Yahara WINs Executive Committee Meeting 03/19/2019

**Agenda item:** City of Middleton Leaf Credit and IGA annual member payment adjustment request.

**Attachment(s):**
- DNR approval of leaf credit calculations
- City of Middleton request with revised calculations

**Background:**

Background: Section 9 of the IGA outlines how IGA member payments are calculated. After the IGA was executed, members are allowed to submit a one-time revision to the calculation during the first 5 year term of the agreement to revise a member payment.

The City of Middleton submitted revised annual payment calculation to the executive team president on January 25th, 2019. The attached document outlines the updated storm water calculations as a result of the City of Middleton utilizing the new guidance from WDNR allowing municipalities to take credit in the stormwater modeling for leaf collection practices. As a result of the adjustment, the City of Middleton is requesting a change from a $62,800 annual payment to an $61,912 annual payment with the $2,664 ($888 overpayment for 3 years) overpayment being credited over a 4 year period per the terms of the IGA as shown in the Table 1.

It should be noted that this is the City of Middleton’s second credit as a result of a calculation revision based on updated stormwater modeling. The first revision occurred in 2017, with the member payment revised cost being $62,800. Per the IGA they overpaid by $2570 in 2017 and the amount overpaid is currently credited back to them in four equal annual installments ($643/yr) beginning in 2018 and going through 2021. With this second revised cost, it will result in an overlap of credit for the first overpayment and the second overpayment.

The City of Middleton is seeking Yahara WINs executive committee approval of the revised payment schedule in the following table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Yahara WINs Buy-In Amount</th>
<th>Overpayment</th>
<th>Overpayment Credit</th>
<th>Payment to Yahara WINs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$62,800</td>
<td>$2,570</td>
<td></td>
<td>$62,800</td>
</tr>
<tr>
<td>2018</td>
<td>$62,800</td>
<td></td>
<td>$643</td>
<td>$62,158</td>
</tr>
<tr>
<td>Year</td>
<td>Payment</td>
<td>Renewable Energy</td>
<td>Total</td>
<td>Total Revenue</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>-----------------</td>
<td>-------</td>
<td>---------------</td>
</tr>
<tr>
<td>2019</td>
<td>$62,800</td>
<td>$643</td>
<td>$62,158</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>$61,912</td>
<td>$2,664</td>
<td>$1309</td>
<td>$60,607</td>
</tr>
<tr>
<td>2021</td>
<td>$61912</td>
<td></td>
<td>$1309</td>
<td>$60,607</td>
</tr>
<tr>
<td>2022</td>
<td>$61912</td>
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</tr>
<tr>
<td>2023</td>
<td>$61,912</td>
<td></td>
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<td>$61,246</td>
</tr>
<tr>
<td>2024</td>
<td>$61,912</td>
<td></td>
<td></td>
<td>$61,912</td>
</tr>
</tbody>
</table>

**Recommendation:** The executive committee approves the revised Yahara WINS member payment for the City of Middleton.
Thanks, Eric.

Gary

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Gary Huth <ghuth@ci.middleton.wi.us>

Sent: Friday, January 04, 2019 3:11 PM
To: Rortvedt, Eric - DNR
Cc: Eric Thompson (Ethompson@msa-ps.com); Martin Griffin; Warren Gebert (wagebert@wisc.edu)

RE: Leaf collection Credit Towards TMDL

From: Rortvedt, Eric - DNR <Eric.Rortvedt@wisconsin.gov>
Sent: Friday, December 21, 2018 2:16 PM
To: Gary Huth <ghuth@ci.middleton.wi.us>
Cc: Eric Thompson (Ethompson@msa-ps.com) <Ethompson@msa-ps.com>

Gary,

I concur with the attached MSA analysis for taking phosphorus removal credit for the City of Middleton’s leaf collection. Excellent analysis!

Have a wonderful Holiday!

Eric Rortvedt, P.E.
Phone: (608) 273-5612
Eric.Rortvedt@Wisconsin.gov

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From: Gary Huth <ghuth@ci.middleton.wi.us>
Sent: Friday, December 21, 2018 9:46 AM
To: Rortvedt, Eric - DNR <Eric.Rortvedt@wisconsin.gov>
Cc: Eric Thompson (Ethompson@msa-ps.com) <Ethompson@msa-ps.com>

[WARNING: ATTACHMENT(S) MAY CONTAIN MALWARE] Leaf collection Credit Towards TMDL

Hi Eric,

The City of Middleton requested MSA look into whether the current City practices for fall leaf collection would qualify the City for a credit towards the TMDL phosphorus reductions under WDNR’s latest guidance for leaf pick-up. Attached is a copy of their final report showing the City would be able to take credit for an additional 17.9 lb of P.

Could you review the memo and let me know whether WDNR concurs with MSA’s conclusion?

Eric Thompson is available to answer any questions related to the analysis that you may have.

Thanks,
Gary
MEMORANDUM
Public Works Department – City of Middleton

DATE: January 25, 2019
TO: Martin Griffin, MMSD
FROM: Gary Huth, Assistant Director of Public Works
SUBJECT: Summary of Recent Edits to Storm Water Model for Adaptive Management

Martye,

This memo documents, per the terms of the Adaptive Management IGA, the fourth adjustment the to the calculated annual payment share due from the City of Middleton. This adjustment is the result of new guidance from WDNR which allows MS4 members to take credit for leaf collection practices that follow specified procedures.

The City hired MSA to calculate the allowable credit based on the City’s long-standing leaf collection practice. These calculations show that the City of Middleton is entitled to a credit of an additional 17.9 pounds of phosphorus. This equates to a lowering of the City’s annual contribution by $888. WDNR has reviewed and approved the supporting calculations.

For your reference, the previously calculated adjustments to the City’s annual contribution are summarized below, using the formula specified in the IGA:

\[
\text{Current Calculated pounds ÷ IGA pounds} \times \text{IGA dollars} = \text{Middleton Contribution}
\]

<table>
<thead>
<tr>
<th>Date</th>
<th>Calculations</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/31/2016:</td>
<td>1262 ÷ 2370 × $117,000 = $62,300 (rounded)</td>
<td></td>
</tr>
<tr>
<td>11/30/2016:</td>
<td>1324 ÷ 2370 × $117,000 = $65,370 (rounded)</td>
<td></td>
</tr>
<tr>
<td>08/24/2017:</td>
<td>1272 ÷ 2370 × $117,000 = $62,800 (rounded)</td>
<td></td>
</tr>
</tbody>
</table>

The current revised calculation is shown below, and should replace these earlier numbers and be used going forward in subsequent years. It should also be used in the calculation of credits due against past overpayments in accordance with the terms of the IGA, since the practices in question were in place at the time the IGA was executed.

**01/25/2019:** \( 1254.1 \div 2370 \times $117,000 = $61,912 \)

Please see attached payment schedule showing the City’s annual payments through 2024 to apply the credits over four years. Also attached are copies of the calculation memo from MSA and the approval email from WDNR.

c. (via email only):
   Eric Rortvedt, Warren Gebert, Mike Davis,
   Bill Burns, Shawn Stauske
## ADAPTIVE MANAGEMENT
### CALCULATION OF ADJUSTMENT OF ANNUAL CONTRIBUTION

**FORMULA:**
Current Calculated pounds ÷ IGA pounds × IGA dollars = Middleton Contribution

| Annual Overpayment #1 (1 yr) | $2,570 |
| Credit #1 (ea. of 4 yrs) | $642.50 |

| Previous Calculated Pounds: | 1272 |
| Current Calculated Pounds: | 1272 - 17.9 = 1254.1 |
| IGA Pounds | 2370 |
| IGA Dollars | $117,000 |

**Adjusted Payment Formula**

\[
1254.1 \div 2370 \times 117,000
\]

**Adjusted Payment**

$61,912 (Rounded up)

| Previous Calc’ed Payment | $62,800 |
| Annual Overpayment #2 (3 yrs) | $888 |
| Total Overpayment #2 | $2,664 |
| Credit #1 (ea. of 4 yrs) | $666.00 |

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ADJUSTED PAYMENT</th>
<th>CREDIT 1 (2018 - 2021)</th>
<th>CREDIT 2 (2020 - 2023)</th>
<th>PAYMENT DUE AFTER CREDIT</th>
<th>ACTUAL PAYMENT SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>61,912</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>61,912</td>
<td>642.50</td>
<td>61,269.50</td>
<td>62,158.00</td>
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<td>642.50</td>
<td>61,269.50</td>
<td>62,158.00</td>
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<td>666.00</td>
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<td>61,246.00</td>
<td>61,246.00</td>
<td></td>
</tr>
<tr>
<td>2024</td>
<td>61,912</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CHK TOTAL**

495,296

495,297
Memo

To: City of Middleton Water Resources Commission
From: Eric Thompson, P.E., CFM and Amber Converse
Subject: Leaf Collection Stormwater TP Reduction Assessment
Date: July 26, 2018

INTRODUCTION

The City of Middleton, Wisconsin requested MSA to review the procedure specified by the Wisconsin Department of Natural Resources (WDNR) for establishing a numeric credit for Total Phosphorus (TP) discharges through fall leaf collection programs, identify the areas within the City where the credit can be applied, and created a simple one-node WinSLAMM model to determine the TP discharges from these areas.

WDNR’s guidance document Interim Municipal Phosphorus Reduction Credit for Leaf Management Programs (EGAD Number 3800-2018-01) states the following:

“The Total Phosphorus annual load reduction for this option may be assumed if the following conditions are met:

1. Medium Density (2-6 units/acre) Residential (Single-family) land use without alleys. Medium Density Residential with alleys land use may be included if the alleys receive the same level of leaf collection and street cleaning as the streets.

2. Curb and gutter with storm sewer drainage systems and light parking densities during street cleaning activities.

3. An average of one or more mature trees located between the sidewalk and the curb for every 80 linear feet of curb. Where sidewalk is not present, trees within 15 feet of the curb may be counted toward tree cover. Generally, this equates to a tree canopy over the street (pavement only) of 17% or greater. Field investigations or aerial photography may be used to document the tree cover.

4. The municipality has an ordinance prohibiting residents from placement of leaves in the street and a policy stating that residents may place leaves on the terrace in bags or piles for collection.

5. Municipal leaf collection provided at least 4 times spaced throughout the months of October and November. Leaves may be pushed, vacuumed, or manually loaded into a fully enclosed vehicle, such as a garbage truck or covered dump truck. No leaf piles are left in the street overnight.
6. Within 24 hours of leaf collection, remaining leaf litter in the street must be collected using street cleaning machines, such as a mechanical broom or vacuum assisted street cleaner. A brush attachment on a skid steer is not an acceptable equivalent.”

A municipality may assume a 17% reduction (40% reduction due to collection efforts x 43% of annual phosphorus load occurring in fall) from no controls phosphorus loads provided all of the above conditions are met.

IDENTIFYING AREAS WHERE THE CREDIT CAN BE APPLIED

MSA received a copy of current tree inventory for the City of Middleton in a GIS format (07/23/2018). The entire tree dataset was reviewed in order to only analysis those trees where the leaf collection criteria could be applied:

1. Only deciduous trees.
2. Only mature trees. Trees were deemed to be ‘mature’ if one/both of the following are true:
   a. The diameter at breast height (DBH) was 5” or greater. This criteria was determined based on the USDA Forest Service definition of a sapling: Live trees 1.0 to 4.9 inches in diameter (DBH/DRC)
   b. The tree height was estimated to be 15’ or greater
3. Only trees located in Medium Density Residential (MDR) land use area as determined in the City’s Stormwater Quality Master Plan.
4. Only trees located within the Right-of-Way (ROW). Since ROW linework is not available, this analysis was completed using GIS Dane County parcel lines (May 2018). Any tree falling outside of the parcel boundaries were assumed to be in the ROW and therefore within 15’ of the curbline.

Only those trees where the above four (4) criteria were met were included in the remainder of the analysis. A spatial query was completed to determine those spaced within 80’ of one another; those with wider spacing were removed from further analysis. A 40’ buffer was completed on these remaining trees to identify those MDR parcels eligible to receive credit for Leaf Collection efforts. Finally, these MDR parcels were intersected with those watersheds draining through the city that did not have a modeled stormwater quality pond already treating area. Parcel boundaries were extended to cover the ROW area (up to the centerline of the road for each parcel).

Figure 1 shows a zoomed in sample location to provide more clarity on how the above analysis was completed. Figure 2 displays all of the MDR areas within the City that are eligible for additional Leaf Collection Stormwater TP Reduction.

Table 1 shows the land area associated with the MDR areas eligible for the Leaf Collection Stormwater TP Reduction, subdivided by TMDL Reach and soil type.
Table 1: Medium Density Residential (MDR) land areas eligible for Leaf Collection TP Reductions (acres)

<table>
<thead>
<tr>
<th>Reach</th>
<th>Sandy (A)</th>
<th>Silty (B)</th>
<th>Clayey (C)</th>
<th>Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>1.61</td>
<td>66.86</td>
<td>5.40</td>
<td>73.87</td>
</tr>
<tr>
<td>63</td>
<td>0</td>
<td>1.75</td>
<td>0</td>
<td>1.75</td>
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<tr>
<td>64</td>
<td>6.88</td>
<td>17.74</td>
<td>9.47</td>
<td>34.09</td>
</tr>
<tr>
<td><strong>City Wide Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>109.05</strong></td>
</tr>
</tbody>
</table>

WinSLAMM modeling of standard ‘Medium Density Residential No Alley’ land use shows that areas with sandy soils produce 0.63 lbs/acre/year, silty soils produce 0.97 lbs/acre/year, and clayey soils produce 1.09 lbs/acre/year. Table 2 presents the estimate TP reduction credit that could be realized by the City of Middleton, assuming that Middleton’s leaf collection program is equivalent to that described in the interim guidance document.

Table 2: Maximum TP Reduction Credits applicable to the City of Middleton for Leaf Collection Practices.

<table>
<thead>
<tr>
<th>Reach</th>
<th>TP Load (lbs/yr)</th>
<th>Allowable Reduction</th>
<th>TP reduction (lbs/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>71.6</td>
<td>17%</td>
<td>12.2</td>
</tr>
<tr>
<td>63</td>
<td>1.7</td>
<td>17%</td>
<td>0.3</td>
</tr>
<tr>
<td>64</td>
<td>31.8</td>
<td>17%</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>City Wide Total</strong></td>
<td></td>
<td></td>
<td><strong>17.9</strong></td>
</tr>
</tbody>
</table>
Mature Deciduous Trees within MDR ROW:
80’ spacing between trees and 40’ buffer to select MDR Parcels

Mature Deciduous Trees within MDR ROW:
80’ spacing between trees and 40’ buffer to select MDR Parcels
Within a watershed without a modeled BMP

Figure 1
GIS Analysis to Determine Elligible Leaf Collection TP Reduction Areas

City of Middleton
Dane County, WI

Parcels
All Trees
Mature Deciduous Tree within MDR ROW
80’ or less spacing along curbline
40’ Buffer around eligible trees
MDR with Leaf Litter Criteria Fulfilled

Watershed without a Modeled BMP
Leaf Collection Eligible Area

Land Use (WinSLAMM)
Residential, Medium Density (No Alley)
Residential, Duplex
Residential, Multi-Family
Commercial, Strip
Commercial, Downtown
Institutional, Misc
Institutional, School
Open Space
Gary Huth

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Sent: Friday, December 21, 2018 2:16 PM
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Cc: Eric Thompson (Ethompson@msa-ps.com)
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