Adaptive Management and Compliance With The Rock River TMDL Frequently Asked Questions (12/2/2011)

Background

The USEPA recently approved the Rock River Basin Total Maximum Daily Load (TMDL). Implementation of the TMDL will impose significant legal obligations on communities, industries and wastewater treatment plants within the Rock River Basin having discharge permits issued by the Wisconsin Department of Natural Resources (WDNR). Specifically, they may need to reduce phosphorus and total suspended solids loads coming from stormwater runoff and municipal/industrial wastewater treatment plant (WWTP) effluent discharges. An "adaptive management" approach may provide a cost effective means of complying with reductions required under the Rock River TMDL. This fact sheet provides answers to many of the commonly asked questions regarding the Rock River TMDL and adaptive management.

What is an impaired waterbody?

An impaired waterbody is a waterbody (stream, river, lake, etc.) that does not meet applicable water quality standards and is listed as impaired by the Wisconsin Department of Natural Resources (WDNR).

What is a TMDL?

A Total Maximum Daily Load (TMDL) is the maximum amount of a pollutant an impaired waterbody can receive and still meet state water quality standards. A TMDL includes an analysis of sources that cause or contribute to the impairment, and an allocation of allowable loads among those sources so that the receiving water can meet the applicable water quality standard(s).

Why was a TMDL developed for the Rock River Basin?

A TMDL was developed for the entire Rock River Basin to address waterbodies within the basin that were identified by the Wisconsin Department of Natural Resources (WDNR) as being impaired by phosphorus and/or total suspended solids. A TMDL is required by the federal government (USEPA) for all identified impaired waters.

What is the status of the Rock River TMDL?

The TMDL was approved by USEPA in September, 2011. DNR formed a team to provide assistance in developing a TMDL implementation plan. It is anticipated that it may take two years to complete this plan.

What requirements does the Rock River TMDL impose on point sources?

Any pollutant source that has a defined discharge location or point is considered a "point source". This includes municipal wastewater treatment plants, industrial discharges and most urban areas with municipal separate storm sewer systems (commonly referred to as MS4s). Each point source located within the Rock River Basin is assigned a permissible mass load allocation for phosphorus and total suspended solids that can be discharged. In most cases both wastewater plants and

MS4s will have to upgrade existing facilities and/ or install new facilities to comply with their TMDL allocation.

What is the Relationship Between the MAMSWaP Permit and the Rock River TMDL?

Many of the MS4s with stormwater discharges in the Yahara Watershed are covered under a group Wisconsin Pollutant Discharge Elimination Permit (WPDES) issued by WDNR, commonly referred to as the MAMSWaP permit. This permit authorizes the discharge of stormwater and identifies the legal requirements that must be met. The permit contains several requirements related to TMDLs, including the following:

- After EPA has approved an applicable TMDL, permittees are required to assess whether existing stormwater control practices currently are sufficient to meet the TMDL allocations for phosphorus and TSS.
- If additional control measures are needed, permittees are required to develop a stormwater control plan to comply with the TMDL allocations. The plan must include an implementation schedule and needs to be submitted to WDNR within 3 years following approval of the TMDL.
- The plan must be implemented as soon as practicable following DNR review.

What potential compliance strategies are available for MS4s?

Compliance strategies could include expanding or improving the effectiveness of existing stormwater control facilities, building new stormwater control facilities, water quality trading, participating in a watershed adaptive management project under the "umbrella" of a WWTP, or a combination of these approaches.

What is water quality trading?

Water quality trading is an approach whereby entities facing high pollution control costs meet their regulatory obligations by funding less expensive practices that result in the same (or greater) level of pollutant reduction from other sources. For example, an MS4 could potentially meet its TMDL reduction requirements for phosphorus and total suspended solids by funding agricultural best management practices that control cropland runoff.

Can MS4s use water quality trading to meet their TMDL reduction requirements?

Yes. WDNR has developed a draft framework to support implementation of water quality trading programs. However, there are still several issues related to trading that need to be resolved, some of which could significantly impact the viability of trading.

What is adaptive management?

Adaptive management is an implementation option that is currently only included in Wisconsin Administrative Code Chapter NR 217, which establishes effluent limitations and compliance strategies for wastewater treatment plants and certain other point dischargers. It involves activities that are similar to water quality trading-entities facing high pollution control costs can

meet their regulatory obligations by funding less expensive practices that result in the same (or greater) level of pollutant reduction from other sources. Adaptive management focuses on improving water quality within the whole watershed as opposed to the traditional focus on water quality at the discharge point or meeting a water quality based effluent limitation. Adaptive management is governed by a different set of rules than water quality trading, and provides greater flexibility. Wastewater treatment plants that participate in adaptive management are subject to some additional requirements, which include meeting interim phosphorus effluent limits and optimizing existing treatment processes.

Can MS4s participate in a watershed adaptive management approach to meet their TMDL reduction requirements?

Yes, but only if the MS4 is specifically included in an adaptive management plan that is submitted to DNR by a wastewater treatment plant or other point source regulated under NR 217. Under current WDNR administrative code rules, an MS4 could not independently initiate an adaptive management approach.

Are there any wastewater treatment plants in the Yahara Watershed that are considering using the adaptive management option?

Yes. Madison Metropolitan Sewerage District (MMSD) is evaluating the adaptive management option.

Is adaptive management a cost effective solution for an MS4?

Each MS4 will need to make this determination, but in general, adaptive management is a cost effective solution. MMSD estimates that the cost for adaptive management in the Yahara Watershed is about $27 per pound of phosphorus controlled per year. Traditional urban stormwater control facilities are relatively inefficient at removing phosphorus. Using data from several stormwater retention facilities constructed in northeast Wisconsin and in the City of Madison, a typical stormwater retention pond is estimated to cost between $400 and $600 per pound of phosphorus controlled per year. A comparison of compliances costs for an MS4 having a phosphorus reduction requirement of 600 pounds per year in the Rock River TMDL would be as follows:

Adaptive Management

$27 per pound of phosphorus per year
$16,000 annual compliance cost
$324,000 compliance cost for a 20 year planning period

Stormwater Retention Pond

$500 per pound of phosphorus per year (midpoint of cost range)
$300,000 annual compliance cost
$6,000,000 compliance cost for a 20 year planning period

How will MMSD decide whether it will submit an adaptive management plan for the Yahara Watershed?

MMSD is working with Dane County, WDNR and the City of Madison to conduct a three year adaptive management pilot project with the Yahara Watershed. Information obtained during the pilot will be used by participants to determine whether they will move forward with a full scale adaptive management project. The pilot project will evaluate a number of administrative, technical, cost, communication and related implementation issues. This includes gathering information on nitrogen, which will help determine the extent to which adaptive management could also be used to meet potential future regulations addressing nitrogen. A Memorandum of Understanding (MOU) is being developed to address areas of agreement and important regulatory issues related to both the pilot project and a full scale adaptive management project.

Can MS4s other than the City of Madison participate in the adaptive management pilot project?

Yes-all MS4s with discharges to the Yahara Watershed are encouraged to participate in the adaptive management pilot project. They are also encouraged to be parties to the MOU.

Why should MS4s and other point sources participate in the adaptive management pilot project?

There are several of reasons why MS4s and other point sources are encouraged to participate in the pilot project. First, participation ensures that their interests and questions are considered as the details of the pilot project are developed. Second, it demonstrates to DNR the ability to work collaboratively within the watershed. This will likely be a key factor that DNR will consider when asked to approve a full scale adaptive management project. Pilot project participants can also help shape the full scale adaptive management project. Finally, pilot project participants will also be parties to the MOU, which will provides some regulatory assurances/certainty.

What percentage of MAMSWaP municipalities need to agree to participate to go forward with the adaptive management pilot project and MOU?

There is no set percentage, but as indicated above, all MS4s are encouraged to participate.

When do MS4s or other WWTPs need to decide whether they will participate in the pilot project?

A decision is needed by February, 2012. Contact David Taylor at Madison Metropolitan Sewerage District to confirm your participation in the pilot project. Contact information is provided at the end of this fact sheet.

What will it cost to participate in the pilot project and when will municipalities need to have budgeted funds?

The total cost for the pilot is estimated at $3 million dollars. The estimated cost for individual MS4s and other point sources to participate in the pilot are proportional to the phosphorus reductions required under the Rock River TMDL. The estimated costs are shown in the Table 1.

These costs are based on the assumption that MS4s are currently achieving a 40% TSS reduction, which is the baseline that DNR and EPA used for MS4s in the TMDL.

The pilot will be conducted over a three year period starting in 2013. The first payment for participating MS4s and WWTPs will need to be made in 2013. Note that a few MS4s have a "zero" cost in Table 1 (and in Table 2). This is because their TMDL allocation is greater than their current discharge-that is, they do not need to achieve a reduction to comply with the TMDL.

How will such a short-duration pilot generate enough data for DNR and others to evaluate the effectiveness of adaptive management?

The pilot duration is sufficient to evaluate a wide range of administrative and implementation issues that will determine whether a full scale project can be successful. These include such factors as the ability to install BMPs, BMP costs, BMP effectiveness, contractual issues, etc. Water quality data will also be collected during the pilot, but major changes in water quality are not anticipated over such a short time period.

Where will the pilot project be conducted?

The pilot will be conducted in the Sixmile Creek subwatershed (see Figure 1). This location was selected based because it is adjacent to other watersheds that are currently the focus of detailed subwatershed evaluations being conducted by Dane County.

Will participation in the pilot obligate MS4s and other point sources to participate in a full scale adaptive management project if a full scale project moves forward?

No. Each participant in the pilot project will need to decide whether to participate in a full scale adaptive management project based on outcomes from the pilot project.

If a full scale adaptive management project moves forward, what are the costs for participating MS4s and other point sources?

The **estimated** costs for participating in a full scale adaptive management project are shown in Table 2. The costs in Table 2 will be refined based on information generated during the pilot project. As in the pilot, costs are proportional to the phosphorus reductions required under the Rock River TMDL. These costs are also based on the assumption that MS4s are currently achieving a 40% TSS reduction, which is the baseline that DNR and EPA used for MS4s in the TMDL.

If a full scale adaptive management project moves forward, what types of best management practices will be funded?

A range of management practices will be funded. Most will likely be agricultural management practices, but some urban practices could be funded as well. Other practices, including wetland restoration and dredging of drainage ditches will also be considered. If only agricultural practices are used, an estimated 60,000 acres would need to be under some type of best management practice.

Can the best management practices implemented in a full scale project be close to participating municipalities for visibility purposes, to show local impacts, etc?

While no guarantees can be made, the large number of acres that would be managed under BMPs makes it likely that some management practices will be in close proximity to participating municipalities. For MMSD, this means that some projects will be located in the Badfish Creek subwatershed, which is one of two streams that currently receive MMSD effluent.

If a full scale adaptive management project moves forward, will participation be considered sufficient to meet regulatory obligations for phosphorus and total suspended solids (TSS) under the Rock River TMDL?

DNR staff have stated that because of the lack of numeric water quality targets for TSS, the water quality targets in the Rock River TMDL for TSS were based on a numeric relationship between phosphorus and TSS. As such, meeting the phosphorus allocations at the watershed scale should result in meeting the TMDL TSS goals at the watershed level.

What handout materials and presentations will be available to further explain adaptive management to municipal committees, elected officials, decision-makers and other interested parties?

Additional informational materials will be prepared on an as needed basis and distributed through groups such as MAMSWaP. Staff from MMSD are available to make detailed presentations on adaptive management. The MOU referenced earlier in this list of frequently asked questions will be available for review in the near future.

Who should we contact for additional information on adaptive management and the adaptive management pilot project?

For additional information or to confirm your participation in the pilot project, contact David Taylor, Director of Special Projects at Madison Metropolitan Sewerage District (608-222-1201, ext. 276; davet@madsewer.org).

Figure 1: Adaptive Management Pilot Project Location

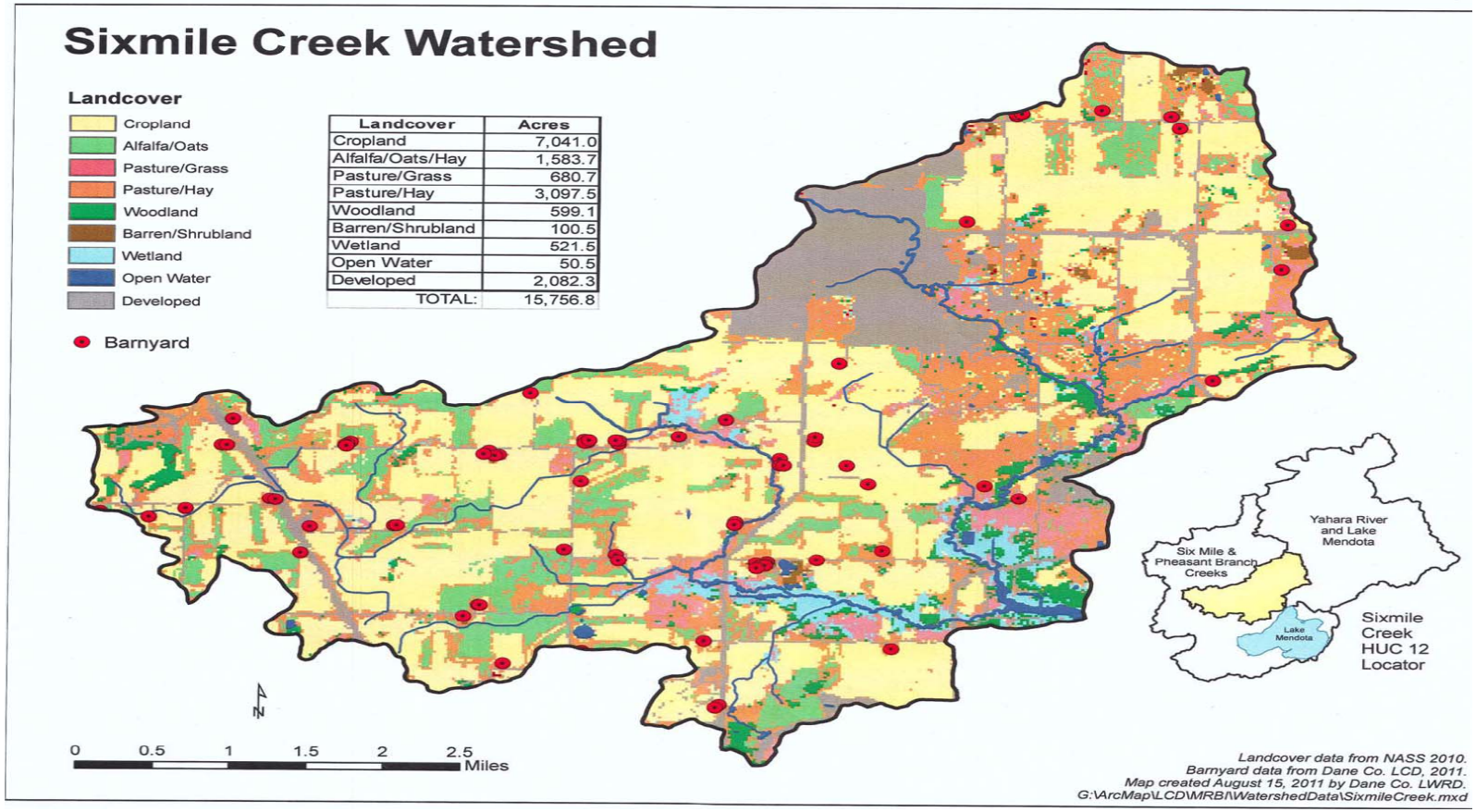

Table 1: Estimated Yahara Watershed Adaptive Management Pilot Project Costs

MS4/Stormwater	Total Cost	Annual Cost
Blooming Grove,Town	$11,500	$3,800
Bristol, Town	$10,300	$3,400
Burke, Town	$28,600	$9,500
Cottage Grove, Town	$15,900	$5,300
Cottage Grove, Village	$6,000	$2,000
Deforest, Village	$21,000	$7,000
Dunkirk, Town	$0	$0
Dunn, Town	$15,900	$5,300
Fitchburg, City	$53,700	$17,900
Madison, City	$408,100	$136,000
Madison, Town	$14,600	$4,900
Maple Bluff, Village	$4,500	$1,500
McFarland, Village	$18,500	$6,200
Middleton, City	$59,400	$19,800
Middleton, Town	$11,900	$4,000
Monona, City	$21,600	$7,200
Pleasant Springs, Town	$0	$0
Shorewood Hills, Village	$5,600	$1,900
Stoughton, City	$0	$0
Sun Prairie, City	$15,900	$5,300
Waunakee, Village	$27,400	$9,100
Westport, Town	$23,600	$7,900
Windsor, Town	$33,900	$11,300
Point Sources		
MMSD	$380,600	$126,900
Oregon	$56,900	$19,000
Stoughton	$14,200	$4,700
Arlington	$800	$300
Middleton-Tiedemann	$12,300	$4,100
DNR-Nevin	$2,700	$900
MGE	$400	$100
Background	$159,600	$53,200
Nonpoint	$1,326,400	$442,100

Table 2: Estimated Cost for Participation in a Full Scale Yahara Watershed Adaptive Management Project

MS4/Stormwater	Total PW Cost	Annual Cost
Blooming Grove,Town	$240,000	$12,000
Bristol, Town	$220,000	$11,000
Burke, Town	$610,000	$30,500
Cottage Grove, Town	$340,000	$17,000
Cottage Grove, Village	$130,000	$6,500
Deforest, Village	$440,000	$22,000
Dunkirk, Town	$0	$0
Dunn, Town	$340,000	$17,000
Fitchburg, City	$1,140,000	$57,000
Madison, City	$8,640,000	$432,000
Madison, Town	$310,000	$15,500
Maple Bluff, Village	$100,000	$5,000
McFarland, Village	$390,000	$19,500
Middleton, City	$1,260,000	$63,000
Middleton, Town	$250,000	$12,500
Monona, City	$460,000	$23,000
Pleasant Springs, Town	$0	$0
Shorewood Hills, Village	$120,000	$6,000
Stoughton, City	$0	$0
Sun Prairie, City	$340,000	$17,000
Waunakee, Village	$580,000	$29,000
Westport, Town	$500,000	$25,000
Windsor, Town	$720,000	$36,000
Point Sources		
MMSD	$8,060,000	$403,000
Oregon	$1,210,000	$60,500
Stoughton	$300,000	$15,000
Arlington	$20,000	$1,000
Middleton-Tiedemann	$260,000	$13,000
DNR-Nevin	$60,000	$3,000
MGE	$10,000	$500
Background	$3,380,000	$169,000
Nonpoint	$28,100,000	$1,405,000