercial and industrial discharge monitoring

Briefly describe optimization action plan:

Action Item 8 consists of starting a regular monitoring program of the top commercial and industrial dischargers to the WWTF. Because sampling manholes are not available, approximately 10 strategic locations within the collection system will be sampled once per year to determine individual or blended flows and phosphorus concentrations coming from top commercial and industrial dischargers.

Anticipated Time Frame for Optimization Action Plan:

Main Item to Complete	Date Start	Date Complete
Measure flows and collect and analyze samples for TP from 10 strategic locations within the collection system.	6/1/19	3/31/20

Overall Optimization Action Plan Time Frame: June 1, 2019 through March 31, 2020

Overall Completion Date: March 31, 2020

Outcome hoping for:
Action Item 8 is expected to improve the understating of TP load contribution to the WWF from large commercial and industrial entities and allow for more targeted source reduction.

Anticipated reduction and/or comments:
The anticipated reduction is undetermined. The outputs from this action plan can be used to identify, implement, and measure the effectiveness of other action items.

PART 3—OPTIMIZATION APPROVAL

Facility Name: Whitewater Wastewater Treatment Facility

WPDES Permit #: WI-0020001-09-0

Name and Contact Information of Person Preparing Report:

Name: Nathan Cassity, P.E.

E-mail Address: ncassity@donohue-associates.com

Telephone #: (920) 803-7370

OPTIMIZATION ACTION PLANS

Action Item #	Action Item	Timeline
1	Bio-P Removal Commissioning	Mar 18 – Nov 18
2	Regular influent TP monitoring	Jun 18 – Mar 20
3	Phosphorus and nitrogen activated sludge profiling	Apr 19 – Aug 19
4	Phosphorus mass balance	Oct 18 – Mar 19
5	Monitoring of digested sludge thickening	Jul 19
6	Hauled waste monitoring	Jun 18 – Mar 20
7	Commercial and Industrial Discharge Monitoring	Jun 19 – Mar 20

These activities are not expected to bring the WWTF into compliance with the WQBEL limits. Rather, these activities are intended to help the City of Whitewater identify actions, which if permanently implemented through significant capital improvement projects, could result in such compliance by the April 1, 2026 compliance achievement date set by the phosphorus compliance schedule.

For DNR use only
☐ Complete ☐ Not Complete ☐ Requesting more information? Comments:

Submitted for Approval by: Tim Reel (signed) Date of Submittal: 3/20/18

Tim Reel (printed)

Authorized Permit Representative

Approved by: _____ Date of Approval: _____

DNR Wastewater Engineer or Designee