

## Adaptive Management Participation to Achieve TMDL Compliance

This section documents the City’s progress to date towards meeting the water quality goals required by the Rock River TMDL, and the City’s plan to meet those goals through participation in the Yahara WINS Adaptive Management program.

### 4.1 Goals

The City sees two primary benchmarks that must be achieved to satisfy its water quality requirements under the Rock River TMDL as well as the City’s MS4 permit (Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-S058416-19) via the Yahara WINS Adaptive Management program. These targets, and the City’s proposed methods to achieve them, are summarized below.

#### 4.1.1 Reduction of 40% TSS/27% TP from No Controls

As shown in Tables 3-8 and 3-9, the City has met or exceeded 40% TSS and 27% TP removal relative to the No Controls condition in four of the five reachsheds included within the City of Madison municipal boundary. In the fifth, reachshed 64, the City’s TSS and TP reductions are at only 30.3% and 22.9%. As the City’s area within reachshed 64 is significantly larger than its combined area within 47, 62, 65, and 66, it is not surprising that underachievement in that reachshed negatively weights cumulative City-wide reductions. City-wide, the City of Madison has achieved TSS and TP reductions of 35.9% and 26.4%, or deficits of 4.1% and 0.6% relative to the threshold of 40% TSS and 27% TP removal.

The Yahara WINS Adaptive Management agreement states that MS4s in the Rock River TMDL area may only purchase TP credits to meet their TMDL requirements through participation in the Yahara WINS adaptive management program once the MS4’s baseline reduction of 40% TSS and 27% TP removal relative to a no-controls condition has been met. Per the text of the agreement, participating MS4s have until Jan 1, 2036 (the terminus of the current Adaptive Management agreement) to meet these baseline reductions. This position was reiterated by the WDNR during a City of Madison/WDNR meeting on Dec 19, 2019 (meeting minutes included with this report as part of Appendix E). As the City’s reductions of both TSS and TP in reachshed 64 and City-wide do not meet this baseline criteria, the City expects to increase its in-City reduction quantities to achieve the minimum 40% TSS/27% TP reduction standard. Tables 4-1 and 4-2 below show the TSS and TP reductions required to achieve compliance with this standard.

Reachshed	Annual TSS No Controls Load (lbs)	Percent TSS Reduction (%)	Baseline 40% Reduction Threshold Met?	Percent TSS Reduction Deficit (%)	Annual TSS Removal Required to Meet Baseline Threshold (lbs)
47	50,991	76.6%	Yes	-	-
62	675,103	54.2%	Yes	-	-
64	6,930,111	30.3%	No	9.7%	670,225
65	434,983	50.8%	Yes	-	-
66	1,497,920	47.8%	Yes	-	-
<b>City-wide Total</b>	<b>9,589,108</b>	<b>35.9%</b>	<b>No</b>	<b>4.1%</b>	<b>392,318</b>

Table 4-1. TSS Reductions Required to Achieve 40% TSS Reduction from No Controls by Reachshed.

Reachshed	Annual TP No Controls Load (lbs)	Percent TP Reduction (%)	Baseline 27% Reduction Threshold Met?	Percent TP Reduction Deficit (%)	Annual TP Removal Required to Meet Baseline Threshold (lbs)
47	172	67.8%	Yes	-	-
62	2,247	39.3%	Yes	-	-
64	21,706	22.9%	No	4.1%	895
65	1,268	31.0%	Yes	-	-
66	4,446	33.9%	Yes	-	-
<b>City-wide Total</b>	<b>29,839</b>	<b>26.4%</b>	<b>No</b>	<b>0.6%</b>	<b>190</b>

Table 4-2. TP Reductions Required to Achieve 27% TP Reduction from No Controls by Reachshed.

The City has developed an internal plan to achieve a City-wide 40% TSS/27% TP reduction from no controls by Jan 1, 2036 as required by the Adaptive Management agreement. That plan will guide the City's efforts to remove 392,318 lbs of TSS (4.1% City-wide) and 190 lbs of TP (0.6% TP City-wide) in addition to reductions already achieved by the City's current BMP matrix, and is discussed broadly in Section 4.2 of this report.

#### 4.1.2 Removal of TP in Excess of 27% as Required to Meet TMDL Requirements

The City intends to meet the Rock River TMDL load reductions above the 40% TSS/27% TP reduction from No Controls condition through participation in Yahara WINS adaptive management program, per Appendix A.3 of WPDES Permit No. WI-S058416-4. Table 4-3 below shows the quantity of TP (in lbs) that the City of Madison must purchase annually through Yahara WINS to achieve compliance with the Rock River TMDL in all reachsheds within the City of Madison.

Note that the TP reduction for reachshed 64 has been adjusted from existing conditions to reflect an additional 190 lbs of TP removed annually. This reflects the assumption that the City will achieve 27% TP reduction from No Controls conditions on a cumulative, City-wide basis, outside adaptive management, as described in Section 4.1.1.

Reachshed	City of Madison Annual TP No Controls Load (lbs)	Cumulative City of Madison Annual TP Reduction (lbs)	Target TP Reduction from No Controls (%)	City of Madison TP Reduction from No Controls (%)	City of Madison TP Reduction Deficit to Meet TMDL Standard (%)	City of Madison Annual TP Deficit (lb)
47	172	117	27%	67.8%	<b>-40.8%</b>	0
62	2,247	883	78%	39.3%	<b>38.7%</b>	869
64	21,706	5,155 <sup>1</sup>	61%	<b>23.7%<sup>1</sup></b>	<b>37.3%</b>	8,086
65	1,268	394	63%	31.0%	<b>32.0%</b>	405
66	4,446	1,507	54%	33.9%	<b>20.1%</b>	894
<b>Total TP Annual Purchase Through Yahara WINS</b>						<b>10,254</b>

<sup>1</sup>Cumulative and percent reduction includes 190 lbs TP required to achieve 27% City-wide TP reductions, as shown in Table 4-2

Table 4-3. TP Quantities to be Purchased Through Yahara WINS Adaptive Management Program

## 4.2 Future Plans

As described in Section 4.1.2 above, the City of Madison intends to comply with the Rock River TMDL load reduction goals above the 40% TSS/27% TP reduction baseline (relative to No Controls) through the purchase of TP through the Yahara WINS adaptive management program. As shown in Table 4-3, the City's annual TP purchase through Yahara WINS shall be 10,254 lbs.

As described in Section 4.1.1, the Yahara WINS Adaptive Management implementation agreement states that municipalities participating in the program must achieve a baseline of 40% TSS/27% TP reduction from a "no controls" condition within their municipal boundary by the end of the Adaptive Management Program (Jan 1, 2036) to be eligible for participation in the program. The City plans to meet this requirement through a combination of structural BMP additions/improvements and stormwater quality programs, included but not limited to the following:

- Post-construction stormwater standards set by municipal ordinance for both TSS reduction and volume control for redevelopment sites that exceed the WDNR-set uniform state standards for redevelopment post-construction stormwater management.
- Implementation of a City-wide Distributed Green Infrastructure Installation program with public works projects.
- Design and construction of joint flood control/water quality improvement capital projects, including wet pond expansions and dry to wet pond conversion projects, in parallel with the City's Watershed Study program.
- Installation of City-developed Coanda screen structures (see Section 3.3.5) with public works projects to increase in-line stormwater treatment.
- Continued improvement of the City's already-robust leaf management program.
- Continued improvement to the City's weekly sweeping program in the Snow Emergency Area (see Section 3.3.1), including a transition to vacuum-assisted sweeping where practicable.

**Madison Metro Sewerage Dist.**

1610 Moorland Road  
Madison, WI 53713-3398

<b>Number:</b>	RC000003407
<b>Page:</b>	1
<b>Date:</b>	12/10/2020

**Sold To:** CITY OF MADISON  
GREG FRIES  
ROOM 115  
210 MARTIN LUTHER KING BLVD  
MADISON, WI 53703

Reference - P.O. No.	Customer No.	Salesperson	Ship Via	Terms Code
	AMCMADISON			30

Description/Comments	Amount								
Yahara Watershed Adaptive Mgmt	396,290.00								
<table border="1"> <thead> <tr> <th>Due Date</th> <th>Amount Due</th> <th>Disc. Date</th> <th>Disc. Amount</th> </tr> </thead> <tbody> <tr> <td>1/9/2021</td> <td>396,290.00</td> <td></td> <td>0.00</td> </tr> </tbody> </table>	Due Date	Amount Due	Disc. Date	Disc. Amount	1/9/2021	396,290.00		0.00	
Due Date	Amount Due	Disc. Date	Disc. Amount						
1/9/2021	396,290.00		0.00						

**Remit To:**  
Madison Met. Sewerage District  
1610 Moorland Road  
Madison, WI 53713  
USA

<b>Total amount</b>	396,290.00
<b>Payment received</b>	0.00
<b>Amount due</b>	396,290.00

1% Interest per month after 30 days

**Invoice**