

# Adaptive Management in the Yahara River Watershed

## Background on Adaptive Management

- In 2011, the Environmental Protection Agency (EPA) set end-of-pipe phosphorous limits for various point sources in the Yahara River Watershed, including the Madison Metropolitan Sewerage District (MMSD), the Cities of Madison, Middleton, Fitchburg, and Monona, Madison Gas & Electric, and others;
- These Total Maximum Daily Load (TMDL) limits were set to ensure that the Rock River Basin would come into compliance with existing federal water quality standards.
- The Yahara Lake Watershed is part of the Lower Rock River Basin and meets the Rock River at the southern end of the Watershed.
- Adaptive management is a new Wisconsin Department of Natural Resources' (WDNR) program that would allow certain point sources to forego EPA's end-of-pipe limits and use a more flexible, cost-effective, and holistic compliance approach instead;
- Sources that choose Adaptive management are generally not required to meet EPA's stringent end-of-pipe phosphorous limits and instead would create and implement a plan to reduce phosphorous discharges throughout the watershed, which can include phosphorous reductions from both point and non-point sources (such as farms).

### What are *Point Sources*?

Point sources are identifiable, discrete discharges directly into a water body, usually through a pipe or outfall. They are typically located at industrial, municipal, and large agricultural facilities.

## Why is Adaptive Management Good for the Watershed?

- Phosphorus reduction is necessary to reduce algal blooms that contribute to the loss of fish and other native aquatic plant and animal life;
- Complying with EPA's end-of-pipe limits will be very expensive for many sources, and the limits - even if achieved - will not improve water quality in as many areas of the Yahara River Watershed as adaptive management;
- For example, it would cost MMSD between \$71.4 million and \$210 million to install controls to meet the EPA's end-of-pipe limits, with ongoing operation and maintenance costs of between \$816,000 and \$5,171,000 per year;
- It is unclear what the actual costs of adaptive management would be for regulated sources; however, MMSD estimates that annual adaptive management costs for all regulated sources will be approximately \$3 million per year;

### What are *Non-point Sources*?

Non-point sources are indirect, generally unpermitted, sources of pollution. These can include agricultural farms that have runoff from barnyards, cropland, and feedlots. Runoff from non-permitted municipal separate storm sewer systems (MS4s) and construction sites disturbing less than one acre of land are examples of urban non-point sources.

- Adaptive management is generally less expensive than end-of-pipe controls because, for example, implementing best management practices that reduce phosphorous discharges from farms is significantly less expensive on a dollar per pound of phosphorous removed basis than end-of-pipe controls;
- Adaptive management also allows point sources like MMSD to implement phosphorous reduction projects at the top of the watershed, which will lead to greater water quality benefits throughout the watershed.

## How Would Adaptive Management Be Implemented?

- To use adaptive management, MMSD must submit an approvable adaptive management plan on behalf of all interested regulated sources that calls for point and non-point source reductions of phosphorus, which will ultimately lead to the applicable water bodies achieving the phosphorus water quality standards.

### What are Total Maximum Daily Loads (TMDLs)?

A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet federal water quality standards. The Environmental Protection Agency allocates TMDL limits among various sources of the pollutant within the defined body of water. Sources of pollutants are categorized as either point source or non-point source, with point sources receiving a wasteload allocation (WLA) and non-point sources receiving a load allocation (LA).