Appendix 1:
Yahara WINS Intergovernmental Agreement

INTERGOVERNMENTAL AGREEMENT FOR
AN ADAPTIVE MANAGEMENT PLAN
FOR THE YAHARA WATERSHED

WHEREAS, Wis. Stat. § 66. 0301, entitled "Intergovernmental cooperation," provides that any municipality (defined as including but not limited to any state agency, city, village, town, county, sanitary district, metropolitan sewerage district or sewer utility district) may contract with other municipalities for the furnishing of services, and the joint exercise of any power or duty required or authorized by law;

WHEREAS, the U.S. Environmental Protection Agency (EPA) has approved Total Maximum Daily Loads for Total Phosphorus and Total Suspended Solids (TSS) in the Rock River Basin (the "Rock River TMDL" or "TMDL"), which includes the Yahara Watershed as shown on Exhibit A;

WHEREAS, municipalities who own Publicly Owned Treatment Works (POTWs) and/or Municipal Separate Storm Sewer Systems (MS4s) in the Yahara Watershed are required to meet surface water quality standards and/or not exceed wasteload allocations for phosphorus and TSS pursuant to the provisions of Wis. Admin Code § NR 217 and/or the Rock River TMDL;

WHEREAS, Wis. Admin Code § NR 217. 18 allows sources holding a Wisconsin Pollutant Discharge Elimination System (WPDES) permit the option known as adaptive

management which involves developing an Adaptive Management Plan involving point and nonpoint sources to achieve water quality standards and TMDL allocations;

WHEREAS, Wis. Stat. § 283. 13 (7) allows adaptive management to be used to address TMDL allocations for both phosphorus and TSS over four permit terms;

WHEREAS, in 2012 Madison Metropolitan Sewerage District (District) developed an adaptive management pilot project with other interested parties within the Yahara watershed as set forth in a Memorandum of Understanding for an Adaptive Management Pilot Project in the Yahara Watershed;

WHEREAS, on December 14, 2014, the District entered into a Memorandum of Understanding with the Wisconsin Department of Natural Resources (DNR) regarding the manner in which a full scale Adaptive Management Plan for the Yahara Watershed would be developed and evaluated;

WHEREAS, the District has committed to developing an Adaptive Management Plan to fulfill its phosphorus compliance obligations under its WPDES permit and fulfill the phosphorus TMDL obligations of other permittees;

WHEREAS, the undersigned municipalities within the Yahara Watershed, (Parties) wish to join together to jointly participate in the Adaptive Management Plan;

WHEREAS, the Parties desire to create an intergovernmental agreement and form a group known as "The Yahara Watershed Improvement Network (Yahara WINS) Group" or simply "the Group";

WHEREAS, the Parties desire to create a commission that will administer such participation, information gathering, projects and activities of the Group all as set forth in this Agreement;

WHEREAS, the Parties desire to implement this Agreement in a collaborative, cooperative, manner to advance the Adaptive Management Plan;

WHEREAS, the Parties to this Agreement anticipate that the Group will contract and work collaboratively with agricultural producers, non-governmental organizations, county agencies and other entities to advance the Adaptive Management Plan;

NOW THEREFORE, in consideration of the mutual covenants herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree to create this Intergovernmental Agreement for an Adaptive Management Plan for the Yahara Watershed ("Agreement") as follows:

1. GOALS OF THE GROUP.

The Parties hereby agree to cooperate to exercise their municipal powers jointly for:

a. Providing review and comments on the Adaptive Management Plan prepared by the District;

b. Contracting with consultants, legal counsel, and other parties to further the development, implementation and evaluation of the Adaptive Management Plan;

c. Coordinating or contracting with the DNR and other pertinent agencies, units of local government, and non-governmental organizations and entities to achieve the goals of the Adaptive Management Plan;

d. Pooling resources in accordance with the provisions of cost allocations in Exhibit B to achieve the goals of the Adaptive Management Plan.

e. Achieving compliance with WPDES permit requirements related to the Rock River TMDL.

2. MEMBERS OF THE GROUP

a. In General. The members of the Group ("Members") created by this Agreement are the Wisconsin municipalities (defined as including but not limited to any state agency, city, village, town, county, sanitary district, metropolitan sewerage district or sewer utility district) who own Publicly Owned Treatment Works (POTWs) and/or Municipal Separate Storm Sewer Systems (MS4s) or municipalities who have land within areas served by the Adaptive Management Plan, and which have duly executed identical counterparts or copies of the Agreement pursuant to Section 3 ("Members" collectively and "Member" individually) on or before April 15, 2016.

b. Changes in Membership. Additional Wisconsin municipalities may become Members of the Group with the consent of a majority of the Members by becoming Parties to this Agreement on the condition that payments be made to cover their share of costs based on their phosphorus allocation for the years from the date of this Agreement to their membership date. Members may cease to be Members and Parties to this Agreement pursuant to Section 12.

c. Representative to the Group. All Group Members shall designate a representative and an alternate representative. A Member may remove or replace its representative to the Group at will, with or without cause, at any time. All designations of representatives, alternatives and replacements shall be made in writing, signed on behalf of the Member and delivered to the Secretary of the Executive Committee. Each Member's representative shall have the authority to act on the Member's behalf at meetings held under Section 5.

3. AUTHORITY OF MEMBERS TO PARTICIPATE.

a. This Agreement is entered into pursuant to authority granted under Wis. Stat. § 66. 0301. Each municipality identified in Section 2. a. that wants to become a member of the Group shall authorize participation in this Agreement by resolution or other binding action by the governing body or person authorized to act for such municipality.

b. By authorizing participation, each Member agrees to the terms and conditions of this Agreement, to the establishment of the Executive Committee created by this Agreement and to appoint a Member representative to the Group;

c. A copy of the document authorizing participation shall be sent to and be maintained on file with the Executive Committee.

4. POWERS OF THE GROUP

The Group, acting through Group Member Representatives, shall have the following powers:

a. To elect the members of the Executive Committee as set forth in Section 6.

b. To approve the five-year and annual budgets under Section 8.

c. To approve the bylaws proposed by the Executive Committee.

d. To share information and advise the Executive Committee on all matters including elements of the Adaptive Management Plan.

5. MEETINGS OF THE GROUP

a. The Group shall meet no less than four times per year.

b. A quorum shall be a majority of the Group Member Representatives and must include the representatives from the District and any other member who contributes at least one fifth of the allocated cost under Exhibit B. If a quorum is not present the members present may meet and share information, but no action may be taken.

c. Unless otherwise expressly provided by this Agreement, all votes of the Group Member Representatives shall be by a majority of the Group Member Representatives present at a meeting where there is a quorum.

d. All meetings shall be open meetings and require public notice in accordance with Wisconsin's open meeting laws. The Group shall encourage the participation of other interested parties including agricultural producers and nongovernmental entities.

6. EXECUTIVE COMMITTEE

a. Creation of Executive Committee. There is created a five member Executive Committee which will be a commission under Wis. Stat. § 66. 0301(2) and (3), to administer the joint activities of the Yahara WINS Group. This commission shall be formally referred to as THE YAHARA WINS EXECUTIVE COMMITTEE, and referred to in this Agreement as the "Executive Committee". This Executive Committee shall operate as a governmental body under Wis. Stat. § 19. 82(1).

b. Members of the Executive Committee. The Executive Committee shall be comprised of five Member representatives and two non-Member advisors.

(1) The Executive Committee members shall include a representative from the Madison Metropolitan Sewerage District and a representative from any Member, other than the District, who contributes at least one fifth of the allocated cost under Exhibit B. Of the remaining members, one must be from a city or village, one from

a town, and one will be an at large position. Member representatives for the cities and villages participating in this agreement will vote to select their representative to the Executive Committee, and Member representatives for the towns participating in this agreement will vote to select their representative to the Executive Committee, and the Member representatives of the group as a whole will vote to select the at large representative.

(2) Recognizing the key collaborative roles played by Dane County and members of the agricultural community in the Adaptive Management Pilot Project and their anticipated roles as this Agreement moves forward, Dane County and the Yahara Pride Farm Group may each appoint an advisor to the Executive Committee. The Executive Committee may in its discretion appoint additional advisors. The advisors shall be given notice of all Executive Committee meetings and may participate in such meetings as non-voting members.

c. Term. The term of the three elected members of the Executive Committee shall be for five year terms and the elected members may be reelected for one or more additional terms.

d. Purposes and Powers of the Executive Committee.

(1) To make, amend and repeal bylaws and rules related to the purpose and operation of the Group subject to approval by the Group.

(2) To invest funds not required for immediate disbursement in properties or securities as permitted by state law.

(3) To make and execute contracts and other instruments of any name or type necessary or convenient for the exercise of the powers granted herein, including contracts with engineers, legal counsel, administrative staff and other consultants.

(4) To accept contributions of capital from Members or third parties.

(5) To do all acts and things necessary or convenient for the conduct of its business and the general welfare of the Group and the Parties and to carry out the purposes and powers granted to it by this Agreement.

(6) To sue, and be sued, complain and defend in all courts, and also, appear in or before applicable governmental agencies administrative tribunals and legislative bodies.

e. No Compensation. The members of the Executive Committee shall serve without compensation, provided, however, that the Executive Committee shall have discretion to reimburse members of the Executive Committee for reasonable expenses incurred for special services to the Executive Committee.

f. Quorum. A quorum shall be a majority of the members of the Executive Committee and must include the representative from the District and the representative of any Member (other than the District) who contributes at least one fifth of the allocated cost under Exhibit B. No action may be taken in the absence of a quorum.

g. Voting. The members of the Executive Committee shall vote upon matters in the following manner:

(1) Voting in General. Unless otherwise expressly provided by this Agreement, the bylaws, or some other subsequent action of the Executive Committee, all votes shall be by a majority of the members of the Executive Committee present at a meeting where there is a quorum.

(2) Voting on Matters Which May Affect WPDES Permit Compliance. The Executive Committee shall provide written notice to all Members of any

Executive Committee proposed or recommended action potentially affecting any Member's WPDES permit, other than the development and implementation of the Adaptive Management Plan. Such actions include the following: (i) the development or implementation of terms and conditions of a WPDES permit; (ii) a violation of a WPDES permit, (iii) a WPDES permit modification or revocation (iv) a change in WPDES permit limits or compliance plan; or (v) any other action that could jeopardize a Member's WPDES permit compliance. Any Member so notified has 30 days from the date of the notice to provide a written objection to the Secretary of the Executive Committee to any such actions that affect its WPDES permit. In such a case, no final action may be taken by the Executive Committee without the further written consent of the objecting Member.

(h) Meeting. The Executive Committee shall meet no less frequently than quarterly. Additional meetings may be held at the request of any member of the Executive Committee.

7. OFFICERS.

a. Officers of the Executive Committee. The Officers of the Executive Committee are a President, a Vice-President, a Secretary, a Treasurer and such other Officers as the Executive Committee may designate. The President shall be the District representative. The Vice-President, Secretary, Treasurer and any other officers shall be elected by the members of the Executive Committee from among the members of the Executive Committee and shall serve five year terms.

b. Dual Signature Required. The signatures of two officers shall be required on all forms of approval for payment, and all legally binding documents executed in the name of the Executive Committee or the Group.

c. Duties. Unless otherwise determined by the Executive Committee, the duties of the officers shall include the following:

(1) President. The President shall be the principal executive officer of the Executive Committee, shall preside at all meetings of the Executive Committee and set the agenda.

(2) Vice-President. In the absence of the President, or in the event of his or her inability or refusal to act, the Vice-President shall perform the duties of the President.

(3) Secretary. The Secretary shall keep minutes of the meetings of the Executive Committee in one or more books provided for that purpose; see that all notices are duly given in accordance with this Agreement, or as required by law; and be custodian of the Executive Committee's records. The Secretary shall take such actions as are prudent and necessary to maintain the public records at the offices of the District in accordance with Wisconsin's public records laws.

(4) Treasurer. The Treasurer shall have charge and custody of and be responsible for all funds and securities of the Group and shall have charge of the financial records of the Group. The Treasurer will work with District staff to set up a segregated account for the funds of the Group. The Treasurer shall take such actions as are prudent and necessary to maintain the public records at the offices of the District in accordance with Wisconsin's public records laws.

d. Removal. An officer other than the President may be removed from office with cause upon a majority vote of the members of the Executive Committee.

8. BUDGET

The Executive Committee shall prepare budget documents as follows:

a. Project Budget. The 20 year adaptive management cost to Members and the associated annual cost are listed in Exhibit B to this Agreement.

b. Five Year Budget. The Executive Committee shall break down the 20 year adaptive management costs into five year intervals corresponding with the estimated permit terms. The Five Year Budget shall be approved by a majority of the Member Representatives present in the meeting of the Group in which action on the Project Budget is taken. The Five Year Budget shall be updated no less than every five years and approved by the Group. Estimated project costs shall be allocated equally over the 20 year Adaptive Management Plan period to the extent practicable.

c. Annual Budget. The Executive Committee shall prepare a detailed annual budget of the estimated expenditures associated with the Adaptive Management Plan for the next calendar year, and present the annual budget to the Group for review no later than September 30th of each year. The annual budget shall be consistent with the Five Year Budget approved in Section 8 (b), and shall be approved by October 31st of each year by a majority of the Member Representatives of the Group present at the meeting in which action on the annual budget is taken. The Executive Committee shall send invoices to Members consistent with the annual cost shown in Exhibit B, subject to any revision consistent with Section 9 of this Agreement on or before December 15 of each year. The first invoice under this Agreement will be sent to Members on or before December 15, 2016 and will be for the calendar year 2017. Invoices will be sent to Members annually thereafter on or before December 15th of each year. Payments based on each annual invoice shall be made in two equal installments. The first installment shall be made on or

before February 28th of each year and the second installment shall be made on or before June 30th of each year.

d. Funds for 2016 are based on a continuation of annual payments made by the participants to the Adaptive Management Pilot Project at the same funding level as 2015. The Executive Committee shall receive any such payments to further the purposes of this Agreement and subject to the audit and reporting requirements set forth in Section 10.

9. CHARGES TO MEMBERS.

a. Costs shall be allocated among Members as shown in Exhibit B, except as otherwise provided in this Section. Cost allocations in Exhibit B are based on phosphorus load reductions and are determined by multiplying the total adaptive management project cost by the fraction of the total pounds of required project phosphorus reduction needed by each Member to meet its TMDL allocation under current conditions. For example, if the required phosphorus reduction of an individual member is equal to 5 percent of the total pounds of phosphorus reduction from all sources in this adaptive management project, that member is assigned 5 percent of the total project cost. For the purpose of Exhibit B, required phosphorus reductions were determined as follows:

(1) **Point Source Members**: For the purpose of this section, Point Source Members are those members who own or operate facilities identified in Appendices P, Q, R and S of the Rock River TMDL. The required phosphorus reduction is determined by subtracting the TMDL allocated phosphorus load from the current condition phosphorus load, with the current condition phosphorus load defined as the most recent five year average load (2010 thru 2014) using data obtained from the DNR. For all Point

Source Members, the allocated phosphorus load is consistent with the allocation specified in the TMDL. For Point Source Members that own or operate POTWs, required phosphorus reductions also factor in the need to meet the interim concentration limits specified in Section 14 (b).

(2) **MS4 Members:** For the purpose of this section MS4 Members are those Members who own Municipal Separate Storm Sewer Systems as identified in Appendices T, U, and V of the Rock River TMDL, except that the University of Wisconsin-Madison shall also be considered an MS4 Member. The required phosphorus reduction for MS4 Members is determined by subtracting the TMDL allocated phosphorus load from the TMDL baseline phosphorus load.

b. Members shall commit to payment in accordance with the schedule in Exhibit B.

c. Notwithstanding Exhibit B, it is recognized that MS4 Members may update stormwater modeling consistent with the DNR guidance document titled "TMDL Guidance for MS4 Permits: Planning, Implementation and Modeling Guidance" (October 20, 2014). If the updated modeling is reviewed and approved by DNR, and shows a required annual phosphorus reduction that is different than what was used to develop the cost allocation in Exhibit B, the cost for that MS4 Member in Exhibit B will be adjusted as follows:

$$\text{Exhibit B Cost} \times \left[\frac{\text{Revised phosphorus reduction (lbs/yr)}}{\text{Initial phosphorus reduction (lbs/yr)}} \right] = \text{Revised Cost}$$

If the revised phosphorus reduction information is received by the Executive Committee on or before September 1st of any year, the revised cost will be applied to all years going forward. For example, if data is received on or before September 1, 2017 that results in a revised cost being calculated, that revised cost will be applied to annual payments beginning in 2018. Additionally, a true-up will be allowed at the end of every five year WPDES permit term to reflect practices that may have been added during that WPDES permit term that result in a revised phosphorus reduction and therefore a revised cost, provided those reductions are in excess of the baseline reductions in Section 14 (a). Revised costs would be calculated using the above formula and would be applied to annual payments going forward.

d. If an MS4 makes an initial payment in 2017 based on Exhibit B and subsequently submits information that results in a revised cost that is less than shown in Exhibit B, the amount of overpayment shall be credited to the MS4 over the next four year period in equal annual installments. If an MS4 makes an initial payment in 2017 based on Exhibit B and subsequently submits information that results in a revised cost that is greater than shown in Exhibit B, the underpayment shall be recovered from the MS4 over the next four year period in equal annual installments.

e. Notwithstanding Exhibit B, the costs for Point Source Members will be revised at the end of 2016 using the most recent five year phosphorus load averaging period if it is different than the averaging period used in developing the cost allocations in Exhibit B. The cost will be adjusted as follows:

$$\text{Exhibit B Cost} \times \left[\frac{\text{Revised phosphorus reduction (lbs/yr)}}{\text{Initial phosphorus reduction (lbs/yr)}} \right] = \text{Revised Cost}$$

The revised cost will be applied to the years going forward. Additionally, a recalculation of the phosphorus load will be made at the end of every five year WPDES permit term using the most recent five year average and will be used to calculate a revised cost, which will be applied to annual payments for the years going forward. The revised cost will be calculated using the formula in this section.

f. MS4 Members and Point Source Members participating in this agreement may choose to accomplish some of their TMDL required phosphorus reduction independently and therefore "purchase" only a portion of their required phosphorus reduction through adaptive management. In this case, the Exhibit B cost or the Revised Cost (whichever is applicable) will be adjusted by multiplying it by the fraction of the required phosphorus reduction that is purchased through adaptive management. For example if an MS4 Member or Point Source Member purchases ninety-five percent of its required phosphorus load through adaptive management, the cost would be revised as follows:

Exhibit B Cost or Revised cost (whichever is applicable) x 0. 95 = Adjusted Cost

g. MS4 Members and Point Source Members choosing to purchase only a portion of their required phosphorus reduction through adaptive management agree that they must have a plan in place to accomplish the portion not purchased. The plan should identify significant anticipated milestones. In addition, they agree to provide a summary to the Group at a frequency of at least once every two years specifying progress made in achieving the reductions not accomplished through adaptive management.

MS4 Members and Point Source Members shall specify at the time they execute this agreement the portion of their required phosphorus reduction, expressed in pounds per year, which they will accomplish independently. The adaptive management project costs will be reviewed at least 360 days prior to the end of a five-year WPDES permit term for which the Adaptive Management Plan is a permit condition. The costs may be adjusted based on this review and upon approval by a majority of the Members. Adjustments (if any) may result in either a lower or higher charge to members going forward. Adjustments (if any) in the charge to Members will be made at the start of the next five-year WPDES permit term and will be made proportional to the required phosphorus reduction of Members. Adjustments will be reflected in the Five Year Budget under Section 8.

10. AUDIT AND REPORTING

a. The Executive Committee shall arrange for a financial audit of the Group's financial records on an annual basis by an independent accounting firm using generally accepted accounting principles.

b. The Executive Committee shall prepare an annual report and provide it to all Members and to other government agencies as may be required. In addition to containing financial information, the annual report shall describe activities undertaken and progress made over the preceding year with respect to implementation of the Adaptive Management Plan. The annual report shall review the effectiveness of the measures undertaken as part of the Adaptive Management Plan and to the extent possible document the amount of phosphorus reduced by each of the project elements implemented under this

Adaptive Management Plan. The annual report shall be distributed to the Group and published on the Group's website by June 30th of each year.

11. LIABILITY OF THE EXECUTIVE COMMITTEE AND/OR GROUP.

a. In the event any costs or expenses are imposed on the Group or the Executive Committee as a result of any judicial or administrative proceeding or settlement thereof, and the liability is not directly attributable to the conduct of a specific Member or Members, the costs and expenses shall be treated as a cost of the Group to be allocated among all Members proportional to the phosphorus reduction associated with each Member as determined consistent with this Agreement.

b. If any costs or expenses are imposed on the Group or the Executive Committee as a result of any judicial or administrative proceeding or settlement thereof, and the liability is directly attributable to the conduct of a specific Member or Members, the costs and expenses shall be allocated among those Members whose actions caused the imposition of the costs or expenses to the Group or Executive Committee, in proportion to their responsibility as determined by the presiding official of the judicial or administrative proceeding, or if no such determination, by the Executive Committee. Any member of the Executive Committee who represents a Member with an interest in the determination shall recuse themselves from all participation on the Executive Committee as to that issue. Any Member not satisfied with the decision of the Executive Committee can request the issue be resolved through mediation. The costs of mediation are to be borne equally by each Member to the mediation.

12. TERM OF AGREEMENT AND WITHDRAWAL.

a. The term of this Agreement shall begin on April 15, 2016 and will generally coincide with the term of the approved Adaptive Management Plan which is anticipated to be approximately 20 years from approval.

b. This Agreement shall terminate upon conclusion of the Adaptive Management Plan or termination of the Adaptive Management Plan if the Adaptive Management Plan is terminated by DNR. This Agreement may also be terminated at a duly noticed meeting of the Group, upon a two thirds vote by Member Representatives of the Group to terminate the Agreement, at least 270 days prior to the end of a WPDES permit term for which the Adaptive Management Plan is a permit condition. In no event shall termination become effective prior to the end of a WPDES permit term.

c. An individual Member may withdraw from the Agreement by providing notice at least 270 days prior to the end of a five-year WPDES permit term for which the Adaptive Management Plan is a permit condition, if the Member has paid its contribution for the five year WPDES permit period.

13. ADAPTIVE MANAGEMENT ADMINISTRATION

a. The Adaptive Management Plan shall be prepared by the District. The purpose of the Adaptive Management Plan when implemented is to fulfill the phosphorus TMDL obligations of Members, after accounting for baseline requirements that Members are required to meet individually pursuant to Section 14, and after accounting for adjustments that may be made pursuant to Section 9. TSS reductions associated with phosphorus reduction practices will also be quantified as part of the Adaptive Management Plan. If this Agreement is in effect prior to the submittal of the Adaptive Management

Plan to DNR by the District, then the District shall submit the Adaptive Management Plan to the Group for review and comment at least 60 days prior to District submittal to DNR.

b. Every five years as the WPDES permits come up for renewal, the District will prepare any amendment to the Adaptive Management Plan necessary to achieve the project goals and approval by the DNR. The District shall submit any Adaptive Management Plan amendments to the Group for review and comment at least 90 days prior to District submittal to DNR.

c. The District shall be responsible for administration and management of the Adaptive Management Plan and related activities, including contract management. The District will also serve as the primary contract laboratory for analysis of routine parameters (e. g. phosphorus, TSS, and nitrogen) from water samples collected as part of the adaptive management project, and can recover associated analytical costs from the Group.

14. ADAPTIVE MANAGEMENT PERMITTEE PROVISIONS

a. All MS4 Members participating in this Agreement are individually responsible for meeting the TMDL baseline conditions for sediment (TSS) and phosphorus control. The baseline condition for MS4 Members is 40% TSS control and 27% phosphorus control. These reductions must be achieved within each stream reach that they discharge to as identified in the TMDL. Trading with another MS4 member located within the same stream reach that has exceeded the baseline condition can be used to meet the baseline condition, but trade agreements are the responsibility of the participating Members and are not addressed directly through this Agreement.

b. All POTWs participating in this Agreement are required to meet an annual average effluent phosphorus concentration of 0.6 mg/L by the end of the first full WPDES permit term following implementation of the DNR approved Adaptive Management Plan, and an annual average effluent concentration of 0.5 mg/L by the end of the second full WPDES permit term following implementation of the DNR approved Adaptive Management Plan.

c. In the event the Adaptive Management Plan is terminated by DNR prior to the end of the original term of the Adaptive Management Plan, or if at the end of the adaptive management period DNR determines that the phosphorus and sediment (TSS) allocations identified in the TMDL have not been met for a stream reach, Members will be individually responsible for taking any additional steps needed to achieve compliance with phosphorus and sediment (TSS) reduction requirements in their WPDES permits. This could include converting to a water quality trading program that is consistent with applicable DNR guidance. Verifiable phosphorus and sediment (TSS) reductions or "credits" achieved through the adaptive management project will be distributed to Members proportionate to the Charges to Members under Section 9 of this Agreement, but use in a water quality trading program is subject to applicable DNR guidance.

d. In the event municipal boundaries change during the term of this Agreement, as land transfers from one municipality to another, the associated phosphorus load reduction and the associated payment responsibility also transfers to the new municipality.

e. Upon completion or termination of the adaptive management project, any funds remaining in the segregated account for the Group following payment of all

project expenses, shall be returned to members of the Group in direct proportion to the contribution made by each member of the Group.

15. NONDISCRIMINATION

In the performance of services under this Agreement, the Parties agree not to discriminate against any employee or applicant because of race, religion, marital status, age color, sex handicap, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs, or student status.

16. MISCELLANEOUS

a. Municipal Liability. Nothing in this Agreement shall constitute a waiver of any limitations on municipal or state agency liability that may exist as a matter of law, including but not limited to limitations in Wis. Stat. ch. 893.

b. Counterparts. This Agreement may be executed in counterparts, and the signatures of each party on separate copies of the Agreement shall be fully effective to bind each of them to the Agreement with any other party that signs any separate copy of the Agreement.

c. Entire Agreement. This Agreement supersedes any prior studies, memoranda, letters or oral discussions or understandings about the participation of any of the Members in this joint project. This Agreement represents the entire agreement of the Parties as to organization and the goals of the Group.

d. Amendment or Modification. No amendment or modification may be made to this Agreement except in writing signed by a two thirds majority of all Members.

e. Choice of Law. This Agreement shall, in general, be governed by and construed in accordance with the laws of the State of Wisconsin.

f. Exclusive Benefit. This Agreement is for the exclusive benefit of the Parties and their successors in interest and shall not be deemed to give any legal or equitable right, remedy or claim to any other entity or person.

g. No Joint Venture. This Agreement does not establish or evidence a Joint Venture or partnership between the Parties. No Party is liable for another Party's actions as a result of entering into this Agreement.

h. Succession. All the terms, provisions and conditions herein contained shall inure to the benefit of and be binding upon the Parties and their respective successors and assigns, including future governing bodies of the respective Members.

i. Notice. Any notice required or given under this Agreement shall be effective if mailed by U. S. mail, postage prepaid, to the representatives at the addresses set forth after the signatures below, or any substituted address or representative as is filed with the Secretary of the Executive Committee.

IN WITNESS WHEREOF, the Parties, by their duly authorized representatives, have executed this Agreement on the dates set forth below:

By:

Date of Execution

Municipality Name

(Authorized Representative Signature)

(Authorized Representative Typed Name)

(Authorized Representative Title)

Address:

Exhibit A: Map of the Yahara Watershed

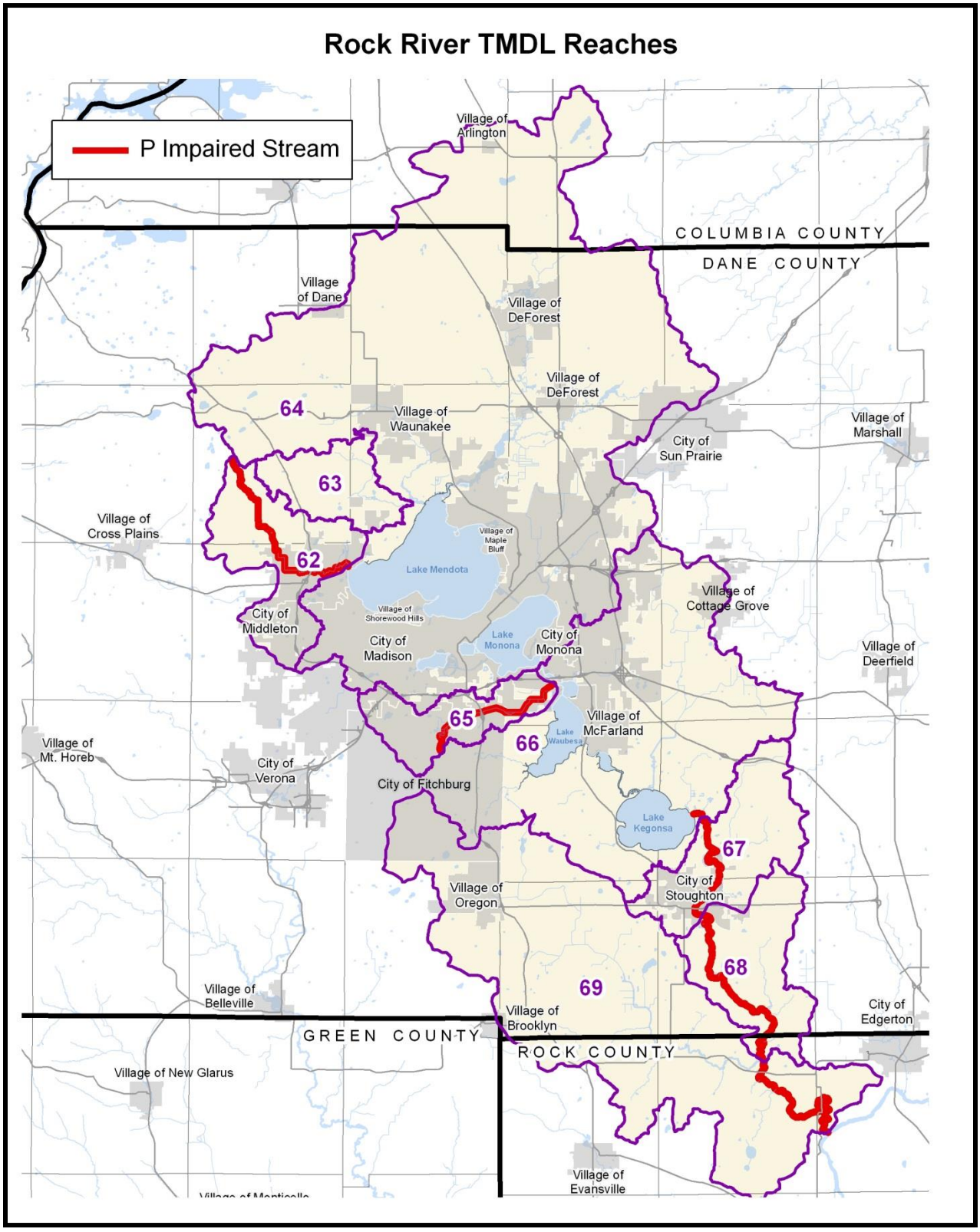
Rock River TMDL Reaches
P Impaired Stream
COLUMBIA COUNTY
DANE COUNTY
GREEN COUNTY
ROCK COUNTY
Village of Arlington
Village of Dane
Village of DeForest
Village of DeForest
Village of Waunakee
Village of Marshall
City of Sun Prairie
Village of Cross Plains
Village of Maple Bluff
Lake Mendota
Village of Shorewood Hills
City of Middleton
City of Madison
Lake Monona
City of Monona
Village of Cottage Grove
Village of Deerfield
Village of McFarland
Lake Waubesa
Village of Mt. Horeb
City of Verona
City of Fitchburg
Lake Kegonsa
City of Stoughton
Village of Oregon
Village of Belleville
Village of Brooklyn
City of Edgerton
Village of New Glarus
Village of Evansville
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Exhibit B: Preliminary Cost Allocations
(Note: Section 9 outlines how preliminary costs can be adjusted)

Member	Required Phosphorus Reduction (lbs/yr)	Annual Adaptive Management Cost
Blooming Grove, Town	460	$23,000
Bristol, Town	412	$20,000
Burke, Town	1,139	$56,000
Cottage Grove, Town	635	$31,000
Cottage Grove, Village	240	$12,000
DeForest, Village	837	$41,000
DNR-Fish Hatch	209	$10,000
Dunkirk, Town	553	$27,000
Dunn, Town	703	$35,000
Fitchburg, City	2,141	$105,000
Madison, City	15,836	$779,000
Madison, Town	580	$29,000
Maple Bluff, Village	181	$9,000
McFarland, Village	736	$36,000
Middleton, City	2,370	$117,000
Middleton, Town	475	$23,000
MMSD (BFC) WWTP	10,444	$514,000
Monona, City	862	$42,000
Oregon WWTP	1,619	$80,000
Pleasant Springs, Town	432	$21,000
Shorewood Hills, Village	221	$11,000
Stoughton WWTP	109	$5,000
Stoughton, City	229	$11,000
Sun Prairie, City	634	$31,000
University of Wisconsin-Madison	431	$21,000
Waunakee, Village	1,091	$54,000
Westport, Town	940	$46,000
Windsor, Village	1,351	$66,000

Appendix 2:
Yahara WINS Adaptive Management Project

Yahara Wins

Adaptive Management Project

Prepared by: Dave Taylor, Director of Ecosystem Services and Kathy Lake, Environmental Specialist

Madison Metropolitan Sewerage District

1/22/2014

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Purpose

The purpose of this paper is to inform and facilitate discussion with the Commission regarding key factors to consider when evaluating a potential transition to a full scale adaptive management project. This paper provides relevant information related to each of these considerations, including an adaptive management timeline. Information on related technical issues is presented in the Attachment section.

Background

In 2010, the Wisconsin Department of Natural Resources (WDNR) adopted revisions to administrative rules designed to control phosphorus discharges to waters of the state. These revisions, collectively referred to as the Phosphorus Rule Making Package, included the establishment of numeric water quality criteria for phosphorus. In 2011, USEPA issued an approved Total Maximum Daily Load (TMDL) for the Rock River Basin to address water quality impairments caused by phosphorus and sediment. The TMDL is designed to bring impaired water bodies into compliance with applicable water quality criteria. It will require reductions in phosphorus and sediment loads from all major source categories: municipal/industrial wastewater, municipal storm water, and agriculture.

The 2010 Phosphorus Rule Making Package included a provision for a new regulatory compliance strategy called "Watershed Adaptive Management". In adaptive management, all sources of phosphorus work together to develop and implement watershed based solutions. The benefits of adaptive management include providing:

- An alternative to the traditional brick and mortar solutions.
- A collaborative approach that embraces the concepts of pollution prevention and source reduction, continuous improvement, and holistic watershed planning, which are concepts valued by both the District and the greater community.
- A cost-effective strategy for meeting phosphorus and sediment reductions required under the TMDL.
- Multiple ancillary benefits to the watershed. These include reduced loads of other pollutants such as nitrogen, the potential for improved stream habitat, and enhanced recreational value of water resources.
- An alternative that would reduce the District's carbon footprint relative to a brick and mortar solution.

The authorizing language for adaptive management is contained in Chapter NR 217 of the Wisconsin Administrative Code. Therefore, only an NR 217 regulated entity, such as the District, can advance an adaptive management project. In October, 2011, the Commission gave

formal approval for the District to initiate an adaptive management pilot project in the Yahara Watershed.

In 2012, the District, in collaboration with over 30 other municipal partners and interested stakeholders, began a four year adaptive management pilot project, called "Yahara WINS". Successful completion of the pilot project will help pave the way for implementation of a full scale adaptive management project. However, many factors must be considered and addressed to support transition to a full scale adaptive management project. Key factors identified to date are discussed in the following sections. Additional factors will likely emerge as the pilot project moves forward.

Eligibility for Adaptive Management, Anticipated Adaptive Management Timelines and Key Milestones

NR 217.18 identifies three technical requirements that must be met for a permittee to submit an adaptive management request to the WDNR. These are summarized in *Table 1* below. *Attachment 1* demonstrates that the District meets these requirements.

Table 1: Adaptive Management Eligibility Requirements

1. The receiving water exceeds applicable phosphorus water quality criteria and the exceedance is caused by both point and nonpoint sources
2. The sum of nonpoint sources and MS4 phosphorus loads exceed 50% of the total load, or the phosphorus criterion cannot be met with control of nonpoint sources
3. Documentation that the proposed water quality based effluent limit in the applicant's permit will require filtration or other equivalent treatment technology to achieve compliance

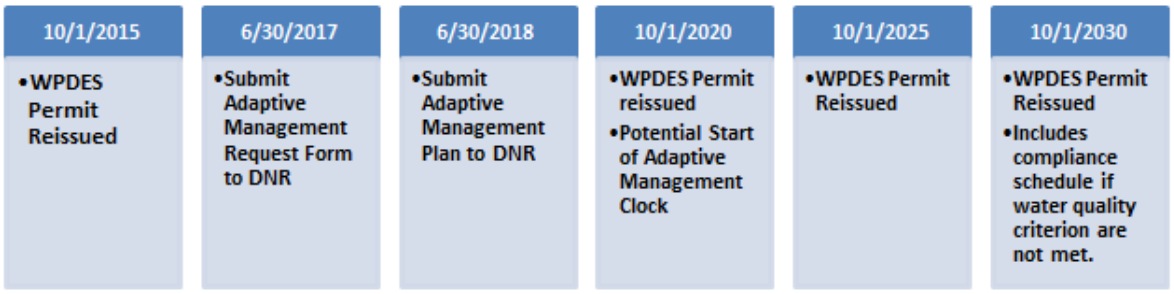
The District's current WPDES permit expires on September 30, 2015. The pilot project runs through the end of 2015. Additional time will be required to fully evaluate results, test cost assumptions, etc. so that pilot project participants can make an informed decision whether to move forward with a full scale project.

In 2012, the WDNR announced its intent to synchronize all permits within a given watershed to the same permit schedule. That schedule called for permits in the Yahara Watershed to be reissued by June 30, 2014, well in advance of pilot project completion. This could have potentially accelerated the decision-making timeline for pilot project participants. In December, 2013, the WDNR notified the District of its intent to abandon this approach and reissue the District's permit when it expires in the fall of 2015, or shortly thereafter. Subsequent discussions with WDNR staff have indicated that the WDNR plans to include a common phosphorus compliance schedule with respect to adaptive management in all permits

reissued within a given watershed. The compliance schedule dates have not been finalized, but WDNR has indicated that current tentative submittal dates for the Adaptive Management Request Form and the Adaptive Management Plan are June 30, 2017 and June 30, 2018 respectively.

Figure 1 represents a full timeline for adaptive management. As noted, the dates are potentially subject to change. Figure 1 also shows the official start of the adaptive management clock coinciding with permit reissuance in 2020. The official start could be earlier (between 2018 and 2020) if WDNR chose to revoke and reissue or modify our discharge permit following approval of the adaptive management plan. The bottom line is that we appear to have time to allow the pilot project to run to completion and assemble all of the information needed for the District and its partners to make a fully informed decision related to advancing a full scale adaptive management project. This timeline would not preclude the District and its partners from conducting activities in the Yahara Watershed that are consistent with adaptive management prior to the official start of the adaptive management time clock; it simply demonstrates that we are not currently in a time critical environment relative to adaptive management.

Figure 1: Tentative Timeline for MMSD Permit Reissuance & Adaptive Management Notification to WDNR



Key Considerations for a Full Scale Adaptive Management Project

A. Regulatory and Operational Approaches for Addressing Badfish Creek and Badger Mill Creek Under an Adaptive Management Approach

If the District moves forward with a full scale adaptive management project, effluent quality is not expected to change significantly with respect to phosphorus. *Figure 2* shows the interim effluent phosphorus limits that need to be met under adaptive management to satisfy NR 217 requirements. These provide some relief from limits that would be in place using the traditional method of calculating water quality based effluent limits, which would likely be at or near 0.075 mg/l for Badfish Creek and Badger Mill Creek, both of which are effluent dominated

streams. WDNR could also put a limits in our permit based on the Rock River TMDL. Additional clarity regarding permit limits using the traditional calculation method and TMDL derived limits will be provided by WDNR at the end of January.

Figure 2: Adaptive Management Interim Permit Limits for Phosphorus

Permit term following AM approval	1st (2020)	2nd (2025)	3rd (2030)
	AM Limits: • 0.6 mg/L as a 6-month avg. • 1.0 mg/L as a monthly avg.	AM Limits: • 0.5 mg/L as a 6-month avg. • 1.0 mg/L as a monthly avg.	Final WQBEL, which can be recalculated if water quality improves or a TMDL is approved, OR the WQBEL can equal the AM Limit in permit term 2 if the WQC is achieved [3]

The District should be able to meet the interim adaptive management limits (see *Attachment 2* for a detailed evaluation). However, several questions need to be addressed as the District considers whether to move forward with a full scale adaptive management project, including:

- What steps are needed to minimize the risk of making both the adaptive management investment and a potential future investment in tertiary treatment (albeit potentially 15 years out) to address phosphorus? A full scale adaptive management approach in the Yahara Watershed is essentially a TMDL implementation strategy, with success being defined as meeting the required TMDL reductions. Even at the end of a successful adaptive management project, Badfish Creek (and Badger Mill Creek) will not meet a 0.075 mg/l phosphorus limit.
- The Districts WPDES discharge permit identifies two effluent discharge locations (Badfish Creek and Badger Mill Creek). The District needs to determine if the adaptive management interim effluent limits will apply to both the Badfish Creek and Badger Mill Creek discharges in the absence of a formal adaptive management project in the Badger Mill Creek/Sugar River Watershed.
- If the interim limits will apply to the Badger Mill Creek/Sugar River discharge in the absence of a formal adaptive management project in the watershed, will this be conditioned on the District taking some steps to reduce phosphorus loads (e.g. water quality trading) in the Badger Mill Creek/Sugar River Watershed? If not, should the District voluntarily take steps to reduce phosphorus loads in the the Badger Mill Creek/Sugar River Watershed?

In early discussions with WDNR and EPA regarding adaptive managment, District staff emphasized the need for a regulatory solution to address Badfish Creek (and Badger Mill Creek) as a condition for moving forward with a full scale adaptive management project. Given the high level of interest that both agencies have in gaining experience with adaptive management, District staff is optimistic that solutions for both Badfish Creek and Badger Mill Creek can be implemented to reduce the risk of making both the adaptive management investment and a brick and mortar investment to address phosphorus.

In the short term, a reasonable approach would be to obtain an agreement from WDNR and EPA that the adaptive management interim phosphorus limits would apply to both Badfish Creek and Badger Mill Creek, even if a full scale adaptive mangement project is limited to the Yahara Watershed. Whether this requires obtaining a variance for Badger Mill Creek needs to be determined, as would potential conditions included as part of a variance. Variances typically impose additional requirements such as implementing pollution prevention and source reduction requirements. It is possible that ancillary activities required under adaptive management (e.g. plant optimization and implementing pollution prevention/source reduction measures, where applicable) would be sufficient conditions under a variance.

District staff has considered options for a more permanent solution for both Badfish Creek and Badger Mill Creek. Development of site specific criteria for both streams would provide a permanent solution which needs to be carefully evaluated. To be a viable option, the site specific criteria would need to be at or close to current effluent concentrations. A site specific criteria lower than current effluent concentrations could work if combined with adaptive management, water quality trading or the inclusion of treatment technology that provides a higher level of treatment for a portion of the District's effluent volume (perhaps as part of a chloride solution or an effort to expand effluent reuse options).

NR 102.06 (7) allows for the development of site specific criteria for phosphorus where site-specific data and analysis using scientifically defensible methods and sound scientific rationale demonstrate a different criterion is protective of the designated use of the specific surface water segment or water body. Preliminary discussions with WDNR indicate that existing stream biology (e.g. macro invertebrate and fish communities) will be a factor in determining whether a stream is eligible for development of site specific criteria and will likely be a factor considered when determining the actual site specific value. It is currently unknown where the bar will be set for stream biology and whether it will be a function of the stream's designated use.

WDNR plans to codify a site-specific criteria development process, which will include codifying the specific factors to be considered when developing site specific criteria. WDNR intends to

form an advisory committee in early 2014 to assist with the process, which may not be completed until 2016. The timing of this process appears to align well the adaptive management timeline discussed earlier. The District would know whether this is a viable option prior to making an adaptive management determination. The District has asked to be represented on the WDNR advisory committee.

There are some additional regulatory approaches that need to be more closely evaluated. These include:

- Determining whether a Use Attainability Analysis could be helpful. For Badfish Creek, the upper portion of the creek is currently identified in NR 104 as a variance water. The possibility of extending this determination to the lower parts of Badfish Creek should be explored.
- Determining whether positioning a full scale adaptive management project for the Yahara Watershed as the formal TMDL implementation strategy for the watershed would reduce risk. The TMDL focus would be on load reductions.
- Positioning an adaptive management project to allow for a smooth transition to a water quality trading program, if need be. WDNR acknowledges that this can be a viable long term compliance option if the applicable numeric water quality criterion for phosphorus is not met by the end of the adaptive management period.

There are some options available for Badger Mill Creek that are not available for Badfish Creek. For example, the District could completely eliminate effluent return to Badger Mill Creek and discharge all effluent to Badfish Creek. Alternatively, effluent flow to Badger Mill Creek could be reduced and coupled with a water quality trading program. A more thorough evaluation of options and a recommended approach for Badger Mill Creek is provided in *Attachment 3.*

There may be a role for treatment as part of an overall solution, with treatment being driven by other considerations. For example, the District currently operates under a chloride variance. The variance includes target and interim chloride limits and requires that the District implement a chloride pollution prevention/source reduction program. Ideally, the increasingly stringent chloride criterion can be met through pollution prevention/source reduction initiatives alone. If not, additional treatment of at least a portion of the effluent may be necessary, with the treated effluent being combined with the remaining effluent to lower overall chloride concentrations. The technology needed to reduce chloride levels would also likely reduce a number of other pollutants, including phosphorus. Therefore, treatment could be part of an overall strategy employed by the District to meet multiple regulatory requirements.

As an aside, the District will be evaluating water conservation and effluent reuse options in 2014. A higher quality effluent may be required to support certain effluent reuse options.

B. Organizational and Governance Structure

The Adaptive Management Pilot Project is a collaborative effort involving 25 municipal point sources (POTWs and MS4s), 2 non-municipal point sources, 4 funding partners (3 community organizations and USGS), an association of agricultural producers, and several other interested parties. From an organizational standpoint, the pilot project has been able to proceed on a relatively informal basis of operating under a Memorandum of Understanding for two reasons. The first, and most important, is that it is not operating as part of an enforceable permit issued by WDNR. Second, the total amount of funds being managed under the pilot project, while significant, is not large.

If the District moves forward with full implementation of adaptive management, it will be doing so on a larger geographic scale, with significantly larger financial commitments from partners, and in the context of enforceable permit conditions. Organizational considerations associated with full scale implementation include the following:

1. Development of a new Memorandum of Understanding (MOU) concerning the standards and methods for evaluating adaptive management success, particularly since adaptive management would be used as a tool for addressing TMDL reductions. The District has begun the process of identifying key considerations that would need to be reflected in the MOU and will engage WDNR in relevant discussions in 2014.

2. Development of a more formal structure to keep the various municipal and other partners engaged in the full scale project. The fundamental issue for the parties contributing funds to the project is how funds will be raised and spent. In part, this includes an agreement on an assessment process, but the primary issue is a matter of establishing a governance and decision-making process to enable these parties to deal with the regulators (WDNR and EPA) and with the non-point sources. Municipal entities, including wastewater utilities, have specific statutory authority under Wis. Stat. § 66.0301 to enter into agreements to jointly exercise any power that they can exercise individually. Such agreements are relatively commonplace and have been used for a variety of intergovernmental purposes including cost sharing. The District's legal counsel recommends that this well established structure be used for the municipal entities and serve as the primary organizing document for a full scale adaptive management project. There are a number of ancillary issues related to formation of a 66.0301 group that will need to be further explored and addressed if we move forward

with this option. An example includes the need for a separate agreement between the 66.0301 group and the other non-municipal funding sources with respect to the way in which funds will be received, accounted for and spent.

3. Developing formal accountability between point and non-point sources. The District and other point sources will be accountable to WDNR and EPA if the adaptive management conditions are not met. There is no direct accountability between nonpoint sources and WDNR. In an adaptive management project, accountability needs to be obtained by the point sources through contracts with nonpoint sources. Such an agreement would need to include, at a minimum, the following:

    - Identification of the projects and participants.
    - Established provisions to ensure that the nonpoint parties undertake the contracted project. This would include inspection and access provisions. In addition, if the nonpoint entity fails to perform there should be some ability to recoup funds expended.
    - Agreement on obtaining data for quantifying phosphorus reductions from nonpoint sources through modeling or monitoring. Agricultural producers have expressed some concern about field specific information being in the public domain, but some mechanism will need to be found that balances producer concerns with the need to demonstrate verifiable phosphorus reductions as part of the District's permit requirements.

    The above tasks could be undertaken directly by the 66.0301 group or through a broker, such as Dane County. In the event that Dane County undertakes that role, there should be a written contract between the 66.0301 group and Dane County, specifying the scope of services provided and the consequences of a failure of performance by them and/or the nonpoint sources. A broker would make administration easier for the point sources and possibly allow some shielding of field specific data. Whether the County would be willing to be accountable to the point source dischargers in the event of a nonpoint failure and what accountability would "look like" both require further discussion.

    If these tasks are undertaken directly by the 66.0301 group, it will be necessary to identify nonpoint sources or groups that have the capacity to enter into legally binding contracts. In this regard, it is unclear whether the Yahara Pride Farm group or the Clean Lake Alliance could serve as a broker through which the 66.0301 group could contractually engage farmers. This requires further evaluation.

4. Wisconsin Statutes were recently revised to allow a wastewater treatment plant to hold more than one WPDES permit. This opens the door for development of a watershed based permit to address phosphorus and TSS. Whether a watershed permit would help or hinder an adaptive management project needs to be evaluated. As an aside, there are seven individual WPDES discharge permit holders (MMSD, Village of Arlington WWTP, Village of Oregon WWTP, Stoughton Utilities, MG&E, WDNR Nevin Fish Hatchery, and the City of Middleton-Tiedeman Pond Project) participating in the pilot project. Many of the MS4 communities participating in the pilot project are operating under a joint storm water permit, and those that aren't operate under the WDNR general storm water permit.

C. Adaptive Management Partners

The adaptive management pilot project has a high level of participation. With two exceptions (Town of Madison and City of Sun Prairie), all entities identified in the Rock River TMDL as having both a phosphorus discharge to the Yahara Watershed and an associated phosphorus reduction are participants in the pilot project, along with numerous other stakeholders. They are participating in the pilot project for two primary reasons:

- Preliminary cost estimates indicated that adaptive management was the least costly approach to meet phosphorus reductions required under the TMDL
- An expectation that participants in a properly designed full scale adaptive management project would be deemed by WDNR to be in compliance with TMDL obligations, and where applicable, WPDES permit obligations.

Participation may also likely be influenced by the "value added" proposition of adaptive management. Practices that control phosphorus and TSS in an adaptive management project will also result in some control of other pollutants (e.g. nitrogen) and may contribute to improved habitat in receiving streams, etc. In addition, adaptive management may represent the only viable approach to meet phosphorus reductions goals for the Yahara lakes, which is of interest to the broader community.

Retention of pilot project participants in a full scale project will likely depend on: 1) the ability to continue to demonstrate the business case for participation-i.e. participation is the least costly option for meeting regulatory requirements under the TMDL; and 2) WDNR agreement that participation in the adaptive management project satisfies TMDL and WPDES permit reduction requirements. The potential for future regulatory requirements that could impact the business case needs to be assessed.

District staff is working with others, including Dane County and the City of Madison Engineering Department to develop a revised cost estimate. Currently, efforts are focused on developing the fundamental structure for a revised cost model and assembling many of the input factors. For example, pilot project data may indicate that initial assumptions regarding the change in the phosphorus index (PI) associated with various phosphorus reduction practices need to be adjusted. One of the critical input factors is accurately determining the phosphorus load reduction that the adaptive management project needs to address. *Attachment* 4 details efforts in this regard. Once load reductions are known, an evaluation is required to determine whether sufficient phosphorus reduction capacity exists in the Yahara Watershed to accomplish the required reductions *(see Attachment 5).*

Discussions with WDNR have indicated that a properly designed adaptive management project would satisfy the TMDL obligations of participants. It will be critical that this be acknowledged more formally through a development of a new MOU or some other binding document before the District and other partners commit to participating in a full scale project. District staff is engaging in discussions with WDNR staff regarding development of a new MOU.

A full scale adaptive management project could still proceed if some of the pilot project participants dropped out, since these entities would still need to meet their TMDL required reductions. However, the risk of a full scale project not meeting applicable numeric criteria increases as the number of participating entities decreases, since the ability to work in a coordinated manner throughout the watershed may also decrease. In addition, the loss of an entity having a large reduction requirement under the TMDL would be more problematic than the loss of an entity having a relatively small reduction requirement.

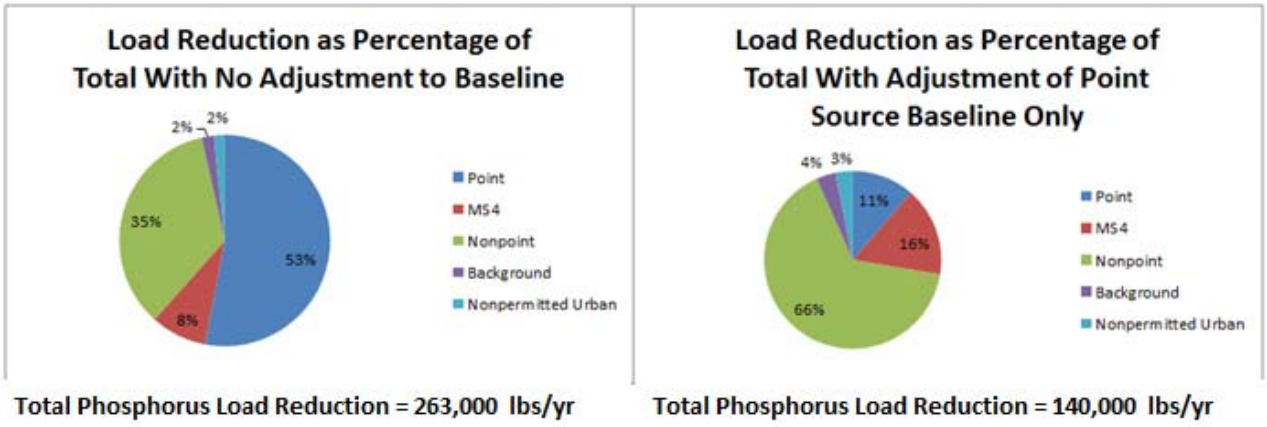
It should be noted that participation in a full scale project does not mean that participating entities can't or won't take certain actions independently within their municipal jurisdictions. MS4 entities still have obligations under NR 151, or may take independent actions for other reasons, and then participate in adaptive management to offset the remainder of their obligation. This would be no different than the District taking credit for improvements in effluent quality or reductions associated with Ostara. This does however highlight the need for both a robust accounting system and a process for making sure all entities are following a consistent methodology for "valuing" reductions achieved through independent actions. We are working on developing this methodology. For example, the District has gotten WDNR to agree to perform consistency reviews for all MS4 storm water modeling efforts using agreed upon criterion.

D. Determining Phosphorus Reduction Requirements and Whether Sufficient Reduction Capacity Exists in the Yahara Watershed

Determining the pounds of phosphorus that must be reduced in a full scale adaptive management project is critical. This will directly impact the cost of a full scale project and assessments regarding whether sufficient capacity exists in the Yahara Watershed to achieve the required phosphorus reductions. While determing the phosphorus reduction requirements may appear to be relatively easy given that a TMDL exists, simplifying assumptions were used in the TMDL to define baseline conditions. WDNR has agreed that baselines can be adjusted using more recent information. *Attachment 4* identifies actions being taken by the District in determining the phosphorus reduction requirements, which includes making adjustments to baselines for all three major source categories (wastewater, municipal stormwater, and agriculture). Adjusting the baselines will likely reduce the overall phosphorus reduction requirement and alter the relative reductions required by each individual source.

An example of how adjustments to the baseline can impact the overall phosphorus reduction requirement and the relative reductions required by each source category is shown in *Figure 3*. In this example, only the baseline for point sources has been adjusted. This is a straightforward adjustment to make since actual flows and effluent phosphorus concentrations are known and can be substituted for baseline assumptions used in the TMDL (design flow and an effluent phosphorus concentration of 1 mg/l). The total phosphorus load reduction for the watershed is reduced and the relative reductions required by source category are altered. Cost allocations, by source, will also be impacted if this allocation method is used in a full scale adaptive management project.

Figure 3: Phosphorus Load Reduction for the Yahara Watershed as Impacted by Adjusting Baseline Assumptions for Point Sources Only



Once the phosphorus reduction requirements are fully understood, the District will need to assess whether sufficient capacity exists in the Yahara Watershed to achieve the phosphorus reductions required under a full scale adaptive management project. An adaptive management project cannot move forward if sufficient phosphorus reduction capacity in the watershed cannot be demonstrated using realistic assumptions. Capacity considerations are identified in *Attachment 5*.

E. Building a Framework to Support Transition to a Full Scale Adaptive Management Project

The adaptive management pilot project area is well defined and efforts need to be primarily focused in and around this area. However, the pilot project also needs to "plan for success" by building support for adaptive management throughout the watershed and putting a system in place that facilitates transition to a full scale adaptive management project. Examples include:

1. **Building a water quality monitoring program for the entire Yahara Watershed**:
   A robust water quality monitoring program will be needed to support a full scale adaptive management program. District staff has developed a draft water quality monitoring approach based on input from WDNR, USGS and Dane County (see *Attachment 6*). Revisions are likely as additional information is gained during the pilot project. For example, we are currently working with a number of partners to develop a map showing active water quality monitoring locations in the Yahara Watershed. This map will help identify monitoring gaps (if any) and determine whether additional water quality monitoring locations are needed. Based on a preliminary evaluation of monitoring locations, we have engaged in discussions with USGS about potentially adding water quality monitoring capabilities on the Yahara River at the Fulton gaging station. We have also discussed the possibility of siting a new gaging station on Nine Springs Creek near Moorland Road.

   Yahara WINS needs to look for cost effective opportunities to expand water monitoring capacity in the watershed. One approach is to support volunteer citizen monitoring programs. In 2013, Yahara WINS provided funding for a volunteer citizen monitoring program in the pilot project area that was coordinated by the Rock River Coalition. Yahara WINS is providing additional funding in 2014 to support the expansion of this effort to areas outside the defined pilot project area. In addition to generating water quality monitoring data, the citizen monitoring program will help with community engagement.

2. **Building relationships with farm producers throughout the entire Yahara Watershed:** Agricultural entrerprises vary throughout the watershed. There is a high density of dairy operations in the upper part of the watershed. The lower part of the watershed has a higher density of cash crop operations. Producers in the upper part of the watershed have organized under the banner of the Yahara Pride Farm Group, which has worked closely with the Yahara WINS pilot project. Yahara WINS needs to develop a similar relationship with producers throughout the watershed to help successfully implement a full scale project. One of the 2014 goals for Yahara Pride is to expand to other parts of the watershed. Yahara WINS recognizes the need to play a supporting role, which includes funding phosphorus reduction practices outside of the pilot project area to generate producer support.

   In addition, for adaptive management to succeed, an entity (or entities) will need to be identified that will function in a broker role for the adaptive management project. Among other responsibilities, the broker(s) will be charged with engaging agricultural producers. The pilot project is evaluating the ability of the Dane County Land and Water Resources Department to effectively serve in the role of a broker. 2014 will be a critical year in this regard. It is possible, and in fact likely, that a full scale adaptive management project will require multiple brokers to engage agricultural producers. The District has a long history of engaging farmers in the Yahara Watershed through its Metrogro Program, and could play a brokering role. This would likely require adding staff, which could be supported using funds provided by Yahara WINS participants. This option needs to be further explored, as do other options, including working with agricultural co-ops.

F. Funding of a Full Scale Adaptive Management Project

In the pilot project, costs are allocated to point sources, nonpoint and MS4s, proportional to the phosphorus reduction required to meet their respective TMDL allocations. For example, if an MS4 is responsible for 10% of the total phosphorus reduction in the Yahara Watershed, that MS4 is assigned 10% of the pilot project cost. This same allocation method was used to assign projected costs under a full scale adaptive management project. This allocation method appears to generally be viewed as fair by municipal partners, who also realize that their contributions to an adaptive project will fund phosphorus reduction practices outside of their municipal boundaries, including nonpoint reduction practices.

It seems reasonable at this time that the above cost allocation approach would continue to be used in a full scale project, although it is possible that other allocation methods may surface that could meet a “fair and equitable” test. One of the challenges associated with the above

approach or any approach that allocates cost to nonpoint is identifying how the nonpoint share will be funded. If unadjusted baseline information from the TMDL is used, the nonpoint share would be approximately 50% of the full scale program cost. Once adjustments to the baseline are made, it is possible that nonpoint share may be much larger, which amplifies the above mentioned challenge.

The nonpoint share in the pilot project is fully funded from multiple sources (e.g. USDA, Dane County). The Yahara Pride Farm Group has been successful in obtaining vendor support for phosphorus reduction demonstration projects. Multiple funding sources will also be needed in a full scale project to address the nonpoint share. Examples could include:

- Contributions from individual producers under cost sharing agreements
- Federal programs such as the Environmental Quality Incentives Program **(**EQIP**)** program administered through USDA
- State programs such as the targeted runoff management program
- Dane County
- Conservation and similar groups (e.g. Sand County Foundation, Natural Heritage Land Trust)
- Private sector or corporate funding

To move forward with a full scale project, there needs to be a reasonable expectation that funds can be secured to cover the nonpoint share. Roles and responsibilities for identifying and securing these funds need to be detemined. Creative funding approaches need to be explored, including tapping into funds that support projects where phosphorus control may not be the primary objective, but is none the less accomplished. Since many funding sources will be "soft" sources, which are generally short term in duration (e.g. there is a four year agreement with USDA for funds associated with the pilot project grant), there will likely be some uncertainty with regard to how the nonpoint share will be funded in the out years of the full scale project. Careful thought needs to be given regarding steps to be taken if this occurs.

G. Communication and Messaging

A draft communications strategy was developed in 2012 to help guide communication efforts related to adaptive management (*Attachment 7*). Significant communications related to adaptive management have occurred, primarily focused on information sharing with adaptive management partners, and engagement with DNR and EPA on regulatory related issues.

Information sharing activities have been generally successful and have relied on a variety of approaches. These include use of newsletters, semiannual and annual reports, quarterly Yahara WINS meetings, presentations at meetings sponsored by partnering organizations,

maintenance of a Yahara WINS website, and other similar activities. While most of the emphasis has been on reaching out to adaptive management partners, efforts have been made to share information with broader audiences at the state, regional and national levels who have an interest in gaining insights on this new compliance strategy.

Communications with regulatory agencies (DNR and EPA) have also been successful. For example, work with DNR and EPA led to the creation of a new category for the 303(d) list of impaired waters, for waterbodies that are part of an adaptive management pilot, a full scale adaptive management project, a water quality trading project or a larger watershed effort. Badfish Creek was placed in this category, which reduces the short term risk of making both an adaptive management investment and a brick and mortar investment to address phosphorus.

One challenge related to communication is that there are numerous programs underway in the watershed that have similar or complimentary goals (e.g. Yahara WINS pilot project, Yahara CLEAN implementation, Yahara Pride initiatives, Clean Lakes Alliance initiatives, Mississippi River Basin Initiative/EQIP Program, and initiatives undertaken by the Dane County Land and Water Resources Department). In addition, there are multiple messengers and many messengers wear multiple hats. This may lead to confusion, resulting in potential delays with practice implementation. Effective communication will also be important as the District engages with DNR and EPA to identify a long-term regulatory option to address Badfish Creek and Badger Mill Creek, and develops a Memorandum of Understanding on how TMDL related issues will be addressed under a full scale adaptive management project.
A 2014 focus will be on implementing a strategic, coordinated approach to communications, with well-defined objectives tailored to specific audiences, including non-point partners and regulators.

Summary

The District, along with multiple partners, is testing the adaptive management concept through the Yahara WINS pilot project. This paper identifies and provides supporting information on several important factors that need to be considered when evaluating a potential transition to a full scale adaptive management project. It is intended to facilitate discussion between the Commission and District staff. Additional considerations for discussion with the Commission will likely emerge as the adaptive management pilot project progresses. The current adaptive management timeline will allow sufficient time to complete the pilot project, assemble and evaluate relevant information, and hold discussions needed to support making an informed decision regarding transition to a full scale adaptive management project.

Supporting Attachments

Attachment 1: Technical Eligibility Requirements for an Adaptive Management Project

There are three technical requirements that must be met in order to move forward with a full scale adaptive management project. These technical eligibility requirements are found in NR 217.18(2) and are summarized as follows:

1. The receiving water is exceeding applicable phosphorus criteria and the exceedance is caused by phosphorus contributions from both point and nonpoint sources.
2. The combined contributions from nonpoint and municipal separate storm sewer systems (MS4s) to the receiving water is at least 50 percent of the total phosphorus load, or it can be demonstrated that applicable phosphorus water quality criteria cannot be met in the watershed without the control of phosphorus from nonpoint sources.
3. Filtration or an equivalent treatment technology for the point source is required to meet the proposed/new phosphorus limit.

All three technical eligibility requirements would be met in a full scale adaptive management project envisioned by the District. The action area for the project would consist of the entire Yahara Watershed. The Rock River TMDL identifies several stream segments in the Yahara Watershed that exceed the applicable phosphorus criteria and are considered impaired by phosphorus. Although Badfish Creek was not identified as impaired by phosphorus in the TMDL, it was recently added to the list of impaired waters because it exceeds the applicable phosphorus criterion.

The Rock River TMDL identifies all phosphorus sources within the Yahara Watershed, with agriculture being identified in the aggregate. Under baseline conditions assumed in the TMDL, nonpoint sources combined (agriculture, MS4s, non-permitted urban and background) contribute 53% of the phosphorus load in the Yahara Watershed, with point sources contributing 48% (*Figure 1*). However, the TMDL baseline assumptions overestimate the percentage contributions from point sources because it is assumed that point sources are at design flows and an effluent concentration of 1 mg/l. For example, the baseline phosphorus load attributed to the District in the TMDL is approximately 152,000 lbs. per year under a design flow of 50 mgd, with the assumption that the entire design flow is discharged to Badfish Creek. Actual loads using the most recent four year average in the WDNR database shows that the District has an average annual discharge to Badfish Creek of 38.5 mgd, at an effluent concentration of 0.27 mg/l, resulting in a phosphorus load of approximately 33,000 lbs. per

year. If baseline loads are adjusted for point sources using actual flow and effluent concentrations, nonpoint sources combined contribute 81% of the phosphorus load in the Yahara Watershed, with point sources contributing 19% (see *Figure 2*).

In addition, as part of the Rock River Basin TMDL, the WDNR evaluated whether applicable water quality criteria for phosphorus could be met under scenarios where point discharges or nonpoint discharges were set to zero. The analysis showed that neither control scenario alone would result in the criteria being met. Thus, the above information demonstrates that the first two technical eligibility criteria for an adaptive management project in the Yahara Watershed would be met.

The third technical eligibility criterion requires a demonstration that the District would need filtration or an equivalent treatment technology to meet the proposed/new phosphorus limit. In May, 2011, the District engaged the engineering consulting firm of CH2MHill to evaluate treatment technologies and the associated life cycle cost for nine scenarios with respect to phosphorus and nitrogen effluent limits. These scenarios included potential phosphorus effluent limits alone and in combination with nitrogen limits. All nine scenarios are shown in *Table 1*. Scenario 2 was based on meeting a TMDL limit derived from a back calculation from the most limiting monthly phosphorus load allocation for the District in the Rock River TMDL. Scenario 3 was based on meeting an effluent concentration of 0.075 mg/l, which is the current applicable phosphorus water quality criterion for Badfish Creek. The CH2MHill report determined that filtration technology would be required to meet any of the three phosphorus limits considered in the evaluation, which meets the third technical eligibility requirement for adaptive management.

TABLE 1
Nutrient Discharge Limit Scenarios for Treated Effluent

Scenario	Total Phosphorus, mg/L	Total Nitrogen, mg/L
1	0.225 [2]	None [1]
2	0.130 [2]	None [1]
3	0.075 [3]	None [1]
4	0.225 [2]	10 [2]
5	0.130 [2]	10 [2]
6	0.075 [3]	10 [2]
7	0.225 [2]	3 [2]
8	0.130 [2]	3 [2]
9	0.075 [3]	3 [2]

[1] Existing ammonia limits apply

[2] Monthly average concentrations

[3] Annual average concentrations

Figure 1: Baseline P Loads in Yahara Watershed by Source Category

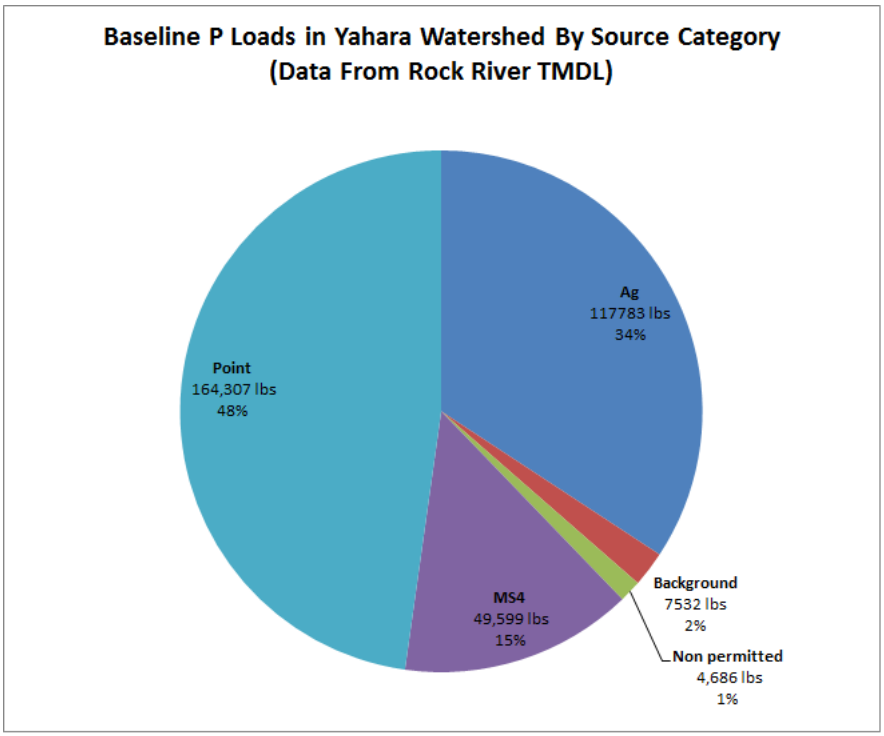
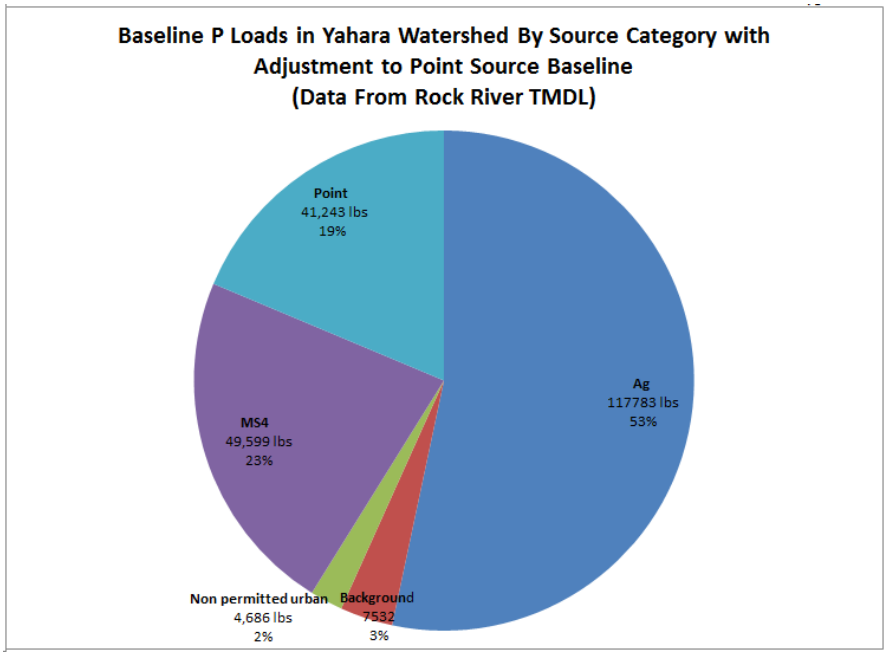


Figure 2: Baseline P Loads in Yahara Watershed by Source Category with Adjustment to Point Source Baseline



Attachment 2: Adaptive Management Interim Phosphorus Limits Evaluation

Adaptive Management would require that the District meet the phosphorus effluent limits identified in *Table 1* below. Assuming that the adaptive management time clock starts with the reissuance of the District's discharge permit in 2020, effluent P levels (six month average) cannot exceed 0.6 mg/l during the first permit term (2020-2024) or 0.5 mg/l during the second permit term (2025-2029). The averaging periods used by WDNR are broken down by growing season (May-Oct) and the non-growing season (Nov-Apr). The growing season refers to the time when conditions generally support the growth of algae and other in-stream vegetation. In addition, a monthly average of 1.0 mg/l cannot be exceeded.

Table 1: Adaptive Management Interim Permit Limits for Phosphorus

Permit term following AM approval	1st (2020)	2nd (2025)	3rd (2030)
	AM Limits: • 0.6 mg/L as a 6-month avg. • 1.0 mg/L as a monthly avg.	AM Limits: • 0.5 mg/L as a 6-month avg. • 1.0 mg/L as a monthly avg.	Final WQBEL, which can be recalculated if water quality improves or a TMDL is approved, OR the WQBEL can equal the AM Limit in permit term 2 if the WQC is achieved [3]

District effluent data for the past six years is shown in *Table 2*. The maximum six month average phosphorus concentration during this time period was 0.36 mg/l, and the maximum monthly average phosphorus concentration during this time period was 0.55 mg/l. Looking back at the entire 15 years of record since the District implemented the biological phosphorus removal process shows that the 0.6 mg/l limit (six month average) was never exceeded and the 0.5 mg/l limit (six month average) slightly exceed on two occasions (0.51 mg/l in May-Oct of 2000 and 0.53 mg/l in May-Oct of 2004). The 1.0 mg/l monthly average has never been exceeded since the District implemented biological phosphorus removal. The highest monthly average phosphorus concentration during this time period was 0.75 mg/l.

While past operational history is informative, the addition of acid digestion and the Ostara process introduces a new variable that must be considered. Biological phosphorus removal is impacted by the biological oxygen demand (BOD) to phosphorus ratio. If the Ostara process is shut down, this ratio could be impacted, which may result in an increase in the effluent phosphorus concentration. The greatest risk is a potential exceedance of the 1.0 mg/l monthly limit. Risk can be reduced by through a robust maintenance program, which includes

maintaining an inventory of critical parts that have a long lead time. The District will need experience with the Ostara system to define those components that may be prone to failure.

Table 2: MMSD Historical Average Effluent Phosphorus Concentrations

	Nov-Apr	May-Oct
	----------mg/l----------	
2008	0.30 (0.33)	0.32 (0.41)
2009	0.24 (0.29)	0.36 (0.47)
2010	0.22 (0.28)	0.34 (0.41)
2011	0.24 (0.29)	0.34 (0.55)
2012	0.22 (0.33)	0.32 (0.51)
2013	0.19 (0.24)	0.25 (0.39)

*Six month average in black-maximum month in red

Attachment 3: Badger Mill Creek Options Evaluation

Background: Badger Mill Creek Options Evaluation:

Badger Mill Creek is an effluent dominated stream downstream of MMSD's aerator (*Map 1*). The applicable phosphorus water quality criterion for Badger Mill Creek is 0.075 mg/l. The Nine Springs Wastewater Treatment Plant produces a high quality effluent with respect to phosphorus (*Table 1*) but the effluent phosphorus concentration exceeds the 0.075 mg/l phosphorus criterion. Badger Mill Creek does not meet the applicable water quality criterion upstream of MMSD's aerator and the Sugar River does not appear to meet the applicable water quality criterion downstream of the confluence with Badger Mill Creek (*Exhibit 1*).

It is expected that when the District's WPDES discharge permit is reissued in 2015, it will contain a water-quality based effluent limit (WQBEL) for Badger Mill Creek that is at or close to 0.075 mg/l. The permit will also contain a compliance schedule for addressing phosphorus. The maximum length of a compliance schedule under NR 217.17 is seven years, unless filtration is required, in which case the compliance schedule could be up to nine years.

There are six basic compliance options as well as logical combinations of approaches for addressing phosphorus discharges to Badger Mill Creek:

Option 1: Diversion of Flow to Badfish Creek:

The District currently returns 3.6 mgd of effluent to Badger Mill Creek, which offsets the majority of wastewater that is pumped out of the Sugar River Basin to the Nine Springs Plant for treatment. The District could completely eliminate or significantly reduce the effluent volume that is returned to the Sugar River Basin through a discharge to Badger Mill Creek. A built-in assumption with this option is that sufficient capacity exists for whatever option is used to address Badfish Creek. For example, if all of the Badger Mill Creek flow was diverted to Badfish Creek, approximately 2,500 lbs. of phosphorus per year would also be diverted (*Table 2*). It is unclear at this time whether sufficient capacity exists in the Yahara Watershed to offset this additional load if either adaptive management or trading is selected as the long term compliance strategy for the Yahara. However, this would likely be "noise" in the system (e.g. a small addition to the overall load reduction).

The District's annexation of the old Verona Wastewater Treatment Plant was conditioned on returning effluent to the Sugar River Basin to offset the reductions to base flow resulting from groundwater pumping and diversion of wastewater from the basin to the Nine Springs Wastewater Treatment Plant for treatment. Diversion of all effluent flow would likely have a deleterious effect on the fishery in Badger Mill Creek. However, partial diversion of flow may still allow for a viable fishery and may increase the likelihood that the District could use water

quality trading or adaptive management as the long term compliance strategy for Badger Mill Creek. It should be noted that the District already reduces flow to Badger Mill Creek during the winter in response to mass limitations for chloride in the Districts WPDES permit.

Option 2: Water Quality Trading

The excess phosphorus load to Badger Mill Creek could potentially be offset through a water quality trading program. The Wisconsin Department of Natural Resources has developed guidance for implementing a water quality trading program. That guidance includes the application of a trade ratio to account for a variety of uncertainties associated with trading. The trade ratio is a multiplier that is applied to initial phosphorus load reduction (in our case, 2,500 lbs. per year) to come up with a total phosphorus load that must be addressed. Using the WDNR guidance document, we have estimated that a minimum trade ratio in the range of 2.5 to 3.0 is likely, with a higher trade ratio possible. Assuming that no flow is diverted to Badfish Creek, the amount of phosphorus that would have to be offset through trades would be in the range of 6,250-7,500 lbs/yr. If the effluent flow discharged to Badger Mill Creek was reduced by 50%, the phosphorus loads would also be reduced by 50% (3,125-3,750 lbs/yr). The pounds of phosphorus addressed through trading could also be reduced (or perhaps eliminated entirely) if a site specific criterion for phosphorus is developed that is higher than the current applicable criterion of 0.075 mg/l.

A concern related to water quality trading is whether there is sufficient capacity to accomplish the necessary phosphorus offsets. This is particularly a concern if trading is limited to the Badger Mill Creek Watershed and there is no diversion of flow from Badger Mill Creek to Badfish Creek. For example, there are only 6,300 acres (Table 2) of agricultural land upstream of the confluence of Badger Mill Creek and the Sugar River. A significant number of acres would need to be placed under improved practices in order to accomplish the needed phosphorus reduction. Urban practices could also be funded under a trading program, opening up much larger acreage, but urban phosphorus reduction practices are generally expensive and not very effective at addressing phosphorus. As indicated earlier, the viability of water quality trading increases as the pounds of phosphorus that need to be addressed decreases as a result of flow diversion, development of site specific criterion, or a combination of these two factors.

Option 3: Site Specific Phosphorus Criterion for Badger Mill Creek

NR 102.06 (7) allows for the development of site specific criteria for phosphorus where site-specific data and analysis using scientifically defensible methods and sound scientific rationale demonstrate a different criterion is protective of the designated use of the specific surface water segment or water body. WDNR is currently codifying the site-specific criteria development process, which will include codifying the specific factors to be considered when

developing site specific criteria. WDNR intends to form an advisory committee in early 2014 to assist with this process, which is generally quite lengthy and may not be completed until 2016. The District has asked to be represented on the advisory committee.

Preliminary discussions with WDNR indicates that existing stream biology will be a factor in determining whether a receiving water is eligible for development of site specific criteria. We are hopeful that Badger Mill Creek will be eligible for development of a site specific criteria for phosphorus based on a recent review of stream biology (macro invertebrate and fish survey information) and water quality data (e.g. dissolved oxygen information). It is not known at this time what the actual criterion would be, but it would not be unreasonable to expect that it would approach or even be equal to current effluent quality.

Option 4: Variance to Current Water Quality Criterion

Wisconsin DNR states that facility-specific variances to water quality standards, referred to as variances, must be approved by both WDNR and USEPA. Variances may be given on a facility-specific basis for the length of a Wisconsin Pollutant Discharge Elimination System (WPDES) permit term. A variance may allow extra time for a facility to come into compliance with a water quality standard. One or more of six factors listed in s. 283.15(4), Wis. Stats. must apply in order for a variance to be granted. Three of these factors may be relevant to Badger Mill Creek:

- Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the standard, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating water conservation requirements;
- Physical conditions related to the natural features of the water body, such as the lack of proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
- The standard, as applied to the permittee, will cause substantial and widespread adverse social and economic impacts in the area where the permittee is located.

The majority of variances in Wisconsin have been based on the last factor. It should be noted that a variance requires working toward water quality criteria and requires reissuance each permit term.

Under NR 104, Wisconsin DNR lists certain water bodies with a Limited Aquatic Life (LAL) or Limited Forage Fish (LFF) designation as variance waters. The effluent channel for Badfish Creek (outfall to the confluence with the Oregon Branch) is specifically identified as a variance water in Table 3 of NR 104. A portion of Badger Mill Creek (from the old Verona treatment plant

location to Hwy 69) is listed as a variance water. It was included on the list due to the discharge of effluent from old Verona wastewater treatment plant. The possibility of modifying the NR 104 listing may impact where the phosphorus criteria would be applied and warrants further investigation. Wisconsin DNR has noted their intent to streamline the "Variance Water" listing process.

Option 5: Watershed Adaptive Management

NR 217 allows for watershed adaptive management as another compliance option. For adaptive management to work in the Badger Mill Creek Watershed, all sources of phosphorus will need to be engaged. Unlike the Yahara Watershed, there is no Total Maximum Daily Load (TMDL) for phosphorus or TSS in the Badger Mill Creek/Sugar River Watersheds, which would provide a regulatory incentive to bring MS4s (City of Verona, City of Madison and Town of Middleton) and agriculture to the table in an adaptive management project. In the absence of a TMDL, the TSS reduction requirements in NR 151 (40% TSS control) could incentivize MS4 participation in an adaptive management project, as there is a relationship between TSS control and phosphorus control. However, 2011 Wisconsin Act 32 prohibits WDNR from enforcing against the 40% TSS requirement and regardless, all three MS4s appear to currently meet or exceed 40% TSS control.

The success of an adaptive management program requires meeting in-stream water quality for phosphorus as evidenced by water quality monitoring. Trading requires achieving phosphorus offset as evidenced by modeling and would be an easier test to meet. An adaptive management project in the Badger Mill Creek Watershed would not be impossible to implement, but in the absence of a regulatory driver, there does not appear to be sufficient incentive for other partners to come to the table in an adaptive management project, especially if they were expected to bear some of the cost. Given the above factors, it is not currently the recommended approach for Badger Mill Creek since the onus of meeting in-stream numeric water quality criteria would fall squarely on the District, as the only permitted point source with a discharge to Badger Mill Creek. Water quality trading appears to be a more viable option than Adaptive Management in the Badger Mill Creek

Option 6: Treatment

The cost to treat MMSD's effluent to meet phosphorus water quality standards was estimated in the CH2MHill report. The report indicates a cost range from $71-124 million to treat MMSD's entire effluent, depending on the target effluent concentration. The Districts 50 Year Master Planning effort evaluated the cost of treating a portion of the District's effluent to a higher level, followed by blending and return of the blended effluent to the Sugar River Basin. That plan also evaluated a satellite facility in the Sugar River Basin that would produce a higher

quality effluent with respect to phosphorus and nitrogen. Capital costs alone appear to be prohibitive for both scenarios.

The District also has regulatory requirements related to chloride and mercury, which it is attempting to address through implementation of pollution prevention/source reduction measures. The mercury effort is mature and has been very successful. It remains to be seen whether similar success can be achieved with chlorides. In 2014, the District will engage an engineering consulting firm and investigate treatment options for meeting future chloride limits. Evaluated options will include treating a portion of effluent to a higher quality and then blending with the remaining effluent. It is likely that any treatment option that removes chlorides would also remove other parameters such as phosphorus, nitrogen, mercury and certain pharmaceuticals. Thus, treatment may be a cost effective and viable long term option if considered in the context of reducing multiple pollutants. The treatment option will be informed by the 2014 study, the success of pollution prevention/source reduction efforts, and potential future regulatory requirements for other parameters (e.g. nitrogen). An additional synergy related to treatment is that producing a high quality effluent could expand future options for beneficially reusing effluent (e.g. groundwater recharge, cooling tower).

Recommendation

The current recommendation is to pursue development of a site specific criterion for phosphorus. Although the site specific criterion development process will not likely be codified until 2016, District staff believe that Badger Mill Creek will be a good candidate for development of a site specific criterion, based on a review of stream biology (macro invertebrate and fish surveys) and water quality data (e.g. dissolved oxygen levels). It is not known at this time what the actual criterion would be, but it would not be unreasonable to expect that it would approach or even be equal to current effluent quality. If a reduction in phosphorus loads was still required, the difference could be offset by water quality trading, reducing the volume of effluent returned to Badger Mill Creek, or a combination of these two approaches. This strategy will allow the District to keep future options open as other potential drivers evolve. Drivers could include factors such as future regulatory requirements for chlorides or other parameters, and water reuse considerations.

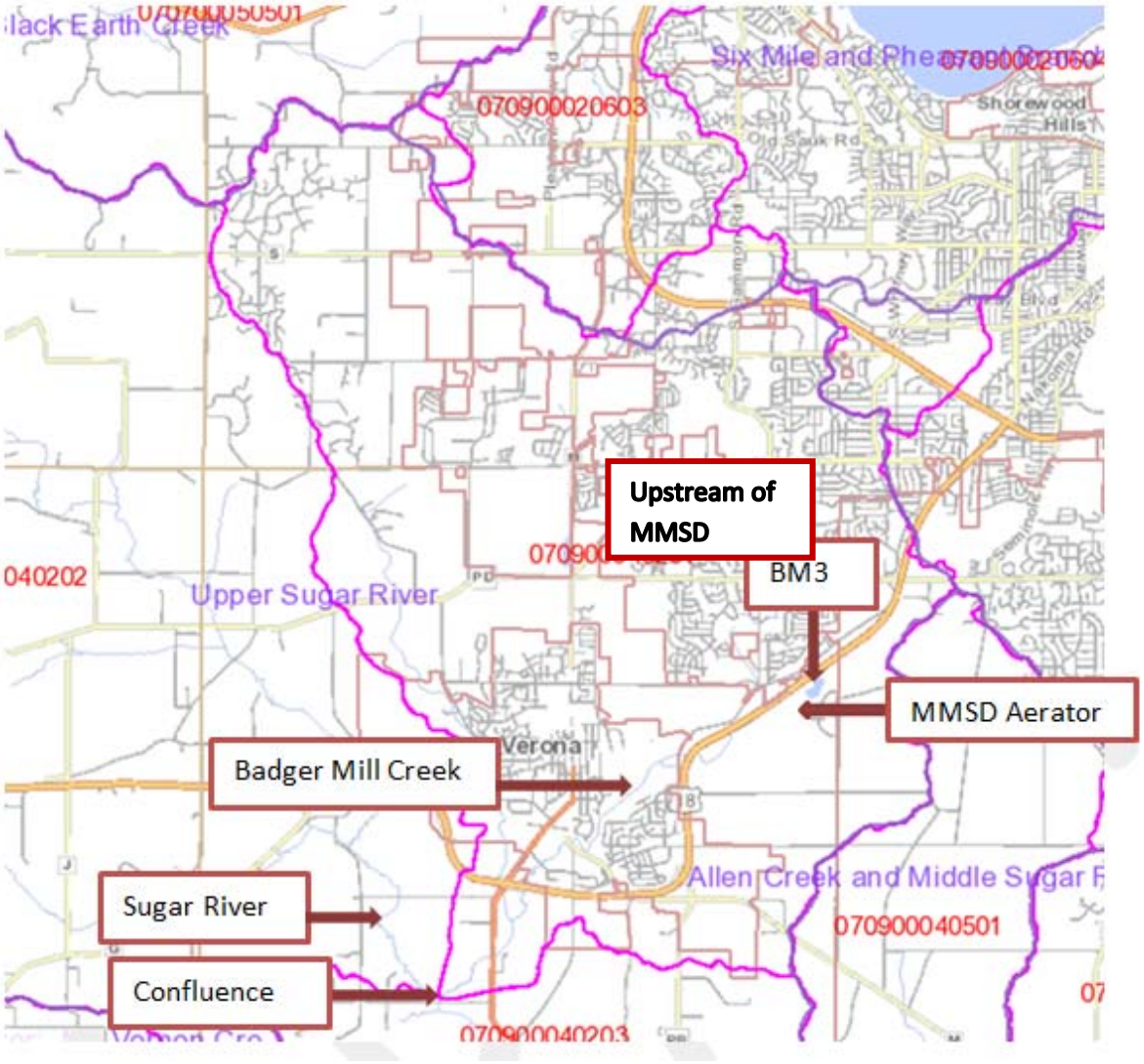
Table 1: MMSD Historic Effluent Quality*

	Nov-Apr	May-Oct
	----------mg/l----------	
2008	0.30 (0.33)	0.32 (0.41)
2009	0.24 (0.29)	0.36 (0.47)
2010	0.22 (0.28)	0.34 (0.41)
2011	0.24 (0.29)	0.34 (0.55)
2012	0.22 (0.33)	0.32 (0.51)
2013	0.19 (0.24)	0.25 (0.39)

*Six month average in black-maximum month in red

Table 2: Badger Mill Creek Watershed acreages, land use types and potential offsets required for water quality trading and adaptive management.

Watershed Description	Acres	Agriculture (Acres)	Urban (Acres)	Offset Req'd Adaptive Mgt (Pounds/year)	Offset Req'd Trading (Pounds/year)	Average Trade Ratio
Badger Mill Creek - above aerator (1)	8579	1676	6277	2466	6125	2.5
Badger Mill Creek - where it meets (2) Sugar River (includes #1 above)	21099	6315	13230	3396	6125	2.5
Sugar River - where it meets Badger (3) Mill Creek	29622	20639	4826	N/A	N/A	N/A
Badger Mill Creek and Sugar River where they meet (sum of #2 and #3)	50721	26955	18056	75341	7398+/-	3+


Upstream of MMSD
BM3
MMSD Aerator
Badger Mill Creek
Sugar River
Confluence
040202
Upper Sugar River
070900020603
Verona
Allen Creek and Middle Sugar R
070900040501
Shorewood Hills

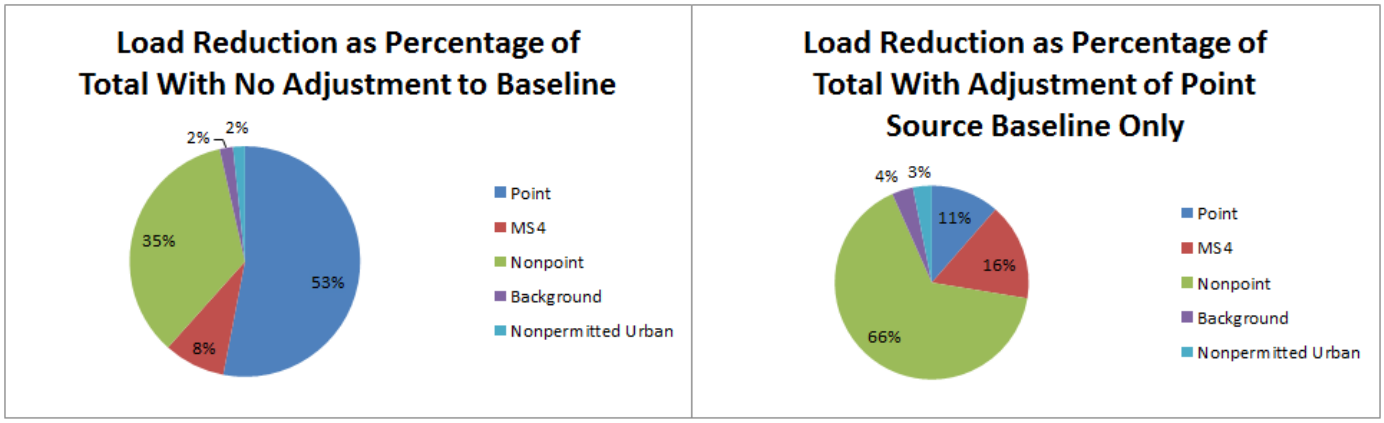
Attachment 4: Phosphorus Reductions Needed Under a Full Scale AM Project

At first glance, determining the phosphorus reduction requirements for a full scale adaptive management project seems relatively easy. The Rock River TMDL identifies both an annual baseline load and an annual allocation for entities with discharges to the Yahara Watershed. The difference between baseline and the allocation, summed up across all entities (with agriculture considered in the aggregate) equals the required load reduction. Using this approach, the required phosphorus load reduction for the Yahara Watershed is 263,000 lbs/yr.

However, the TMDL made simplifying assumptions regarding baseline for point sources, MS4s and agricuture. WDNR agreed that the baselines can be adjusted using updated and more accurate information. This includes using updated modeling, accounting for new conservation and management practices put in place, and using actual data on flow and effluent phosphorus concentrations for point sources. Adjusting the baselines will change the phosphorus reduction totals for the Yahara Watershed and the relative contribution from various sources. The net impact of these changes can not be determined until all adjustments are made. The adjustments will impact adaptive management costs, both in the aggregate and for each participant, as cost allocations for participants will be directly proportional to the relative phosphorus reduction that they are responsible for.

For point sources calculating a revised baseline is a simple process. The TMDL assumed that wastewater treatment plants were operating at design capacity and and discharged effluent with a concentration of 1.0 mg/l. Baseline is adjusted by using current flow and effluent phosphorus concentrations. When this adjustment is made for all seven point sources in the Yahara Watershed, the total required phosphorus load reduction in the Yahara Watershed is reduced to approximately 140,000 lbs/yr (263,000 lbs/yr minus 123,000 lbs/yr = 140,000 lbs/yr). For illustrative purposes, the impact of adjusting the baseline for points sources only is shown in *Figure 1*.

Figure 1: Phosphorus Load Reductions Without and With Adjustments to Point Source Baseline



Total Phosphorus Load Reduction = 263,000 lbs/yr **Total Phosphorus Load Reduction = 140,000 lbs/yr**

The adjustments to MS4 baselines are more difficult to make. The TMDL assumed that all MS4s were at 40% total suspended solids (TSS) control and used a relationship between TSS and phosphorus to arrive at a baseline. However, some MS4s are currently above 40% TSS control while others are below 40% TSS control. The MS4 data is based on modeling and the models will need to be rerun reflecting current conditions. Through Yahara WINS, the District has asked all MS4s to conduct updated stormwater modeling. Greg Fries (City of Madison Engineering Department) is developing criteria to ensure that some level of consistency is used by muncipalities when updating the models, and WDNR has agreed to conduct consistency reviews of these modeling efforts based on the developed criteria. Many MS4 communities are seeking grant funding through WDNR to conduct updated stormwater modeling. It is expected that all will have updated modeling results by the time the pilot project ends in 2015.

Baseline for agriculture in the TMDL was determined by making minor modifications to a 2000 modeling effort for the Rock River Basin conducted by two consulting firms (Earth Tech, Inc. and Strand Associates, Inc., 2000). In the MOU for the adaptive management pilot project, WDNR agreed that the phosphorus baseline for nonpoint sources in the Yahara Watershed could be updated using more recent modeling that was conducted as part of the Yahara CLEAN project-a collaborative project centered on establishing clear and achievable goals for cleaning the Yahara lakes. In addition, WDNR agreed that an additional adjustment could be made to account for new agricultural best management practices not considered in this model. Since the Yahara CLEAN modeling effort did not cover the entire watershed, Yahara WINS provided funding to extend the model to the entire watershed and to reconfigure the output to reflect stream reaches (sub watersheds) used in the Rock River TMDL. This effort is being conducted by Montgomery Associates: *Resource Solutions, LLC* and is expected to be completed in

January, 2014. The Dane County Land and Water Resources Department is developing the inventory of additional agricultural BMPs and this effort should be completed in 2014.

Once these initial adjustments are completed, a second round of potential adjustments may be needed. For example, the SWAT model appears to underestimate phosphorus loads associated with spring runoff events, and an adjustment may be needed to account for this. District staff is engaged in discussions with UW-Madison, Dane County and others to determine whether and to what extent additional adjustments are needed.

In addition to the above, an adjustment will need to be made to reflect reduced concentration of phosphorus in Metrogro resulting from implementation of the Ostara process. The District typically recycles Metrogro to approximately 2,200 acres of farmland located in the Yahara Watershed. The adjustment will be made based on the change in the phosphorus index (PI) for fields receiving Metrogro applications. Preliminary estimates indicate that this adjustment will be in the range of 1,000-2,000 lbs per year. Since the District is making the Ostara investment, this reduction will need to be credited against the overall reduction required by the District as part of a full scale adaptive management project.

Attachment 5: Capacity Evaluation

Once the phosphorus reduction requirements are more fully understood, the District will need to assess whether sufficient capacity exists in the Yahara Watershed to achieve the phosphorus reductions required under a full scale adaptive management project. This evaluation will be critical, but cannot be fully completed until completion of the pilot project.

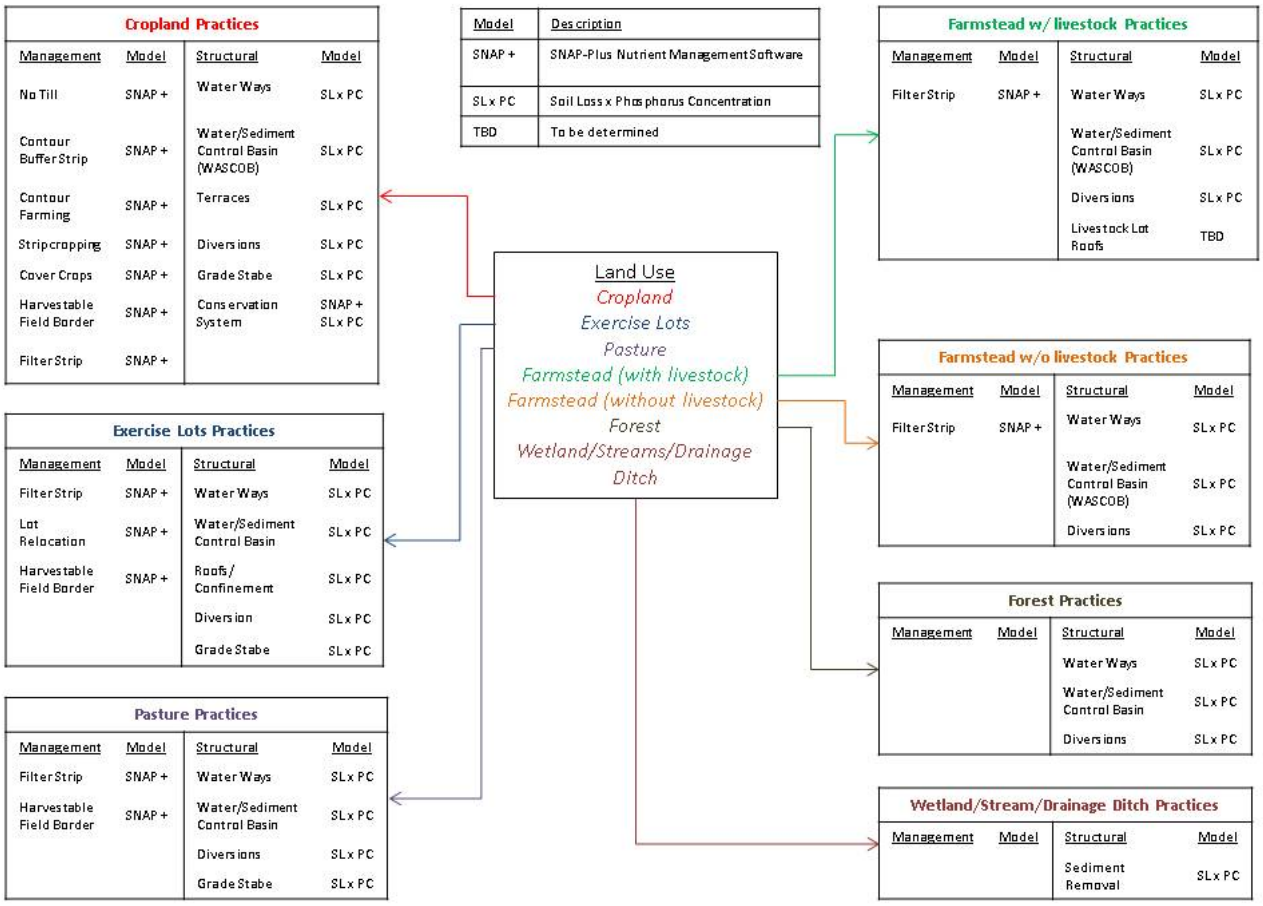
As part of the TMDL process, WDNR evaluated whether the TMDL reduction goals could be met by setting the agricultural or point source contributions to zero. WDNR concluded that reduction goals could only be met through a combination of point and nonpoint controls. However, given that agricultural phosphorus control practices are generally less expensive than urban control practices and that an adaptive management goal is to invest in the least cost mix of control practices, it is likely that a capacity evaluation will be more heavily weighted toward evaluating agricultural capacity.

WDNR has agreed on methods to be used for calculating phosphorus loss from different types of agricultural land uses (*see Figure 1*). For cropped land, use of the phosphorus index (PI) will be used. Based on the TMDL, there are approximately 214,000 acres of cropland in the Yahara Watershed. An important aspect of the capacity evaluation will be to accurately assess the current phosphorus index (PI) of cropland. This information is currently being assembled by the Dane County Land and Water Resources Department. In general, the lower the average starting PI, the more difficult it will be to obtain reductions from cropland. It is possible that a correction factor may need to be applied to the PI to more accurately reflect phosphorus delivery to TMDL control points. It should be noted that the PI is not the appropriate tool for evaluating runoff from winter applied runoff, which was a significant source of phosphorus loading to Lake Mendota this past winter.

Agricultural capacity will need to consider both the theoretical reduction potential as well as the willingness of agricultural producers to put conservation practices and improved manure management practices in place. The Yahara WINS pilot project is working hard to build relationships and trust with the Yahara Pride Farm Group, which is active in the upper part of the Yahara Watershed. With financial support from Yahara WINS and others in 2013, farmers in the upper part of the watershed used improved management practices on over 3,400 acres of farmland as part of a demonstration project. Yahara WINS will expand its efforts in this regard during 2014, and will also look to fund practices in other parts of the Yahara Watershed to begin developing support for adaptive management throughout the watershed.

A factor that may increase the willingness of producers to participate in voluntary phosphorus reduction practices is a desire to avoid future regulations. This is clearly one of the drivers for the Yahara Pride Farm Groups effort to develop a voluntary farmer certification program; work on the certification program is on-going. Agricultural capacity can also be driven by regulatory requirements, which would likely result from actions taken at the local level (e.g. the county).

Figure 1



Note: SL means soil loss; PC means phosphorus concentrations

Attachment 6: Draft Water Quality Monitoring Approach for Full Scale Adaptive Management Program

Monitoring Plan Overarching Objectives

- Demonstrate compliance with adaptive management requirements.
- Develop the necessary database to support delisting decisions for those stream segments located in the Yahara Watershed that are identified as impaired per the Rock River TMDL (see Figure 1).
- Targeted monitoring to demonstrate progress and effectiveness of BMPs.

Geographic Scope

- Yahara Watershed, which includes stream reaches 62-69 (see Figure 1)

Applicable Regulations and Regulatory Drivers

- NR 102: Numeric water quality criterion for phosphorus
- NR 217: Effluent Limitations
- NR 151: Performance standards –ag (PI) and urban storm water (TSS)
- Rock River TMDL: TP and TSS-approved by EPA in 2010

Guidance Considered

- WisCALM-2014 Update
- Adaptive Management Technical Handbook-January, 2013
- Guidance for Implementing Water Quality Trading in WPDES Permits-March 2013 Draft
- Guidance for Implementing Wisconsin's Phosphorus Water Quality Standards for Point Source Discharges-January, 2012

Monitoring Parameters

- Water chemistry
    - CLFYL-A, NH3-N, NO3+NO2, TKN, OP-DRA, TP, TSS
- Biology (note-not required for adaptive management but will be important for the TMDL).
    - Macro invertebrate
    - Fish

Monitoring Frequency

- Water chemistry-monthly for the first two years to establish baseline conditions. Switch to monthly sampling during growing season (May-Oct) beginning in year 3
- Macro invertebrate-each location sampled every 2 years in the fall
- Fish-each location sampled every 4 years with timing determined by WDNR biologists

- Additional targeted monitoring in areas where habitat work may be done and/or to gauge the effectiveness of phosphorus reduction practices-the frequency will be determined on a case-by-case basis and reflect input from WDNR, USGS and others

Monitoring Locations

- Per Adaptive Management Technical Handbook, in-stream TP concentrations will be monitored at the bottom of each stream reach in the Yahara Watershed
- Stream flow data will be collected at select locations within stream reaches that currently have operating USGS gaging stations. Consideration will be given to establishing new gaging stations where necessary or making flow measurement using hand held flow meters (e.g. Nine Springs Creek)
- Biological monitoring locations will be determined by WDNR biologists
- Additional focused/targeted monitoring locations will be identified as work in adaptive management proceeds to help determine the effectiveness of management activities, quantify interim water quality improvements, and improve the accuracy of watershed modeling. These locations may include locations up and down stream of management areas, edge of field monitoring, etc.

Responsible Parties

- Monitoring responsibilities will likely be shared between a number of groups including MMSD, USGS, WDNR, the Rock River Coalition (through a citizen monitoring program), and others. Coordination will be required, with MMSD/Yahara WINS likely serving as the coordinator.

Brief Discussion

The Adaptive Management Technical Handbook and WisCALM guidance indicate that the minimum sampling frequency to demonstrate compliance with numeric water quality criterion is monthly sampling during the growing season (May-October). Discussions with USGS and WDNR staff highlighted the importance of analyzing at a greater frequency initially to gain better insight on the temporal variability, particularly during the spring runoff season. The Adaptive Management Handbook states that monitoring by TMDL reach is required if the adaptive management action area is within a TMDL. The Rock River TMDL identified eight (8) reaches located in the Yahara Watershed. These reaches are shown in Figure 1, which also highlights phosphorus impaired stream segments as identified in the TMDL.

NR 217 does not explicitly require stream flow monitoring for the purpose of demonstrating compliance with adaptive management requirements. The adaptive management technical handbook (guidance) states that both concentration and flow measurements should be collected. Since adaptive management as codified in NR 217 requires a demonstration that applicable numeric water quality criterion for phosphorus in NR 102.06 be met, in-stream monitoring would necessarily need to focus on concentration. Water chemistry monitoring will be supplemented with flow monitoring in stream locations having existing USGS gaging stations. Flow information may be collected in other areas using portable flow meters.

The Rock River TMDL lists several stream segments located in the Yahara Watershed as being impaired. All impaired segments identify TP and TSS/Sediment as the pollutants, with the exception of Dorn Creek (TSS/Sediment only). The TMDL document notes that *"it is reasonable to expect that TMDL implementation actions that reduce TP to acceptable levels will also reduce TSS loads to an extent sufficient to achieve designated fish and other aquatic life uses"*. The applicable numeric water quality criteria for TP in NR 102 are concentration based. Thus, compliance with the TMDL will likely be based on meeting applicable numeric water quality criterion for TP and demonstrating that habitat issues have been addressed, as evidenced by biological (macro invertebrate and fish sampling) and habitat monitoring. Dissolved oxygen monitoring and temperature (Dorn Creek) will also be important. The proposed monitoring program reflects these considerations.

WDNR has suggested that the monitoring program should be designed to support the potential transition from adaptive management to water quality trading. WDNR recently released two draft guidance documents related to water quality trading for public comment (*Guidance for Implementing Water Quality Trading in WPDES Permits; Water Quality Trading How-To Manual*). Neither document requires water quality monitoring, although both reference the need for effluent quality monitoring. With respect to quantifying phosphorus reductions in a trading program the "How To" manual states that modeling will likely be used to quantify the current pollution load as well as the reductions made from agricultural and urban management practices. The guidance goes on to identify several applicable models. While water quality monitoring is not a specific requirement for water quality trading, some level of water quality monitoring may be beneficial to support a trading program. It is anticipated that the monitoring approach outlined for adaptive management would be sufficient to support a water quality program.

Figure 1: (Map prepared by Dane County Land and Water Resources Department)

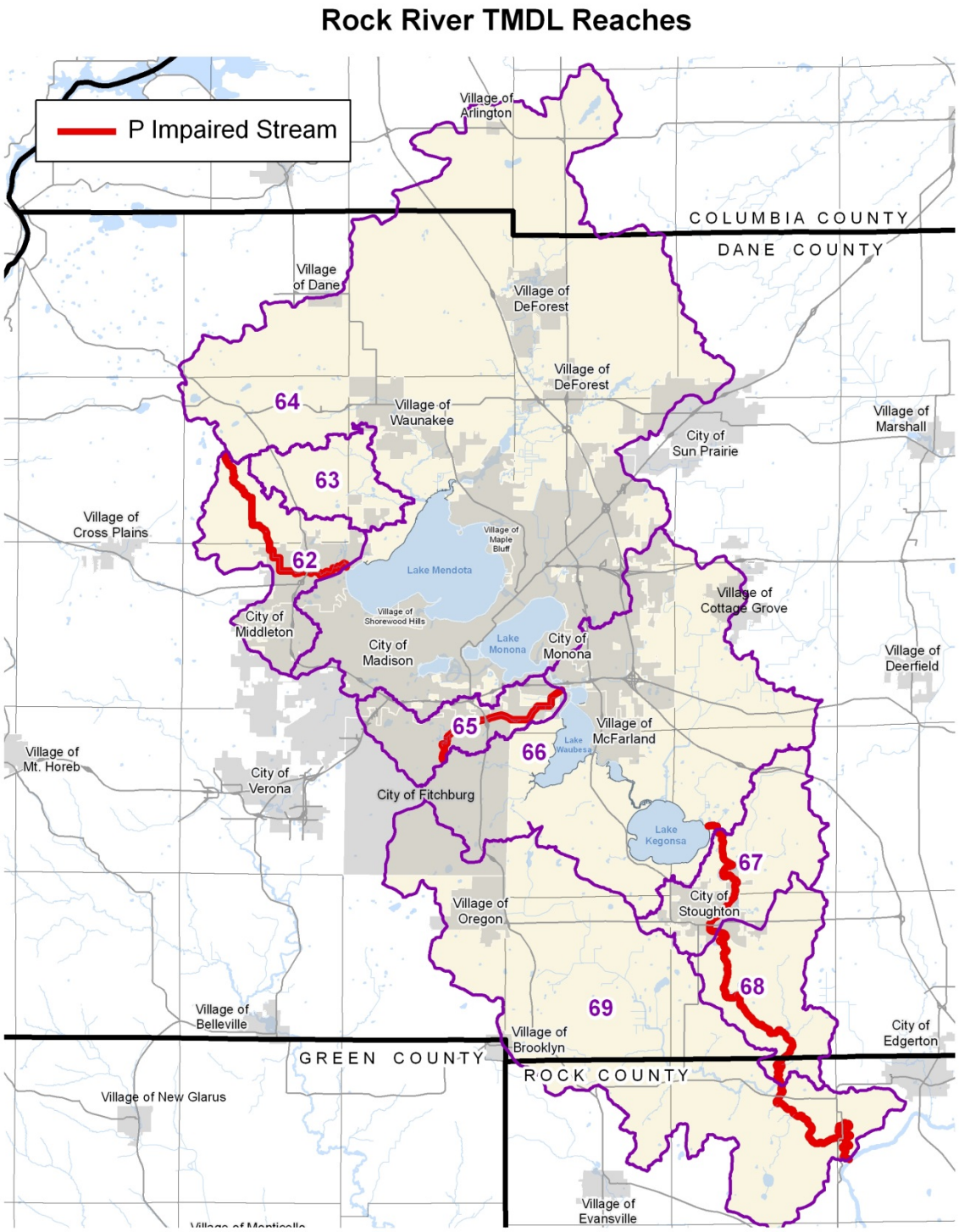


Table 1: Monitoring Summary

	Water Chemistry	Biology	
Parameters	CLFYL-A, NH3-N, NO3+NO2, TKN, OP-DRA, TP, TSS, DO, Temperature	Macro invertebrates	Fish
Frequency	Years 1 & 2: Monthly Years 3+: Monthly during Growing Season (May-October) Event related sampling to be considered	Once every two years in the fall-exact timing per consultation with WDNR biologists Higher frequency in areas where habitat restoration projects occur	Once every four years-exact timing per consultation with WDNR biologists Higher frequency in areas where habitat restoration projects occur
Location	At or near the bottom of each stream reach At additional targeted locations to show progress	At locations agreed to by WDNR biologists	At locations agreed to by WDNR biologists
Primary Collection Responsibility	MMSD/Yahara WINS, USGS, WDNR, RRC (volunteer citizen monitoring program)	MMSD/Yahara WINS, WDNR, RRC (volunteer citizen monitoring program)	MMSD, WDNR
Primary Analytical Responsibility	MMSD, WDNR	Contract laboratory	WDNR

Attachment 7: Yahara WINs –Draft Communications Plan Outline (May, 2012)

Communication Objectives:

1. Compliance with TMDL/WPDES permit requirements
    a. Obtain verifiable results
    b. Obtain accurate baseline information
    c. At project completion, system upgrades for phosphorus are not mandated
2. Obtain regulatory solutions
    a. Badfish Creek
    b. Compliance targets
    c. Maintain engagement/support
3. Maintain a viable network of partners
    a. Fulfill MOU requirements
    b. Engage continued participation into full-scale project
4. Encourage rural partners to implement practices
5. Develop viable funding mechanism for non-point allocations
6. Advance base knowledge of regulatory adaptive management
7. General public understands the 'great things going on to start improving water quality'

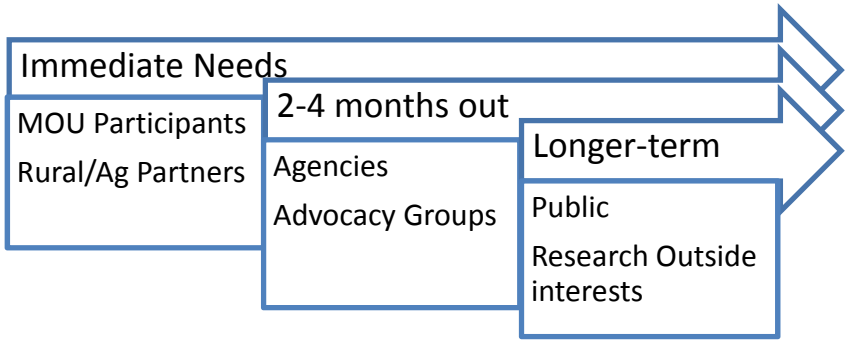
Samples Strategies:

MOU Participants Strategy - MOU includes specific requirements relating to communications. Goal is to keep participants informed, engaged and continue their participation through full-scale project.
Rural/Agricultural Partners Strategy: Goals are to educate, engage participation and expand participation to fulfill the verifiable reductions needed in the full-scale project and produce a positive impact on water quality.
Agency Strategy: Goals are to obtain regulatory compliance with WPDES permits and TMDL that are approvable by EPA and to remove regulatory obstacles to allow project to move forward.

Framework:

Audience	MOU Participants	Agencies	Producers/ Agriculture	Public	Advocacy Groups	Researchers Outside Interests
Frequency	Routine - quarterly semi-annual	Routine, specific to agency & regulation	Routine	Key Milestones	Routine	Key Milestones
Type of Information	Meetings, updates, reports	Meetings, Written	Discussions/ Written/ Media	Media, Digital	Meetings, updates, reports	Conferences, presentation published data
Reason	Inform continued participation, fulfill MOU	Gain regulatory compliance	Educate, promote awareness engage participation	Continued participation of partners in MOU	Maintain engagement and support. Awareness of issues	Data
Specific Target(s)	Staff- appointed liasion, MOU signatory, elected officials	DNR staff, management, EPA Region & National, DATCP, NRCS	Owners, operators, Influencers	Influencers of elected officals, agricultural partners	Environmental Groups, Others? Influencers?	Statewide, TMDL implementation Nationally, ?

Timeline:



Appendix 3:
Yahara WINS and Yahara Pride Farms Agreements

Contract between Yahara WINs and the Yahara Pride Farm Conservation Board

The period of this agreement is June 17, 2013 to June 30, 2014. The Yahara Pride Farm Conservation Board agrees to organize and conduct a demonstration project in 2013 that will evaluate agricultural phosphorus reduction practices that are relatively new to the Yahara Watershed. The demonstration project will evaluate the following phosphorus reduction practices:

- Cover crops
- Vertical manure injection
- Strip tillage
- Vertical tillage
- Other practices subject to advanced approval in writing by Yahara WINS

Yahara WINs agrees to provide $40,000 to the Yahara Pride Farm Conservation Board in 2013 for the sole purpose of supporting the above practices in this demonstration project.

Yahara Pride Farm Conservation Board agrees to:

1. Provide Yahara WINs with field specific information that includes the practice/practices put in place, acres, the dominant soil type and slope, the crop grown and the estimated change in the phosphorus index (PI) using SNAP-Plus. The estimated change in the PI that can be determined using information provided by Dane County or other agreed upon sources.
2. Provide Yahara WINs with photographs of select practices that can be used in presentations, reports and/or newsletters.
3. Provide Yahara WINs with a preliminary report no later than January 31, 2014 that includes the above information, the estimated cost per pound of phosphorus reduced for each practice, significant observations and preliminary recommendations for next steps.
4. That producers participating in the demonstration trials will not be eligible or additional payments from Yahara WINs for the same practices on the same acres in 2013.
5. To make at least one presentation at a Yahara WINs Strategic Planning Workgroup meeting to share information on the demonstration project.
6. To provide a final report to Yahara WINs on the demonstration project no later than June 30, 2014. This report can cite the preliminary report and include any additional observations made during and following the spring planting season.
7. Return any unused funds to Yahara WINs at the end of the contract period.

For the Yahara Pride Farm Conservation Board:

For Yahara WINS:

Jeff Endres 6-18-13
Jeff Endres Date

David Taylor 6/18/13
David Taylor Date

2017 Yahara WINS Grant Agreement With The Yahara Pride Farms

This Grant Agreement (the "Agreement") is made and entered into this 28 day of June 2017 2017, by and between the Yahara Watershed Improvement Network (the "Yahara WINS") and Yahara Pride Farms (the "Yahara Pride")."

1. **Recitals**

   a. Yahara WINS is pursuing an approach to address reductions of phosphorus in the Yahara Watershed through an Adaptive Management project.

   b. Yahara Pride is a farmer-led, not-for-profit organization working to improve soil and water quality.

   c. Yahara Pride is working with farmers in the Yahara Watershed to put phosphorus lowering practices on farms, is engaged in associated outreach/education efforts, is implementing a farmer certification program, and is advancing pilot projects aimed at practices that reduce nutrient losses from spreading of solid manure.

   d. Yahara WINS desires to support these efforts with the ultimate goal of reducing phosphorus losses in the Yahara Watershed.

2. **Scope of Work**
   a. Yahara Pride Farms shall perform the following services:

      - Administer a Yahara Pride sponsored cost share assistance program to improve the adoption of cost effective conservation practices such as cover crops, low disturbance manure injection, and reduced tillage that have the potential for reducing phosphorus losses, with the goal of helping farmers adopt these practices into their farming system.

      - Expand a windrow composting pilot project to showcase the economic opportunities of composting, selling and/or buying composted manure, to reduce nutrient losses from winter spreading of solid manure.

      - Provide outreach to farm producers on the latest technologies and practices in conservation that could be used to reduce phosphorus loads. Outreach activities include field days, watershed conferences and newsletters.

3. **Use of Funds**
   a. A minimum of $85,000 of the funds provided under this agreement will be used for implementing conservation practices such as cover crops, low disturbance manure

injection, and reduced tillage that have the potential for reducing phosphorus losses, with the goal of helping farmers adopt these practices into their farming system. A minimum of 2,250 acres of farmland using these conservation practices will be funded by Yahara Pride. Yahara Pride agrees that payments to producers using funds from this grant will not be made until after Yahara Pride confirms that SNAP-Plus information used to calculate phosphorus reductions has been received from the producer. Yahara Pride also agrees that producers receiving funds under this agreement will not receive additional funds provided by Yahara WINS through any other agreement for the same practices on the same acres in 2017.

b. A maximum of $25,000 of the funds provided under this agreement will be used for supporting activities, including field data collection and analysis, SNAP-Plus modeling to determine phosphorus loss, report development, farm evaluations conducted by Yahara Pride Resource Managers as part of the Farm Certification Program, producer outreach, and related activities.

c. Yahara Pride agrees to return any unused funds to Yahara WINS at the end of the agreement period or in the event that the Yahara Pride Farms is dissolved or no longer has legal standing.

4. Deliverables

a. Yahara Pride will provide Yahara WINS with a preliminary report on or before January 31, 2018 on summarizing practices and activities undertaken and funded under this agreement.

b. Yahara Pride will provide Yahara WINS with a final report by June 1, 2018 that includes:
   - Acres covered.
   - The estimated change in the phosphorus index (PI) and changes in soil loss on a field by field basis using SNAP-Plus, organized by TMDL stream reach. Both annual and rotational changes in PI shall be reported
   - Unit cost information for phosphorus reduction, expressed as $/pound of P reduction.
   - Information on the number of farms worked with under the certification program and other relevant summary information.
   - A detailed accounting of disbursements made under this agreement, including hours associated with supporting activities.

5. Payment

a. Yahara WINS agrees to provide a total of $110,000 to the Yahara Pride Farm Conservation Board in consideration of and subject to the above. Payments will be made as follows:

   - $20,000 by July 31, 2017.

- $80,000 upon receipt of the preliminary report with confirmation that minimum acreage requirement has been met.
- $10,000 upon receipt of the final report

6. **Modification of the Agreement**
   a. The terms of this Agreement may be if agreed to in writing by Yahara WINS and Yahara Pride.

7. **Complete Agreement**
   a. This agreement constitutes the complete and entire agreement between the parties and supersedes any previous communications, representations, or agreement, whether oral or written, with respect to the subject matter hereof.

8. **Miscellaneous:**
   a. The terms of this Agreement may modified if agreed to in writing by Yahara WINS and Yahara Pride.

For the Yahara Pride Farms:

Jeffrey Endres
Chair-Yahara Pride Farms

September 11, 2017
Date

For Yahara WINS:

Kathleen Lake
Yahara WINS Executive
Committee President

June 28, 2017
Date

Jeffrey S. Rau
Yahara WINS Executive
Committee Treasurer

8/3/17
Date

Appendix 4: Memorandum of Understanding Between New Water (Green Bay Metropolitan Sewerage District) and the Wisconsin Department of Natural Resources Related to Adaptive Management

MEMORANDUM OF UNDERSTANDING BETWEEN GREEN BAY METROPOLITAN SEWERAGE DISTRICT AND THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES

CONFIRMATION OF UNDERSTANDING REGARDING ADAPTIVE MANAGEMENT PROGRAM

This Memorandum of Understanding ("MOU") is effective this 15 day of January, 2018 between the Green Bay Metropolitan Sewerage District ("GBMSD") and the Wisconsin Department of Natural Resources ("WDNR") collectively referred to as the "Parties".

1. **Purpose.** The purpose of this MOU is to clarify the Parties' understanding about the process for implementing an adaptive management project in the Lower Fox River drainage basin pursuant to Wis. Adm. Code § NR 217.18 and Wis. Stat. § 283.13(7) to aid GBMSD in developing a final adaptive management plan for review and approval by the WDNR. The overall goal of the adaptive management plan is to provide a reduction of phosphorus and TSS in the Lower Fox drainage basin that is sufficient to attain compliance with applicable water quality standards and criteria at GBMSD's Quincy Street treatment plant outfall ("GBMSD Outfall"). The Lower Fox drainage basin ("Lower Fox") is defined by the USGS 8 digit hydrologic unit code ("HUC") sub-basin 04030204 measured from the Lake Winnebago Outlet to the mouth of the Fox River at Green Bay.

2. **Settlement Agreement.** The parties have executed a settlement agreement in August, 2015, a copy of which is incorporated by reference herein as Exhibit " A"

(the "Settlement Agreement"). The Settlement Agreement contains certain provisions regarding adaptive management, including that GBMSD shall be allowed four permit terms beginning with GBMSD's next reissued Permit to comply with final water quality based effluent limits for phosphorus and Total Suspended Solids ("TSS"), provided the requirements in paragraphs 2 and 3 of the Settlement Agreement are met.

3. **Adaptive Management Plan.**

   a. GBMSD may submit an adaptive management plan to WDNR, or may choose to comply with requirements for phosphorous and TSS through alternative compliance options. If adaptive management is chosen as GBMSD's compliance option, the plan will be submitted to WDNR no later than December 31, 2018, in accordance with the compliance schedule contained in GBMSD's current WPDES permit.

   b. The current total maximum daily loads ("TMDL") for the Lower Fox are contained in the "Total Maximum Daily Load and Watershed Management Plan for Total Phosphorus and Total Suspended Solids in the Lower Fox River Basin and Lower Green Bay, 2012" (the "TMDL Report"). The TMDL Report outlines EPA approved waste load allocations needed to meet water quality criteria for phosphorous and TSS.

   c. GBMSD's current WPDES permit is set to expire June 30, 2019. If GBMSD selects the adaptive management option for reduction of phosphorous and/or TSS, and if the plan is approved by WDNR, the adaptive management plan shall commence upon the incorporation of the plan in the

next WPDES permit reissuance.

4. **Identifying Watersheds for the Adaptive Management Option.**

   a. GBMSD may select an adaptive management action area ("Action Area") that is located within the Lower Fox upstream from GBMSD's Outfall for implementation of an adaptive management plan, subject to the following criteria:

      i. The Action Area for adaptive management should be of sufficient size to achieve the minimum phosphorus offset and support attainment of the phosphorus water quality criteria in Wis. Admin. Code § NR 102.06, at the GBMSD Outfall.

      ii. The minimum phosphorus offset shall be calculated as the difference between GBMSD's annual mass discharge and the TMDL waste load allocation for GBMSD in the TMDL Report.

      iii. The annual mass discharge shall be determined at the time GBMSD's first WPDES permit which includes an adaptive management plan is issued and may be reviewed and adjusted at each subsequent permit reissuance. The annual mass discharge of phosphorus shall be calculated based on the highest annual load that is likely to occur within the permit term.

      iv. If a partner is added to the adaptive management plan by GBMSD, such as another point source or an MS4, the minimum offset requirements of that partner would be additive to GBMSD's minimum offset for determining the size of the Action Areas. So, for example, if

GBMSD needs 5,000 pounds of phosphorous reduction and another point source added as a partner needs 1,000 pounds of phosphorous reduction , the total minimum offset requirements for phosphorous reductions in the Action Area from agricultural and unregulated urban non-point sources would be 6,000 pounds..

v. Because the best management practices used in adaptive management generally address both phosphorus and TSS, it is anticipated that the minimum phosphorus offset should be sufficient to also address needed TSS reductions.

5. **Interim Progress: Determining Reasonable Progress.**

a. For purposes of determining whether reasonable progress is being made when adaptive management is the selected compliance option during the four permit terms, the following concepts shall apply:

i. GBMSD must document reasonable progress in annual reports and at the end of each permit term to qualify to continue adaptive management as a selected option for the next permit term.

ii. Reasonable progress need not be linear throughout the four permit terms available for compliance for a selected adaptive management plan. In particular, it is possible that more reductions of phosphorous and TSS will occur in the later permit terms than in the earlier permit terms.

b. Factors which the Parties will use to establish reasonable progress may include the following:

i. Monitoring results demonstrating reductions in phosphorus concentration over baseline water quality within the Action Area.

ii. Modeled reductions of phosphorous and TSS from best management practices ("BMPs") implemented within the Action Area. For the purposes of demonstrating interim progress, reductions from BMPs can be modeled for phosphorus and TSS in the Action Area and compared to the reductions for phosphorus and TSS listed in the TMDL for the applicable corresponding subbasin. Reductions can be expressed in units of pounds/year for phosphorus and tons/year for TSS. Modeled reductions will be determined using the best available modeling tools approved by WDNR, and in accordance with applicable WDNR rules.

iii. Contacts with landowners to discuss BMPs and implementation of BMPs based on metrics proposed in the Adaptive Management Plan and approved by WDNR.

iv. Biological monitoring demonstrating improvements to biological metrics within or downstream of the Action Area, as approved by WDNR.

c. Assuming GBMSD meets the reasonable progress requirements and the requirements of paragraph 3 of the Settlement Agreement, GBMSD will be entitled to four consecutive permit terms, unless a law change allows additional permit terms, to comply with the final water quality related effluent limitations contained in its permit.

6. **Interim Phosphorous Concentration Limits for Selected Adaptive Management Plan.**

   a. In the event GBMSD selects adaptive management as its compliance option, GBMSD will be subject to interim effluent limits for phosphorous discharges at its facility.

   b. The interim limits applicable to GBMSD for phosphorous during implementation of the adaptive management plan shall be determined in accordance with section NR 217.18(3)(e), Wis. Adm. Code, where applicable, and shall be:

      i. 0.6 mg per liter expressed as a six month average for the first adaptive management permit term.

      ii. 0.5 mg per liter expressed as a six month average for each of the FOLLOWING three consecutive five year terms of GBMSD's WPDES permit.

      iii. The permits will also include a narrative standard requiring GBMSD to optimize the treatment system to control phosphorus and continue to operate under optimized conditions.

7. **Determining and Maintaining Compliance with Applicable Water Quality Standards and Criteria**

   a. Effluent limits for GBMSD shall be reevaluated if compliance with the applicable water quality standards and criteria has been attained at GBMSD's Outfall. Compliance can be demonstrated in two ways:

      i. Through water quality monitoring at GBMSD's Outfall. Monitoring should be conducted in accordance with current EPA approved water condition assessment guidance (see

http://dnr.wi.gov/topic/surfacewater/assessments.html).

ii. Through an analysis, approved by WDNR and using a minimum of five years of current or most recent data, of the effluent data and watershed loads. The analysis can compare the concentration of phosphorus and TSS in the Lower Fox River at GBMSD's Outfall, subtracting out the influence of Lake Winnebago and subtracting out the influence of Green Bay ("seiche events"), with the TMDL allowable load for the mouth of the Fox River.

b. If compliance with applicable water quality standards and criteria at GBMSD's Outfall is demonstrated, no further reductions are required to satisfy the TMDL waste load allocations so long as the BMPs installed under the adaptive management option are maintained at a level to maintain compliance with applicable water quality standards. BMPs with WDNR, Natural Resource Conservation Service (NRCS), or Department of Agriculture Trade and Consumer Protection (DATCP) technical standards shall be maintained according to the requirements in the corresponding technical standards.

8. **Potential for Conversion to Water Quality Trading Credits**

a. If GBMSD chooses to terminate the adaptive management option or if compliance with the applicable water quality standards and criteria is not attained at GBMSD's Outfall through the adaptive management option, GBMSD shall be entitled to utilize the phosphorous and TSS reductions achieved through use of the adaptive management option in a water quality trading option, so long as those reductions meet the requirements of the trading program established under Wis. Stat. § 283.84, are approved by WDNR, and

are incorporated in a modified or reissued permit.. *See* paragraph 4 of the Settlement Agreement.

b. Pollutant reductions obtained by the BMPs installed under the adaptive management option may be converted into water quality trading credits following the applicable water quality trading statutes and rules, recognizing that WDNR may require documentation or agreements prior to installation of the BMPs. *See e.g.*, Wis. Stat. §§ 283.84(1)(b) and (1m)(a).

c. If a BMP practice implemented under the adaptive management option later becomes mandated by local state or federal law, the phosphorous and TSS reductions associated with that BMP will continue to be counted toward meeting the adaptive management option and can still qualify for conversion to water quality trading credits, so long as the BMP is properly maintained. BMPs with WDNR, NRCS, or DATCP technical standards shall be maintained according to the requirements contained in the corresponding technical standards.

d. Pollutant reductions associated with BMPs installed using Targeted Runoff Management (TRM) Grant funds or other sources of state funding may not be converted into water quality trading credits.

e. Pollutant reductions may be converted to water quality trading credits using the appropriate trade ratios. Pollutant reductions cannot be double counted and used by more than one entity. Water quality trading credits may be comprised of both interim and long term credits.

9. **Express Reservation of Rights of the Parties.**

a. Each Party expressly reserves the right to challenge the adequacy of performance and/or decisions of the other Party under the terms of this MOU.

b. In particular, GBMSD expressly reserves the right to challenge any decisions of the WDNR covered by the MOU and the entry into this MOU shall not be construed to be a waiver of any legal rights that GBMSD may possess to challenge WDNR decisions including, but not limited to the following:

   i. WDNR decisions on whether GBMSD has achieved reasonable progress in implementing the adaptive management plan in the Action Area.

   ii. The need for the water quality based effluent limit based upon future water quality monitoring results for phosphorous and TSS in the Lower Fox.

   iii. The amount of phosphorous or TSS reductions associated with BMPs.

   iv. Whether water quality standards for phosphorous and/or TSS have been met at GBMSD's Outfall.

10. **Modification of this MOU.**

a. This MOU applies in the event an adaptive management plan is selected by GBMSD for an Action Area and is implemented. This MOU may be modified by mutual agreement of the Parties.

b. This MOU is subject to all applicable state and federal laws and regulations and shall be construed in accordance with those laws.

GREEN BAY METROPOLITAN SEWERAGE DISTRICT

By: Thomas W Sigmund Date: 1/15/2018

Thomas Sigmund, Executive Director

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

By: Ed Eberle Date: 1-11-18

for Daniel L. Meyer, WDNR Secretary

Appendix 5: Memorandum of Understanding Between Madison Metropolitan Sewerage District and the Wisconsin Department of Natural Resources Related to Adaptive Management

Memorandum of Understanding

Between the Madison Metropolitan Sewerage District and the Wisconsin Department of Natural Resources

For the Yahara Watershed Adaptive Management Program

This Memorandum of Understanding (MOU) is effective this 11 day of Dec 2014 between the Wisconsin Department of Natural Resources (Department) and the Madison Metropolitan Sewerage District (District) collectively referred to as "the Parties."

1. **Purpose.**
   The purpose of this MOU is to outline the standards and procedures for implementing an adaptive management project in the Yahara Watershed pursuant to Wis. Admin Code §NR 217.18 and Wis Stat. § 283.13(7) to aid the District in developing a final adaptive management plan for review and approval by the Department.

2. **Adaptive Management Plan.**
   a. The District may submit an adaptive management plan to DNR, or may choose to comply with phosphorus requirements through alternative compliance options. The adaptive management plan will be developed following the "Adaptive Management Technical Handbook-A Guidance Document for Stakeholders" and will be consistent with the requirements in Wis. Admin Code §NR 217.18. If adaptive management is chosen as District's compliance option, the plan will be submitted to DNR in accordance with the compliance schedule in the District's next permit.

   b. The adaptive management plan will contain a water quality monitoring plan, address how interim progress toward meeting water quality criteria will be determined using both modeling and monitoring, and identify a process for how adjustments to the plan will be made, if necessary, to ensure adequate progress is being made to comply with applicable water quality criteria.

   c. The adaptive management project will be used by participating entities as the compliance strategy to meet phosphorus numeric water quality criteria and sediment (TSS) reductions required to achieve applicable narrative standards. The total maximum daily load (TMDL) for the Yahara watershed, contained within the Rock River Basin TMDL, was approved by EPA in September, 2011. The TMDL outlines anticipated modeled reductions needed to meet phosphorus water quality criteria and narrative sediment (TSS) standards.

3. **Determining Percentage Reductions During the Adaptive Management Project.**
   a. The 2011 Rock River TMDL determines phosphorus and sediment (TSS) allocations for nonpoint, MS4s, and other point sources with contributions to stream reaches located within the Yahara Watershed.

   b. The adaptive management project will be structured to meet water quality criteria and narrative standards within the Yahara Watershed, or the total phosphorus and sediment (TSS) allocations specified in the TMDL, as defined in paragraph 6a.

   c. For the purposes of demonstrating interim progress, percent reductions will be calculated for phosphorus and sediment (TSS) within each stream reach and compared to the percent reductions for these parameters listed in the TMDL. Reductions can also be expressed in units of pounds/year for phosphorus and tons/year for sediment (TSS) for each stream reach based on the modeling procedures set forth in paragraph 4.

   d. If one or more permitted MS4 or other point source with a discharge to a stream reach located in the Yahara watershed decides not to participate in the adaptive management project, it will be assumed that these entities will meet their TMDL requirements independently, and the target reductions for phosphorus and sediment (TSS) in the adaptive management project will be adjusted accordingly.

4. **Interim Progress: Measuring Load Reductions To Achieve Percentage Reduction Goals.**
   a. "TMDL baseline loading condition" means the phosphorus and sediment pollutant loads from which percent reductions identified in the TMDL are measured.

   b. When evaluating interim progress, phosphorus and sediment (TSS) percent reductions for nonpoint sources and MS4s identified in the TMDL will be determined by calculations using the best available modeling tools and in accordance with DNR code and guidance where applicable. Agricultural best management practices (BMPs) characterized as soft practices will be modeled at the field scale using SNAP-Plus or equivalent methodologies agreed upon by the parties. BMPS characterized as hard practices or stream bank stabilization projects will be modeled or measured using methods approved by DNR. Watershed level modeling (when appropriate) shall be conducted using SWAT. Urban BMPs will be modeled in accordance with the WDNR technical standards and guidance for NR 151 and TMDL modeling. Work shall be done in accordance with generally accepted engineering practices and shall document the pounds reduced as compared to phosphorus and sediment (TSS) loading conditions prior to the installation of the BMP. When existing regulatory requirements contained in NR 151 or existing DNR guidance do not address potential agricultural and urban BMPs or engineered treatment systems, other models or methods may be used as deemed appropriate and subject to approval by DNR.

c. When evaluating interim progress, phosphorus and sediment (TSS) percent reductions for point sources identified in the TMDL will be determined based on actual flow and concentration data as reported to DNR as required by WPDES permits.

d. Phosphorus and sediment (TSS) load reductions below the TMDL baseline loading condition may be counted when calculating progress with percent reductions identified in the TMDL for each reach:

   i. Current conditions for municipal and industrial point sources at the start of the adaptive management project will be determined based on actual flow and effluent phosphorus concentrations reported to DNR on discharge monitoring reports (DMRs) using the most recent five year average. The difference between the current conditions and the TMDL baseline may be counted toward the reduction goal for the applicable reach.

   ii. Conditions for nonpoint sources at the start of the adaptive management project will be determined using loads from the original Yahara Clean SWAT model (2010) that was updated in 2014 by extending the SWAT model to include the entire Yahara watershed. The Yahara Watershed SWAT model should be consistent with methodologies and assumptions used in the EPA approved TMDL. Any differences between the Yahara Watershed SWAT model and the TMDL modeling will be documented and submitted to the Department for approval.

   Revisions to the nonpoint loads generated by the Yahara Watershed SWAT model will be made to reflect the changes in nonpoint loads from both the installation of agricultural best management practices (BMPs) and any increases in loading from changes in agricultural management that have occurred since the time period covered in the Yahara Watershed SWAT model. Both the resulting load revisions and methodologies used to calculate the load revisions will be verified by the Dane County Land and Water Resources Department or other organizations approved by DNR.

   iii. Analysis for Municipal Separate Storm Sewer Systems (MS4s) will be consistent with the Department's "TMDL Guidance for MS4 permits: Planning, Implementation, and Modeling Guidance." If the current conditions discharge value from an MS4 is lower than the TMDL baseline loading condition for the MS4, then the difference may be counted toward the TMDL percent reduction goals in the applicable reach.

e. Municipal Separate Storm Sewer Systems (MS4s) participating in the adaptive management project will need to achieve a 40% sediment (TSS) reduction within

urban areas, consistent with baseline assumptions of the TMDL. MS4s not meeting the 40% sediment (TSS) control within a stream reach can satisfy the 40% control requirement by obtaining offsets from other MS4s with discharges to the same stream reach that have achieved greater than 40% sediment (TSS) control, provided that the resulting weighted average sediment (TSS) reduction for MS4s in that stream reach is equal to or greater than 40%.

f. If a best management practice (BMP) funded under the adaptive management pilot or a full scale adaptive management project subsequently becomes mandated by local, state or federal law, the phosphorus and sediment (TSS) reduction associated with that BMP will continue to be counted toward meeting reduction goals, as outlined in this MOU, so long as the BMP is properly maintained. BMPs with DNR, the Natural Resources Conservation Services, or the Department of Agriculture Trade and Consumer Protection technical standards shall be maintained according to the requirements in the corresponding technical standards. Verification of BMP maintenance shall be consistent with permit requirements.

g. Pollutant reductions cannot be double counted and used by more than one entity in percent reductions i.e. multiple parties cannot use the same load reductions to offset their required load reductions).

5. <u>Reduction Credit for State Funded Nonpoint Reductions</u>

Targeted Runoff Management (TRM) Grant funds and other sources of state funding may be available and used by nonpoint sources within the Yahara Watershed. However, TRM Grant funds may not be used to comply with the minimum phosphorus reduction specified in a WPDES permit, and TRM funds may not be used to demonstrate compliance with point source load reductions needed under water quality trading.

6. <u>End of the Adaptive Management Period</u>

a. Compliance at the end of the adaptive management period shall be measured based on:

i. Attainment of the phosphorus water quality criteria and TSS narrative standards through water quality monitoring.

ii. If phosphorus water quality criteria or TSS narrative standards have not been attained, compliance can be measured using effluent data and watershed modeling that uses similar assumptions as the TMDL to demonstrate that the sum total of the allocations have been achieved for each reach. If some, but not all, reaches are complying with the allocations of the TMDL, only those point sources in the complying reaches will be considered in compliance at the end of the adaptive management period. Point sources will only be deemed in compliance for pollutants for which the allocations have been achieved (i.e. for

a specific reach, if allocations are attained for TSS but not phosphorus, the point source in that reach will only be deemed in compliance for TSS).

b. If water quality monitoring shows compliance with applicable water quality criteria and standards, further reductions are not required within that reach to satisfy TMDL requirements so long as compliance with the water quality criteria is maintained over time and provided additional reductions are not required in that reach to meet downstream criteria.

c. If at the end of the adaptive management period the phosphorus and sediment (TSS) allocations identified in the TMDL have not been met for a stream reach, the entities participating in the adaptive management project will be responsible for taking additional steps to achieve compliance with phosphorus requirements in their WPDES permits. This could include converting to a water quality trading program that is consistent with applicable DNR guidance. Verifiable phosphorus and sediment (TSS) reductions achieved through the adaptive management project can be counted toward reductions in a water quality trading program provided the documentation is consistent with applicable DNR guidance.

7. Modification of this MOU

a. This MOU applies while an approved Adaptive Management Plan for the Yahara watershed remains in place and is implemented. This MOU may be modified by mutual agreement of the parties. This MOU does not replace the need for an adaptive management plan, nor does it supersede an approved adaptive management plan.

b. This MOU is subject to all applicable state and federal laws and regulations and shall be construed in accordance with those laws.

8. Signatures

For the Madison Metropolitan Sewerage District

By: _____ 11-26-14

D. Michael Mucha
Chief Engineer and Director

Date

For the Wisconsin Department of Natural Resources

By: _____ 12/11/14

Cathy Stepp
WDNR Secretary

Date

Appendix 6:
Service Agreements Between Yahara WINS and:

- Dane County
- Columbia County

12911

SERVICES AGREEMENT

This Services Agreement (the "Agreement") is made and entered into this __ day of _____ 2016, by and between the Yahara Watershed Improvement Network (the "Yahara WINS") and Dane County, Wisconsin (the "County")."

RECITALS:

A. Yahara WINS is pursuing an approach to address reductions of phosphorus in the Yahara Watershed through an Adaptive Management project. For the purpose of this Agreement, the Yahara Watershed is broadly defined to include the Yahara River and Badfish Creek Watersheds.

B. The County provides planning and technical assistance to agricultural landowners, producers and other individuals or entities for the implementation of conservation practices. These practices can reduce nutrients (including phosphorus) and sediment from entering waters as well as provides other conservation benefits.

C. An Adaptive Management Plan has been prepared that provides the objectives and overarching implementation framework for achieving the phosphorus and TSS reductions for the Adaptive Management Project.

D. Yahara WINs desires to obtain such assistance from the County to implement portions of the Adaptive Management Plan that will result in phosphorus reductions in the Yahara Watershed.

AGREEMENT:

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, and other consideration, the receipt and sufficiency of which is hereby acknowledged, Yahara WINS and the County agree as follows:

1. **Scope of Work.** County shall perform the services and provide the deliverables specified in the Scope of Work, which is attached hereto and incorporated herein as Attachment A-1 (the "Work" or the "Services"). The "Work" includes an identification of Roles and Responsibilities, Reporting, Deliverables, Performance Goals, Corrective Actions, Payment Schedules and other relevant information.

2. **Term of Agreement.** This Agreement covers a five (5) year period beginning January 1, 2017 and ending December 31, 2021, unless otherwise terminated per Section 7 (Termination for Cause) of this Agreement. The County shall commence the Work on

January 1, 2017 and shall perform and complete the Work as required by Attachment A-1.

3. **Modification of the Agreement.** The terms of this Agreement, including Attachment A-1 may be modified by the written agreement of the County and Yahara WINS.

4. **Compensation.** Yahara WINS shall pay County at the times and in the amounts stated in Attachment A-1 (the "Contract Price").

5. **Performance.** Unless otherwise agreed to in writing, the County shall furnish all services, supplies, tools, and equipment to accomplish the Work in a professional manner. The County shall also participate in meetings as stated in Attachment A-1.

6. **Responsibility for Acts, Errors and Omissions.** Each party shall be responsible for the consequences of its own acts, errors, or omissions and those of its employees, boards, commissions, agencies, officers, and representatives and shall be responsible for any losses, claims, and liabilities which are attributable to such acts, errors, or omissions including providing its own defense. In situations of joint liability, each party shall be responsible for the consequences of its own acts, errors, or omissions and those of its employees, agents, boards, commissions, agencies, officers and representatives. It is not the intent of the parties to impose liability beyond that imposed by state statutes.

7. **Termination**

A) Termination for Cause.

i. The County may terminate this Agreement upon 90 days written notice (the "90 day Termination Period) to Yahara WINS if Yahara WINS fails to deliver payments by the schedule required in this Agreement.

ii Yahara WINS may terminate this Agreement upon 90 days' written notice to County upon the happening of the following events:

- County fails to deliver any reports, drawings, designs, key project deliverables, documents or other materials in final form reasonably acceptable to Yahara WINS by the schedule required by this Agreement.

- County fails to perform any services required by this Agreement in a timely and professional manner.

- County does not achieve at least 80% of the cumulative phosphorus reduction goal for new pounds of phosphorus in any consecutive two calendar year period as specified in Attachment A-1.

B) **Termination Without Cause.** Either party may terminate this Agreement without cause on 365 days notice to the other party.

C) **Effective date of Termination.** In the event that either party terminates this Agreement by giving a notice of termination, the termination period shall begin on the date of the notice and shall be effective on the last day of the termination period.

D) **Effect of Termination.**

i. In the event of termination for cause, the County will be compensated for services rendered and expenses incurred prior to the date of the termination notice in accordance with the terms set forth in this Agreement.

ii. In the event of a termination without cause, Yahara WINS will continue to pay for staffing costs incurred pursuant to this Agreement prior to the expiration of the termination period, and will pay for any County agreements entered into pursuant to this Agreement with third parties that extend beyond the effective date of termination, provided that such third party contracts were not entered after the date of the termination notice.

iii. Phosphorus reductions associated with any County agreements utilizing Yahara WIN's funding that have not been completed at the date of termination will be reported to Yahara WIN's upon verification of practice implementation.

8. **Relationship of Parties.** County is an independent consultant. Yahara WINS has direction and control only as to the end result to be accomplished, and the County has direction and control over the means and method of accomplishing that end result.

9. **Permits, Laws, Regulations, and Public Ordinances.** County shall comply with all federal, state, and local statutes, rules, regulations, and ordinances related to the County's performance of the Work.

10. **Governing Law and Interpretation.** This Agreement shall be governed by laws of the State of Wisconsin. If any provision of this Agreement is held unenforceable, the remainder of these provisions shall be given effect to the maximum extent possible. The parties agree to reform this Agreement to replace any such invalid or unenforceable provisions that come as close as possible to the intention of the stricken provision.

11. **Nonwaiver.** Neither an extension of time for any reason beyond the date fixed herein for the completion of the Agreement or acceptance of any Work shall be deemed to be a waiver or abandonment of Yahara WINS right to abrogate this Agreement or to enforce the provisions of this Agreement.

13. **Use of Documents.** Documents and plans provided by the County pursuant to this Agreement are for the benefit and use of Yahara WINS. Except for documents and plans subject to confidentiality requirements of County or federal funding programs, County shall provide to Yahara WINS complete copies of all final documents and plans, in paper and electronic form as requested by Yahara WINS.

14. **Complete Agreement.** This Agreement constitutes the complete and entire agreement between the parties and supersedes any previous communications, representations, or agreement, whether oral or written, with respect to the subject matter hereof.

15. **Captions.** The captions in this Agreement are for convenience only and do not in any way limit or amplify the provisions of this Agreement.

16. **Giving Notice.** Whenever any provision of this Agreement requires the giving of written notice, it shall be deemed to have been validly given if delivered in person to or if delivered at or sent by registered or certified mail postage prepaid to:

    For Yahara WINS: Yahara WINS Executive Committee President, Madison Metropolitan Sewerage District, 1610 Moorland Road, Madison, Wisconsin 53713.

    For Dane County: Dane County Executive, City County Building (Room 421), 210 Martin Luther King Jr. Blvd, Madison, WI 53703.

17. **Nondiscrimination.** In the performance of services under this Agreement, the Parties agree not to discriminate against any employee or applicant because of race, religion, marital status, age, color, sex, handicap, nation origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, political beliefs or student status.

18. **Miscellaneous.** This Agreement has been executed by an authorized representative of both parties.

YAHARA WATERSHED IMPROVEMENT NETWORK

By: _____
David S. Taylor

Title: Yahara WINS President

Date: 11/16/16

DANE COUNTY, WISCONSIN

By: _____

Title: Dane County Executive

Date: 12/29/16

12-30-16

_____
Scott McDonell, County Clerk

YAHARA WATERSHED IMPROVEMENT NETWORK

By: _____
Jeffrey S. Rau

Title: Yahara WINS Treasurer

Date: 11/10/16

Attachments:
Attachment A-1 – Scope of Work, Performance Goals and Metrics, Reporting, Deliverables, Payment Schedule and Contract Price

Attachment A-1
Scope of Work

1. Statement of Purpose

The purpose of this scope of work is to identify actions that the County will take to help implement portions of the Adaptive Management Plan for the Yahara Watershed. This plan was developed by Madison Metropolitan Sewerage District (MMSD) with input from multiple stakeholders, including Dane County. Plan implementation will result in a reduction of phosphorus loads in the Yahara Watershed, and is expected to provide ancillary benefits including a reduction in total suspended solids (TSS) loads. The plan will be used by a broad coalition of municipal entities in the Yahara Watershed as a compliance strategy to meet phosphorus and total suspended solids (TSS) requirements related to the Rock River Total Maximum Daily Load (TMDL). This Scope of Work focuses on phosphorus reductions. TSS reductions will also be monitored. Per the TMDL, TSS reductions are assumed to be reduced as a result of phosphorus reductions. For the purpose of the Scope of Work, the Yahara Watershed is broadly defined to include the Yahara River and Badfish Creek Watersheds.

2. Background

Landowners and producers in the Yahara Watershed have a longstanding history of implementing conservation practices either on their own or with assistance from the County. Portions of the watershed have been targeted through the years for strategic implementation projects that addressed agricultural nonpoint sources of pollution including sediment and nutrients; such as the Priority Watershed Program (state) and Mississippi River Basin Initiative (federal).

In 2011, a Total Maximum Daily Load (TMDL) for the Rock River Basin was approved by the U.S. Environmental Protection Agency (EPA) for phosphorus and total suspended sediment that establishes allocations for reductions of phosphorus and total suspended sediment from all source categories (wastewater treatment plants/permitted industries, Municipal Separate Storm Sewer Systems or MS4s, and agricultural nonpoint sources) in the Yahara Watershed.

In 2012, Madison Metropolitan Sewerage District formed a group called the Yahara Watershed Improvement Network (Yahara WINS), which consisted of a broad coalition of municipal entities, Dane County, agriculture and others interested in working collaboratively to test a new regulatory compliance approach called adaptive management as a means of meeting phosphorus and sediment goals specified in the TMDL. Yahara WINS initiated an adaptive management pilot project located in the upper reaches of the Yahara Watershed (specifically Six Mile Creek). Based on this work, MMSD and Yahara WINS have opted to move forward with full scale implementation of an adaptive management plan for the entire Yahara Watershed and are seeking technical assistance from the County on implementation of agricultural conservation practices that will reduce phosphorus and sediment.

3. Project Timeframe

The adaptive management project covers a 20 year period, beginning in 2017 and ending in 2036. Consistent with the time period specified in Section 2 of this Agreement, this Scope of Work covers the time period of January 1, 2017 through December 31, 2021.

4. Roles & Responsibilities

The overall role of Dane County in this agreement will be to identify locations where conservation practices and/or structural practices can be implemented to achieve phosphorus reductions in the Yahara Watershed, and provide implementation assistance to landowners so as to meet the phosphorus reduction goals specified in Section 6 of the Scope of Work. To accomplish this, Dane County will utilize in their discretion a multi-step conservation planning process that includes the steps identified in A and B below. This broadly focused conservation planning process is an essential part of identifying opportunities or locations where phosphorus reductions can occur. This process identifies resource concerns, which are broadly defined as expected degradation of the soil, water, air plant or animal resource base to an extent that the sustainability or intended use of the resource is impaired. Resource needs represent a prioritized list of conservation practices and/or structural practices that can be implemented to address the resource concerns.

A) Inventorying resource concerns

i. Inventory resources and resource concerns in hydrologic unit code 12 (HUC12) watersheds based on sub-watershed priorities of high, medium and low for phosphorus loads.

B) Practice implementation including:

i. Determine objectives for achieving phosphorus and sediment reductions by working with landowners.
ii. Discuss and identify specific conservation practices and/or engineered solutions that could result in phosphorus and sediment reductions as determined through one-on-one conversations and farm walk-overs with landowners, producers, renters and consultants.
iii. Analyze available information to establish current baseline conditions including estimated phosphorus losses using SNAP Plus or other agreed to methods.
iv. Formulate options for installing conservation practices and/or structural practices to address phosphorus and sediment, evaluate the effectiveness of these practices, and discuss the options with landowners.
v. Consult with landowners to make conservation practice implementation plans to address phosphorus and sediment.
vi. Implement the plans with landowners for proposed conservation practice(s) including:
    - Assist landowners with developing timelines to implement conservation practices.

- Develop cost estimates for planned and designed practices where the County is providing the technical assistance as well as identify potential funding sources and packages.
- Conduct survey and design work for conservation practices.
- Review third party construction plans for structural practices when the County is not the primary technical assistance provider.
- Develop and review cost share agreements with landowners for approved conservation practices and funding sources.
- Conduct construction oversight of practice installation for structural practices.
- Verify and document conservation practices are installed in accordance with the design, cost share agreement and applicable technical standards.
- Process reimbursement payments in accordance with cost share agreements and contracts.

vii. Calculate modeled phosphorus reductions for installed conservation practices based on SNAP Plus or other agreed upon models.

viii. Document phosphorus reductions in accordance with the reporting and deliverables section of the Scope of Work.

C) Verification

i. Verify the status of installed phosphorus reducing practices by conducting follow-up visits with landowners consistent with the protocols identified in the Adaptive Management Plan.

ii. Modify and update landowner's conservation practice operation and maintenance plans as necessary to address new resource concerns and to maintain compliance with contracts and applicable technical standards.

D) Meetings:

i. Attend and participate in Yahara WINS Executive Committee meetings and meetings of the Yahara WINS Group as a whole. These meetings will be held at least on a quarterly basis and Dane County will report on progress and challenges related to successful implementation of this service agreement.

ii. Attend and participate in bi-monthly job progress meetings during 2017. The purpose of these meetings is to build and enhance strong working relationships between Yahara WINS and Dane County and to track project progress at a high level. This is critical during the early stages of the project. Beginning in January, 2018 the frequency of progress meetings can be adjusted based on mutual agreement between Yahara WINS and the County, but shall in no case be less frequent than quarterly

iii. Attend and participate in meetings with state and federal agencies as may be required.

iv. Attend and participate in other miscellaneous meetings as may be required.

E) Miscellaneous support as requested by Yahara WINS

i. Provide readily available inputs for on-going support for the cost/implementation model. The cost/implementation model is used to help inform future adjustments to phosphorus reduction goals and other important implementation factors.
ii. Provide on-going technical, administrative and management including development of maps and other presentation materials, data analysis, participation in various outreach meetings, and other relevant support.
iii. Provide administrative and recordkeeping activities associated with disbursement of cost share funds received from Yahara WINS.

5. Practice Cost Share Funds Available from Yahara WINS

Yahara WINS will notify Dane County by September 1st of each year regarding the projected amount of cost share dollars that Yahara WINS will make available to Dane County to support practice implementation. These funds are supplemental to cost share practice funds routinely included in the Dane County Capital and Operating budgets. Access to the Yahara WINS practice funds will be made through written requests by Dane County to Yahara WINS, and the requests will be subject to Yahara WINS Executive Committee approval. Funding requests will be project specific, although similar projects can be grouped together in a single request. For example, harvestable buffers for multiple landowners can be grouped in a single request.

6. Phosphorus Reduction Goals

The following phosphorus reduction goals are adapted from the Adaptive Management Plan and the cost/implementation model for the adaptive management project.

Conservation practices voluntarily implemented by eligible landowners with assistance from the County will have phosphorus reductions calculated annually using methods identified in the MMSD Adaptive Management Plan for agricultural practices and reported in accordance with the reporting and deliverables section. Annual phosphorus reduction goals for new and cumulative total pounds of are listed in Table 1. These reduction goals are based on information in the Adaptive Management Plan and associated cost/implementation model, and are prorated to address estimated reductions within the boundaries of Dane County associated with agricultural land uses. Phosphorus reductions shall be reported by TMDL stream reach. Phosphorus reductions associated with conservation practices and engineered solutions placed directly on the land can be credited toward the phosphorus reduction goals in Table 1. In addition, new and/or innovative practices with phosphorus reduction potential shall be evaluated collaboratively by Yahara WINS and Dane County on a case-by-case basis for the purpose of determining whether and to what extent credit can be given against the phosphorus reduction goals in Table 1.

Table 1: Annual Phosphorus Reduction Goals and Corrective Actions

Year	Annual Goal (new lb)	Cumulative Goal (new lb)
2017	2,900	2,900
2018	3,900	6,800
2019	4,900	11,700
2020	5,900	17,600
2021	6,900	24,500

The phosphorus reduction goal for new pounds of phosphorus in any year shall be considered met if the new pounds of verified phosphorus reduction reported by Dane County for that year is within 15% of the value shown in Table 1. If the annual phosphorus reduction goal for new pounds is not met for any given year, Dane County will include a corrective action section in its annual report to Yahara WINS identifying potentially contributing factors and the need (if any) for new or revised approaches in the following year(s). Consistent with the termination clause in Section 7 of the Agreement, Yahara WINS may terminate the Agreement if Dane County fails to meet at least 80% of the cumulative phosphorus reduction goal for new pounds for any consecutive two calendar year period.

7. Deliverables

The County shall develop and submit the following reports and updates to Yahara WINS:

- Annual work plan submitted by January 31st of each year highlighting activities and focus areas for the relevant calendar year.
- Draft annual report submitted to Yahara WINS by March 31st of each year covering activities conducted during the previous calendar year including all activities specified in the Scope of Work for Attachment A-1 of this Agreement. In addition, the annual report shall include information on the following performance indicators, along with baseline information, which will provide additional context with respect to progress made in meeting the phosphorus reduction goals in Section 6 of this Scope of Work:
    i. Number of landowners/operators contacted
    ii. Number of cost share agreements signed (county, state, federal, other)
    iii. Number of planned conservation practices
    iv. Number by unit of completed conservation practices (reported by TMDL reach)
    v. Number by unit of practice verification checks completed (reported by TMDL reach)
    vi. Number of acres tracked with nutrient management (reported by TMDL reach)
    vii. Total dollars allocated for cost share agreements (county, state, federal, other)
    viii. Narrative summary of innovative practices
    ix. Carryover and total pounds of phosphorus. Carryover pounds are pounds associated with practices installed in previous years that continue to result in phosphorus reductions in the reporting year.

- Final annual report submitted to Yahara WINS by May 15th of each year.
- Progress updates presented at Yahara WINS quarterly meetings and during job progress meetings. These updates are less formal and can be given verbally and/or in other forms (e.g. via PowerPoint presentations).
- Maps and other presentation materials, data analysis, and other relevant materials.

8. Payments

Payments to the County will be comprised of both fixed cost payments and performance based payments as described below.

i. Fixed Cost Payments

Dane County agrees to provide an annual base staffing level of 5,200 hours from the Dane County Land and Water Resources Department to support conservation activities in the Yahara Watershed. Yahara WINS will make an annual fixed cost payment for three additional staff positions (2 previously funded by MMSD to jump start the full scale project, and 1 new position that will start in 2017) that are dedicated to support conservation activities in the Yahara Watershed. The annual fixed cost payment shall be made in four equal installments of $75,000 in accordance with the dates and key deliverables shown below:

Installment	Amount	Date	Associated Key Deliverable
1	$75,000	March 31	First draft of annual report
2	$75,000	May 15	Final draft of annual report
3	$75,000	August 31	
4	$75,000	November 30	

Fixed payments in 2017 will be prorated using a standard monthly prorating to reflect the actual start date for the newly hired position.

ii. Performance Based Payments

Yahara WINS will make additional payments based on Dane County performance related to annual phosphorus reduction goals for new pounds of phosphorus as identified in Table 1. The performance based payment will be a lump sum annual payment made upon receipt and acceptance of the verified phosphorus reductions achieved in the preceding year. Phosphorus reductions for any TMDL stream reach that are in excess of the reduction required in the Adaptive Management Plan cannot be applied to the phosphorus reduction goal.

% of annual P reduction goal met	Payment
< 10%	$0
10% to 24.9%	$10,000

25% to 39.9%	$30,000
40% to 54.9%	$60,000
55% to 69.9%	$90,000
70% to 84.9%	$120,000
85% to 114.9%	$150,000
115% to 129.9%	$180,000
130% to 144.9%	$210,000
≥ 145%	$240,000

Appendix 7:
Joint Funding Agreement Between the United States Geological Survey and Madison Metropolitan Sewerage District for Gaging Stations in Adaptive Management Project Area for Yahara WINS

Form 9-1366
(April 2015)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

JOINT FUNDING AGREEMENT

Customer #: 6000000585
Agreement #: 17EMWI0000000
Project #: GR17NK009KP41X5
TIN #: 39-6005509
Fixed Cost Agreement

FOR

WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the, 1st day of January, 2017 by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the MADISON METROPOLITAN SEWERAGE DISTRICT, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation the continued operation and maintenance of four streamflow and water quality monitoring stations on Sixmile and Dorn Creeks and continued water-quality monitoring on the Yahara River at Fulton as part of the Watersheda Adaptive Managment Option pilot project, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $0.00 .

   (a) by the party of the first part during the period

Amount	Date	to	Date
$125,000.00	January 1, 2017		December 31, 2021

   (b) by the party of the second part during the period

Amount	Date	to	Date
$375,000.00	January 1, 2017		December 31, 2021

   (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: $0.00

   Description of the USGS regional/national program:

   (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

   (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

9-1366 (Continuation) Customer #: 6000000585 Agreement #: 17EMWI0000000

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.

9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered QUARTERLY. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

	U.S. Geological Survey United States Department of the Interior		Madison Metropolitan Sewerage District
	USGS Point of Contact		**Customer Point of Contact**
Name:	Todd Stuntebeck	Name:	Dave Taylor
Address:	8505 Research Way, Middleton, WI 53562	Address:	1610 Moorland Rd, Madison, WI
Telephone:	(608) 821-3872	Telephone:	(608) 222-1201 ext 276
Email:	tdstunte@usgs.gov	Email:	dave.t@madsewer.org

Signatures and Date

Signature:	John Walker 11/7/16	Signature:	D. Taylor 12-14-16
Date:		Date:	
Name:	John F. Walker	Name:	
Title:	Director, Wisconsin Water Science Center	Title:	12-14-16 CFO

United States Department of the Interior
U.S. GEOLOGICAL SURVEY

Wisconsin Water Science Center
8505 Research Way
Middleton, WI 53562-3586
phone: (608) 828-9901
fax: (608) 821-3817
http://wi.water.usgs.gov

November 7, 2016

Mr. Dave Taylor
Director of Special Projects
Madison Metropolitan Sewerage District
1610 Moorland Road
Madison, WI 53713-3398

Dear Mr. Taylor:

As previously discussed with Todd Stuntebeck, please find enclosed two copies of a Joint Funding Agreement (JFA) to enable the continued operation and maintenance of the four streamflow and water-quality monitoring stations on Sixmile and Dorn Creeks and continued water-quality monitoring for the Yahara River at Fulton as part of the Watershed Adaptive Management Option pilot project. This agreement covers the period from January 1, 2017 to December 31, 2021.

The amount for this work totals $75,000 per year (a total of $375,000) by the Madison Metropolitan Sewerage District and $25,000 per year (a total of $125,000) provided by the USGS.

Work performed with funds from this agreement will be conducted on a fixed-price basis. The District will be billed quarterly.

If this is acceptable, please sign both copies and return one to us in the enclosed, self-addressed envelope. The other copy is for your files.

If you have any questions, please contact Todd Stuntebeck at (608) 821-3872.

Sincerely,

John F. Walker
Director, Wisconsin Water Science Center

Enclosures

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Appendix 8:
Contract Between Yahara WINS and the Rock River Coalition to Fund a Volunteer Citizen Monitoring Program

Rock River COALITION

Our Mission:
"To educate and provide opportunities for people of diverse interests to work together to improve the environmental, recreational, cultural, and economic resources of the Rock River Basin"

Contract between Yahara WINs and the Rock River Coalition, Inc.

The Rock River Coalition, Inc. (RRC) will provide services to Yahara WINs as set forth in the chart below. The period of this agreement shall be January 1, 2018 to March 31, 2019. The RRC employee who will perform the work will be Nancy Sheehan.

Item	Cost
Volunteer Recruitment and Training	3,150
Volunteer Support & Communication; Workshop Planning & Facilitating	8,960
Data Management, Sharing and Reporting	6,125
Software, Equipment, Mileage and Travel	4,614
Exploratory Flow Study	2,100
Total for Year 6	**24,949**

Yahara WINs agrees to advance Rock River Coalition, Inc. the contract amount for Year 6 ($24,949) after approval of this contract. Funds will be expended consistent with the services shown in the above table and detailed in the funding proposal. The cost breakdown in the above table is approximate and funds can be shifted between categories. Time extensions, additions to project tasks, and increases to the budget can be made by mutual agreement of RRC and Yahara WINs. These changes will be documented in an amended contract. Any funds not expended by the end of the contract will be reimbursed to Yahara WINs.

Contract Contacts
Billing: Tara Callis, info@rockrivercoalition.org, 920-650-0966
RRC Staff contact: Nancy Sheehan, nancy@rockrivercoalition.org, 608-233-7758
Yahara WINs contact: Martye Griffin, marting@madsewer.org, 608-709-1813

For the Rock River Coalition:

2-19-18
Joe Zakovec — Date

For Yahara WINs:

3/9/18
Martye Griffin — Date

3/12/18
Jeffrey Rau — Date

Appendix 9:
Memorandum of Understanding for the Yahara WINS Pilot Project

Memorandum of Understanding for an Adaptive Management Pilot Project in the Yahara Watershed

1. Background

The Wisconsin Department of Natural Resources (WDNR or the department) has developed numeric water quality criteria for phosphorus. These criteria were used as the basis for developing a total maximum daily load (TMDL) for the Rock River Basin. The TMDL was approved by EPA in September, 2011. The TMDL assigns phosphorus and total suspended solids (TSS) allocations for point sources and nonpoint sources within the Rock River Basin. Point sources include 1) general permit (GP) sources, 2) wastewater treatment facilities (WWTFs), and 3) Municipal Separate Storm Sewer Systems (MS4s). In most, but not all cases, point sources will have specific requirements incorporated into their permit conditions to reduce phosphorus and TSS loads to comply with the TMDL as their permits are renewed.

Chapter NR 217 of the Wisconsin Administrative Code identifies the implementation framework for establishing effluent standards and limitations, including water quality based effluent limitations, for phosphorus in effluent discharged to surface waters of the state. NR 217.18 allows a point source regulated under NR 217 to use a watershed adaptive management option to comply with water quality criterion, subject to WDNR approval. WDNR may approve and authorize the adaptive management option if the point source demonstrates and the department concurs that all of the following conditions are met:

(a) The exceedance of the applicable phosphorus criterion in s. NR 102.06 is caused by phosphorus contributions from both point sources and nonpoint sources.

(b) Either the sum of the nonpoint sources and the permitted municipal separate storm sewer system contribution of phosphorus to the receiving water is at least 50 percent of the total contribution within the watershed of the receiving water where the applicable phosphorus criterion in s. NR 102.06 is exceeded; or the permittee demonstrates that the applicable phosphorus criterion cannot be met in the watershed without the control of phosphorus from nonpoint sources.

(c) Documentation that the proposed water quality based effluent limit in the applicant's permit will require filtration or other equivalent treatment technology to achieve compliance.

(d) The point source has submitted an adaptive management plan that identifies specific actions to be implemented that will achieve compliance with the applicable phosphorus criterion in s. NR 102.06 through verifiable reductions of phosphorus from point and nonpoint sources in the watershed.

Adaptive management may represent a cost effective option for point sources to meet phosphorus and TSS load reductions required in the Rock River TMDL. Madison Metropolitan Sewerage District is initiating an adaptive management pilot project in the Yahara Watershed, in partnership with the parties to this Memorandum of Understanding (MOU). The purpose of the pilot project is to provide information that will be used by parties to determine whether, and under what conditions they would participate in a full scale adaptive management project in the Yahara Watershed. Participation in the pilot does not commit any party to participating in a full scale adaptive management project in the Yahara Watershed. The Wisconsin Department of Natural Resources and USEPA Region 5 will participate in the pilot project as a means of gaining experience with the watershed adaptive management option, which may be used to inform future projects at the state and/or national level.

2. Parties

The parties to this MOU are those parties listed below, their successors and assigns.

Madison Metropolitan Sewerage District (MMSD or the District); City of Fitchburg; City of Madison; City of Monona; City of Stoughton; Dane County; Town of Blooming Grove; Town of Bristol; Town of Burke; Town of Cottage Grove; Town of Dunn; Town of Westport; Town of Windsor; Village of Arlington; Village of Cottage Grove; Village of DeForest; Village of Maple Bluff; Village of McFarland; Village of Oregon; Village of Shorewood Hills; Stoughton Utilities; Wisconsin Department of Natural Resources (WDNR); Sand County Foundation; Madison Gas and Electric; Clean Wisconsin.

Other parties may be added as may be approved by the District and comply with Section 11d.

3. Purpose

The purpose of this Memorandum of Understanding is to lay out a framework for implementing an adaptive management pilot project in the Yahara Watershed.

4. General Areas of Agreement

a. The Rock River TMDL will be used to determine phosphorus and TSS allocations for nonpoint, MS4's and other point sources with contributions to reaches located within the Yahara Watershed.
b. A monitoring strategy will be developed and implemented to assess phosphorus loads and load reductions, and to document progress toward applicable water quality criteria. The monitoring will include water quality monitoring and edge of field monitoring.
c. The phosphorus baseline for nonpoint sources in the Yahara Watershed will be based on the most recent information available. Specifically, baseline for nonpoint sources will be determined using results from the Yahara Clean SWAT model, with an adjustment made to account for agricultural best management practices (BMPs) put in place during the period of 2009-2011. Other adjustments may be made as necessary if supported by sound technical or scientific data.

d. Compliance with required phosphorus load reductions, and by extension, compliance with applicable water quality criteria or targets for phosphorus and TSS will be determined by calculation using the best available modeling tools. In general, agricultural BMPs characterized as soft practices will be modeled at the field scale using SNAP-Plus and at the watershed level (when appropriate) using SWAT. Urban BMPs will generally be modeled using SLAMM or the P8 Urban Catchment Model. These models may not be appropriate for the full range of agricultural and urban BMPs or engineered treatment systems. Other models or methods may be substituted as deemed appropriate, subject to agreement by the parties to this MOU.
e. Phosphorus mass limitations placed in the permit of any participant in a full scale adaptive management project in the Yahara Watershed will be derived from the relevant load or wasteload allocation in the Rock River TMDL. The limitation will be placed in permits at the time of permit reissuance.
f. Phosphorus concentration limitations placed in the permits of wastewater treatment plants at the time of permit reissuance will be consistent with applicable sections of NR 217.
g. Activities supported by pilot project funds include, but are not limited to the installation, maintenance and verification of phosphorus control practices; installation and maintenance of water quality monitoring systems; data evaluation; report development; development and implementation of a strategic communications program; and other support related functions.
h. If a best management practice (BMP) funded under an adaptive management pilot or a full scale adaptive management project subsequently becomes mandated by local, state or federal law, the phosphorus and TSS reduction associated with that BMP will continue to be credited against the total reduction required. However, phosphorus reduction credits cannot be double counted (i.e. multiple parties cannot use the same credit to offset their required reductions).
i. Adaptive management language in NR 217 relates to phosphorus. However, it is acknowledged that best management practices put in place to address phosphorus will also generally be effective in reducing TSS, and may be effective in addressing other pollutants such as nitrogen. Where applicable, phosphorus will be used as a surrogate for TSS, based on the relationship used in the Rock River TMDL. Phosphorus and TSS reductions will be fully credited toward reductions needed to comply with TMDL requirements. The monitoring strategy put in place to support the pilot project will produce data that can be used to evaluate of effectiveness of best management practices to control nitrogen.
j. All parties will explore the possibility of developing a watershed based permit for the Yahara Watershed or an alternate mechanism that facilitates coordinated decision making within the Yahara Watershed.
k. All parties will track staff hours and associated costs, and other expenditures (including the value of in-kind contributions) associated with the development and implementation of the adaptive management pilot.

5. Adaptive Management Pilot Project Objectives

The parties agree to work cooperatively to develop and implement an adaptive management pilot project within the Yahara Watershed. The pilot project will be conducted in the Six Mile Creek subwatershed (see Figure 1). The pilot project will begin in 2012 and end on December 31, 2015. Objectives of the pilot project include, but are not limited to the following:

a. Engaging customers and the community when developing the framework for the pilot.
b. Clearly defining and communicating expectations regarding a full scale adaptive management project.
c. Assessing the level of community support and acceptance for a full scale adaptive management project.
d. Evaluating the cost, performance and the ability to implement specific BMPs.
e. Evaluating the administrative aspects of working with brokers, farmers and others who may be responsible for identifying, installing or maintaining BMPs.
f. Evaluating the amount of staff time each participant dedicates to support participation in the pilot project.
g. Collecting monitoring and modeling data to assess water quality impacts associated with phosphorus, nitrogen, total suspended solids, and other parameters that may be of interest.
h. Developing partnerships needed to support implementation of a full scale adaptive management project, with roles and responsibilities clearly defined.
i. Identifying ancillary benefits that may be derived from installing BMPs.
j. Developing a strategic communication approach.

6. Evaluation of Pilot Project

The parties to this MOU will use information gathered during the pilot project to determine if they will move to full scale implementation of adaptive management in the Yahara Watershed. Each party will independently assess whether they will participate in a full scale project. The determination will consider such factors as:

a. Cost and Affordability:
    i. Whether adaptive management represents a cost effective option based on experience gained during the pilot.
    ii. Whether a sufficient level of local, state, federal, foundation and other funds have been committed to, or can be reasonably expected to be committed to the Yahara Watershed to support nonpoint BMPs.
b. Technical feasibility:
    i. Whether the pilot demonstrated from a practical standpoint sufficient BMP capacity exists to support the required phosphorus and total suspended solids reductions.
    ii. Whether the monitoring and modeling results demonstrate reasonable potential for water quality improvements and eventual attainment of water quality standards.

c. Administration:
    i. Whether the county and/or another entity can effectively fill the role of broker.
    ii. Are contracts or other legal tools used in the pilot effective in maintaining adherence to BMPs on the part of the credit generator?
d. Partnerships:
    i. Whether a sufficient number of partners have agreed to participate in a full scale project and whether the level of participation is sufficient to reasonably expect that a full scale project would be successful.
e. Regulatory:
    i. Whether regulatory barriers have been removed (e.g. has a site specific phosphorus criterion for Badfish Creek been developed and implemented).
    ii. Whether additional regulations that have been developed or are anticipated are a deterrent to pursuing a full scale adaptive management project.
    iii. Whether DNR and EPA still support the adaptive management concept.
f. Community acceptance:
    i. Whether the strategic communication plan has been effective in reaching out to the community as a whole.
    ii. Whether broad based community support exists for moving forward with a full scale adaptive management project.
    iii. Whether agricultural producers in the Yahara watershed support the adaptive management project.
g. Net environmental benefit:
    i. Whether the pilot project resulted in a net environmental benefit in the target watershed. Examples of factors that could be considered as part of a net environmental benefit evaluation include habitat improvement; reductions in phosphorus, nitrogen, and TSS loads; and reduction in carbon footprint.

7. Pilot Project Administration

A) Executive Committee

An executive committee will be responsible for the overall administration of the pilot project, including, but not limited to approving expenditures, coordinating informational meetings and report preparation, and implementing a strategic communication plan. The executive committee will be comprised of one representative from each of the following:

- Madison Metropolitan Sewerage District
- Dane County
- City of Madison
- One member from the strategic planning workgroup selected by the strategic planning workgroup

The executive committee will be chaired by Madison Metropolitan Sewerage District and will meet a minimum of four times per year.

B) Strategic Planning Workgroup

A strategic planning workgroup will be formed that is advisory to the executive committee, and will be comprised of one representative from each of the following:

- Madison Metropolitan Sewerage District
- Dane County
- City of Madison
- A participating city other than the City of Madison
- A participating village
- A participating town
- Madison Gas and Electric
- Wisconsin Department of Natural Resources
- Sand County Foundation
- Clean Wisconsin
- Clean Lakes Alliance
- Yahara Pride Farm Group

The Strategic Planning Workgroup will meet a minimum of three times per year.

C) Broker

Dane County Land and Water Resources Department will serve as the primary broker for the pilot project. The role of the broker includes identifying specific phosphorus reduction opportunities within the pilot project area, facilitating the installation of phosphorus reduction practices, verifying that practices have been installed and maintained, quantifying phosphorus and TSS load reductions, and other related activities.

D Miscellaneous

The Executive Committee may form other workgroups on an as needed basis. The parties to this MOU agree that the Executive Committee, the Strategic Planning Workgroup and any other workgroups formed under this MOU shall comply with the Wisconsin Open Meetings Law to the extent that Law is applicable. Notice of these meetings will be provided to MOU participants.

8. Pilot Project Financing

Funds to support pilot project work will be obtained from multiple sources, including USGS cost sharing; governmental and non-governmental grants/funding; and assessments made to Dane County, and to point sources having discharges to the Yahara Watershed identified in the Rock River TMDL and that are participating in the pilot project.

Participating point sources will fund the balance of the pilot project costs after deducting all USGS cost sharing, grants, contributions from other sources (e.g. the Sand County Foundation, Clean Lakes Alliance, Clean Wisconsin), and Dane County funding. Remaining costs will be allocated to each point source in proportion to the percentage of the cumulative phosphorus

reduction required in the Yahara Watershed using information from the Rock River TMDL. Maximum annual allocations for participating point sources are shown in Table 1.

Participating point sources will be invoiced annually by MMSD. Invoices will be sent out in January 2013; January 2014; and January 2015. Payments will be made directly to MMSD, with payments due within 45 days of receipt of invoice. Pilot project funds will be held in a separate account by MMSD, for the sole purpose of funding pilot project activities. MMSD will make disbursements from this account to support pilot project activities, with disbursements being subject to approval by the executive committee.

Any funds remaining in the account at the end of the pilot project will be refunded to the parties in proportion to the assessment. Semi-annual and annual reports referenced in Section 9 below will include financial statements.

9. Progress Reports and Informational Meetings

Progress reports will be prepared under the direction of the executive committee and provided to pilot project participants on an annual basis. Annual progress reports will include a financial section containing information on revenue and expenditures. A final project report will be prepared and sent to all pilot project participants by July 1, 2016. Interim progress reports will be prepared at a minimum frequency of six months. Informational meetings will be held at a minimum on a semi-annual basis. Informational meetings may be held independently or in conjunction with other relevant meetings (e.g. MAMSWaP meetings). A project website will be developed and maintained as a means of conveying important project information. Other communication tools will be used as appropriate.

10. Phosphorus Reduction Credits

Phosphorus reduction credits generated through activities funded during the pilot project will be allocated to point source pilot project participants in direct proportion to their overall financial contribution to the pilot project.

11. General Conditions

a. EPA Region 5 will be invited to participate in the adaptive management pilot as an "interested party" and shall designate a representative to participate in pilot project discussions.
b. The effective date of this MOU is the date of the latest signature below.
c. This MOU will remain in effect until December 31, 2015 unless otherwise agree to in writing by all parties.
d. Other parties may be added to this MOU as participants in the pilot project, subject to approval by the District, by affixing their signature to the signature block. If the additional parties are governmental units that have baseline loads and allocated loads of phosphorus and total suspended solids in the Yahara watershed, as identified in the Rock River TMDL, the parties will be required to fund the pilot project in the same manner as identified is Section 8.

e. It is anticipated that this effort will result in other partnerships and the need for additional MOUs.
f. The parties agree that this MOU can be amended if amendments are agreed to in writing by all parties.

12. Signatures for Parties to the MOU

(Note-each participant has a separate signature page)

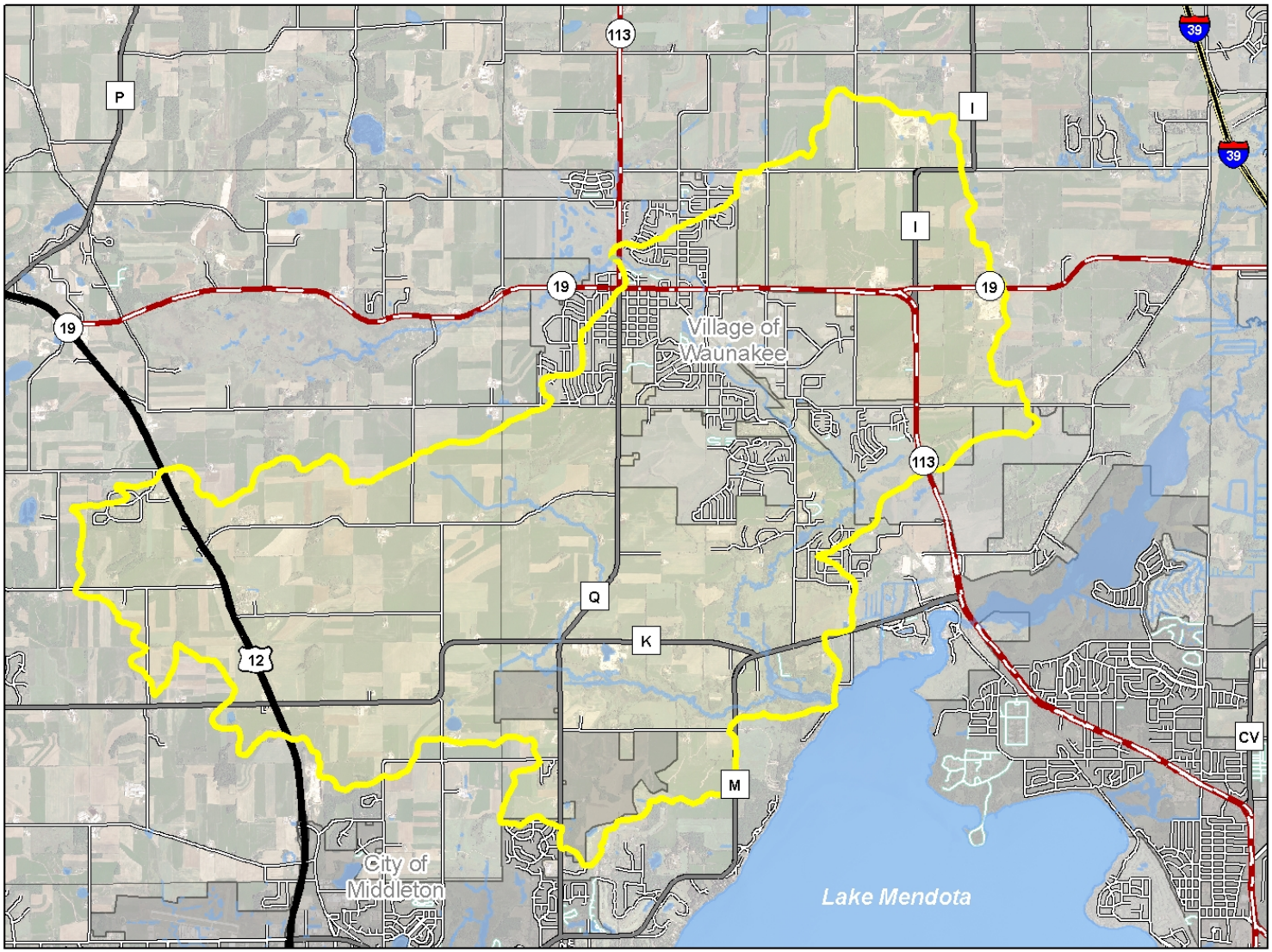
Table 1: Yahara Watershed Adaptive Management Pilot Project Annual Assessments for the Period of 2013 Through 2015[(1)]

Entity	Annual Assessment
City of Fitchburg	$17,900
City of Madison	$135,800
City of Middleton	$19,800
City of Middleton-Tiedemann	$4,100
City of Monona	$7,200
Madison Gas and Electric	$1,200
Madison Metropolitan Sewerage District	$126,600
Stoughton Utilities	$4,700
Town of Blooming Grove	$3,800
Town of Bristol	$3,400
Town of Burke	$9,500
Town of Cottage Grove	$5,300
Town of Dunn	$5,300
Town of Westport	$7,800
Town of Windsor	$11,300
Village of Arlington	$300
Village of Cottage Grove	$2,000
Village of DeForest	$7,000
Village of Maple Bluff	$1,500
Village of McFarland	$6,200
Village of Oregon	$18,900
Village of Shorewood Hills	$1,800
Wisconsin Department of Natural Resources	$900
Clean Lakes Alliance	$15,000
Clean Wisconsin	$500
Sand County Foundation[(2)]	$159,000

(1) Does not include direct or indirect contributions from Dane County (e.g. DATCP pass through funds, Mississippi River Basin Initiative funds) or USGS cost sharing.

(2) In a letter dated April 20, 2012 the Sand County Foundation committed to make a voluntary contribution to the pilot project in an amount not to exceed $159,000 to support water quality monitoring efforts. The District will invoice the Sand County Foundation in a manner consistent with the schedule specified in the April 20, 2012 letter.

Figure 1-Location of the Adaptive Management Pilot Project



Adaptive Management MOU
Signature page for Madison Metropolitan Sewerage District

D. Michael Mucha

6-19-12

D. Michael Mucha
Chief Engineer and Director

Date

DANE COUNTY

Joe Parisi
County Executive

Adaptive Management MOU
Signature page for Dane County

Joseph T. Parisi

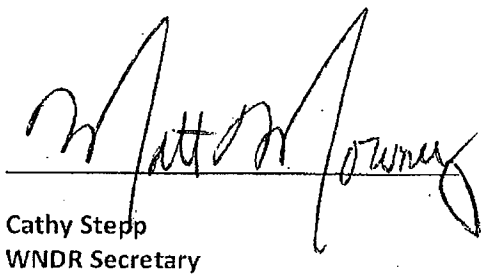
Joe Parisi
County Executive

6-19-12

Date

City-County Building, Room 421, 210 Martin Luther King, Jr. Boulevard, Madison, Wisconsin 53703
PH 608/266-4114 FAX 608/266-2643 TDD 608/266-9138

Adaptive Management MOU
Signature page for the Wisconsin Department of Natural Resources



6/25/15

for Cathy Stepp
WNDR Secretary

Date

Adaptive Management MOU
Signature page for the City of Fitchburg

Shawn Pfaff

6/8/12

Shawn Pfaff
City of Fitchburg Mayor

Date

Adaptive Management MOU
Signature page for the City of Madison

Paul R. Soglin
City of Madison Mayor

6-26-17
Date

Adaptive Management MOU
Signature page for the City of Middleton

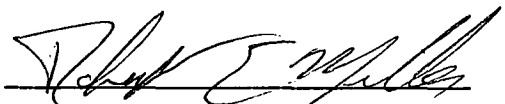
Kurt J. Sonnentag
City of Middleton Mayor

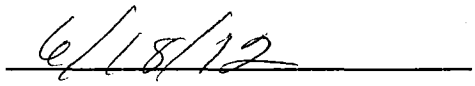
6-11-12
Date

Lorie J. Burns
City of Middleton Clerk

6-11-12
Date

Adaptive Management MOU
Signature page for the City of Monona





Robert Miller
City of Madison Monona

Date

Adaptive Management MOU
Signature page for the City of Stoughton

Donna Olson
City of Stoughton Mayor

6-4-12
Date

Nicholas J. Probst
City of Stoughton Clerk

6/4/2012
Date

Adaptive Management MOU
Signature page for the Stoughton Utilities

Robert P. Kardasz

6-4-12

Robert P. Kardasz, P.E.
Stoughton Utilities Director

Date

Adaptive Management MOU
Signature page for the Town of Blooming Grove

Mike Wolf
Clerk/Treasure/Administrator

6/5/2012
Date

Adaptive Management MOU
Signature page for the Town of Bristol

6-22-2012

Gerald Derr
Chair

Date

Adaptive Management MOU
Signature page for the Town of Burke

Brenda Ayers

Brenda Ayers
Clerk/Treasure

6/15/2012

Date

Adaptive Management MOU
Signature page for the Town of Cottage Grove

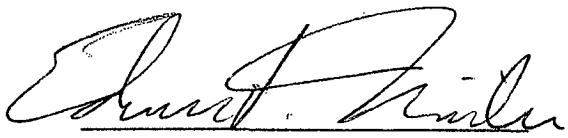
Kris Hampton

6/18/12

Kris Hampton
Chair

Date

Adaptive Management MOU
Signature page for the Town of Dunn



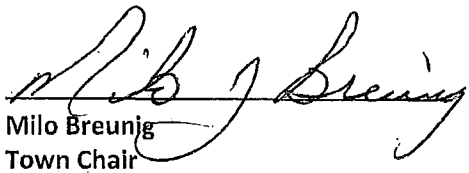
20 June 2012

Edmund Minihan
Chair

Date

Adaptive Management MOU
Signature page for the Town of Middleton

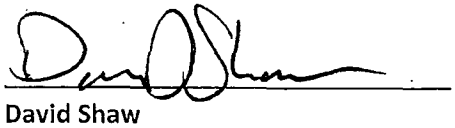
The Town of Middleton maximum annual assessment for the period of 2013 through 2015 will be $4,000/yr.



Milo Breunig
Town Chair

July 16, 2012
Date

Attest:



David Shaw
Town Clerk

July 16, 2012
Date

Adaptive Management MOU
Signature page for the Town of Westport

TOWN OF WESTPORT
By: Thomas G. Wilson

6/5/12

Thomas G. Wilson
Attorney/Administrator/Clerk/Treasurer

Date

Adaptive Management MOU
Signature page for the Town of Windsor

Town of Windsor

Dated this the 7th day of June, 2012.

Robert E. Wipperfurth

Robert E. Wipperfurth, Town Chairman

Attest:

Tina Butteris

Tina Butteris
Finance Director/Office Manager/Deputy Clerk

Adaptive Management MOU
Signature page for Village of Arlington

_____ 6/11/12

Michael McKinney **Date**
Administrator/Clerk/Treasurer

Adaptive Management MOU
Signature page for the Village of Cottage Grove

Diane J Wiedenbeck

Diane Wiedenbeck
President

June 18, 2012

Date

Adaptive Management MOU
Signature page for the Village of DeForest

Judd Blau
President

6/19/12
Date

Luann Leggett
Clerk

6.19.12
Date

Adaptive Management MOU
Signature page for the Village of Maple Bluff

Tim Krueger
Administrator

6-21-2012
Date

Adaptive Management MOU
Signature page for the Village of McFarland

Don Peterson

7-23-12

Don Peterson
Administrator

Date

Adaptive Management MOU
Signature page for the Village of Oregon

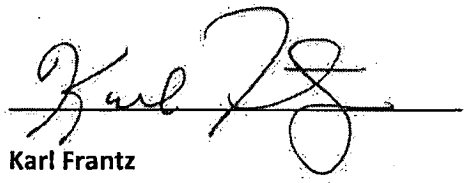
Steve Staton

Steve Staton
President

6-14-2012

Date

Adaptive Management MOU
Signature page for the Village of Shorewood Hills



6/4/12

Karl Frantz
Administrator

Date

Adaptive Management MOU
Signature page for the Village of Waunakee

The Village of Waunakee maximum annual assessment for the period of 2013 through 2015 will be $9,100/yr.

John Laubmeier
Village President

8/6/13
Date

Adaptive Management MOU
Signature page for Clean Wisconsin

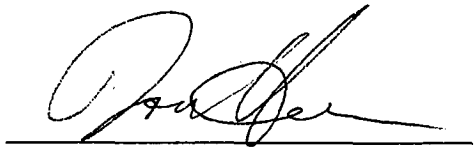
Mark Redsten

6/11/12

Mark Redsten
Executive Director

Date

Adaptive Management MOU
Signature page for the Clean Lakes Alliance



6/22/12

Don Heilman
President

Date

Adaptive Management MOU
Signature page for Madison Gas and Electric

Kristine Euclide
Vice President and General Counsel

6/5/12
Date

Adaptive Management MOU
Signature page for the Sand County Foundation

Brent M. Haglund

Brent Haglund
President

05 June 2012

Date

Appendix 10:
Charter for the New Water Adaptive Management Pilot Project

Silver Creek Pilot Watershed Project Team Charter

September 8, 2014

PROJECT	Design and Implementation of an Adaptive Management Pilot Project for the Silver Creek Watershed
CLIENT	NEW Water (the brand of the Green Bay Metropolitan Sewerage District)
PROJECT VISION	A robust and collaborative pilot study in the Silver Creek subwatershed that is consistent with stakeholder ecological restoration goals, and that provides NEW Water with the information to make an informed and confident decision on whether to use the adaptive management approach to meet the phosphorus and total suspended solids reductions required to meet designated use and water quality goals in the Lower Fox River Basin.

CRITICAL SUCCESS FACTORS

Safety	Implement pilot study with no recordable safety incidents.
Cost	Manage study costs effectively and identify total cost for NEW Water adaptive management compliance.
Schedule	Complete initial study to begin implementing BMPs in 2015 growing season and provide information for milestones included in the NEW Water permit.
Regulatory Compliance	Define compliance with adaptive management approach and determine whether these goals could be met.
Stakeholder Participation	Active and timely participation, completion of action items, and open communication that maintains commitments and project schedule.
Stakeholder Acceptance	Maximize the implementation of agricultural BMPs by owners and operators, and track factors that influence decision making.
Quality	Development of a scientifically defensible adaptive management approach that can be repeatable, adaptable, predictable, and implemented across the watershed.

ROLES AND RESPONSIBILITIES

(see stakeholder participation matrix)

NEW Water – Project leader, organize partners/stakeholders, participate in meetings, and direct consultant team.

Consultant Team – Plan and carry out project, support and attend meetings, coordinate with stakeholders and partners, GIS management, execute soil sampling, support County and NRCS conservation planning, and project reporting.

Counties and NRCS – Participate in meetings, provide data from on-going studies, support coordination with landowners/operators, support soil sampling, and lead conservation planning and implementation.

Oneida Nation – Participate in meetings, provide data from on-going studies, coordinate with Tribal operators, execute soil sampling and field walks on tribal lands, and support conservation planning and implementation.

Cooperating Partners/Agencies – Participate in meetings, provide GIS data and information on existing projects and SWAT modeling, review sampling plans and data analysis, review conservation plans, and provide technical support for monitoring programs.

COMMITMENTS

NEW Water	Oneida Nation	Outagamie County	Brown County
Outagamie County NRCS	Brown County NRCS	Oneida Tribal NRCS	US Fish and Wildlife Service
UW Green Bay	Tilth Agronomy	US Geological Survey	The Nature Conservancy
Fox Wolf Watershed Alliance	Ducks Unlimited	The Alliance for the Great Lakes	WI Depart. of Natural Resources
CH2M HILL	AgVentures	McMahon Associates	