Total Maximum Daily Loads for Total Phosphorus and Total Suspended Solids in the Rock River Basin

Columbia, Dane, Dodge, Fond du Lac, Green, Green Lake, Jefferson, Rock, Walworth, Washington, and Waukesha Counties, Wisconsin

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Prepared for:

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1.0 INTRODUCTION

1.1. Background

In April of 1991, the United States Environmental Protection Agency (EPA) Office of Water's Assessment and Protection Division published "Guidance for Water Quality-based Decisions: The Total Maximum Daily Load (TMDL) Process." In July 1992, EPA published the final "Water Quality Planning and Management Regulation" (40 CFR Part 130). Together, these documents describe the roles and responsibilities of EPA and the states in meeting the requirements of Section 303(d) of the Federal Clean Water Act (CWA) as amended by the Water Quality Act of 1987, Public Law 100-4. Section 303(d) of the CWA requires each state to identify those waters within its boundaries not meeting water quality standards for any given pollutant applicable to the water's designated uses.

Further, Section 303(d) requires EPA and states to develop TMDLs for all pollutants violating or causing violation of applicable water quality standards for each impaired water body. A TMDL determines the maximum amount of pollutant that a water body is capable of assimilating while continuing to meet the existing water quality standards. For all the point and nonpoint sources of pollution that cause the impairment, such loads are established at levels necessary to meet the applicable standards with consideration given to seasonal variations and margin of safety. TMDLs provide the framework that allows states to establish and implement pollution control and management plans with the ultimate goal indicated in Section 101(a)(2) of the CWA: "water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water, wherever attainable" (USEPA, 1991).

1.2. Problem Statement

The Rock River Basin is located in southern Wisconsin (Figure 1). Several lakes, rivers, and streams in the Rock River Basin are impaired by excessive phosphorus and sediment concentrations, which lead to nuisance algae growth, oxygen depletion, reduced submerged aquatic vegetation, water clarity problems, and degraded habitat. These impairments adversely affect fish and other aquatic life, water quality, recreation, and navigation. To help plan for addressing these impairments, this document establishes TMDLs for total phosphorus (TP) and total suspended solids (TSS).

Although phosphorus is an essential nutrient for plant growth, excess phosphorus is a concern for most aquatic ecosystems. Where human activities do not dominate the landscape, phosphorus is generally in short supply. The absence of phosphorus limits the growth of algae and aquatic plants. When a large amount of phosphorus enters a water body, it essentially fertilizes the aquatic system, allowing more plants and algae to grow, leading to excessive aquatic plant growth, often referred to as an algae bloom. This condition of nutrient enrichment and high plant productivity is referred to as eutrophication. Eutrophication can be detrimental to aquatic life, reduce recreational opportunities, and affect the economic well-being of the surrounding community. Overabundant aquatic plant growth in a water body can lead to a number of undesirable consequences. Excessive growth of vegetation in a water body blocks sunlight from penetrating the water, choking out beneficial submerged aquatic vegetation. Large areas of excessive vegetation growth can inhibit or prevent access to a waterway, which restricts use of the water for fishing, boating, and swimming. A bloom of aquatic plants may include toxic blue-green algae or cyanobacteria, which are harmful to fish and pose health risks to humans. Algal blooms, particularly those that form surface scums, are unsightly and can have unpleasant odors. This makes recreational use of the water body unpleasant, and can affect the everyday quality of life of people who live close to the affected water body. When the large masses of aquatic plants from the bloom die, the decomposition of the organic matter depletes the supply of dissolved oxygen in the water, suffocating fish and other aquatic life; depending on the severity of the low dissolved oxygen event, large fish kills can occur. Nearly all of these environmental impacts have economic impacts to the local community and the state.

Many water bodies in the Rock River Basin are also impaired by excess sediment loading. Sediment that is suspended in the water scatters and absorbs sunlight, reducing the amount of light that reaches submerged aquatic vegetation, which reduces its photosynthetic rate and growth. Bottom-rooted aquatic plants (called macrophytes) produce life-giving oxygen, provide food and habitat for fish and other aquatic life, stabilize bottom sediments, protect shorelines from erosion, and take up nutrients that would otherwise contribute to nuisance algae growth. As photosynthetic rates decrease, less oxygen is released into the water by the plants. If light is completely blocked from bottom dwelling plants, the plants will stop producing oxygen and will die. As the plants are decomposed, bacteria will use up even more oxygen from the water. Reduced water clarity can also have direct impacts on aquatic fauna, including fish, waterfowl, frogs, turtles, and insects. Suspended sediments interfere with the ability of fish and waterfowl to see and catch food and can clog the gills of fish and invertebrates, making it difficult for them to breathe. When sediments settle to the bottom of a river, they can smother the eggs of fish and aquatic insects, as well as suffocate newly hatched insect larvae. Settling sediments can also fill in spaces between rocks, which could have been used by aquatic organisms for homes. Excess sediments can also cause an increase in surface water temperature, because the sediment particles absorb heat from sunlight. This can cause dissolved oxygen levels to fall even farther (warmer waters hold less dissolved oxygen), and further harm aquatic life.

In addition to its direct effects, sediment may also carry nutrients, heavy metals and other pollutants into water bodies. A large proportion of the phosphorus that moves from land to water is attached to sediment particles. This phenomenon can be seen in both spatial and temporal patterns of phosphorus and sediment movement (Figures 9 and 12-15 in Section 4.3). In general, this means that managing sediment sources can help manage phosphorus sources (Sharpley *et al*., 1990). However, in some cases, reducing sediment erosion may induce more phosphorus to move in dissolved form, which is more readily available to algae (Robinson *et al*., 1992). This TMDL is addressing phosphorus and sediment together because their sources, transport, and management options are so closely linked.

Over the last 15 years, the Wisconsin Department of Natural Resources (WDNR) has placed numerous waters in the Rock River Basin on the state's 303(d) Impaired Waters List, and has ranked the waters as high priority for the development of TMDLs to address the impairments caused by excess phosphorus and sediment loading. These impairments include degraded habitat and elevated water temperature due to excessive sediment and low dissolved oxygen and eutrophication due to excessive phosphorus. Section 2.2 provides a summary of water quality data that has been collected in the basin, and that serves as part of the basis for designating impairments. Table 1 and Figure 1 identify the 62 impaired waters that are addressed by this TMDL. Twenty of these waters are impaired by TSS only, three are impaired by TP only, and 39 are impaired by both pollutants. Because a TMDL is developed for each pollutant on each water body, this document includes 101 individual TMDLs. Note that the term "designated use" in Table 1 refers to those waters that are codified in NR 104 and "current use" refers to the existing use or condition of the water body. Designated uses are described in detail in Section 3.1.

The TMDL for the Rock River Basin was developed using a watershed framework, where TMDLs and the associated tasks[1] are simultaneously completed for multiple impaired water bodies in a watershed. This report identifies the TMDLs, load allocations, and recommended management actions that will help restore water quality in the Rock River Basin.

[1] Characterizing the impaired water body and its watershed, identifying sources, setting targets, calculating the loading capacity, identifying source allocations, preparing TMDL reports, and coordinating with stakeholders.

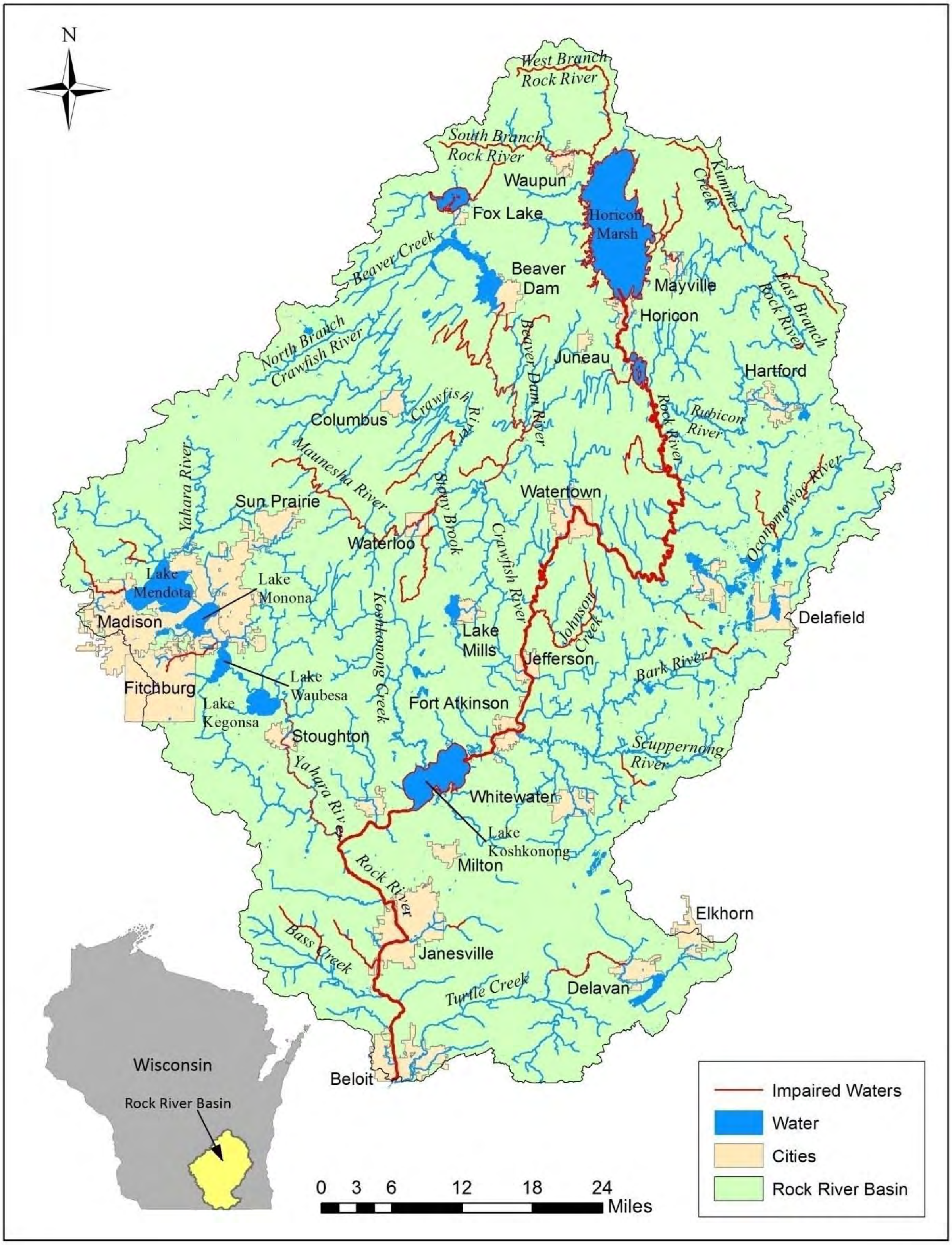

Figure 1. Map of the Rock River Basin Showing Impaired Waters.

Table 1. Impaired Waters in the Rock River Basin.

Water body	Description	Counties	Waters ID	Pollutants	Impairments	Current Use	Designated Use	Supporting Designated Use
Alto Creek	Mile 0 - 6.15 (Entire length)	Dodge	11414	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	LFF	NR102 Classification, Classification Survey Pending
Baker Creek	Mile 0 - 10 (Entire length)	Dodge	11460	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Bark River	Mile 35 - 41	Waukesha	310752	TP	Low DO	WWSF-Not Supporting	Default FAL	NR102 Classification
Battle Creek	Mile 1.81 - 4.56	Waukesha	11487	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Beaver Dam River	Mile 0 - 11.06	Dodge	11397	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	WWSF	NR102 Classification, Classification Survey Pending
Beaver Dam River	Mile 11.06 - 14.15	Dodge	356616	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	WWSF	NR102 Classification, Classification Survey Pending
Beaver Dam River	Mile 14.15 - 30.14	Dodge	356663	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	WWSF	NR102 Classification, Classification Survey Pending
Blackhawk Creek	Mile 2 - 4	Rock	11628	Sediment/TSS	Degraded Habitat, Turbidity	LAL-Not Supporting	Default FAL	NR102 Classification
Calamus Creek	Mile 0 - 17 (Entire length)	Dodge	11423	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Casper Creek	Mile 0 - 2.36	Dodge	11401	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	Default FAL	NR102 Classification
Dead Creek	Mile 0 - 3.92	Dodge	1455284	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	LFF	NR102 Classification, Classification Survey Pending
Dead Creek	Mile 3.92 - 10.52	Dodge	904986	TP, Sediment/TSS	Low DO, Degraded Habitat	LFF-Not Supporting	LFF	NR102 Classification, Classification Survey Pending
Dorn (Spring) Creek	Mile 1 - 6.46	Dane	11694	Sediment/TSS	Elevated Water Temperature	LFF-Not Supporting	Default FAL	NR102 Classification
East Branch Rock River	Mile 0 - 11.61 (Highway 67 downstream to confluence with W. Branch)	Dodge	951364	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	WWSF	NR102 Classification, Classification Survey Pending

Water body	Description	Counties	Waters ID	Pollutants	Impairments	Current Use	Designated Use	Supporting Designated Use
Flynn Creek	Mile 0 - 5.92	Washington	11507	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Fox Lake	Lake	Dodge	11413	TP, Sediment/TSS	Eutrophication, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Gill Creek	Mile 0 - 6.32	Dodge	11570	TP, Sediment/TSS	Degraded Habitat	Cold (Class II Trout)-Not Supporting	Cold (Class II Trout)	1980 Trout Book Classification, NR102 Classification
Horicon Marsh	Marsh	Dodge	11565	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	Default FAL	NR102 Classification
Irish Creek	Mile 0 - 3.79	Dodge	11569	TP, Sediment/TSS	Degraded Habitat	Cold (Class II Trout)-Not Supporting	Cold (Class II Trout)	1980 Trout Book Classification, NR102 Classification
Johnson Creek	Mile 0 - 17.5 (Entire length)	Jefferson	11449	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Cold (Class II Trout)	NR102 Classification, Classification Survey Pending
Kiefer (Kummel) Creek	Mile 0 - 10.38	Dodge	11592	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	WWSF	NR102 Classification, Classification Survey Pending
Kiefer (Kummel) Creek	Mile 10.38 - 11.54	Dodge	11593	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	LFF	NR102 Classification, Classification Survey Pending
Kiefer (Kummel) Creek	Mile 11.54 - 14	Dodge, Fond du Lac	358204	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	FAL Warmwater	NR102 Classification, Classification Survey Pending
Kiefer (Kummel) Creek	Mile 14 - 17.96	Fond du Lac	358235	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	LFF	NR102 Classification, Classification Survey Pending
Kohlsville River	Mile 0 - 8.27	Washington	11595	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	Default FAL	NR102 Classification
Lake Koshkonong	Lake	Dane, Jefferson, Rock	11710	TP, Sediment/TSS	Low DO, Eutrophication, Degraded Habitat, Turbidity	WWSF-Not Supporting	Default FAL	NR102 Classification
Lau Creek	Mile 0 - 6 (Entire length)	Dodge	11399	Sediment/TSS	Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Limestone Creek	Mile 0 - 1.67	Washington	11601	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	Default FAL	NR102 Classification
Markham Creek	Mile 0 - 7.31	Rock	18247	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	Default FAL	NR102 Classification

Water body	Description	Counties	Waters ID	Pollutants	Impairments	Current Use	Designated Use	Supporting Designated Use
Mason Creek	Mile 0 - 4.11	Waukesha	11498	TP, Sediment/TSS	Low DO, Elevated Water Temperature, Degraded Habitat	Cold (Class I Trout)-Not Supporting	Cold (Class I Trout)	1980 Trout Book Classification, NR102 Classification
Mason Creek	Mile 4.11 - 6.14	Washington	11499	TP, Sediment/TSS	Low DO, Elevated Water Temperature	WWFF-Not Supporting	Default FAL	NR102 Classification
Maunesha River	Mile 0 - 5.5 (Crawfish River to Waterloo Dam)	Dodge, Jefferson	11426	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	Default FAL	NR102 Classification
Maunesha River	Mile 5.49 - 13.21 (Waterloo Dam to Marshall Dam)	Dane, Jefferson	356833	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	Default FAL	NR102 Classification
Maunesha River	Mile 13.21 - 31.8 (Marshall Dam to headwaters)	Dane	356857	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	Default FAL	NR102 Classification
Mud Creek	Mile 0 - 10.77	Dane, Dodge	11387	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	Default FAL	NR102 Classification
Nine Springs Creek	Mile 0 - 6.16	Dane	11664	TP, Sediment/TSS	Low DO, Elevated Water Temperature	WWFF-Not Supporting	Default FAL	NR102 Classification
Park Creek	Mile 0 - 2.37	Dodge	11410	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	Default FAL	NR102 Classification
Pheasant Branch	Mile 0 - 1	Dane	11695	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Pheasant Branch	Mile 1 - 9.09	Dane	11696	TP, Sediment/TSS	Low DO, Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Rock River	Mile 171.08 - 183.45 (State line to Janesville WWTP)	Rock	11455	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Rock River	Mile 183.45 - 193.11 (Janesville WWTP to the US 14 bridge)	Rock	354476	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Rock River	Mile 193.11 - 201.29 (US 14 bridge near Janesville to Indianford Dam)	Rock	354542	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	Default FAL	NR102 Classification
Rock River	Mile 201.29 - 207.03 (Indianford Dam to Lake Koshkonong Outlet)	Rock	354592	TP, Sediment/TSS	Low DO, Degraded Habitat	FAL-Not Supporting	Default FAL	NR102 Classification
Rock River	Mile 213.62 - 249.13 (Lake Koshkonong inlet to Rock R. Power & Light Dam in Watertown)	Dodge, Jefferson	356113	TP	Low DO, Eutrophication	WWSF-Not Supporting	Default FAL	NR102 Classification

Water body	Description	Counties	Waters ID	Pollutants	Impairments	Current Use	Designated Use	Supporting Designated Use
Rock River	Mile 249.13 - 269.66 (Rock R. Power & Light Dam in Watertown to confluence with the Ashippun River)	Jefferson	356190	TP, Sediment/TSS	Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Rock River	Mile 269.66 - 293.25 (Ashippun River to Sinissippi Lake outlet)	Dodge, Jefferson	356250	TP, Sediment/TSS	Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Rock River	Mile 296.46 - 304.88 (Sinissippi Lake inlet to confluence of S. Branch and E. Branch in Horicon Marsh)	Dodge	356322	TP, Sediment/TSS	Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Schultz Creek	Mile 0 - 4.71	Dodge	11406	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Sinissippi (Hustisford) Lake	Lake	Dodge	11467	TP, Sediment/TSS	Eutrophication, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
South Branch Rock River	Mile 0 - 3.58 (Mouth to Waupun Dam)	Fond du Lac	18232	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
South Branch Rock River	Mile 3.58 - 19.68 (Waupun Dam to headwaters)	Fond du Lac, Green Lake	11580	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Spring Creek	Mile 0 - 4.52	Jefferson	11795	TP, Sediment/TSS	Elevated Water Temperature, Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Steel Brook	Mile 1.7 - 2.7 (Jefferson/Walworth Co. line to Bluff Rd.)	Jefferson	11794	TP, Sediment/TSS	Low DO, Elevated Water Temperature, Degraded Habitat	FAL-Not Supporting	Default FAL	NR102 Classification
Stevens Creek	Mile 0 - 8.35	Rock	11632	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	Default FAL	NR102 Classification
Stony Brook	Mile 0 - 15 (Entire length)	Dane, Dodge, Jefferson	11427	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification
Turtle Creek	Mile 24.77 - 35.58 (Comus to Co. line)	Walworth	338091	TP	Low DO	FAL-Not Supporting	Default FAL	NR102 Classification
Wayne Creek	Mile 3.08 - 4.8	Washington	358286	Sediment/TSS	Degraded Habitat	WWFF-Not Supporting	WWFF	NR102 Classification, Classification Survey Pending
Wayne Creek	Mile 4.14 - 4.8 ("North Branch" of Wayne Creek)	Washington	207448	Sediment/TSS	Degraded Habitat	LFF-Not Supporting	Default FAL	NR102 Classification

Water body	Description	Counties	Waters ID	Pollutants	Impairments	Current Use	Designated Use	Supporting Designated Use
West Branch Rock River	Mile 50 - 87.63 (Entire length)	Dodge, Fond du Lac	11566	TP, Sediment/TSS	Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Yahara River	Mile 0 - 7.29 (Rock River to Badfish Creek)	Rock	18255	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Yahara River	Mile 7.29 - 16.32 (Badfish Creek to Stoughton)	Dane, Rock	355120	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification
Yahara River	Mile 16.32 - 22.06 (Stoughton to L. Kegonsa)	Dane	355202	TP, Sediment/TSS	Low DO, Degraded Habitat	WWSF-Not Supporting	Default FAL	NR102 Classification

DO = Dissolved oxygen
TSS = Total suspended solids
TP = Total phosphorus
LFF = Limited forage fishery
WWFF = Warmwater forage fishery
WWSF = Warmwater sport fishery
Default FAL = No use classification survey completed for Fish and Aquatic Life Use
Default Warmwater = Use classification survey conducted; pending approval
Default LFF = Use classification survey conducted, pending approval and needs update to NR 104

2.0 WATERSHED CHARACTERIZATION

2.1. Watershed Characteristics

The Rock River Basin lies within the glaciated portion of south central Wisconsin. The basin is bounded on the east by the Niagara escarpment and the eastern terminal moraine, which was formed by the Green Bay lobe during the last glaciated period. The most dominant geologic features are the extensive drumlin fields in Dodge County and portions of Dane, Columbia and Jefferson counties. The Wisconsin portion of the Rock River Basin covers approximately 3,750 square miles. It includes part or all of eleven counties: Columbia, Dane, Dodge, Fond du Lac, Green, Green Lake, Jefferson, Rock, Walworth, Washington, and Waukesha.

The basin has approximately 3,900 total river miles of which about 1,920 miles are classified as perennial rivers. The overall gradient of the Rock River is very flat. There are 443 lakes and impoundments in the watershed with a total area of approximately 57,900 acres. The largest surface water features in the basin are Beaver Dam Lake, Horicon Marsh, Lake Koshkonong, and the Yahara Chain of Lakes (Figure 1). Major sub-basins include the Upper, Middle and Lower (Afton) sections of the Rock River, and watersheds of the Yahara, Crawfish, and Bark Rivers, and Turtle Creek (Figure 2).

Land use in the Rock River Basin ranges from rural-agriculture to high density urban (from Wisconsin land cover grid (WISCLAND, WDNR 1998, Figure 3 and Figure 4). Prior to European settlement, land cover in the basin was primarily oak savanna, wetlands, mesic prairie, and lowland forests. Today, the basin is composed primarily of highly productive agriculture land, which can be attributed to the rich, fertile soils left by the Pleistocene glaciation. Principal soil types in the region are Dodge, Miami, Morley, Casco, Plano, Warsaw, and Varna soil associations in upland areas. Soil types in wetland areas are Pella, Poygan, and Brookston.

Prior to the rise of agriculture, the basin contained thousands of acres of wetlands supporting diverse ecosystems such as shallow wet meadows and prairies, lowland wet forests, and deepwater marshes. A large portion of the original wetland acreage has been converted to agricultural, urban, and transportation uses. Wetland restoration has begun to reverse this trend, albeit slowly. The need and opportunities for wetland restoration varies across the basin according to land use, soil type, and topography. Appendix E provides information that can help guide wetland restoration efforts in support of this TMDL.

While urban areas continue to expand particularly around Madison, Janesville, Beloit, and the Delafield- Hartland area, agriculture remains the predominant land use in the basin. The dominant agricultural practices in the basin vary from continuous corn and corn–soybean rotations in the south to a mix of dairy, feeder operations, cash-cropping, and muck farming in the north.

The State of the Rock River Basin (WDNR, 2002) provides additional details on other characteristics of the basin, including geography, geology, soils, meteorology, groundwater, ecological resources, and cultural resources.

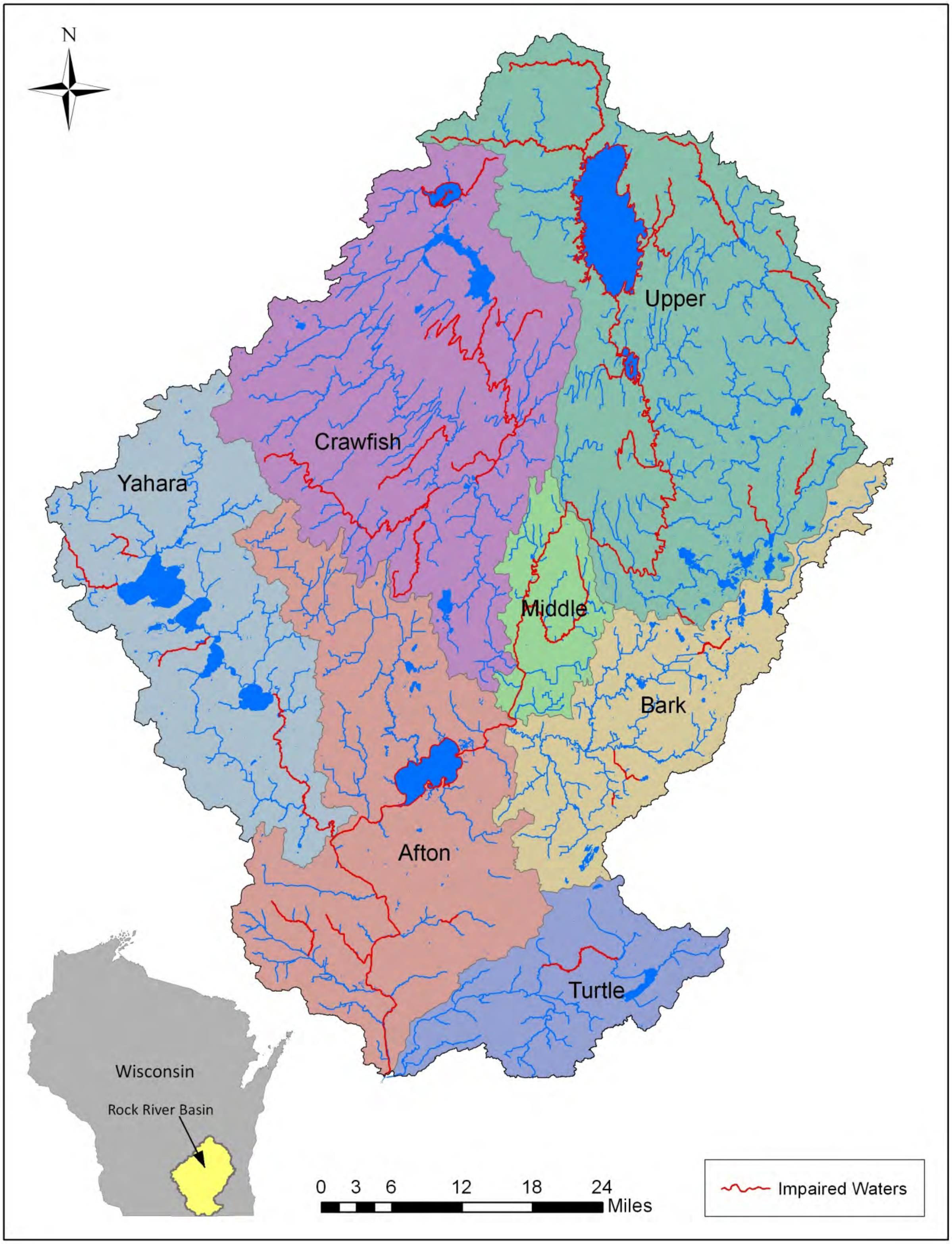

Figure 2. Map of major sub-basins of the Rock River Basin.

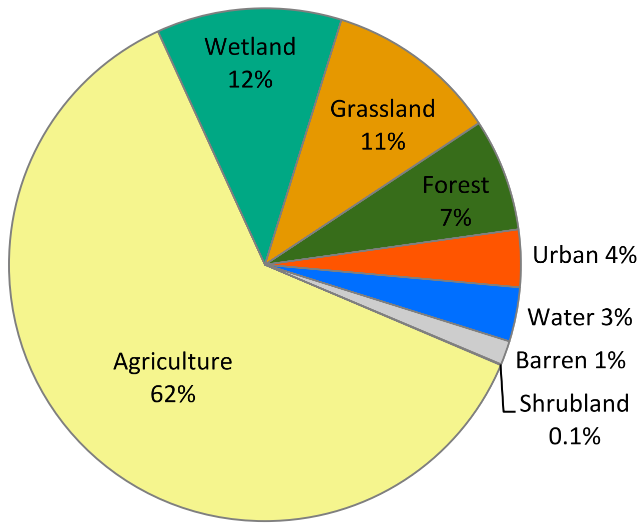

Figure 3. Summary of land cover from WISCLAND in the Rock River Basin.

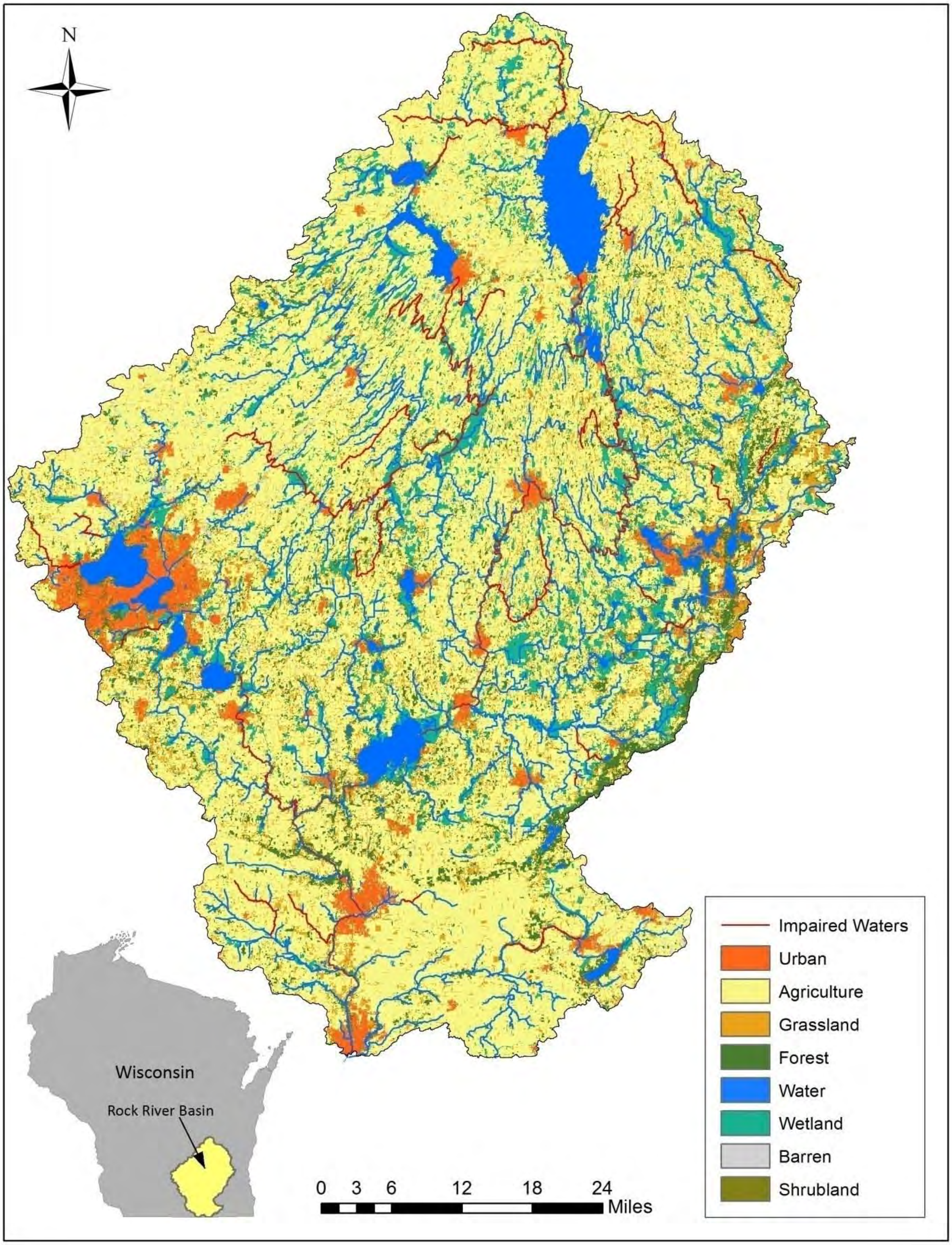

Figure 4. Land use/land cover from WISCLAND in the Rock River Basin.

2.2. Water Quality

2.2.1. Total Phosphorus

For this TMDL, phosphorus concentrations are estimated and measured as total phosphorus (TP). TP includes both dissolved and particulate forms of phosphorus. At least six TP concentration samples have been collected by the Wisconsin DNR at 93 locations around the Rock River Basin since 1994. Figure 5 is a map of sampling stations displaying median growing-season (May-October) TP concentrations, which is the calculation used to determine compliance with numeric criteria for TP (see Section 3.3). When more than three years of data were available, the most recent three year period was used to calculate the median. Median TP concentrations ranged from 0.015 to 0.954 mg/L and 78% of these stations exceeded the TP criteria.

2.2.2. Total Suspended Solids

For this TMDL, sediment concentrations are estimated and measured as total suspended solids (TSS). TSS can include a wide variety of material, such as soil, biological solids, decaying organic matter, and particles discharged in wastewater. At least six TSS concentration samples have been collected by the Wisconsin DNR at 63 locations around the Rock River Basin since 1994. Figure 6 is a map of sampling stations displaying median annual TSS concentrations. When more than three years of data were available, the most recent three year period was used to calculate the median. Median TSS concentrations at the monitored stations ranged from 2.5 to 75 mg/L.

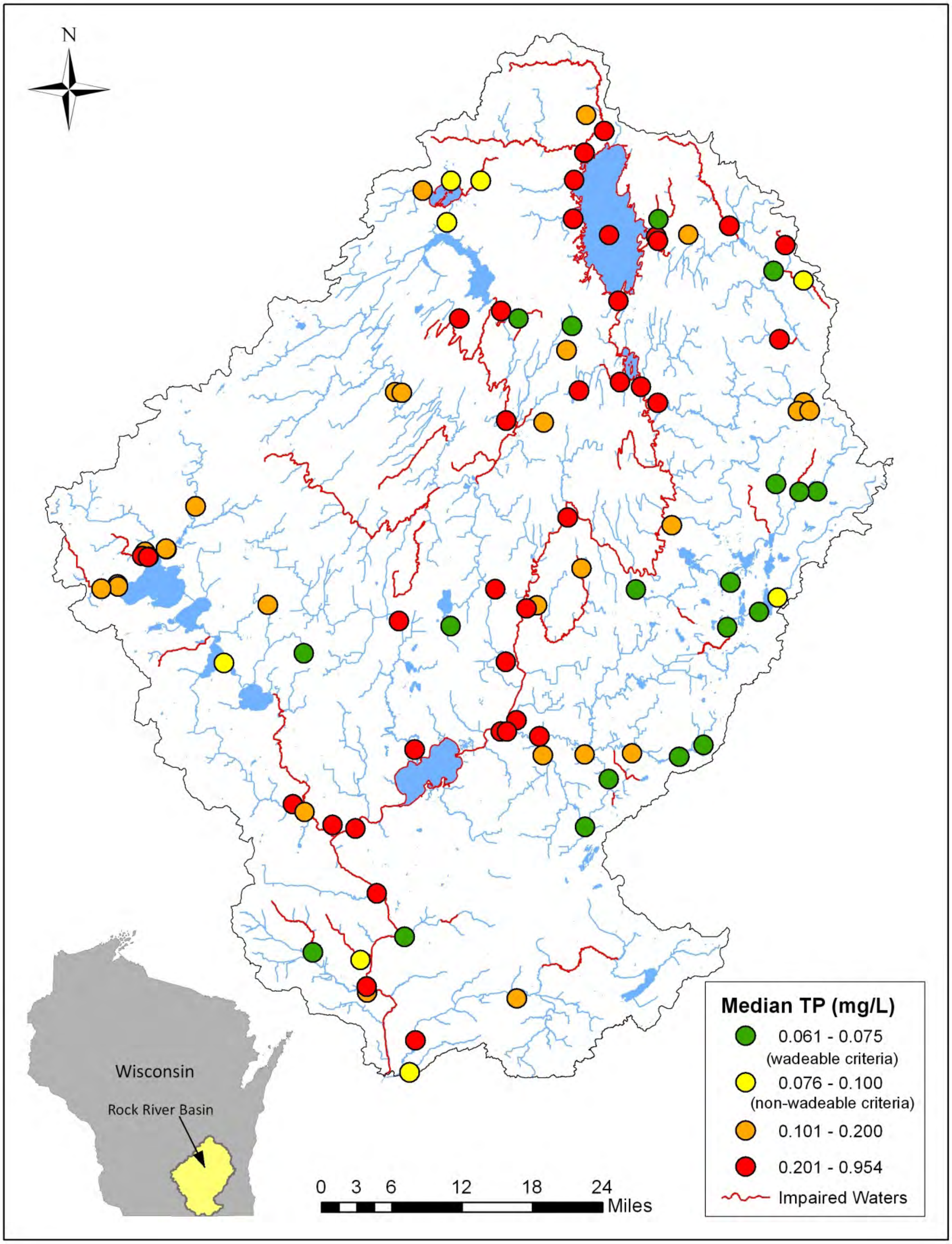

Figure 5. Median growing-season total phosphorus concentrations at 93 sampling stations in the Rock River Basin.

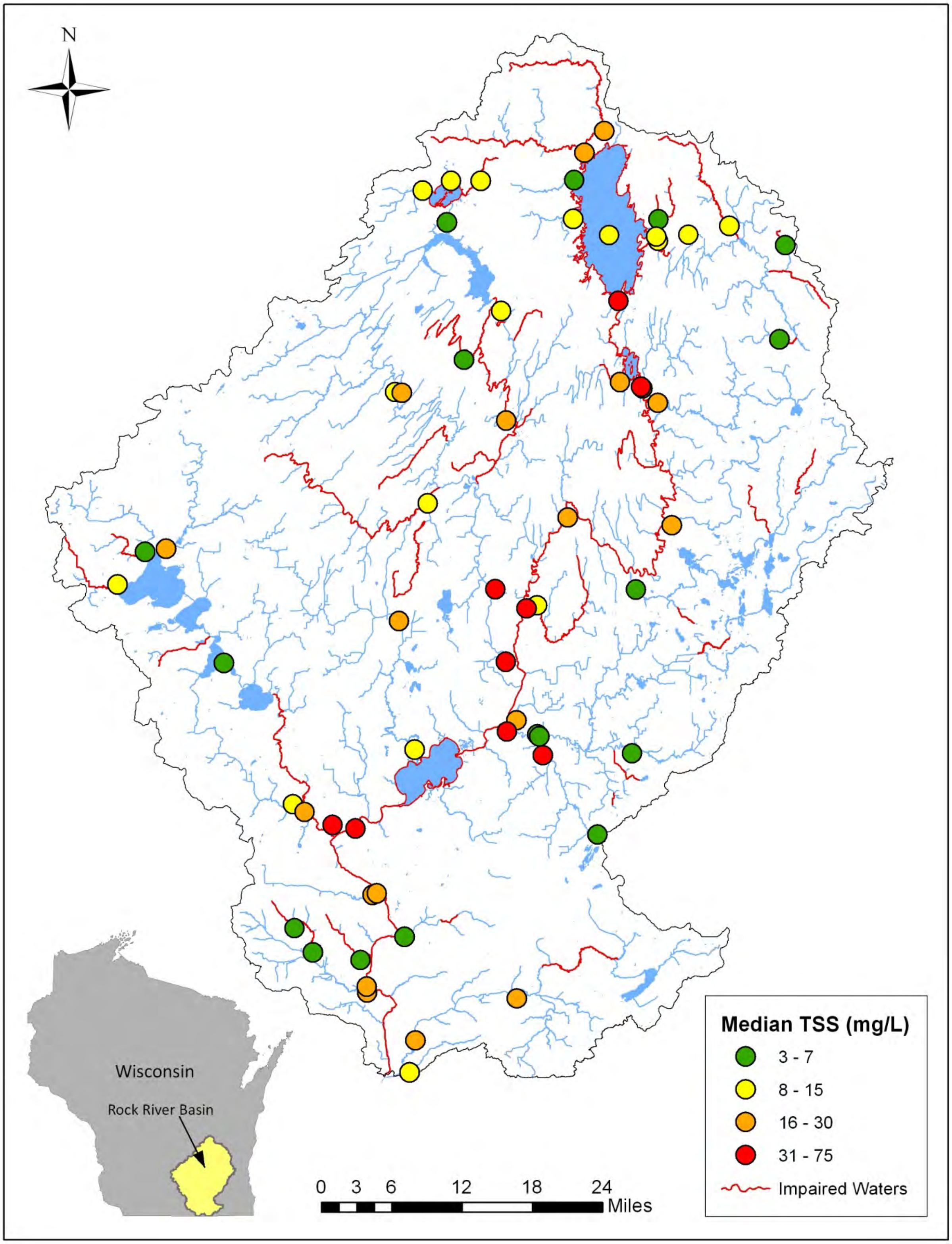

Figure 6. Median annual total suspended solids concentrations at 63 sampling stations in the Rock River Basin.

3.0 APPLICABLE WATER QUALITY STANDARDS

3.1. Designated Uses

The designated uses of water bodies in the Rock River Basin are known as "fish and other aquatic life uses." There are five subcategories of fish and other aquatic life uses, which reflect differences in the potential aquatic communities of water bodies. Wisconsin Administrative Code NR 102.04(3) defines these uses:

"FISH AND OTHER AQUATIC LIFE USES. The department shall classify all surface waters into one of the fish and other aquatic life subcategories described in this subsection. Only those use subcategories identified in paragraphs (a) to (c) shall be considered suitable for the protection and propagation of a balanced fish and other aquatic life community as provided in the federal water pollution control act amendments of 1972, P.L. 92-500; 33 USC 1251 et. seq.

(a) *Cold water communities*. This subcategory includes surface waters capable of supporting a community of cold water fish and aquatic life, or serving as a spawning area for cold water fish species. This subcategory includes, but is not restricted to, surface waters identified as trout water by the department of natural resources (Wisconsin Trout Streams, publication 6-3600 (80)).

(b) *Warm water sport fish communities.* This subcategory includes surface waters capable of supporting a community of warm water sport fish or serving as a spawning area for warm water sport fish.

(c) *Warm water forage fish communities.* This subcategory includes surface waters capable of supporting an abundant diverse community of forage fish and other aquatic life.

(d) *Limited forage fish communities.* (Intermediate surface waters). This subcategory includes surface waters of limited capacity and naturally poor water quality or habitat. These surface waters are capable of supporting only a limited community of forage fish and other aquatic life.

(e) *Limited aquatic life.* (Marginal surface waters). This subcategory includes surface waters of severely limited capacity and naturally poor water quality or habitat. These surface waters are capable of supporting only a limited community of aquatic life."

Most of the impaired water bodies in the Rock River Basin are classified as warm water sport fish communities or warm water forage fish communities, and a few are classified as cold water communities. Table 1 contains these designations for each impaired water body.

3.2. Narrative Water Quality Criteria

All waters of the State of Wisconsin are subject to the following narrative water quality standard, as defined in Wisconsin Administrative Code NR 102.04(1):

> "To preserve and enhance the quality of waters, standards are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all waters including the mixing zone and the effluent channel meet the following conditions at all times and under all flow conditions: (a) Substances that will cause objectionable

> deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state, (b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the states, (c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state."

Excessive sediments are considered objectionable deposits. Excessive phosphorus loading causes algal blooms in the Rock River Basin, which may be characterized as floating scum, producing a green color, a strong odor and an unsightliness condition. Sometimes these algal blooms contain toxins which limit recreational uses of the water bodies. Because of the low dissolved oxygen and degraded habitat impairments caused by TP and TSS, many designated fish and aquatic life uses are not supported in the waters of the Rock River Basin.

3.3. Numeric Water Quality Criteria

3.3.1. Streams and Rivers

The TMDL target is a numeric endpoint that defines acceptable water quality. The target in-stream concentrations for TP are equivalent to the criteria in Order WT-25-08 (Item No. 3.A.4) from the Wisconsin Natural Resources Board to the Wisconsin Legislature[2]. This proposed legislation sets phosphorus criteria of 0.100 mg/L for non-wadeable (i.e., larger) streams and 0.075 mg/L for wadeable (i.e., smaller) streams. The targets for each river reach in the Rock River basin are in Appendix G. These targets are designed to support the designated uses described in Section 3.1. Water quality improvements and attainment of the TMDL targets for TP will be evaluated by comparing annual summer median water column TP concentrations during critical conditions (i.e., May through October, see Section 5.2 for rationale) to the targets.

There are no existing or proposed statewide numeric standards for sediment concentrations, so numeric targets were developed for this TMDL based on relationships between TSS and TP loading. The numeric phosphorus criteria described above were developed by studying relationships between phosphorus and aquatic biological characteristics (Wang *et al.*, 2007). Sediment loads from nonpoint sources are correlated with phosphorus loads, because much of the phosphorus that is delivered to streams is bound to sediment (Robinson *et al.*, 1992). Therefore, the observed relationships between phosphorus and biological characteristics of surface waters are to some extent related to sediment, too. Excessive amounts of both suspended and deposited sediment have been shown to have detrimental effects on stream biological communities (Berkman and Rabeni, 1987; Newcombe and Jensen, 1996; Vondracek *et al.*, 2003). TSS is a measure of suspended sediment and is used as a surrogate measure for habitat degradation associated with sediment deposition.

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 TSS targets for this TMDL were therefore calculated by determining the TSS load that is

[2] https://health.wisconsin.gov/admrules/public/Rmo?nRmoId=4783

typically associated with the TP load that meets the phosphorus criteria. Specifically, load allocations for TSS are based on monthly regressions between TSS and TP loads in SWAT model output for the basin (see details in Section 5.1.3). These regressions are non-linear, which means that the ratio of TSS to TP is not constant. The TSS concentration targets for this TMDL therefore vary by month and by reach along with variation in TP loading capacity. The average TSS concentration target among all reaches and months is 26 mg/L. Note that this target represents the flow-weighted average TSS concentration in runoff and discharge from wastewater treatment facilities (WWTFs), which is typically higher than the median concentration in rivers (e.g., Figure 6) because most sediment transport occurs during short-duration runoff events that are usually not captured by fixed interval sampling schedules. Water quality improvements and attainment of the TMDL targets for TSS will be evaluated by monitoring habitat and biological communities to determine whether designated aquatic life uses are being met.

3.3.2. Lakes

This TMDL will address impairments for three lakes within the Rock River Basin: Lake Koshkonong, Sinissippi Lake, and Fox Lake. Background information on these lakes was summarized from *The State of the Rock River Basin* (WDNR, 2002).

Lake Koshkonong is a large shallow impoundment of the Rock River. The lake was originally a marsh with open water; however, a dam built in 1917 raised the lake level an additional two feet, creating a shallow lake. Koshkonong has a mean depth of 5 feet and a maximum depth of 7 feet. The drainage area above the lake is 2,640 square miles. Lake Koshkonong receives sediment and nutrient loads from the Rock River, Koshkonong Creek, and other tributaries. Failing septic systems were a problem in the past, but the creation of a sanitary district has likely reduced the impact of this pollutant source. Carp are a widespread problem and increase the level of turbidity. The shallow depth combined with its long fetch – the distance wind blows across it uninterrupted – causes serious shoreline erosion during major storms. All of these conditions combined adversely affect the water quality of the lake.

Based on the current water elevations in Lake Koshkonong, it is best characterized as a marsh lake or a widening of the Rock River. To qualify as a reservoir under draft NR 102 rules, the outlet structure at Indianford would need to more than double the depth of water relative to conditions prior to construction of the dam, which it does not. Since marsh lakes do not have phosphorus criteria, the TP criterion for the inflowing Rock River (0.1 mg/L) was applied to Lake Koshkonong. If water levels are increased in the future, it is possible that site specific criteria will need to be promulgated, or the criteria for a reservoir would be applied to Lake Koshkonong.

Sinissippi Lake is a 2,855-acre impoundment of the Rock River in Dodge County. The lake has a maximum depth of 8 feet, an average depth of 4.5 feet, and a drainage area of approximately 511 square miles. The lake is impaired by sediment and nutrient loads from the agriculture in the watershed and the loss of wetlands. Bank erosion contributes sediment to the lake, and carp and power boats resuspend fine bottom sediments.

Similar to Lake Koshkonong, Sinissippi Lake does not qualify as a reservoir under the draft NR 102 water quality criteria. Under NR 102, the portion of the Rock River below Sinissippi Lake has a total phosphorus criterion of 0.1 mg/L. The portion of the Rock River above Sinissippi Lake and the tributaries that flow into Sinissippi Lake have a total phosphorus criterion of 0.75 mg/L. Since Sinissippi Lake does not fall under the reservoir criteria, the criterion of 0.75 mg/L for the Rock River was used for the TMDL.

Fox Lake is located in Dodge County and has a surface area of 2,625 acres. It has an average depth of 7 feet and a maximum depth of 19 feet. The lake frequently experiences excessive algae growth and blooms and turbidity from sediment and nutrient loading from agriculture and re-suspension of bottom sediments by carp.

Based on its depth, Fox Lake borders between a reservoir and a stratified reservoir as defined in the draft version of NR 102. Temperature monitoring during the summer of 2009 found no evidence of stratification, so the (unstratified) reservoir criterion of 0.40 mg/L TP was used for this TMDL.

4.0 SOURCE ASSESSMENT

There are two general types of water pollution: point source and nonpoint source. Point source pollution comes from identifiable, localized sources that discharge directly into a water body, usually through a pipe or outfall. Industries and wastewater treatment facilities are two common point sources. Stormwater runoff from certain urban areas is also considered a point source (see Section 4.2.2 for more about this). Nonpoint source pollution does not come from a single source like point source pollution; it comes from land use activities such as agriculture and other diffuse sources. Most nonpoint source pollution occurs as a result of runoff. When rain or melted snow moves over and through the ground, the water carries any pollutants it comes into contact with to nearby water bodies. Sources of phosphorus and sediment loading in the Rock River Basin include discharges from regulated wastewater treatment facilities and runoff from agricultural land, urban land (both regulated and non-regulated areas), and natural areas (i.e., forests and wetlands). Section 4.2 provides more detail on these sources and summarizes the methods used to calculate loads from each of these sources in the Rock River Basin; additional details are provided in Appendix A. Section 4.3 provides a summary of the phosphorus and sediment loads originating from each source within the Rock River Basin.

4.1. Spatial Framework

The Rock River mainstem and its tributaries, including connected lakes, were divided into reaches corresponding to WDNR's 2006 303(d) Impaired Waters List. A reach is a section of a river whose endpoints are usually defined by confluences with other rivers or other significant features. Reaches that connect impaired reaches were also included in the analysis to facilitate modeling the downstream transport of water and pollutants through the drainage network. The sub-basin that drains to each reach was also delineated by aggregating sub-basins from the SWAT model for the Rock River Basin (see Appendices A and F for more detail). Reaches are the basic accounting unit for all calculations and allocations. Load allocations for each reach apply to pollutant sources in the corresponding sub-basin. A total of 83 reaches were used to represent the Rock River mainstem, its tributaries, and connected lakes (Figure 7). While lakes are considered equivalent to rivers in the basic spatial framework, their unique effects on phosphorus transport are accounted for in calculations of loading capacity (see Section 5.1.1).

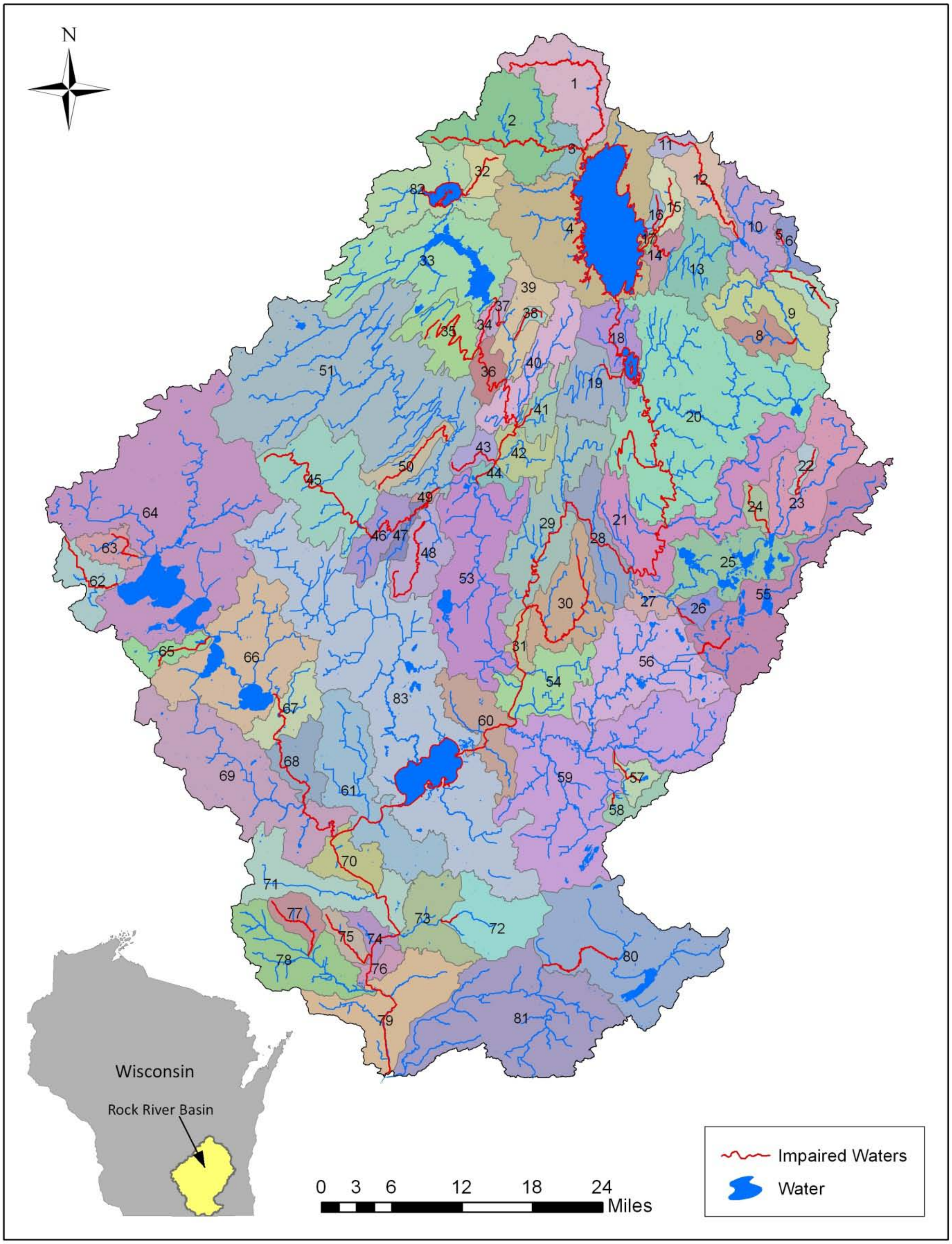

Figure 7. Sub-basins in the Rock River Basin. (See Appendix G for the names and extents of the waterbodies associated with the sub-basin/reach ID number).

4.2. Analysis of Phosphorus and Sediment Loading

4.2.1. Nonpoint Source Runoff

Runoff of rainfall and snowmelt transports phosphorus and sediment from land into water. Water moving through soil can also carry dissolved phosphorus to surface waters, because a portion of stream flow comes from groundwater inputs. The concentration of phosphorus in runoff depends on several factors, primarily soil phosphorus content, soil erodibility, and land management practices. The primary sources of phosphorus in Wisconsin soils are livestock manures and synthetic fertilizers. In many parts of the Rock River Basin, decades of manure spreading associated with dairy farming has added phosphorus to the soil faster than it can be used by crops. Even where current inputs and outputs are balanced through nutrient management, this accumulated store of phosphorus can cause high concentrations in runoff.

Much of the phosphorus in soil is bound to soil particles, particularly clay and silt. Because these small particles are most easily carried by runoff, phosphorus tends to be more highly concentrated in eroded soil than in the soil from which it came. Soil texture varies across the Rock River Basin, which contributes to spatial variability in phosphorus and sediment loading. Topography also influences soil erosion, but is not a major factor in the relatively flat Rock River Basin. Eroding stream banks can contribute to sediment loading, particularly when they are kept bare of vegetation by mowing or are trampled by livestock.

The practices used to manage agricultural land, including crop choice, tillage, and manure and fertilizer application, greatly influence rates of phosphorus accumulation in soils and loss to surface waters. Raising crops such as corn that require greater inputs of phosphorus and leave soil exposed to erosion longer results in more nonpoint source pollution than raising perennial crops such as alfalfa. Tillage loosens soil and disrupts the stabilizing structure of crop residue, which can increase soil erodibility. No-till cropping can reduce soil erosion, but may increase losses of dissolved phosphorus in some cases. Application of manure and fertilizer where and when it is most needed by crops can reduce phosphorus losses. However, the practical constraints of manure storage mean that optimal practices are often not followed.

In addition to agricultural sources, rural nonpoint source phosphorus can originate from failing septic systems and natural areas. Septic systems may fail because of inadequate design, installation, or operation, or because they are being used past their intended lifespan. Natural levels of phosphorus in forest, grassland, and wetland soils are much lower than in most cultivated soils, but some of this phosphorus and associated sediment is transported in runoff and contributes to the overall budgets of these pollutants in the Rock River Basin.

Analytical Approach

Two models were used to calculate loads of phosphorus and sediment from nonpoint sources under baseline[3] conditions in the Rock River Basin. The Soil & Water Assessment Tool (SWAT

[3] The baseline for nonpoint source loads is 1992, which is the year the land cover data used in the SWAT model were collected.

version 98.1) was used to calculate loads from agricultural and natural areas (i.e., forests and wetlands) and the Source Loading and Management Model (SLAMM version 9.4, PV & Associates, 2009) was used to calculate loads from urban areas.

SWAT is a model that was developed by the U.S. Department of Agriculture - Agricultural Research Service (USDA-ARS) to assess nonpoint source pollution from watersheds and large complex river basins (Arnold *et al*., 1996, Neitsch *et al*., 2001). SWAT simulates hydrologic and related processes to predict the impact of land use management on water, sediment, nutrient, and pesticide export. With SWAT, a large heterogeneous river basin can be divided into many sub-watersheds, thereby permitting detailed representation of the specific soil, topography, hydrology, climate and management features of a particular area. Crop and management components within the model permit representation of the cropping, tillage, and nutrient management practices typically used in Wisconsin. Major processes simulated within the SWAT model include: surface and groundwater hydrology, weather, soil water percolation, crop growth, evapotranspiration, agricultural management, urban and rural management, sedimentation, nutrient cycling and fate, pesticide fate, and water and constituent routing. A detailed description of the SWAT model can be found on the SWAT model's Web site[4].

In 2000, a SWAT model was developed for the Rock River Basin on behalf of the Rock River Partnership (Earth Tech, Inc. and Strand Associates, Inc., 2000). This model was modified slightly for this TMDL analysis, mainly by adjusting the boundaries of reaches to correspond with impaired segments. For details of the SWAT model development and modifications, see Appendix A.

A 10-year record of precipitation (1989-1998) was run through the SWAT model to create a distribution of baseline TP and TSS loads and stream flows from nonpoint sources. To evaluate whether this period is representative of longer-term precipitation and pollutant loading patterns, SWAT was used to model one section of the basin (the Lake Mendota watershed) for this 10-year period (1989-1998) and a 30-year period (1979-2008). Because SWAT held other factors (e.g., land cover and agricultural practices) constant in both simulations, precipitation was the only dynamic variable that affected loading. Average monthly TP loads from the two periods were then compared with t-tests. None of the monthly averages differed significantly, which indicates that the 30-year average distribution of precipitation events across the year is well represented by the 1989-1998 period. In addition, this period is comparable with the time period of land use data (1992). Output from the model was on a daily time step, but was summarized on a monthly basis for the TMDL analysis.

4.2.2. Urban Stormwater Runoff

Stormwater runoff from municipal areas contains a mixture of pollutants from parking lots, streets, rooftops, lawns, and other areas. Although these areas are efficient at diverting water to avoid flooding, they also transport polluted runoff (including sediments and phosphorus) into nearby lakes, rivers, and streams without the benefit of wastewater treatment or filtration by soil or vegetation. Even though stormwater is driven by precipitation and better fits the physical

[4] http://www.brc.tamus.edu/swat/

model of nonpoint pollution, stormwater runoff from regulated municipalities is considered a point source and therefore accounted for in the wasteload allocation of a TMDL.

The goal of WDNR's municipal storm water management program is to decrease the amounts of pollutants carried to waters of the state through these Municipal Separate Storm Sewer Systems (MS4s). Communities that meet the requirements stipulated under EPA's Phase 1 or Phase 2 stormwater regulations are required to obtain a Wisconsin Pollutant Discharge Elimination System (WPDES) permit to discharge stormwater, and are termed "MS4s" in this document. Urban areas that are not subject to these regulations are termed "non-permitted urban" areas in this document.

SLAMM was used to estimate TP and TSS loads from urban areas in the basin. SLAMM estimates the runoff from a series of rainfall events and multiplies the runoff volume by average measured pollutant concentrations in urban runoff to determine pollutant loads. For this analysis, the SWAT model was used to estimate the contribution of urban runoff to stream flow, but the pollutant loads from urban areas were replaced with loads from SLAMM. Specifically, SLAMM was used to generate a 10-year (1989-1998) monthly time series of loading rates (lbs/acre) that correspond to average rates determined through more detailed stormwater planning studies in this region of Wisconsin (Earth Tech, Inc., personal communication). Separate loading rate time series were calculated for MS4s and non-permitted urban areas.

Urban loading rates for permitted MS4s were adjusted to reflect compliance with NR 151. NR 151 requires a 40% reduction in total suspended solids from the established urban area served by the MS4. The SLAMM model was used to calculate the resulting reduction of phosphorus corresponding to a 40% TSS reduction. To accomplish this, the 10-year monthly loading series was adjusted using the "other control" feature in SLAMM. The "other control" feature allows the model user to specify a percent TSS control, which was set at 40% for this analysis. The model can then calculate the phosphorus reduction associated with a 40% TSS reduction. For the 10-year period used in the TMDL, the 40% TSS reduction corresponded with an average 27% phosphorus reduction. The resulting TSS and phosphorus loading rates were used in the baseline condition for the TMDL analysis.

There are 48 regulated MS4s in the Rock River Basin (Table 3 and Figure 9). The amount of urban land in each MS4 was determined by overlaying the MS4 boundaries and a raster grid of land use (WISCLAND). Monthly loads for each MS4 were calculated by multiplying the MS4 area by the corresponding loading rate. Loads from facilities covered under a general permit and located within an MS4 are included in the simulation of loads from the MS4s. Similarly, stormwater runoff from the Wisconsin Department of Transportation system is also accounted for in simulated loads for the MS4s.

The amount of non-permitted urban land draining to each reach was calculated as the total amount of urban land minus the urban area in MS4 boundaries. Monthly loads from non-permitted urban land were calculated by multiplying this area by the corresponding loading rate. Loads from sources covered under general permits (including construction sites, industrial sites, scrap recyclers, and non-metallic mines) were calculated as 10% of the calculated non-permitted urban load to each reach (WDNR, personal communication, November 9, 2009).

4.2.3. Wastewater Treatment Facilities

There are 61 permitted municipal and 15 permitted industrial wastewater treatment facilities (WWTFs) in the Rock River Basin (Table 2 and Figure 8). Baseline TP and TSS concentrations and effluent volumes for WWTFs were set equal to discharge limits specified in WPDES permits, unless the permitted phosphorus concentration was greater than 1 mg/l, in which case the baseline was set equal to 1 mg/l, per Chapter NR 217 of the Wisconsin Administrative Code. Average measured values of loads and flows were used for industrial dischargers with no specified concentration limits.

4.2.4. Concentrated Animal Feeding Operations

Every farm, regardless of size, is responsible for proper manure management to protect water quality from discharges. Over the past ten years, Wisconsin has become home to an increasing number of Concentrated Animal Feeding Operations (CAFOs), those operations with 1,000 or more animal units. Due to the increasing number and concentration of animals, it is particularly important for these facilities to properly manage manure in order to protect water quality in Wisconsin.

A specific regulatory program for the handling, storage, and utilization of manure was developed by WDNR in 1984 in Chapter NR 243 of the Wisconsin Administrative Code. The rule creates criteria and standards to be used in issuing permits to CAFOs and establishing procedures for investigating water quality problems caused by smaller animal feeding operations. Because of the potential water quality impacts from CAFOs, animal feeding operations with 1,000 animal units or more are required to have a WPDES CAFO permit. These permits are designed to ensure that operations choosing to expand to 1,000 animal units or more use proper planning, construction, and manure management to protect water quality from adverse impacts.

There are 27 regulated CAFOs in the Rock River Basin (Table 4 and Figure 8). WPDES permits for these operations require that the facilities be designed, constructed and operated to have no discharge of pollutants to navigable waters, unless caused by a catastrophic storm (24-hour duration exceeding the 25-year recurrence frequency). CAFOs must comply with their no-discharge permit requirements; therefore, loading from CAFOs is assumed to be zero (0) from the production area. Land application of manure from CAFOs, however, is not included in the assumption of zero discharge. Loading of phosphorus and sediments from land spreading is accounted for in the nonpoint source loads.

Baseline Load Definitions

Baseline loads from each of the following source categories are equal to the lesser of 1) current loads or 2) loads that would result from full regulatory compliance (the endpoint of "delayed compliance schedules," where applicable) by permit holders:

- Agricultural and natural ("background") areas: Loads by sub-basin from SWAT simulations
- Non-permitted urban areas: Per-acre loading rates from SLAMM simulations
- General permits: 10% of the non-permitted urban loads in the sub-basin
- MS4s: Per-acre loading rates from SLAMM simulations, adjusted to represent compliance with 40% TSS reduction target (equals 27% TP reduction) in NR 216
- Wastewater treatment facilities: Concentrations and effluent volumes set equal to permit limits, with concentration capped at 1 mg/L per NR 217; average measured values used for industrial dischargers with no specified permit limits
- CAFO discharges: Set as zero to represent compliance with permit requirements
- CAFO land spreading operations: Accounted for in agricultural/natural area SWAT loads

Table 2. WWTFs in the Rock River Basin.

Industrial Facilities	Permit	Map
Alto Dairy Cooperative	0002003	1
General Motors Corp	0001945	2
Grande Cheese Co	0050016	3
Hormel Foods	0025941	4
Landmark Services Cooperative	0049379	5
Madison Gas & Electric	0001961	6
Middleton Tiedeman Pond	0049956	7
Nasco Division of Aristotle	0058220	8
National Rivet and Mfg	0001996	9
Renew Energy LLC	0002038	10
Rushing Waters Fisheries Inc	0002488	11
Sensient Flavors Inc	0002534	12
WI DNR Nevin Fish Hatchery	0002585	13
WI Electric Power Co	0061441	14
WI Power and Light	0002402	15

Municipal Facilities	Permit	Map
Allenton	0028053	1
Arlington	0021512	2
Ashippun	0031381	3
Beaver Dam	0023345	4
Beloit Town	0026930	5
Brandon	0023442	6
Brownsville	0021601	7
Burnett	0031551	8
Cambridge	0026948	9
City of Beloit	0023370	10
Clinton	0022039	11
Clyman	0020702	12
Columbus	0021008	13
Consolidated Koshkonong	0021059	14
Deerfield	0023744	15
Delafield-Hartland	0032026	16
Dousman	0021351	17
Edgerton	0020346	18
Fall River	0023973	19
Footville	0024023	20
Fort Atkinson	0022489	21
Great Lakes Investors	0060607	22
Hartford	0020192	23
Horicon	0020231	24
Hustisford	0020303	25
Iron Ridge	0020486	26
Ixonia	0031038	27
Janesville	0030350	28
Jefferson	0024333	29
Johnson Creek	0022161	30
Juneau	0021474	31
Kekoskee	0035548	32
Lake Mills	0031194	33
Lebanon #1	0031364	34
Lebanon #2	0023051	35
Lomira	0020532	36
Lowell	0029271	37
Madison Metropolitan	0024597	38
Marshall	0024627	39
Mayville	0024643	40
Milton	0060453	41
Oconomowoc	0021181	42
Oregon	0020681	43
Palmyra	0031020	44
Plymouth #1	0031054	45
Randolph	0031160	46
Reesville	0028509	47
Rockdale	0026352	48
Sharon	0022608	49
Slinger	0020290	50
Stoughton	0020338	51
Sullivan	0025585	52
Sullivan Town #1	0031844	53
Sun Prairie	0020478	54
Theresa	0022322	55
WalCoMet	0031461	56
Waterloo	0030881	57
Watertown	0028541	58
Waupun	0022772	59
Whitewater	0020001	60
Wisconsin Academy	0029611	61

Table 3. MS4s in the Rock River Basin.

City of Beaver Dam
City of Beloit
City of Delafield
City of Fitchburg
City of Fort Atkinson
City of Hartford
City of Janesville
City of Madison
City of Middleton
City of Milton
City of Monona
City of Oconomowoc
City of Stoughton
City of Sun Prairie
City of Watertown
City of Waupun
City of Whitewater
Town of Beloit
Town of Blooming Grove
Town of Bristol
Town of Burke
Town of Cottage Grove
Town of Delafield
Town of Dunkirk
Town of Dunn
Town of Harmony
Town of Janesville
Town of La Prairie
Town of Lisbon
Town of Madison
Town of Merton
Town of Middleton
Town of Oconomowoc
Town of Pleasant Springs
Town of Rock
Town of Summit
Town of Turtle
Town of Westport
Town of Windsor
Village of Cottage Grove
Village of DeForest
Village of Dousman
Village of Hartland
Village of McFarland
Village of Maple Bluff
Village of Merton
Village of Nashotah
Village of Shorewood Hills
Village of Waunakee

Table 4. CAFOs in the Rock River Basin.

CAFOs	Permit	Map
ABS Global, Inc	0059099	1
Blue Star Dairy Arlington	0062270	2
Blue Star Dairy Farms	0058815	3
Calamity Knoll Farm	0059048	4
Clover Hill Dairy	0061689	5
Cold Springs Egg Farm Inc - Main Farm	0002437	6
Cold Springs Egg Farm Inc - B Farm	0063517	7
Crave Brother's Farm, LLC	0061719	8
Creekwood Farms Inc	0056308	9
Daybreak Foods Inc	0057550	10
Double S Dairy	0061760	11
Hilltop Dairy	0063983	12
J M Schmidt and Sons Inc	0063801	13
Kippley Farms	0062201	14
Kutz Dairy	0062804	15
Naber Land and Cattle	0056294	16
Nehls Bros. Farms Ltd	0056812	17
Pond Hill Dairy, LLC	0062341	18
Pulsfus Poultry, LLC	0062553	19
Ripp's Dairy Valley	0062529	20
Roche Farms Inc	0063916	21
Rosy-Lane Holsteins LLC	0061590	22
Statz Brothers	0056791	23
Sunset Farms Inc	0058971	24
Tag Lane Dairy Farm	0063932	25
UW Arlington Research Station	0063908	26
Wagner Dairy Farm	0058751	27

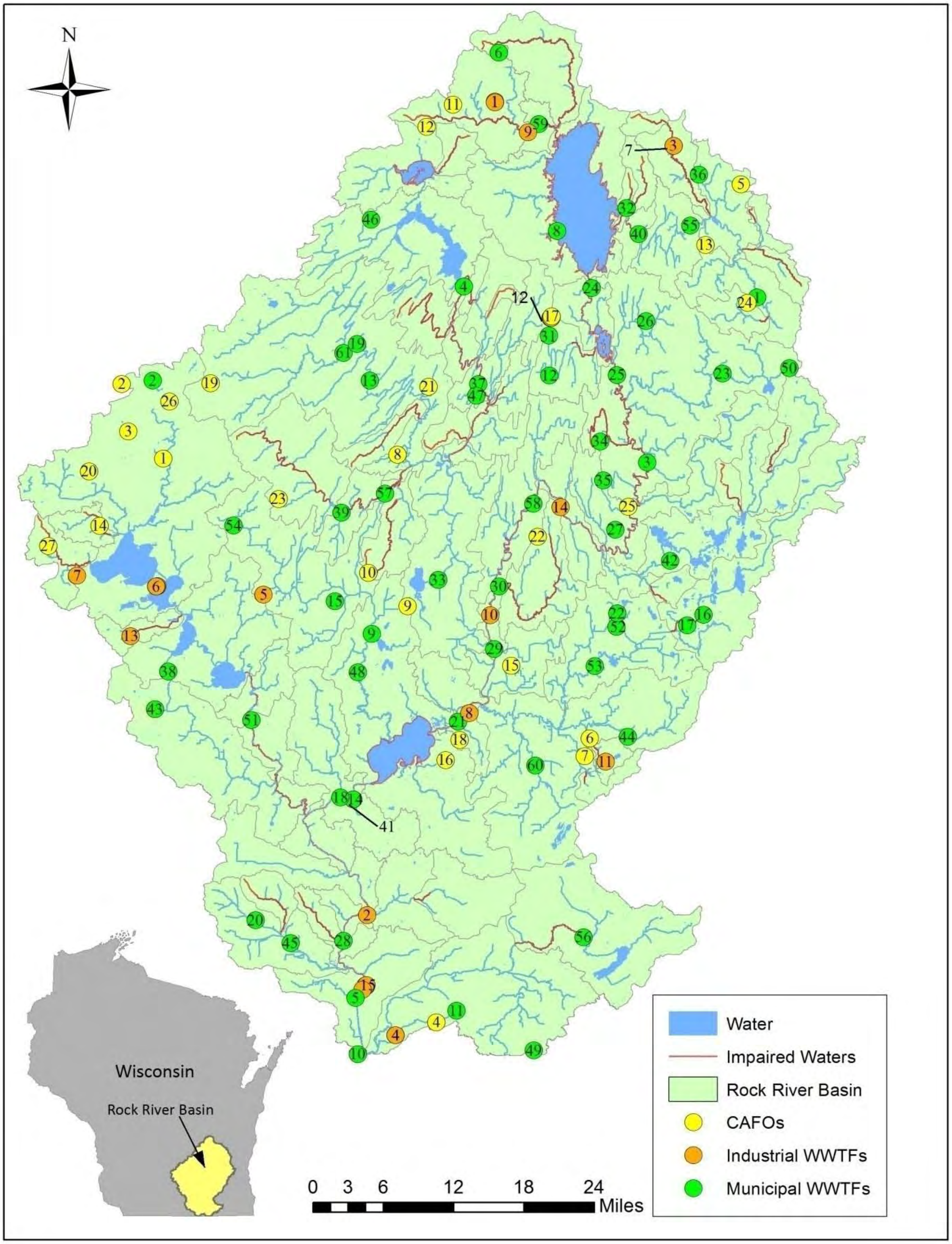

Figure 8. Location of municipal and industrial WWTFs and CAFOs in the Rock River Basin (see Table 3 for facilities names corresponding to numbers on map).

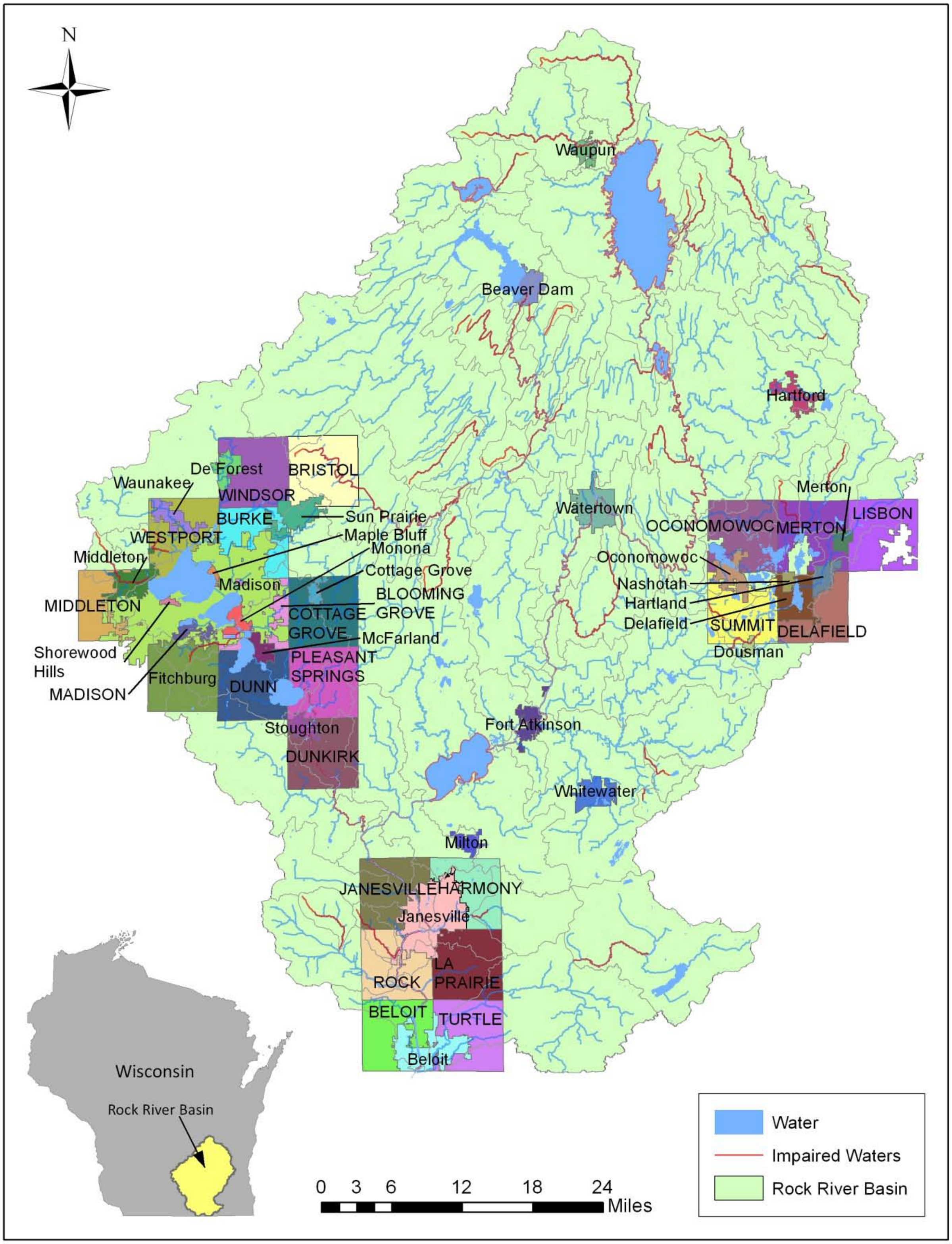

Figure 9. Location of MS4s in the Rock River Basin.

4.3. Summary of Sources of Phosphorus and Sediment Loading

Baseline TP and TSS loading in the Rock River Basin were estimated using the methods described in Section 4.2. Mean annual loading from source categories is presented in Table 5, Figure 11, and Figure 12. Over the course of an average year, agricultural lands are the source of the majority of TP and TSS in the basin. Wastewater treatment facilities contribute a significant amount of TP, but relatively little TSS. Loads of TSS and TP from natural background sources, urban areas, and facilities covered under general permits represent a small fraction of the total load.

Average TP and TSS loading varies substantially among months of the year (Figure 10). This variation is primarily driven by seasonal patterns in precipitation and vegetative cover that influence runoff and erosion rates. These same seasonal patterns also affect stream flows, which are the basis for pollutant assimilative capacity. To account for these patterns, calculations of loading capacity are based on monthly patterns in stream flow, and the allocation of loads among sources is based on monthly variation in their relative contribution to current loads (see Sections 5.1.2 and 6.2 for details).

While total annual loading figures indicate that agriculture is the largest source of pollutants in the basin, at a monthly time scale, the picture is a bit different (Figure 13 and Figure 14). Because nonpoint source pollution varies greatly according to weather, and point source discharges are relatively constant, WWTFs make up a greater proportion of the load in the average month. Urban runoff is somewhat less variable than agricultural runoff, so its relative contribution to pollutant loads also increases in importance when viewed at the monthly time scale.

Nonpoint sources of TP and TSS are not uniformly distributed across the Rock River Basin. The pattern of agricultural activities, landforms, and soils are the basis for patterns of nonpoint loading. The SWAT model was used to map nonpoint sources of TP and TSS by sub-basin. Figure 13 and Figure 14 illustrate patterns of total loading, which is partly a function of sub-basin size. Figure 15 and Figure 16 illustrate patterns of loading per acre, which is a measure of the intensity of nonpoint source loading (see Appendix F for a table of the data used to make these maps).

Table 5. Average and range of baseline TP and TSS loading in the Rock River Basin.

Source	Total Phosphorus (lbs/year)	Total Suspended Solids (tons/year)
Agriculture	1,014,506 (274,638 – 2,475,329)	157,655 (40,253 – 399,063)
Background	30,259 (10,713 – 50,020)	3,196 (1,038 – 5,335)
Urban (MS4)	106,689 (61,401 – 161,193)	10,526 (7,155 – 13,825)
Urban (non-permitted)	20,412 (10,209 – 33,188)	1,817 (1,119 – 2,572)
General Permits	2,268 (1,134 – 3,688)	202 (124 - 286)
WWTF	415,409	4,447
Total	1,589,543	177,843

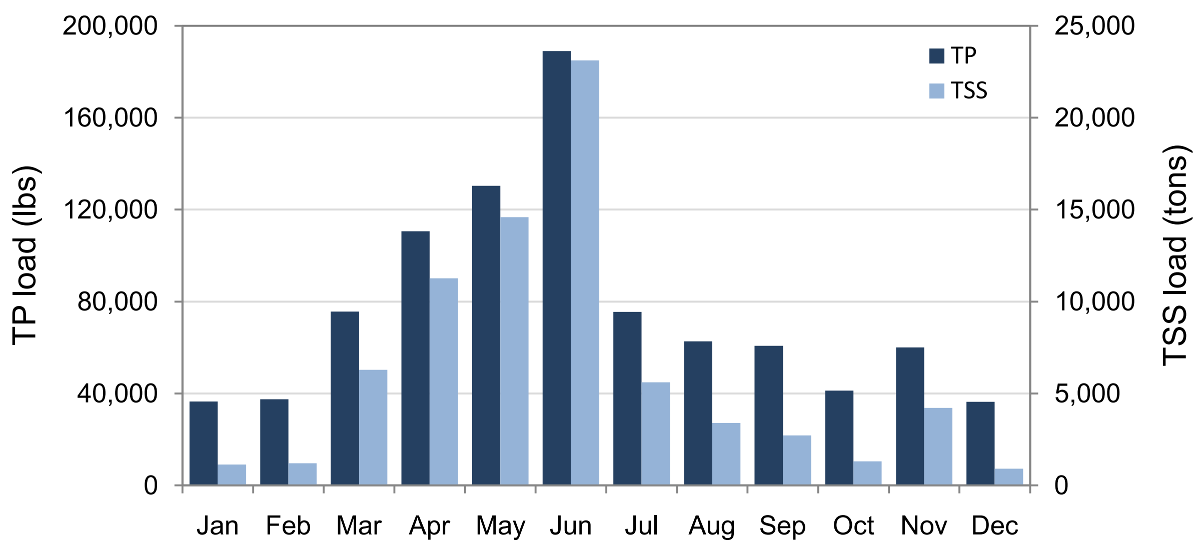

Figure 10. Average monthly pattern in TP and TSS loading in the Rock River Basin.

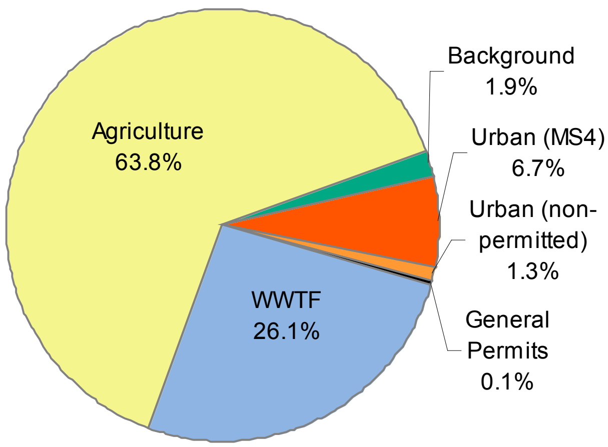

Figure 11. Average annual distribution of baseline TP sources in the Rock River Basin.

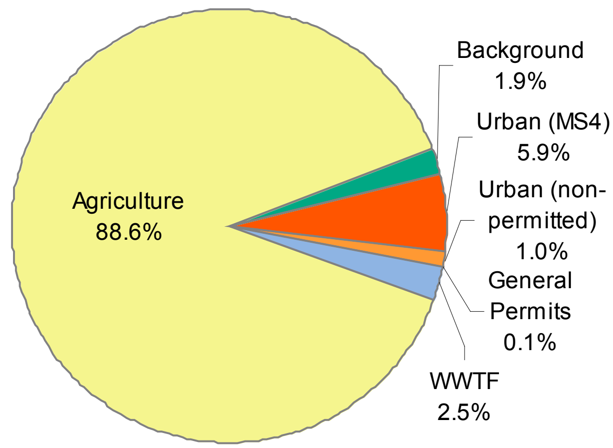

Figure 13. Average annual distribution of baseline TSS sources in the Rock River Basin.

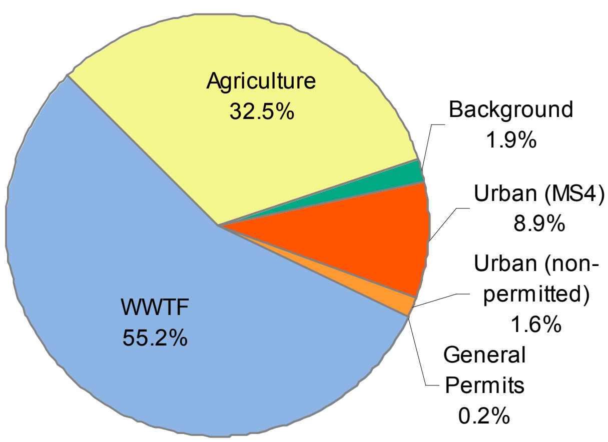

Figure 12. Average monthly distribution of baseline TP sources in the Rock River Basin.

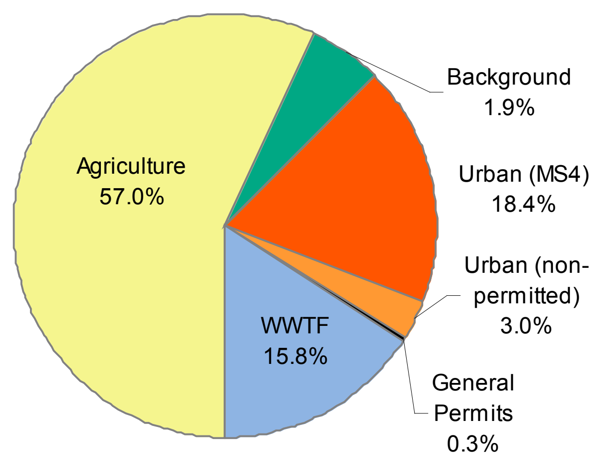

Figure 14. Average monthly distribution of baseline TSS sources in the Rock River Basin.

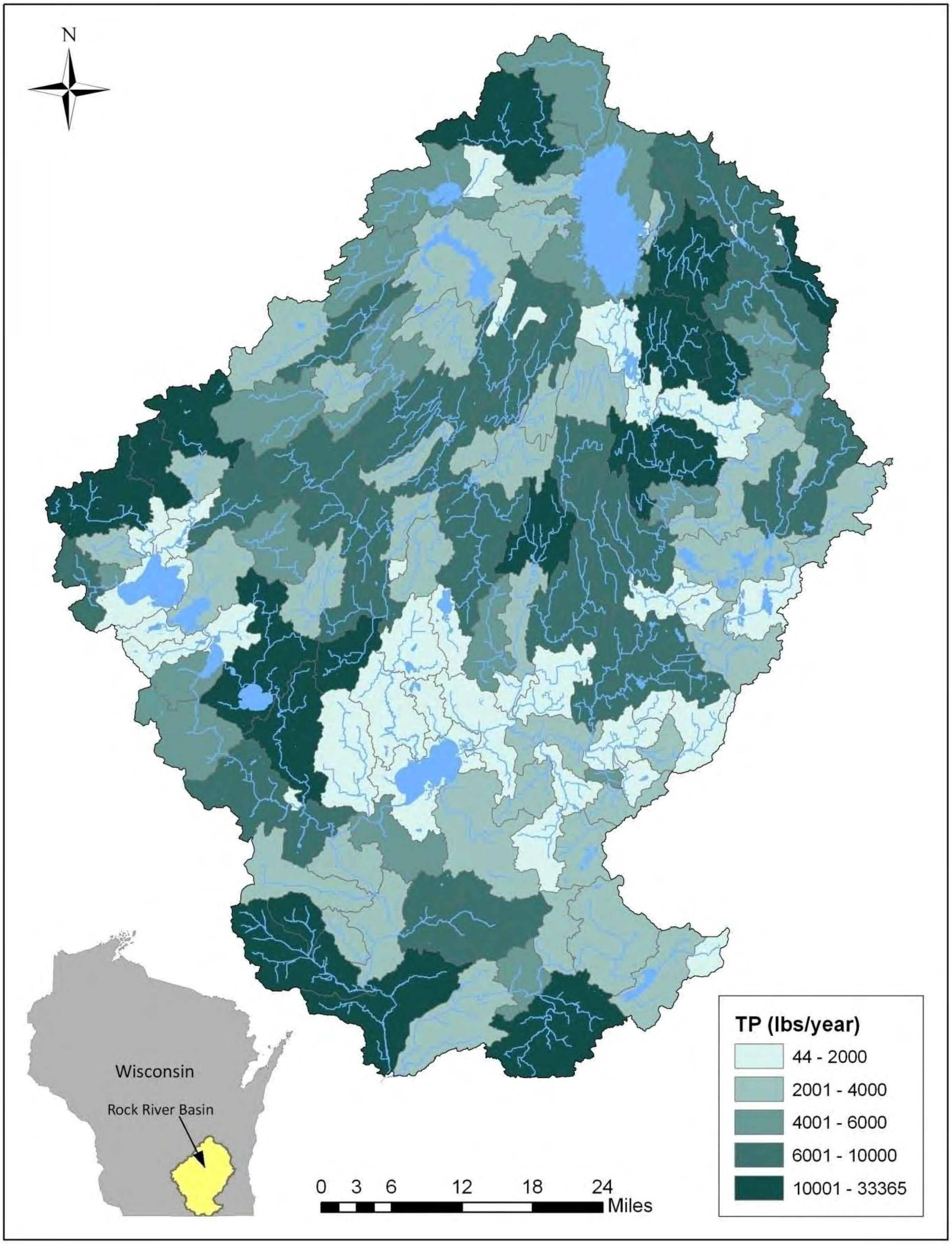

Figure 15. Map of median annual agricultural and background nonpoint baseline TP loading by sub-basin in the Rock River Basin.

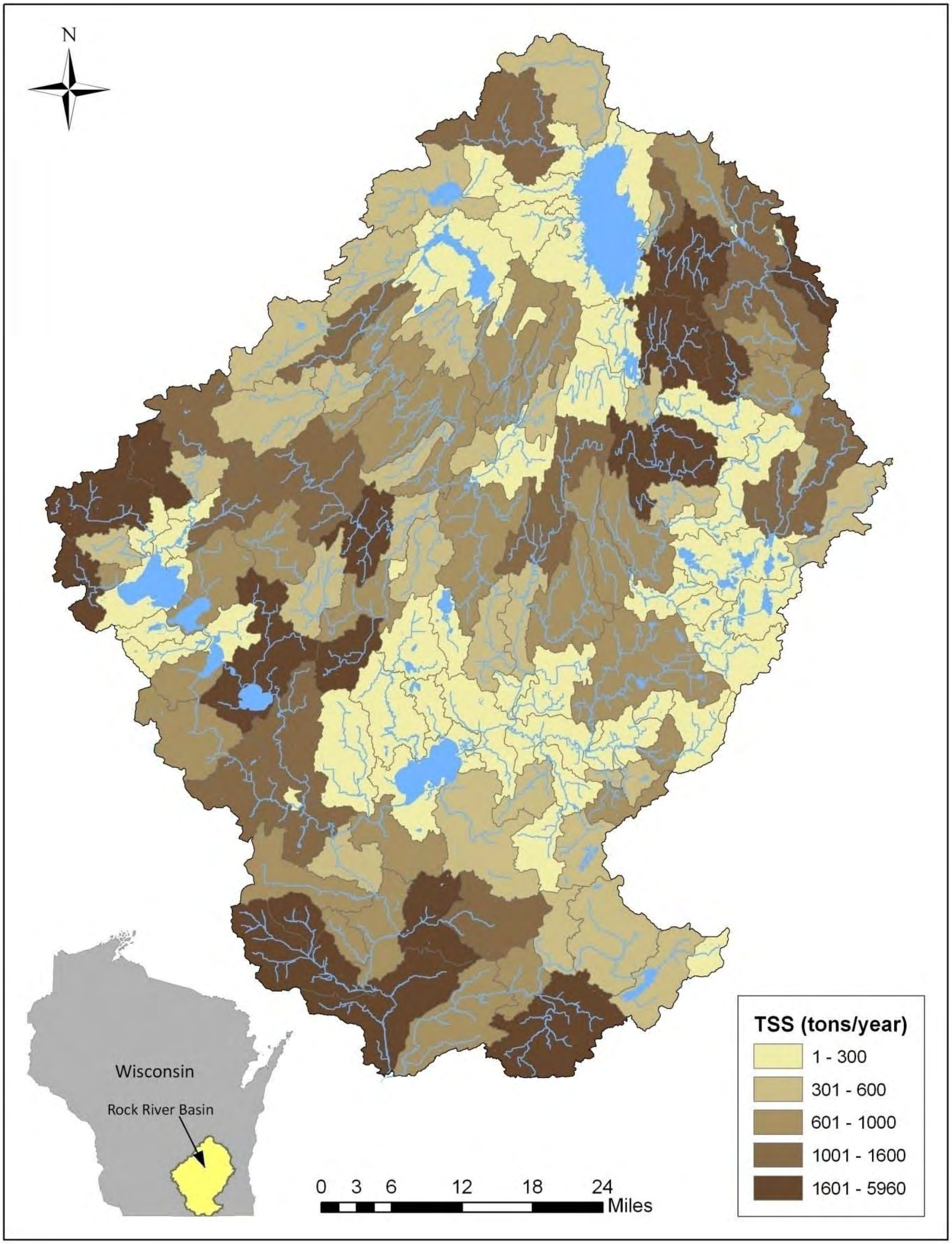

Figure 16. Map of median annual agricultural and background nonpoint baseline TSS loading by sub-basin in the Rock River Basin.

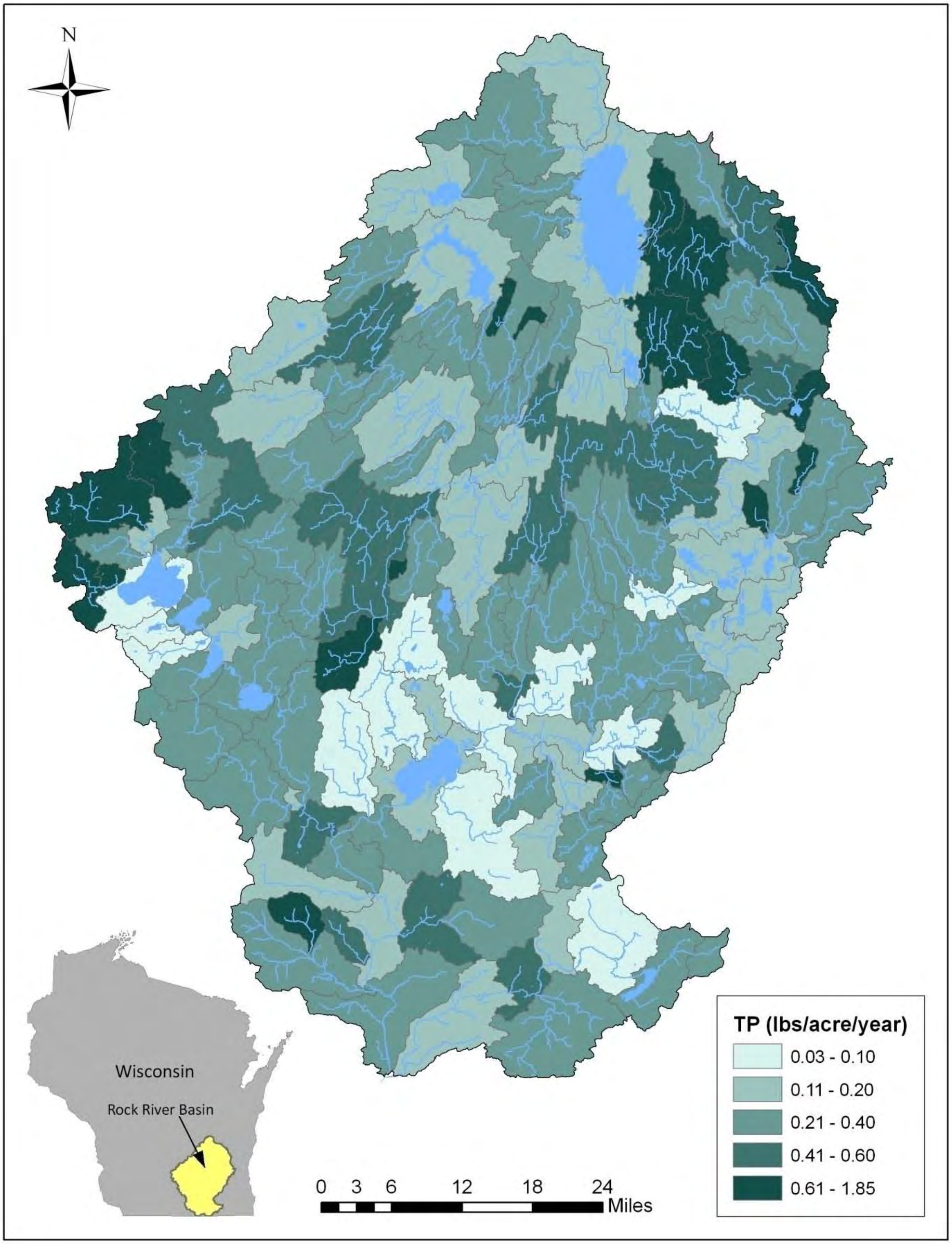

Figure 17. Map of median annual agricultural and background nonpoint baseline TP loading per acre by sub-basin in the Rock River Basin.

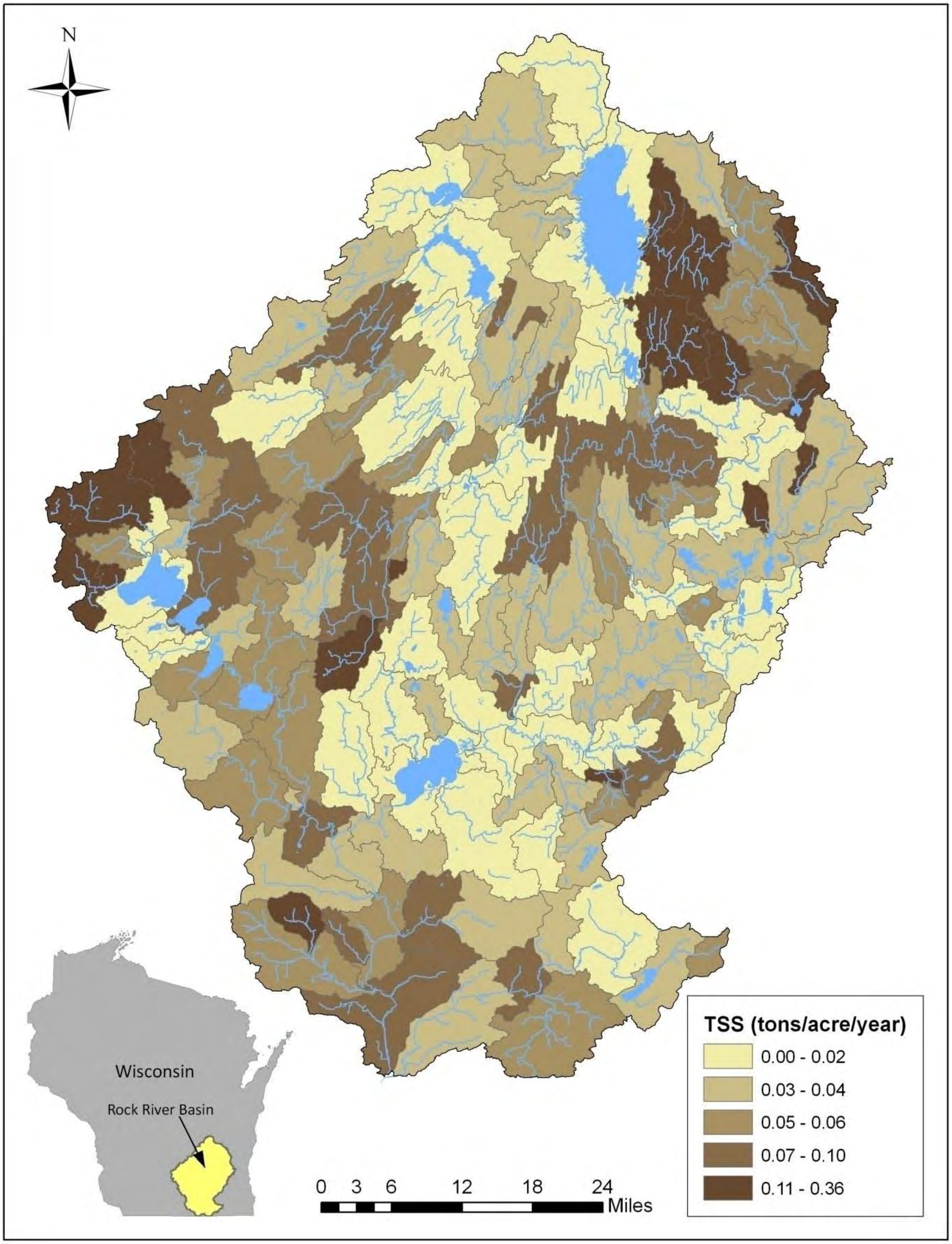

Figure 18. Map of median annual agricultural and background nonpoint baseline TSS loading per acre by sub-basin in the Rock River Basin.

5.0 POLLUTANT LOADING CAPACITY

Pollutant loading capacity is defined as the amount of a pollutant that a water body can assimilate and still meet water quality standards. Loading capacity is equivalent to a TMDL, except that it can be calculated for time periods other than daily if the effects of a pollutant manifest themselves over longer periods.

5.1. Linking Pollutant Loading to Concentration

The water quality criteria for water bodies in the Rock River Basin are expressed as concentrations (i.e., mg/L). The loading capacities (and resulting TMDLs) are expressed as loads (i.e., lbs or tons). Therefore, a method for translating between these measurements was developed for this analysis. This method is built from a set of principles about how pollutants move through aquatic ecosystems. Part of this method required the selection of a target rate of compliance with water quality standards that accounts for variability in stream flows over time.

5.1.1. Movement of Phosphorus and Sediment

For this TMDL analysis, the total mass loads of both TP and TSS are assumed to move conservatively through the network. In other words, there is no permanent retention of either substance. This approach is based on research showing that most of the phosphorus retention in rivers is transient (e.g., plants take up phosphorus, but then die and release it back into the water) (Meyer, 1979). It also contributes to the margin of safety in the loading capacity (Section 6.5).

Streams – In stream segments, this conservative transport is assumed to occur on a sub-monthly time scale. That is, a unit of phosphorus that enters the network at any point is assumed to move out of the Rock River Basin within one month. This assumption is reasonable in phosphorus-rich rivers, where phosphorus uptake rates are typically negligible compared with ambient concentrations (Doyle *et al.*, 2003, Marti *et al.*, 2004).

Lakes – In eutrophic lakes, there are strong seasonal patterns of phosphorus movement between the bottom sediments and the water column. To account for these patterns, the outflow concentrations of each lake deviate from the average inflow concentration by a monthly adjustment factor. In general, this pattern means that the phosphorus loading capacity of lakes and river reaches downstream of them is lower during the summer, because this is when the most phosphorus is released from the sediments. Measured phosphorus concentrations from two lakes in the Rock River Basin were used to develop the adjustment factors. For more details, see Appendix B.

5.1.2. Phosphorus Loading Capacity

Phosphorus loading capacity was calculated for each reach on a monthly basis to account for seasonal variation in flow and associated assimilative capacity in rivers. The loading capacity for each reach also accounts for flows and loads from upstream. This factor is only relevant at transitions between non-wadeable and wadeable reaches where phosphorus criteria change.

The loading capacity was calculated as the load that will produce the monthly target concentrations in a reach in approximately 7 out of 10 years. This target frequency was selected to ensure that loading capacity is not driven by anomalously high or low flows, but that water quality targets are met under most flow conditions. As described below, this monthly compliance rate will attain summer median targets in approximately 9 out of 10 years. This target compliance rate is consistent with EPA guidelines for non-toxic pollutants (such as phosphorus and sediment), which recommend designating water quality impairment when more than 10% of the water quality samples collected exceed the criterion (USEPA, 2002).

Loading capacity varies monthly because there are predictable seasonal patterns in stream flow. However, there is also random variability in flows in a given month among years. To meet the target frequency of compliance with standards, the total loading capacity was calculated as the load which, when combined with the stream flow in a reach, will yield concentrations at or below the phosphorus target for that reach in 7 out of 10 years. Because the SWAT model output contains 10 years of data, the target flow is the 4th smallest value (out of the 10 annual values) (Figure 17). Because target concentrations are assessed as a summer median and load allocations are made on a monthly basis, a statistical procedure[5] was used to translate the probability of exceeding targets between the two time scales. Under the assumption that the probabilities of meeting monthly targets in adjacent months are independent, achieving monthly targets in 7 out of 10 years equates to achieving summer median targets in approximately 9 out of 10 years.

Because precipitation has a random element, the pattern in stream flows in a given year does not always represent a typical condition. Even when averaged across the 10-year period (1989-1998) simulated in the SWAT model, the annual pattern of flows is not as smooth as it would be with a longer time series. To cancel out some of the statistical "noise" in the data, the final loading capacity for each reach was calculated as a three-month moving average (e.g., June loading capacity is average of May, June, and July). Henceforth, "loading capacity" will mean this smoothed value. This approach has been previously used in other TMDLs (e.g., Idaho DEQ, 1999).

To validate the phosphorus loading capacity calculation, the STELLA model[6] was used to simulate the monthly phosphorus concentrations that would have occurred during the 1989-1998 period with loading set equal to the loading capacity. STELLA represents the connected structure of the 83 reaches in the watershed and tracks phosphorus concentrations in each reach as it passes phosphorus loads and stream flow volumes downstream. Appendix G contains the predicted growing-season median phosphorus concentrations for each year and the number of years that the target values for each reach were exceeded. The average number of exceedances is 2.7, which equates to achieving targets in 7.3 out of 10 years. If stream flows in adjacent months were completely independent, the average number of exceedances would be approximately one, so this result indicates some continuity in stream flows. In other words, dry months tend to be followed by dry months, particularly during the summer. This pattern can make it more likely for the growing-season median concentrations to exceed standards than if stream flow patterns were more consistent from year to year. In wet years, meeting the loading capacity will produce median

[5] The WDNR protocol for evaluating compliance with water quality standards requires at least 10 samples. Based on binomial probability distributions, the probability that the median of 11 samples will be below a specified value is 92% when the probability that each individual sample is below that same value is 70%.

[6] http://www.iseesystems.com/softwares/Education/StellaSoftware.aspx

concentrations that are well below target values. For example, in 1993, the average growing-season median phosphorus concentration in the basin would have been 0.04 mg/L. These findings illustrate the principle, described above, that loading capacity is not driven by anomalously high or low flows, but rather that water quality targets are met under most flow conditions.

The monthly phosphorus loads from the entire Rock River Basin that will achieve the phosphorus concentration targets range from 22,685 lbs in November, when stream flows are typically lowest, to 57,031 lbs in May, when stream flows are typically highest. In a typical year, meeting these load targets will require a low of 3% reduction in February, and a high of a 77% reduction in June (Table 6). Note that these percent reductions are for the basin as a whole, and that required reductions vary by year and by reach (see Appendix H).

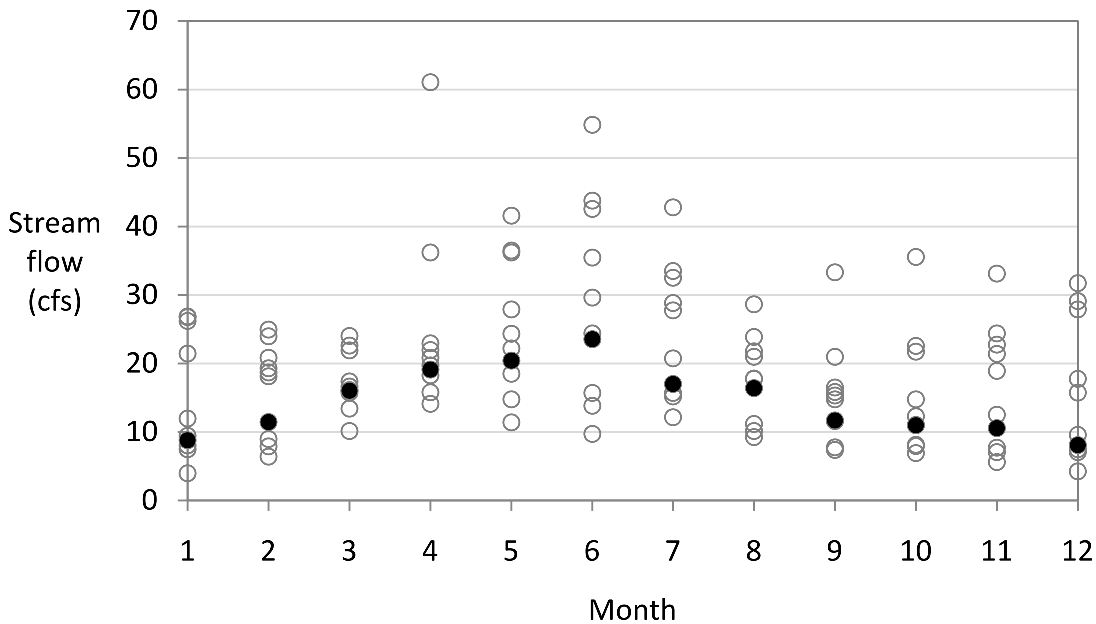

Figure 19. Variation in monthly stream flows over ten years in one example reach in the Rock River Basin. The filled circles are the fourth lowest value in each month and are the basis for calculating loading capacity.

Table 6. Median monthly baseline loads, allocations, and percent reductions for TP and TSS loading in the Rock River Basin.

Month	TP baseline load (lbs)	TP loading capacity (lbs)	TP % reduction	TSS baseline load (tons)	TSS loading capacity (tons)	TSS % reduction
Jan	37,567	28,412	24%	1,365	2,806	0%
Feb	39,177	38,140	3%	1,558	4,065	0%
Mar	77,077	44,835	42%	6,473	6,108	6%
Apr	113,190	48,526	57%	11,534	6,949	40%
May	130,926	56,296	57%	14,675	8,249	44%
Jun	195,047	44,537	77%	23,109	6,005	74%
Jul	85,647	37,627	56%	6,195	4,589	26%
Aug	71,419	27,914	61%	4,114	2,790	32%
Sep	69,429	25,954	63%	3,678	1,976	46%
Oct	44,209	23,716	46%	1,796	2,519	0%
Nov	64,096	22,612	65%	4,768	2,860	40%
Dec	37,191	24,237	35%	1,128	2,710	0%

5.1.3. TSS Loading Capacity

TSS loading capacity was calculated with monthly regression equations relating TSS load to TP load from the Rock River Basin SWAT model. The regression equations were used to determine the TSS load that is typically associated with the TP loading capacity. As described in Section 3.3, this load is expected to meet applicable narrative standards. Each monthly regression equation is based on 10 years of data on 83 reaches and is in the following form:

Equation 1. TSS-TP conversion.

$$\log(\text{TSS load}) = A + B(\log(\text{TP load}))$$

Where A is a constant and B is a coefficient that represents the relationship between TP and TSS loads (Table 7). The higher values of B in summer months indicate more TSS per pound of TP than in winter months (Lathrop, 2007).

An example of this calculation is as follows: The TP loading capacity for Reach X in July is 50 lbs. Using the values of A and B for July in Table 6, 2.10+1.10*(log(50))=log(9,308). The TSS loading capacity for Reach X in July is 9,308 lbs. This is the TSS load that is typically associated with a TP load that meets numeric standards, so it is expected to meet narrative standards for sediment.

The monthly TSS loads from the entire Rock River Basin that will achieve the TSS loading targets range from 3,349 tons in August to 9,606 tons in May. In a typical year, meeting these load targets will require a low of 0% reduction during the winter months, and a high of a 74% reduction in

June (Table 6). Note that these percent reductions are for the basin as a whole, and that required reductions vary by year and by reach (see Appendix I).

Table 7. Coefficients of monthly TSS-TP regression equations from monthly SWAT model output (Equation 1).

Month	A	B
Jan	3.23	0.68
Feb	3.17	0.72
Mar	2.50	0.98
Apr	2.32	1.04
May	2.32	1.05
Jun	2.28	1.05
Jul	2.10	1.10
Aug	2.23	1.03
Sep	2.58	0.86
Oct	2.51	0.94
Nov	2.51	0.96
Dec	3.15	0.72

5.2. Critical Conditions

TMDLs must take into account critical environmental conditions to ensure that water quality is protected during times when it is most vulnerable. Critical conditions for phosphorus impairments are generally during summer months when temperature, flow, and sunlight conditions are conducive to excessive plant growth. However, loadings throughout the entire year can contribute to high phosphorus concentrations during this critical period. Critical loadings for TSS impairments occur during wet weather events, which result in upland and stream bank erosion. Wet weather events can occur at various times during the year, but are especially prevalent in spring and summer.

The baseline loads in this TMDL were modeled on a monthly (SLAMM) or daily (SWAT) time step. Load allocations were also calculated on a monthly basis. Together, these high resolution data provide a clear picture of how baseline loading and necessary load reductions vary through the year, including during critical conditions. They will serve as a guide in designing implementation measures that will be most effective during these critical periods.

6.0 POLLUTANT LOAD ALLOCATIONS

6.1. TMDL Equation

The objective of a TMDL is to allocate loads among pollutant sources so that appropriate control measures can be implemented and water quality standards achieved. Wasteload allocations (WLAs) are assigned to point source discharges regulated by WPDES permits and unregulated nonpoint source loads are assigned load allocations (LAs). A TMDL is expressed as the sum of all individual WLAs for point source loads, LAs for nonpoint source loads, and an appropriate margin of safety (MOS), which takes into account uncertainty (see Section 6.5).

Equation 2. Calculation of the TMDL

$$TMDL = \sum WLA + \sum LA + MOS$$

6.2. Load Allocation Approach

The total loading capacity for TP and TSS was divided into allocations for nonpoint sources, WWTFs, and MS4s based on the relative contributions of these source categories to the baseline loads in each reach. Before allocating loads to these "controllable" sources, the natural "background" load (i.e., load from forest and wetland) and the portion of the wasteload allocated to general permits were subtracted from the loading capacity. In other words, allocations for background and general permits were set equal to each of their baseline loads. The background load for each month was derived from SWAT model output for the load target year (i.e., the year in which the 4th lowest flow occurred, see Section 5.1.2).

The fraction of the TMDL that is allocated to each source category is equal to its average fraction of the baseline load. These fractions were calculated separately for each reach and each month and then smoothed using the method described in Section 5.1.2. This method assigns responsibility for attaining water quality targets in proportion to each source's current contribution to the excess load.

6.3. Load Allocation

Daily load allocations for nonpoint sources of TP and TSS are presented by reach and month in Appendices J and K, respectively. Annual variations in the percent reductions needed to meet these allocations are presented in Appendices L and M. The load allocation is divided into two categories: 1) agriculture/non-permitted urban and 2) background sources. The division of loads in the first category between agricultural and non-permitted urban sources will be determined by WDNR on a case-by-case basis during implementation. Urban areas that are currently not permitted but contribute a significant fraction of the TP or TSS load to a reach may be designated under NR 216.025 and issued a WPDES permit for their municipal storm sewer system.

6.4. Wasteload Allocation

Daily wasteload allocations for point sources of TP and TSS are presented by reach and month in Appendices J and K, respectively. The wasteload allocation is divided into three categories: 1) general permit sources, 2) WWTFs, and 3) MS4s. Annual variations in the percent reductions from MS4s needed to meet these allocations are presented in Appendices N and O. Daily wasteload allocations (WLA_d) for WWTFs were calculated from monthly wasteload allocations (WLA_m) with the following equation, as recommended by EPA guidance (USEPA, 2007). (n is the number of days in the month.) Monthly and daily allocations for each NPDES permit in the basin are presented in Appendix P, Q, R, and S for WWTFs and Appendix T, U, and V for MS4s. Baseline discharge information for WWTFs is presented in Appendix W.

Equation 3. Daily wasteland allocation calculation.

$$WLA_d = 2.39 \cdot (WLA_m / n)$$

6.5. Margin of Safety

A margin of safety (MOS) is included in the TMDL to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality. The MOS can be implicit through the use of conservative assumptions in the analysis or explicit by allocating a portion of the loading directly to a MOS.

In this analysis, the calculation of loading capacity assumes conservative transport of phosphorus and sediment through the basin's network of water bodies. The fraction of these pollutants that is permanently buried in bottom sediments represents an implicit margin of safety. The size of this fraction is uncertain, but is likely higher for sediment than phosphorus. Most long-term retention of sediment and phosphorus occurs in deep lakes, wide areas of rivers, and floodplains. Retention rates often decrease following reductions in loading because of accelerated release of materials stored in channel and lake bottoms (Jensen *et al*., 2006).

6.6. Reserve Capacity

Baseline phosphorus loads from WWTFs were calculated from permitted daily average flows (DAF) and permitted effluent TP concentrations, which are typically higher than actual flows and concentrations. In most cases, growth in WWTF service areas will be accommodated by current permit limits for the next 30 years, which represents reserve capacity in the phosphorus TMDLs.

The most significant population growth in the Rock River Basin over the next 30 years is expected in Dane County, specifically in the City of Madison urban area at 22.8% growth (Wisconsin Department of Administration, 2004). The current permitted DAF for the Madison Metropolitan Sewerage District (50 million gallons/day (mgd)) is expected to accommodate this growth, so no reserve capacity is necessary for this facility.

WWTFs serving several communities are expected to surpass current permitted DAF levels in the next 30 years. To accommodate the increased flows, these facilities will need to reduce effluent TP concentrations to meet their WLAs.

- Walworth County Metropolitan Sewerage District (WalCoMet) - WalCoMet's current DAF of 5.75 mgd is projected to be 11.3 mgd in 30 years.

- City of Stoughton – The Stoughton POTW's current DAF of 1.65 mgd is projected to be 2.7 mgd in 30 years.

- City of Fort Atkinson: The Fort Atkinson POTW's current DAF of 2.7 mgd is projected to be 3.1 mgd in 30 years.

- City of Sun Prairie: The Sun Prairie POTW's current DAF of 3.1 mgd is projected to be 4.5 mgd.

- The Village of Cambridge and Town of Oregon may also exceed their permitted DAF over the next 30 years (Dane County, 2004).

6.7. Seasonal Variation

In this TMDL, seasonal variation in pollutant loading and stream flow are accounted for by calculating loading capacity and load allocations on a monthly basis. With this approach, load allocations vary according to the varying assimilative capacities of water bodies in the basin and according to variation in the baseline loads from different sources over the course of a year. In addition, seasonal patterns in phosphorus cycling between lake water and bottom sediments are accounted for with monthly adjustment factors. Both of these approaches ensure that load allocations will be adequate to meet water quality standards, but will not be overly restrictive at times of the year when assimilative capacity is high.

The use of SWAT for the TMDL analysis greatly facilitated accounting for seasonal variation. SWAT operates on a daily time step, and aggregating its output by month was straightforward. Running SWAT for a 10-year period ensured that seasonal patterns would be representative of long-term average conditions.

7.0 IMPLEMENTATION

7.1. Reasonable Assurance for Implementation

Required by the Clean Water Act, reasonable assurances provide a level of confidence that the wasteload allocations and load allocations in TMDLs will be implemented. This TMDL will be implemented through enforcement of existing regulations, financial incentives, and various local, state, and federal water pollution control programs. The following are some of the activities, programs, requirements, and institutional arrangements that will provide reasonable assurance that this TMDL will be implemented and that the water quality goals will be achieved. Additional information about organizations and initiatives related to water quality in the Rock River Basin is presented in Appendix D.

7.2. Implementation Plan Development

The next step following approval of the TMDL is to develop an implementation plan that specifically describes how the TMDL goals will be achieved. Wisconsin DNR has initiated an implementation planning process, entitled "Rock River Recovery," which builds on past planning and implementation of practices to control or reduce nutrient and sediment pollutants in the Rock River Basin. The implementation planning process will develop strategies to most effectively utilize existing federal, state, and county-based programs to achieve wasteload and load allocations outlined in the TMDL. Details of the implementation plan will include project goals, actions, costs, timelines, reporting requirements, and evaluation criteria.

7.2.1. *History of Watershed and Water Quality Planning in the Rock River Basin*

Over the last three decades, there has been a tremendous amount of collaboration and partnering throughout the Rock River Basin to try to restore beneficial use impairments and reduce loadings of phosphorus and sediment in the basin. WDNR's history of step-by-step progress toward water quality improvement and the current actions WDNR has taken to implement the TMDL demonstrate the Department's commitment to addressing water quality problems in the Rock River Basin.

Wisconsin has conducted Water Quality Planning since the mid-1970s, when newly promulgated Clean Water Act authorities were delegated to the State Department of Natural Resources. The specific type of planning work has changed over time, but the end goal -- restoring, protecting and maintaining clean water and healthy aquatic ecosystems -- has been a constant through the past nearly 40 years.

Water quality planning helps direct resources toward high priority work items. Initially water quality management plans, or "basin plans," were designed to assess the need for and extent of wastewater treatment plant upgrades to secondary treatment. The majority of work involved conducting wasteload allocations for biological oxygen demand (BOD) on major river systems to determine the allowable pollutant loads from point source discharges.

The 1980s brought significant changes to the water quality planning program in Wisconsin. The state implemented its innovative Priority Watershed Program to control nonpoint source discharges and enacted state legislation to systematize the connection between the state's delegated Clean Water Act responsibility and its evaluation of point source discharges including urbanizing areas throughout the state. State Administrative Code chapters NR 121, NR 110, and NR 120 provided a structure and framework to tie together the state's planning program with its implementation vehicles for permitting point source discharges and to strengthen outreach and education for voluntary efforts for nonpoint sources of pollutants.

The development of Sewer Service Area Plans began in the 1980s for areas designated in NR121 and for communities with populations exceeding 10,000 people. This work required that specific actions such as permits or specialized plans be reviewed and formally amended to the state's basin plans, which were the umbrella vehicle for related water quality work in the state. Water Quality Planners conducted conformance reviews for proposed permit limits, stormwater plans, sewer service area plans, and priority watershed nonpoint source control plans to ensure that the proposed work protected, or if needed, helped to restore, the water quality in the respective basin.

In the 1990s, the state began enacting a series of water resources rules which up until that point had been covered under the state Sewer Service Area Program's Environmentally Sensitive Area (ESA) designations. [ESAs are resource areas identified in Sewer Service Area Plans that must not be developed with public sewer (as per NR 121).]

Basin planning, or Water Quality Management Planning, continued to evolve in response to the modified legal framework and supplementary management tools. In the late 1990s, recommendations in basin plans began to focus on partnerships and on ecosystem-scale objectives.

In 1999, the water quality program worked with WDNR's Land Division and Bureau of Fisheries Management to develop integrated basin plans statewide. These plans were designed to capture the essence of holistic, systems-based planning approaches. These Integrated Basin Plans, or *State of the Basin Reports*, reflected the department's reorganized structure into geographic management units (GMUs) and utilized basin team partnerships at the local level. The *State of the Rock River Basin* (WDNR, 2003) describes in detail the current status of the land and water resources in the basin, and identifies issues and recommendations to address each of the water quality concerns.

Following approval by WDNR and EPA, this TMDL will be amended to the Areawide Water Quality Management Plan for the Upper and Lower Rock Basin pursuant to chapter NR 121, Wisconsin Administrative Code. A detailed discussion of management activities aimed at meeting the goals of the TMDL will be included in the separate implementation plan.

The Land and Water Resources Management Planning Program, created by state statute in 1999, requires each county to develop a resource management plan for their county. Each county Land and Water Conservation Department in the basin has developed an approved plan for addressing soil and water conservation concerns in its respective county. These plans are required to be updated every five years. Wisconsin DNR staff work collaboratively with each of the counties to develop recommendations and plans for addressing the water quality concerns identified in the county plans. WDNR staff work collaboratively with the counties to assist with implementation of the county plans, and particularly to assist the counties with enforcement activities necessary to address animal waste runoff concerns in basin waters.

Ch. NR 217, Wis. Adm. Code, adopted in 1992, required point source discharges of phosphorus greater than 150 lbs/month to reduce phosphorus in their effluent to 1 ppm. In response to this requirement, in 1996 through 2000, the Rock River Watershed Partnership, of which WDNR was an active participant, conducted a planning effort to determine the feasibility of pollutant trading with nonpoint sources of phosphorus in the basin. Though no trades did occur in the basin, this extensive water quality monitoring and planning effort resulted in the development of a trading concept that could be applied in the basin and provided the background data that is the basis for the current TMDL.

The Rock River Basin TMDL provides WDNR and County Land and Water Conservation Departments with the data necessary to more effectively identify and target pollutant sources so that strategies can be developed and applied to reduce pollutant loads in basin waters.

7.2.2. Implementation Planning

In anticipation of the completion of the TMDL, in October, 2008, WDNR created the "Rock River TMDL Implementation Team" to develop a strategy for developing and implementing a plan to accomplish the pollutant load reduction identified in the TMDL. The Implementation Team consists of a Steering Committee comprised of WDNR central office and regional management staff to oversee the implementation planning process, and the Implementation Planning Team, consisting of WDNR central office and field staff and UW-Extension staff, who are assigned responsibility for the development and implementation of the plan.

The Implementation Planning Team began meeting in June, 2009 to develop a strategy for an open public participatory approach to accomplish the plan development. A public informational meeting was held in March, 2010 to introduce the proposed implementation planning process to basin stakeholders and to seek volunteers (key basin stakeholders and technical experts) to participate on issue sector teams to assist the Implementation Team with development of an implementation strategy.

Five sector teams, each lead by a WDNR or UWEX staff member, have been appointed. Each team leader recommended sector team membership for their team from the list of volunteers and sought technical experts appropriate for their area of plan development. The sector teams (Agriculture, Stormwater, Municipal and Industrial Wastewater, Education and Outreach, and Assessment and Monitoring) will begin meeting after the TMDL is approved by USEPA. Individuals with knowledge of the basin, key stakeholders, and persons with open minds and creative thinking skills were sought for team members.. The implementation plan will look at how existing programs and practices can be most efficiently and effectively used to achieve TMDL requirements and possible new or creative alternative approaches that may more effectively accomplish pollutant load reduction, particularly for agriculture and stormwater.

It is anticipated that the implementation planning process may take up to two years for some of the sector teams to complete their work. Sector teams will meet monthly as needed. Quarterly meetings are planned to allow interaction between the sector teams and for public participation/information. It is anticipated that during this time period pilot projects will be initiated in sub-watersheds indentified as high loading contributors of point and/or nonpoint source sediment and phosphorus.

The WDNR website is being updated to be used as the primary online communication tool for public outreach. We are developing an interactive mapping feature for the website that will allow more effective communication of water quality data about the basin, wasteload reduction required by the TMDL, and progress toward achieving the water quality improvements.

7.2.3. Management Strategies for Point Sources

Point source discharges in the Rock River Basin include municipal and industrial wastewater treatment facilities, stormwater, and CAFOs. WDNR regulates point sources discharging wastewater to surface water or groundwater through the WPDES Permit Program. WPDES permits are divided into two categories - specific and general permits. Specific permits are issued to more complex facilities and activities such as municipal and industrial wastewater discharges. General permits are issued to classes of industries or activities that are similar in nature, such as nonmetallic mining, non-contact cooling water, and stormwater discharges.

Individual WPDES permits issued to municipal and industrial wastewater discharges to surface water will include limits that are consistent with the approved TMDL wasteload allocations, providing the necessary reasonable assurance that the WLAs in the TMDL will be achieved. Once a TMDL has been state and federally approved, the permit for a point source that has been allocated a WLA by the TMDL may not be reissued without a limit that is consistent with the WLA. WDNR may modify an existing permit to include WLA-derived limits or wait until the permit is reissued to include WLA-derived limits.

Facilities operating under general permits will be screened to determine whether additional requirements may be needed to ensure that the permitted activity is consistent with TMDL goals; this may include issuing individual permits or other measures. Facilities under general permits that are found to be meeting the terms of their permit will be considered in compliance with their WLA.

WDNR is developing guidance for Wastewater, Stormwater and CAFO staff to facilitate the implementation of the permitting process for WPDES permits when the TMDL is approved. The documents will provide detailed guidance to answer the many questions that will arise as the WDNR initiates these new requirements for WPDES permittees. Guidance is also being developed on the water quality trading concept and watershed permitting.

In June, 2010 the Wisconsin Natural Resources Board approved revisions to NR 102 and NR 217 to create and implement numeric phosphorus water quality standards criteria for lakes, reservoirs, streams and rivers. The rule revisions are part of a comprehensive strategy to address excess phosphorus in Wisconsin waters. The regulations are being revised in response to federal CWA regulations and identified phosphorus-related pollution problems to ensure protection of designated uses of Wisconsin's waters.

Approved revisions to NR 102.06 create numeric criteria of 100 ug/l phosphorus for certain listed rivers and 75 ug/l for all other streams, unless exempted, to protect fish and aquatic life uses. For lakes and reservoirs a series of phosphorus concentrations ranging from 15 ug/l for cold-water fishery lakes to 40 ug/l for shallow lakes and reservoirs was established. For small impoundments, the criterion is the same as that of the inflowing stream or river.

The Natural Resources Board also approved amendments to NR 217 and created new subchapters to implement the new phosphorus criteria in municipal and industrial point source WPDES permits.

WDNR has regulated storm water discharges from certain MS4s, industries, and construction sites under permits issued pursuant to ch. NR 216, Wis. Adm. Code since 1994. NR 216 contains regulations derived from federal law to implement the WPDES storm water program in Wisconsin. Within the Rock River Basin, there currently are 48 MS4s, around 500 industrial facilities, and about 200 new construction sites starting up each year that are subject to regulation under NR 216. WDNR has also established its own developed urban area, construction site, and post-construction performance standards under subchs. III and IV of ch. NR 151, Wis. Adm. Code, which are implemented through storm water MS4 and construction site permits. The developed urban area performance standard requires that areas developed prior to October 2004 control 40% of TSS relative to what performance would be with no stormwater controls; however, the 2011 State Budget removed enforceable compliance dates from these requirements. Areas developed after October 2004 are expected to control 80% of TSS relative to what performance would be with no stormwater controls. The Natural Resources Board has recently approved revisions to ch. NR 151, and has given approval for WDNR to work on proposed revisions to ch. NR 216, in order to incorporate new federal effluent limitations guidelines and new source performance standards for construction sites.

7.2.4. *Management Strategies for Nonpoint Sources*

To ensure the reduction goals of this TMDL are attained, management measures must be implemented and maintained to control phosphorus and sediment loadings from nonpoint sources of pollution. Wisconsin's Nonpoint Source Pollution Abatement Program (NPS Program), described in the state's Section 319 Program Management Plan, outlines a variety of financial, technical, and educational programs, which support implementation of management measures to address nonpoint source pollution. WDNR and the Department of Agriculture, Trade, and Consumer Protection (DATCP) coordinate statewide implementation of the NPS Program.

The NPS Program includes core activities and programs, which are a high priority and the focus of WDNR and DATCP's efforts to address NPS pollution; these programs include the following:

WDNR is a leader in the development of regulatory authority to prevent and control nonpoint source pollution. Chapter NR 151, Wisconsin Administrative Code, establishes polluted runoff performance standards and prohibitions for agricultural and non-agricultural facilities and practices. These standards are intended to be minimum standards of performance necessary to achieve water quality standards. Implementing the performance standards and prohibitions on a statewide basis is a high priority for the NPS Program. In particular, the implementation and enforcement of agricultural performance standards and manure management prohibitions, listed below, will be critical to achieving the necessary nonpoint source load reductions throughout the basin:

- Sheet, rill and wind erosion: All cropped fields shall meet the tolerable (T) soil erosion rate established for that soil.
- Manure storage facilities: All new, substantially altered, or abandoned manure storage facilities shall be constructed, maintained or abandoned in accordance with accepted standards. Failing and leaking existing facilities posing an imminent threat to public health or fish and aquatic life or violating groundwater standards shall be upgraded or replaced.
- Clean water diversions: Runoff from agricultural buildings and fields shall be diverted away from contacting feedlots, manure storage areas, and barnyards located within water quality management areas (300 feet from a stream or 1,000 feet from a lake or areas susceptible to groundwater contamination).
- Nutrient management: Agricultural operations applying nutrients to agricultural fields shall do so according to a nutrient management plan.

Manure management prohibitions:

- No overflow of manure storage facilities;
- No unconfined manure piles in a water quality management area;
- No direct runoff from feedlots or stored manure into state waters; and
- No unlimited livestock access to waters of the state in locations where high concentrations of animals prevent the maintenance of adequate or self-sustaining sod cover.

In June, 2010 the Wisconsin Natural Resources Board also approved revisions to NR151. The most significant changes to the code affecting agriculture include:

- NR151.02 was modified to apply the sheet, rill and wind erosion performance standard to pastures in addition to cropland.
- NR151.03 creates new tillage setback requirements that state that no crop tillage operation may negatively impact streambank integrity or deposit soil from the tillage operation directly in surface waters.
- In lieu of the buffer standard created in the original NR151 a new phosphorus index is created. NR151.04 creates a phosphorus index performance standard for croplands, pastures and winter grazing areas, a tool for assessing the potential to contribute phosphorus to nearby water bodies. The standard also prohibits mechanical application of nutrients or manure directly into surface waters.
- NR151.055 will allow the department to regulate significant discharges of process wastewater from non-permitted livestock operations including feed storage leachate and milk house waste to state waters.

- NR151.005 requires that crop or livestock producers reduce discharges of pollutants if necessary to meet a load allocation in an approved TMDL. This requirement would be implemented through existing targeted performance standards provisions of the rule and best management practices, conservation practices and technical standards established in ch. ATCP 50.
- In addition to the NR151 performance standards and prohibitions, the NPS Program supports NPS pollution abatement by administering and providing cost-sharing grants to fund best management practices (BMPs) through various WDNR grant programs, including, but not limited to:
    - The Targeted Runoff Management (TRM) Grant Program
    - The Notice of Discharge (NOD) Grant Program
    - The Urban Nonpoint Source & Storm Water Management Grant Program
    - The River Planning & Protection Grant Program.
    - The Lake Protection Grant Program
    - DATCP oversees and supports county conservation programs that implement the state performance standards and prohibitions and conservation practices.

DATCP's Soil and Water Resource Management Program requires counties to develop Land and Water Resource Management (LWRM) Plans to identify conservation needs. Counties must receive DATCP's approval of their plans to receive state cost-sharing grants for BMP installation. DATCP is also responsible for providing local assistance grant (LAG) funding for county conservation staff implementing NPS control programs included in the LWRM plans. This includes local staff support for DATCP and WDNR programs.

County LWRM plans advance land and water conservation and prevent NPS pollution by:

- Inventorying water quality and soil erosion conditions in the county.
- Identifying relevant state and local regulations, and any inconsistencies between them.
- Setting water quality goals in consultation with the WDNR.
- Identifying key water quality and soil erosion problems, and practices to address those problems.
- Identifying priority farm areas using a range of criteria (e.g., impaired waters, manure management, high nutrient applications).
- Identifying strategies to promote voluntary compliance with statewide performance standards and prohibitions, including information, cost-sharing, and technical assistance.
- Identifying enforcement procedures, including notice and appeal procedures.
- Including a multi-year work plan to achieve soil and water conservation objectives. WDNR, DATCP, and the county Land Conservation Departments (LCD) will work with landowners to implement agricultural and non-agricultural performance standards and manure management prohibitions to address sediment and nutrient loadings in the Rock River Basin.

Many landowners voluntarily install BMPs to help improve water quality and comply with the performance standards. Cost sharing may be available for many of these BMPs. Present Wisconsin statutes require that farmers must be offered at least 70% cost sharing funds for BMP installation before they can be required to comply with the agricultural performance standards and prohibitions. If cost-share money is offered, those in violation of the standards are obligated to comply with the rule. Recent changes to the DATCP Farmland Preservation Program now require that any agricultural land enrolled in the program must be in compliance with NR151 performance standards.

The counties and other local units of government in the basin may apply for TRM grants through WDNR. TRM grants are competitive financial awards to support small-scale, short-term projects (24 months) completed locally to reduce runoff pollution. Both urban and agricultural projects can be funded through TRM grants, which require a local contribution to the project. Projects that correct violations of the performance standards and prohibitions and reduce runoff pollution to impaired waters are a high priority for this grant program.

Numerous federal programs are also being implemented in the basin and are expected to be an important source of funds for future projects designed to control phosphorus and sediment loadings in the Rock River Basin. A few of the federal programs include:

- Environmental Quality Incentive Program (EQIP). EQIP is a federal cost-share program administered by the Natural Resources Conservation Service (NRCS) that provides farmers with technical and financial assistance. Farmers receive flat rate payments for installing and implementing runoff management practices. Projects include terraces, waterways, diversions, and contour strips to manage agricultural waste, promote stream buffers, and control erosion on agricultural lands.
- Conservation Reserve Program (CRP). CRP is a voluntary program available to agricultural producers to help them safeguard environmentally sensitive land. Producers enrolled in CRP plant long-term, resource conserving covers to improve the quality of water, control soil erosion, and enhance wildlife habitat. In return, the Farm Service Agency (FSA) provides participants with rental payments and cost-share assistance.
- Conservation Reserve Enhancement Program (CREP). CREP provides annual rental payments up to 15 years for taking cropland adjacent to surface water and sinkholes out of production. A strip of land adjacent to the stream must be planted and maintained in vegetative cover consisting of certain mixtures of tree, shrub, forbs, and/or grass species. Cost sharing incentives and technical assistance are provided for planting and maintenance of the vegetative strips. Landowners also receive an upfront, lump sum payment for enrolling in the program, with the amount of payment dependent on whether they enroll in the program for 15 years or permanently.
- Mississippi River Healthy Watersheds Initiative. To improve the health of the Mississippi River Basin, including water quality and wildlife habitat, the USDA Natural Resources Conservation Service announced the Mississippi River Basin Healthy Watersheds Initiative (MRBI). Through this new Initiative, NRCS and its partners will help producers in selected watersheds in the Mississippi River Basin voluntarily implement conservation practices and systems that avoid, control, and trap nutrient runoff; improve wildlife

habitat; and maintain agricultural productivity. The Initiative will build on the past efforts of producers, NRCS, partners, and other State and Federal agencies in the 12-State Initiative area to address nutrient loading in the Mississippi River Basin. Nutrient loading contributes to both local water quality problems and the hypoxic zone in the Gulf of Mexico. The 12 participating States are Arkansas, Kentucky, Illinois, Indiana, Iowa, Louisiana, Minnesota, Mississippi, Missouri, Ohio, Tennessee, and Wisconsin. MRBI will be implemented by NRCS through the Cooperative Conservation Partnership Initiative (CCPI), the Wetlands Reserve Enhancement Program (WREP), Conservation Innovation Grants (CIG), and other programs. NRCS will offer this Initiative in fiscal years 2010 through 2013, dedicating at least $80 million in financial assistance in each fiscal year. This is in addition to funding by other Federal agencies, States, and partners and the contributions of producers. The $80 million will be in addition to regular NRCS program funding in the 12 Initiative States and will be supported with needed technical assistance.

7.3. Follow-up Monitoring

Monitoring and Assessment (M&A) will be an integral part of the TMDL implementation plan. A group of approximately 10 people representing various groups and agencies have volunteered to be part of an M&A team. This team will meet regularly to discuss and create a monitoring and assessment strategy. The team will also work closely with other teams being formed as part of the implementation planning, in particular the agriculture team.

The M&A team has two primary objectives. The first objective is to use the information in this report (e.g., the nonpoint source loading maps: Figure 13, Figure 14, Figure 15, and Figure 16) to help decide where watershed work should begin. Recommendations will then be made to the staff who are doing the watershed improvement work, such as the County conservation staff or Natural Resources Conservation Service staff. The Rock River Basin is a large area, and implementation activities will need to be focused in areas where they can make the biggest difference.

The second task of the M&A team is to decide on a monitoring strategy. The team will have to decide on what parameters to measure, where to monitor, what protocol will be used, and who will do the monitoring. TP and TSS concentrations will be used to evaluate compliance with water quality standards, and biological sampling (e.g., fish or macroinvertebrate index of biotic integrity) will be used to evaluate restoration of designated uses. The frequency of sampling will be sufficient to evaluate compliance with water quality standards as specified in proposed revisions to Wisconsin administrative code NR 102. Monitoring will likely be the task of the Wisconsin DNR, but could also include a citizen monitoring component. Other groups doing monitoring could also include the US Geologic Survey, UW-Extension, and County Land and Water Resource Agencies.

8.0 Public Participation

EPA expects full and meaningful public participation in the TMDL development process. TMDL regulations require that each State/Tribe must provide opportunities for public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). EPA is required to publish a notice seeking public comment when it establishes a TMDL (40 C.F.R. §130.7(d)(2)).

Wisconsin DNR provided several ways for interested stakeholders to learn about the Rock River TMDL and provide input in the development process:

<u>Introductory Meeting</u> – WDNR hosted a public information meeting in Jefferson on December 12, 2006 to introduce the project. The meeting was advertised by news release to media in all counties in the Rock River basin, and distributed directly to known stakeholders including municipal and industrial point sources, engineering consultants, and county land and water conservation department staff. Over 70 people attended the all-day introductory meeting, where they heard presentations about the TMDL process, Rock River basin land use and water quality, previous Rock River phosphorus studies, biological responses to phosphorus, water quality targets and the project Scope of Work. A TMDL factsheet and copies of the original project scope were distributed at the meeting. WDNR created a Rock River TMDL web page to communicate project information and updates to interested parties, and developed an "interested parties" e-mail distribution list from the list of meeting attendees. This list was used throughout the project to send out e-mail messages with project updates.

<u>Scope of Work</u> – In late 2006, EPA provided WDNR with an opportunity to propose revisions to the original project scope. WDNR developed proposed revisions to the Scope of Work, and solicited public input on the proposal. Five individuals or organizations submitted comments or questions on the proposed scope revisions. WDNR prepared a summary of comments and responses and distributed it to commenters and the interested-parties distribution list.

<u>Technical Advisory Group</u> – WDNR established a technical advisory group, comprised of key representatives of the point and non-point source discharger communities with an interest in the TMDL development. WDNR held two meetings of the advisory group and one meeting with a sub-group of municipal point source representatives on the following dates:

- August 9, 2007 – Technical Advisory Group
- February 20, 2008 – Technical Advisory Group – Municipal point sources
- March 6, 2008 – Technical Advisory Group

The Technical Advisory Group meetings provided interested stakeholders with an opportunity to hear updates from project consultants, ask questions, and offer input on the technical aspects of the TMDL development. Meeting agendas and notes were distributed to all advisory group members.

<u>Public Comment on draft TMDL</u> - A draft Rock River TMDL was released to the public in December 2010. The draft TMDL was distributed via the WDNR website, and copies of the draft TMDL were made available at a publicly-accessible location and upon request. A public hearing on the draft TMDL was held on December 12, 2010 in Lake Mills, WI. WDNR prepared a summary of all comments and responses, and revised the draft TMDL in response to comments. A summary of the response to comments can be found in Appendix X.

9.0 REFERENCES

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APPENDIX A. MODEL DESCRIPTION

In 1998, the Rock River Partnership commissioned engineering firms Earth Tech and Strand Associates to evaluate the relative sediment and phosphorus contributions from point and nonpoint sources in the Rock River Basin. The study was commissioned in response to Wisconsin Administrative Code NR 217, which limited phosphorus in wastewater effluent to 1 mg/L unless alternative limits were allowed.

The study evaluated scenarios including improved tillage practices, limiting agricultural fertilizer application, combined improvement in tillage and nutrient management, limiting phosphorus in effluent to NR 217 limits, and the combination of nonpoint and point source controls. More detailed information on these scenarios can be found in "Prediction of Phosphorus Loads in the Rock River Basin, WI Using SWAT (Soil & Water Assessment Tool)" (Earth Tech, Inc. and Strand Associates, Inc., 2000), which is referred to in this report as "The Earth Tech/Strand Associates study."

Description of Original SWAT Model

SWAT is a model that was developed by the U.S. Department of Agriculture - Agricultural Research Service (USDA-ARS) to assess nonpoint source pollution from watersheds and large complex river basins (Arnold *et al*., 1996, Neitsch *et al*., 2001). SWAT simulates hydrologic and related processes to predict the impact of land use management on water, sediment, nutrient, and pesticide export. With SWAT, a large heterogeneous river basin can be divided into many sub-watersheds, thereby permitting detailed representation of the specific soil, topography, hydrology, climate and management features of a particular area. Crop and management components within the model permit representation of the cropping, tillage, and nutrient management practices typically used in Wisconsin. Major processes simulated within the SWAT model include: surface and groundwater hydrology, weather, soil water percolation, crop growth, evapotranspiration, agricultural management, urban and rural management, sedimentation, nutrient cycling and fate, pesticide fate, and water and constituent routing. A detailed description of the SWAT model can be found on the SWAT model's Web site[7].

Input Datasets

The inputs to SWAT are geographic datasets that were obtained from public agencies including the U.S. Geologic Survey (USGS), Wisconsin Department of Natural Resources (WDNR), U.S. Department of Agriculture, Wisconsin Department Agriculture Trade, and Consumer Protection (WDATCP), and County Land Conservation Offices. USGS historical flow records were obtained for twenty-three locations throughout the Rock River Basin. Land use information was determined from the WISCLAND coverage created through satellite imagery. Individual County Land Conservation Agents verified agricultural land use and general practices. Tillage practices were determined using a transect survey performed by the USDA in 1998. The STATSGO soil data coverage for the state of Wisconsin was used for soil inputs and the USGS 30-meter digital elevation model (DEM) was used to generate contours, derive average slopes, and delineate watershed boundaries. Climate data for 18 monitoring stations was obtained from the State

[7] http://www.brc.tamus.edu/swat/

Climatologist Office. Point source data was collected from WDNR permit records where available. Additional information was obtained from a survey sent to all municipal and industrial point sources within the Rock River watershed. An effluent discharge concentration of 4 mg/L[8] was assumed for phosphorus if no response was received from the permitted source.

Internally Drained Areas

During delineation and calibration of the two pilot areas (Jackson Creek at Petrie Road and Yahara River at Windsor), Earth Tech noted discrepancies between the drainage area reported by the USGS and the actual contributing area (surface water flow). The total water yield reported by the USGS is based on the total drainage area, which often includes internally drained areas. In the model, failure to properly account for these internally drained areas produces excess runoff and reduces groundwater base flow. To identify internally drained areas, Earth Tech manually verified the delineation of the pilot areas produced by AVSWAT against digital USGS quad maps and then modified the computer generated drainage boundaries as needed.

Lakes, Impoundments and Wetlands

The Rock River Basin includes many lakes, wetlands, and impoundment areas that affect the flow of water. Wetlands were modeled within SWAT based on the area of the wetlands, the volume of water necessary to fill the wetlands, contributing drainage area to the wetlands, and infiltration rate. Wetland areas were obtained from the WISCLAND coverage and infiltration rates were based on rates for hydric soils located throughout the basin. The pond subroutine was used to model small lakes and ponds. Input requirements are similar to those of the wetland routine; however, ponds were modeled using a lower infiltration rate than the wetlands. The reservoir routine was used to simulate large impoundments. Only reservoirs that significantly impact the flow of water through the watershed were included in the model. Significant reservoirs were selected based on reservoir storage, surface area, and the amount of contributing drainage area.

Point Source Phosphorus Loads

Monthly phosphorus loads from point source discharges were calculated in one of several ways. Where less than one year of data was available, the average concentration was calculated from available data and loads were calculated using the average monthly flow. Where no phosphorus data was available, the monthly phosphorus loads were calculated based on an assumed average effluent phosphorus concentration of 4.0 mg/L and the calculated average monthly flows. If a full year of phosphorus concentration data was available, those values were used with the average monthly flows to calculate an average monthly phosphorus load. If more than one year of data is available, average monthly phosphorus concentrations were calculated to determine the average monthly phosphorus loads.

Cropland Tillage Practices

A summary of tillage practices from a statewide transect survey by DATCP was used to help define agricultural management files. Percent and actual acreage of tillage practices was summarized by watershed. This data was used to generate and vary the tillage practices among watersheds. Interviews with county agents, UW-Extension, and examination of the WISCLAND coverage were used to determine and verify cropping practices.

[8] This was changed to 1 mg/L for the TMDL analysis to represent compliance with NR 217.

Crop Yields
SWAT reports annual crop yields for the simulations. Variables used to adjust crop yields for corn, soybeans, and alfalfa were adjusted so crop growth would better reflect conditions in southern Wisconsin. Crop yields were used to verify that each crop is growing properly within the model. Crop yields affect model variables including soil moisture, evapotranspiration, and available bio-mass. Predicted crop yields were compared to actual measured yields published in USDA agricultural statistics. It should also be noted that SWAT does not have an input for percent residue, rather the tillage practice is modeled as percent incorporation. The actual percent residue varies over time and SWAT models the breakdown of residue into organic matter or humus.

Urban Runoff
SWAT uses USGS regression equations to simulate the build-up and wash-off of pollutants from urban areas (Neitsch *et al*., 1999). This method was used to calculate urban loads in the original SWAT model. It was subsequently determined that SLAMM produces more accurate estimates of urban loads than SWAT. Therefore, in the TMDL analysis, urban loads from SWAT were replaced with loads calculated in SLAMM (described in detail in Section 4.2.2).

Calibration
Model calibration involves adjusting model parameters to obtain a good fit between observed and simulated values. The calibration process first focuses on stream flows, then sediment loads, and then phosphorus loads.

Stream flow was calibrated by making adjustments to surface water, groundwater, and evapotranspiration (ET) parameters. Adjustment of surface water and groundwater was made by adjustment of groundwater parameters, NRCS curve numbers, soil hydraulic conductivity and bulk density, and the crop growth routine. Adjustment of ET was made based on adjusting the ET parameters and the crop growth routine. Partitioning between groundwater and surface flow was estimated using a base-flow separation model. ET rates were based on data from the UW-Extension Agricultural Research Station at Arlington.

Stream flows were balanced first on a yearly basis looking at average annual totals, then monthly (to verify snowfall and snowmelt routines), and then daily. The primary goal of the calibration was to match annual totals. Daily calibration was conducted only to check the daily routines such as crop growth, and ET. The crop growth routine was calibrated because of its effects on ET and biomass production. The crop yields predicted by SWAT were then compared with those published in the USDA Agricultural Statistics.

Calibration proceeded from upstream to downstream. Once calibration was completed at a station, alterations were not made to the input files associated with that station to obtain a better fit at a downstream station. In addition, model parameters were not adjusted for downstream watersheds to offset errors in flow predictions.

Sediment loads were calibrated by adjusting the peak or event load and the baseflow load. The baseflow concentration was estimated using values from "Measurement and Prediction of

Sediment Yields in Wisconsin Streams" by the USGS. Parameters representing phosphorus sources and transport, except those that primarily represent soil erosion, were not modified during the calibration process.

The Nash-Sutcliffe coefficient of efficiency (COE) and regression coefficients of determination (R^2) were used to compare SWAT stream flow predictions to flows measured at 14 USGS gaging stations in the basin. WDNR, the Rock River Partnership, and Earth Tech, Inc. agreed that, based on other modeling exercises, values greater than 0.6 from either test applied to the annual flow values would be considered an acceptable fit. R^2 values tend to be higher than Nash-Sutcliffe values, because an outlying value on a single event will significantly lower the Nash-Sutcliffe coefficient while only slightly affecting the R^2 value. All but one of the 14 stations met the target performance standard (Table A-1).

Validation

Model validation involves comparing predictions made with a calibrated model to measured data not used in the calibration process. Stream flow predictions were validated at four gaging stations in the basin, on data from different time periods than the ones used for calibration (Table A-1). TSS and TP load predictions were validated on measured loads from water year 1999 (Oct. 1, 1998 – Sept. 30, 1999) at eight gaging stations in the basin (Table A-1). Modeled TSS and TP loads were generally slightly higher than measured loads in 1999. However, the overall validation results indicate that SWAT is representing the sources and transport of water and pollutants in the Rock River Basin with a degree of accuracy that is sufficient for a TMDL analysis.

Modifications to the SWAT Model for the TMDL Study

The original SWAT model divided the Rock River Basin into 7 sub-basins. These sub-basins were re-delineated for the TMDL analysis to correspond to the boundaries of impaired river reaches. The revised SWAT model maintains the same structure as the original Earth Tech/Strand Associates model, but several changes to the input files were made to accommodate the changes to the sub-basin delineations. Specifically, changes will be made to the following inputs:

- Hydrologic Response Unit (HRU) General Input (*.sub) files
- Watershed Configuration (*.fig) files
- Pond (*.pnd) files
- Main Channel Input (*.rte) files
- Control Input/Output (*.cio) files

Additional HRU General Input (*.sub) files were generated for the new subdivided watersheds. HRUs for each new sub-basin were determined using the same algorithms used in the Earth Tech/Strand Associates study to maintain consistency. The base data used to determine the crop rotation, tillage practices, and nutrient management for each HRU is the same as those used in the Earth Tech/Strand Associates study.

Watershed Configuration (*.fig) files contain information used by the SWAT model to simulate processes in the sub-basin and to route water and associated loadings. The file contains information on the number of HRUs in each sub-basin, the number of point sources, the associated hydrographs, and loadings from nonpoint sources. The model then routes loads through stream reaches and reservoirs as directed in the *.fig file. The *.fig files were reconfigured to include the additional sub-basins. Additional "route" commands were employed to compute flows at the end of each impaired reach.

Pond (*.pnd) files contain information about ponds and wetlands in each sub-basin. The Earth Tech/Strand Associates study included modifications to the SWAT code to address the impacts of internally drained areas on the hydrology of basin. These internally drained areas do not contribute to surface water flows, but can have a large impact on groundwater and water balance. The *.pnd files for subdivided basins were modified to reflect the surface area, normal volume, and filled volume of wetlands, ponds, and internally drained areas for each new sub-basin. These variables were determined by intersecting the GIS coverages for wetlands and internally drained areas with the new sub-basin delineations used in the TMDL study.

Main Channel Input (*.rte) files contain the information used to complete the hydraulic routing of streams and rivers in each sub-basin. New *.rte files were developed for the re-delineated sub-basins.

Control Input/Output (*.cio) files control the file management for each SWAT model run and contain the name of every input and output file accessed during the modeling effort. The *.cio files were updated to include the additional *.sub, *.pnd, and *.rte files associated with the modified subdivided basins. Revised *.fig files were also referenced.

Table A-1. SWAT model validation results.

Monitoring Station		Stream flow				TP (lbs/year)			TSS (tons/year)		
		Calibration		Validation		Validation (WY 1999)			Validation (WY 1999)		
Name	USGS ID	R^2	COE	R^2	COE	Predicted	Observed	Difference	Predicted	Observed	Difference
Beaver Dam R. at Beaver Dame Lake	05425912	0.73	0.44	-	-	76,522	59,483	29%	780	3,030	-74%
Turtle Creek at Carvers Rock Rd	05431486	0.72	0.55	0.80	0.48	112,076	69,250	62%	11,712	10,715	9%
Yahara River at STH 59	05430175	0.31	0.84	0.28	0.20	239,574	174,911	37%	19,118	21,880	-13%
Rock River at Horicon	05424057	-	-	-	-	181,968	317,329	-43%	33,766	28,055	20%
Crawfish River at Milford	05426000	0.65	0.37	0.81	0.68	532,401	326,506	63%	43,273	33,629	29%
Rock River at Watertown	05425500	0.77	0.42	-	-	465,175	431,304	8%	43,360	37,291	16%
Rock River at Indianford	05427570	0.75	0.58	-	-	1,413,944	955,915	48%	51,416	102,637	-50%
Rock River at Fort Atkinson	05427080	-	-	-	-	1,263,345	1,063,913	19%	120,365	116,204	4%
Rock River at Afton	05430500	0.78	0.76	-	-	-	-	-	-	-	-
Bark River near Rome	05426250	0.68	0.68	-	-	-	-	-	-	-	-
Rock River at Jefferson	05426031	0.98	0.57	-	-	-	-	-	-	-	-
Lake Delavan Outlet	05431022	0.46	0.18	-	-	-	-	-	-	-	-
S Br Rock River at Waupun	05423500	0.70	-0.32	-	-	-	-	-	-	-	-
Rock River at Hustisford	05424082	0.89	-6.46	-	-	-	-	-	-	-	-
Pheasant Branch at Middleton	05427948	0.69	0.67	-	-	-	-	-	-	-	-
Badfish Creek near Cooksville	05430150	0.24	0.94	0.03	0.10	-	-	-	-	-	-

R^2: Regression Coefficient of Determination
COE: Nash-Sutcliffe Coefficient of Efficiency
WY: Water Year (Oct. 1 – Sept. 30)

APPENDIX B. PHOSPHORUS CYCLING IN LAKES

In eutrophic lakes, there are strong seasonal patterns of phosphorus movement between the bottom sediments and the water column. To account for these patterns, the outflow concentrations of each lake deviate from the average inflow concentration by a monthly adjustment factor. The specific pattern of these dynamics differs between stratified and unstratified lakes. Both of the stratified lakes in the basin (Mendota and Monona) are immediately upstream of two unstratified lakes (Waubesa and Kegonsa). Because the dynamics of phosphorus movement in this chain of lakes is complex, a unique adjustment factor was applied to the outflow from Lake Kegonsa (Figure B-1). Phosphorus concentration data from Lake Kegonsa have been collected monthly between 1989 and 1998 by the University of Wisconsin's Long Term Ecological Research program. The outflow from the other unstratified lakes is based on the observed dynamics of Fox Lake (Figure B-1). Fox Lake is a shallow, unstratified lake in Dodge County that was consistently monitored (248 samples) for phosphorus between 1989 and 1998.

Raw monthly adjustment factors were calculated as the ratio of the average phosphorus concentration in a month to the annual average concentration. To determine the phosphorus concentration in the lake, the raw adjustment factors were multiplied by the 1989-1998 flow-weighted average phosphorus concentration in the lake's inflow that would result from the load allocations in reaches upstream of the lake. In other words, while monthly inflows and outflows may differ, the long-term inflow of phosphorus into the lake equals the long-term outflow. The outflow phosphorus concentration from a lake in each month equals the lake's concentration in that month.

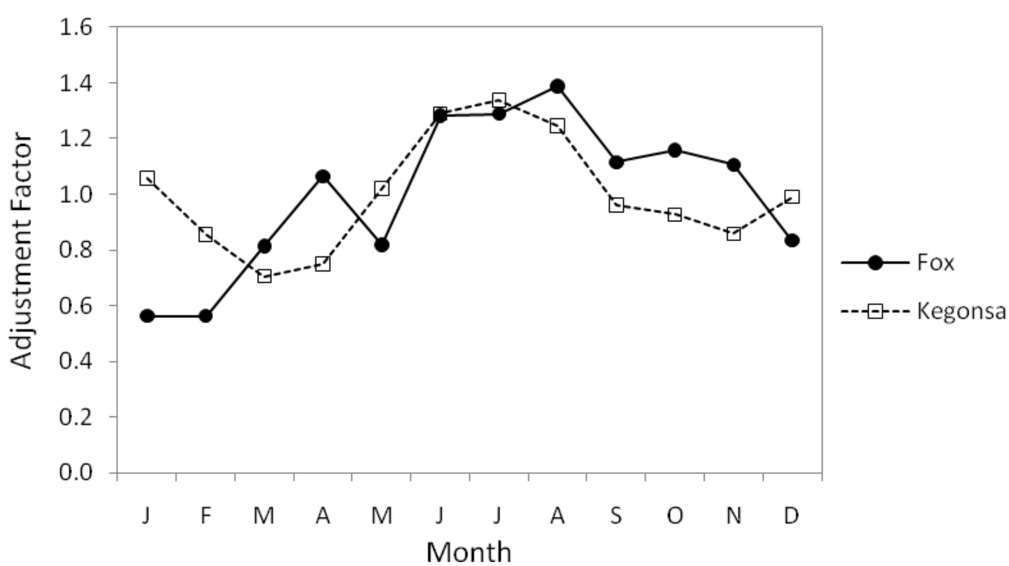
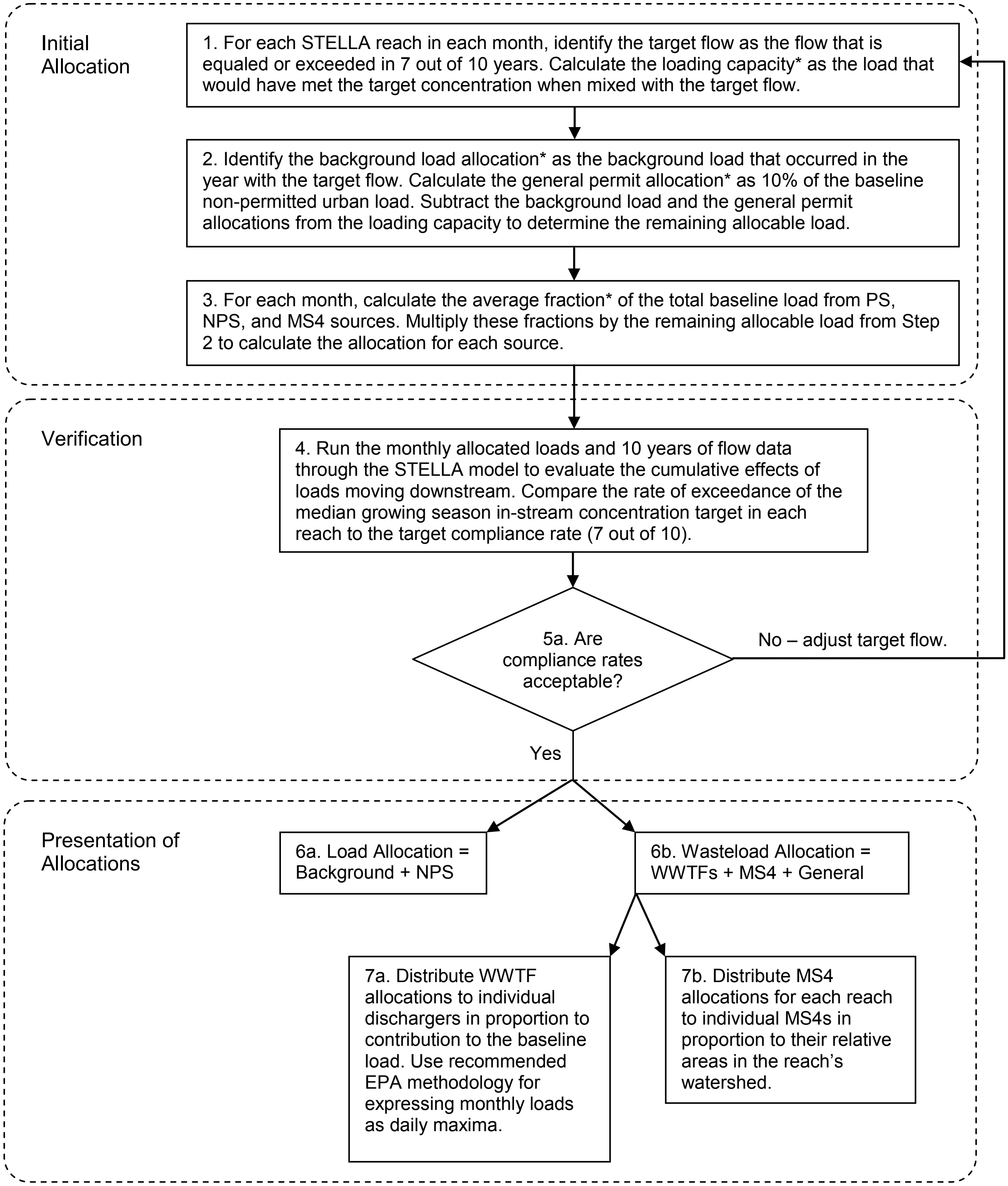


Figure B-1. Monthly adjustment factors are calculated as the ratio of the average phosphorus concentration in a month to the annual average concentration. Adjustment factors calculated for Fox Lake were also applied to Lakes Koshkonong and Sinissippi.

APPENDIX C. FLOWCHART OF LOAD ALLOCATION APPROACH



*Smoothed using 3-month moving average.

APPENDIX D. ORGANIZATIONS AND INITIATIVES THAT MAY CONTRIBUTE TO IMPLEMENTATION OF THE TMDL

Wisconsin Working Lands Initiative

The Wisconsin Working Lands Initiative was passed as a part of the state's 2009-2011 biennial budget process. The Wisconsin Working Lands Initiative can be found primarily in Chapter 91 of Wisconsin State Statutes. Main components include:

- Expand and modernize the state's existing farmland preservation program
- Establish agricultural enterprise areas (AEAs)
- Develop a purchase of agricultural conservation easement matching grant program (PACE)

The goal of the Working Lands Initiative is to achieve preservation of areas significant for current and future agricultural uses through successful implementation of these components:

- Expand and modernize the state's existing farmland preservation program
- Modernize county farmland preservation plans to meet current challenges
- Provide planning grants to reimburse counties for farmland preservation planning
- Establish new minimum zoning standards to increase local flexibility and reduce land use conflicts; local governments may apply more stringent standards
- Increase income tax credits for program participants
- Improve consistency between local plans and ordinances
- Simplify the certification process and streamline state oversight
- Ensure compliance with state soil and water conservation standards
- Collect a flat per acre conversion fee when land under farmland preservation zoning is re-zoned for other uses
- Establish agricultural enterprise areas
- Maintain large areas of contiguous land primarily in agricultural use and reduce land use conflicts
- Encourage farmers and local governments to invest in agriculture
- Provide an opportunity to enter into farmland preservation agreements to claim income tax credits
- Encourage compliance with state soil and water conservation standards
- Develop a purchase of conservation easement (PACE) grant program
- Protect farmland through voluntary programs to purchase agricultural conservation easements
- Provide up to $12 million in state grant funds in the form of matching grants to local governments and non-profit conservation organizations to purchase agricultural conservation easements from willing sellers
- Stretch state dollars by requiring grants to be matched by other funds such as federal grants, local contributions and/or private donations
- Establish a council to advise the state on pending grants and proposed easement purchases
- Consider the value of the proposed easement for preservation of agricultural productivity, conservation of agricultural resources, ability to protect or enhance waters of the state, and proximity to other protected land

- Ensure consistency of state-funded easement purchases with local plans and ordinances

Town and Country Resource Conservation and Development District

MISSION STATEMENT: To optimize opportunities for sustainable economic growth, healthy communities, and a healthy environment in the Town and Country RC&D area (includes all of the Rock River Basin counties) through the support and coordination of our region's agencies, municipalities and organizations.

VISION STATEMENT: The Town and Country RC&D will facilitate the development and coordination of existing and innovative projects, and will assist in finding funding to implement them. Our efforts will help the region become a place where rural areas and urban centers are able to thrive and support each other to enhance the region's economy, environment and quality of life.

PURPOSE: The purpose of Town and Country RC&D is to fulfill our mission and vision by:
- Networking and connecting with organizations and individuals.
- Helping organizations and individuals find resources to address issues by:
    - Building partnerships
    - Leading, collaborating, implementing, and endorsing projects

Goal 1: Promote comprehensive planning for an economically, socially, and environmentally sustainable Town and Country RC&D Area.

Goal 2: Promote a strong, sustainable agriculture community for the benefit of the local economy, farming business, the environment and for the protection of our food sources.

Goal 3: Working in partnership with other agencies, organizations and individuals, accomplish 10 sustainable energy, habitat protection, enhancement, or restoration activities within the Town and Country RC&D area, resulting in improvement of the area's natural resources and heightened citizen awareness and action by 2012.

Goal 4: Promote understanding and cooperation between rural and urban populations.

Rock River Coalition

The Rock River Coalition (RRC), a non-profit group founded in 1994, is dedicated to preserving and improving Rock River Basin resources. All of our funding is self-generated. The Coalition exists through the annual financial support from members, donors and partners.

As a basin-wide organization, the RRC is uniquely situated to effectively work on complex basin issues. We bring together people with different ideas in order to make positive steps through issue teams.

The RRC's priorities are guided by its member's interests. The RRC is actively interested in protecting our natural resources, open spaces and agriculture; promoting tourism and outdoor recreation; preserving the historical and cultural character of the basin; and promoting riverfront revitalization. But, it takes people to join us as a member or volunteer to make it happen!

In order to assist groups of people interested in working in localized areas of the basin, but who aren't ready to develop their own organizations, the RRC offers the ability to form chapters. A RRC Chapter is a non-incorporated group of individuals working towards improving the environmental, economic, cultural or recreational resources within a specific area or watershed in the Basin. Individuals who form chapters gain the ability to make a local difference, while being part of a well-recognized non-profit and receive administrative support and other benefits. The first RRC chapter is the Friends of Badfish Creek Watershed.

River Alliance of Wisconsin

Core Principles

- We advocate respectively but assertively for rivers.
- We bring people to rivers so they experience their beauty and understand their threats.
- We partner with, when appropriate, and challenge, when necessary, the government agencies entrusted with protecting rivers.
- We develop the ability of ordinary citizens and grassroots groups to organize their passion for rivers.

Programs

- Restore rivers through on-the-ground projects with local groups and citizens.
- Protect rivers by advocating for state and local policies that support rivers, and challenging those that degrade them.
- Support local river and watershed organizations and encourage local river conservation and advocacy.
- Offer trainings and technical assistance to local groups on fund raising, strategic planning, and issue advocacy.

Wisconsin Association of Lakes

The Wisconsin Association of Lakes (WAL) is the only statewide organization working exclusively to protect and enhance the quality of Wisconsin's 15,000 inland lakes. The Wisconsin Association of Lakes is a nonprofit group of citizens, organizations, and businesses working for clean, safe, healthy lakes for everyone.

To accomplish this mission, we:

- Assist lake groups and lake users in their efforts to carry out our mission
- Help local leaders manage and restore lakes and their watersheds
- Provide a unified voice for public policy that will protect and preserve lakes
- Advance public knowledge of lakes, their watersheds, and ecosystems

We work so future Wisconsinites will continue to have the right to boat, fish, swim, and enjoy the natural scenic beauty of our special lakes.

- Our goal is to develop a network of informed lake citizens with the know-how and motivation to become highly active in statewide lake issues

- Our goal is to develop a strong base of lake organizations active in local and county government decision making
- Our goal is to help communities build a set of common goals, and create local partnerships to implement lake protection programs

Delavan Watershed Initiative 2030

The Delavan Lake Sanitary District (DLSD) and the Kettle Moraine Land Trust (KMLT) launched a collaborative watershed improvement and mitigation project for Delavan Lake - the Delavan Watershed Initiative 2030. This multi-year partnership is aimed at reducing the contaminated runoff entering Delavan Lake.

Over 20 years ago a group of dedicated lake advocates from local, State and Federal organizations and agencies came together to accomplish a major rehabilitation project for Delavan Lake. Upon the completion of this $7 million project, the commitment was made to put major effort into addressing the source of pollutants and sediments, which were and are degrading the lake. The Delavan WIN 2030 project represents that commitment.

Many groups in the Delavan Lake community have recognized that until pollution coming into the lake is addressed at its source, we will be continuing to treat symptoms rather than working toward a sustainable cure. The DLSD understands the challenge, and decided to take the lead in contracting with KMLT to launch this watershed project.

The work ahead will require strong alliances among those interested in the health and beauty of Delavan Lake. The DLSD and KMLT will be actively soliciting engagement from the municipalities and citizens within the watershed.

This watershed project will involve identification of watershed pollution sources, education about the range of potential solutions, and bringing land owners, tenants, and funding sources to the table to implement those solutions.

The DLSD, in its role managing sewage in the Delavan Lake watershed, has recognized the need to shift toward a watershed view of managing lake pollution. The KMLT, through its merger with the Walworth County Land Conservancy, is the owner and caretaker of Jackson Creek Reserve, a critical parcel protecting a major tributary of Delavan Lake. KMLT also holds numerous easements in the area, and is an experienced organization in private land conservation.

About the Delavan Lake Sanitary District: The mission of the Delavan Lake Sanitary District is to operate, maintain and upgrade the sanitary sewer collection system; to continue with current aquatic plant management activities; and to build alliances with select partners to implement successful lake management practices.

About the Kettle Moraine Land Trust: The Kettle Moraine Land Trust's mission is to preserve the natural heritage of the southern Kettle Moraine lakes area and nearby lands through partnerships in land conservancy and resource management.

Yahara CLEAN

Yahara CLEAN is a Memorandum of Understanding between the City of Madison, Dane County, and the Department of Natural Resources and Agriculture, Trade and Consumer Protection to improve water quality of the Yahara chain of lakes - Mendota, Monona, Waubesa, Kegonsa and Wingra. Nine beaches were initially listed on the state's 303(d) Impaired Waters List, but three were removed based on further data review, and the lakes were not listed.

The MOU has six components:

1. Develop a community vision
2. Assess the nutrient sediment loading
3. Assess the beach bacteria issues
4. Develop achievable goals
5. Develop recommendations to address the issues
6. Public advisory and communication

Three advisory groups were created - Visioning, Sediment and Nutrient, and Beach Bacteria made up of volunteers include community leaders, UW professors, consultants, state and local land and water staff, friends group's representatives, etc.

A consultant was hired and completed a SWAT model for the 411 sq. mile watershed and a graduate student completed SNAP Plus for a sub-watershed that was found to be one of the heaviest loading tributaries in the SWAT model. A lake response model is underway to determine the load reductions needed to maintain a mesotrophic state - greater than 2-meter Secchi disk reading or surface water total phosphorus less than 0.024 mg/L. A UW graduate statistics class analyzed beach data to determine important factors for each beach. Also, EPA's Annual Sanitary Surveys were completed.

The final report and recommendations are expected in August, 2010.

South/West Branch Rock River Watershed Initiative

The Horicon National Wildlife Refuge Comprehensive Management Plan identified nutrient and sediment pollution as significant threats impacting the quality of habitat and management capabilities for the refuge. In collaboration with the National Fish and Wildlife Foundation, USEPA., NRCS, WDNR and Fond du Lac County Land and Water Conservation Department initiated a cooperative project to address agricultural non-point source pollutants entering the marsh from South and West Branches of the Rock River, the primary tributaries feeding the Horicon Marsh.

County LWCD's have identified the lack of staff to work one on one with agricultural landowners as one of the greatest impediments to their ability to effectively address agriculture runoff pollution. The U.S. Fish and Wildlife Service is providing funding to the LWCD to hire a staff person to concentrate efforts to contact agricultural landowners in the focused watersheds to promote the installation of land management practices to address phosphorus and sediment runoff to the marsh. An NFWF grant is providing additional incentive funding that can be added on to

NRCS EQIP and WHIP to encourage project participation. Contact has been made with every farm landowner in the watershed resulting in an impressive number of farms signed up for practice installation, particularly streambank buffers and nutrient management planning. The project is now beginning to move southward into Dodge County to begin contacting landowners in sub-watersheds that drain to the refuge.

Rock River Coalition Water Quality Monitoring Project

In 1999-2000 the Horicon Marsh Area Coalition sponsored a cooperative project with WDNR and U.S. Geological Survey to measure and document phosphorus and sediment loading to the Horicon Marsh from each of the major tributaries to the marsh. The study documented excessive pollutant loading that was severely impacting the marsh quality. This study was done prior to the required NR 217 reduction of point source phosphorus.

In 2009 the Rock River Coalition obtained WDNR River Implementation Grants, supplemented by a U.S. Geological Survey and U.S. Fish and Wildlife Service funding match, to repeat the monitoring study to document changes in water quality due to NR217 requirements and to provide a baseline against which to measure non-point source reduction due to the watershed initiative discussed above. This two year study is being coordinated by USGS and WDNR. At this time the study is nearing completion of the first year of monitoring. Data analysis has not been conducted at this time, but preliminary observation of the monitoring results indicate there has been significant reduction of the phosphorus level in the South and West Branch of the Rock.

Water Star Communities Program

Water Star Communities (presently administered by University Wisconsin Extension) is a new program developed to recognize, reward and inspire communities to conduct activities that protect or restore water quality in their community. Communities of all sizes, including cities, counties, villages and towns, can become Water Star Communities. Depending on the actions it is taking, a Water Star Community may be designated a Bronze, Silver or Gold Water Star Community.

A comprehensive listing of more than 275 actions has been developed by more than 200 professionals across Wisconsin. Each action has been examined for its impact on water resources and designated as Critical, Important or Enhancement. This ranking can be found in the success story/rationale that will be developed for each action. Each action is also given points based on the amount of energy, resources and effort needed to accomplish it, on a scale of 1 - 10. The application allows communities to only answer questions applicable to their size and context. A community not on a river or lake, for example, will not be asked questions about piers, or a town with county zoning won't be asked land use questions.

Water Star designations are based on the percentage of available application points earned. Municipalities that have earned 40% of the possible points available are designated Bronze Star Communities, those earning 50% Silver and those earning 65% Gold. Considering the depth and breadth of these questions, it will be a challenge to receive even the bronze star level. Generally a bronze star community is doing a great job in at least one area, such as stormwater, groundwater or land use. Achieving a gold star level is truly a sign of an exemplary all around program.

Each successful applicant will receive a street sign identifying it as a Water Star Community. During the first year this sign will also identify the community as a Charter Member. It will also receive a plaque for its municipal building and can post the designation on its website and in printed materials. Once a municipality has been designated a Water Star Community it will need to be recertified every three years.

The program is comprehensive and includes surface water, groundwater, habitat, and health & recreation and crosses all areas of municipal life and includes:

- Planning and zoning
- Physical improvements to land, shorelines and buildings
- Municipal ordinances and policies
- Municipal operations
- Educational offerings
- Community incentives and programs

APPENDIX E. POTENTIALLY RESTORABLE WETLANDS ANALYSIS

The Rock River Basin had about 632,297 acres of wetlands before European settlement. Of those, 270,667 acres, or 42.8%, have been lost due to agricultural, residential and transportation development. The analysis described below estimates that 87.6% of the lost wetland acres in the Rock River Basin have some potential to be restored.

The potentially restorable wetland (PRW) map was produced through a USEPA Wetland Grant to WDNR. A PRW can be defined as a lost wetland (based on the presence of hydric soils where wetlands no longer exist) that has a current land use compatible with restoration (i.e., non-urban land uses). This definition is based on the assumptions that hydric soils indicate a site that is or was once under saturated conditions (a wetland or water body) and that wetland restoration is not feasible in urban areas. The analysis is conducted through an overlay analysis using standard GIS techniques and available spatial data layers including land use, the Wisconsin Wetlands Inventory (WWI), and hydric soils from the NRCS SSURGO soils data. The land use layer was the 2006 NASS (National Agriculture Statistics Service) layer, which combines annual crop cover classes with non-agricultural land cover taken from the 2001 National Land Cover Dataset. Any wetland restorations that have already been documented through the WRP or the Wisconsin Wetlands Restoration Tracking Database (WRTD) were removed from the PRW analysis.

The area of potentially restorable wetlands in the Rock River Basin is summarized by sub-basin in Table E-1. In addition, two metrics, "Wetland Restoration Relative Need" and "Wetland Restoration Relative Potential Opportunity," were developed to prioritize efforts among sub-basins in implementing wetland restoration as a TMDL tool.

Relative Need is a landscape scale relative measure of the degree to which wetland restoration in a sub-basin has the potential to make an improvement in wetland functions, such as flood storage, water quality and habitat. Relative Need reflects both the relative amount of wetlands lost and the prevalence of original (pre-settlement) wetlands. It is expressed as the ratio of lost wetland acres to remaining wetland acres, multiplied by the percent of the sub-basin that was originally wetland. Note that some of the lost acres have recently been restored through federal, state and non-profit partnerships, and are not yet reflected in the land cover dataset used for this analysis. Figure E-1 is a map of Relative Need across the basin.

Relative Potential Opportunity is based on Relative Need, but only counts lost wetlands that are not currently in urban use (i.e., not restorable).

SWAT was used to model potential TSS and TP reduction that could be achieved through various levels of wetland restoration. In the model, 20, 40, 60, and 80% of the potentially restorable wetland area in each sub-basin was converted from its current use (agriculture) to wetland. Potential pollutant reductions are reported in Tables E-2 and E-3 as both mass and percent reductions from modeled current levels.

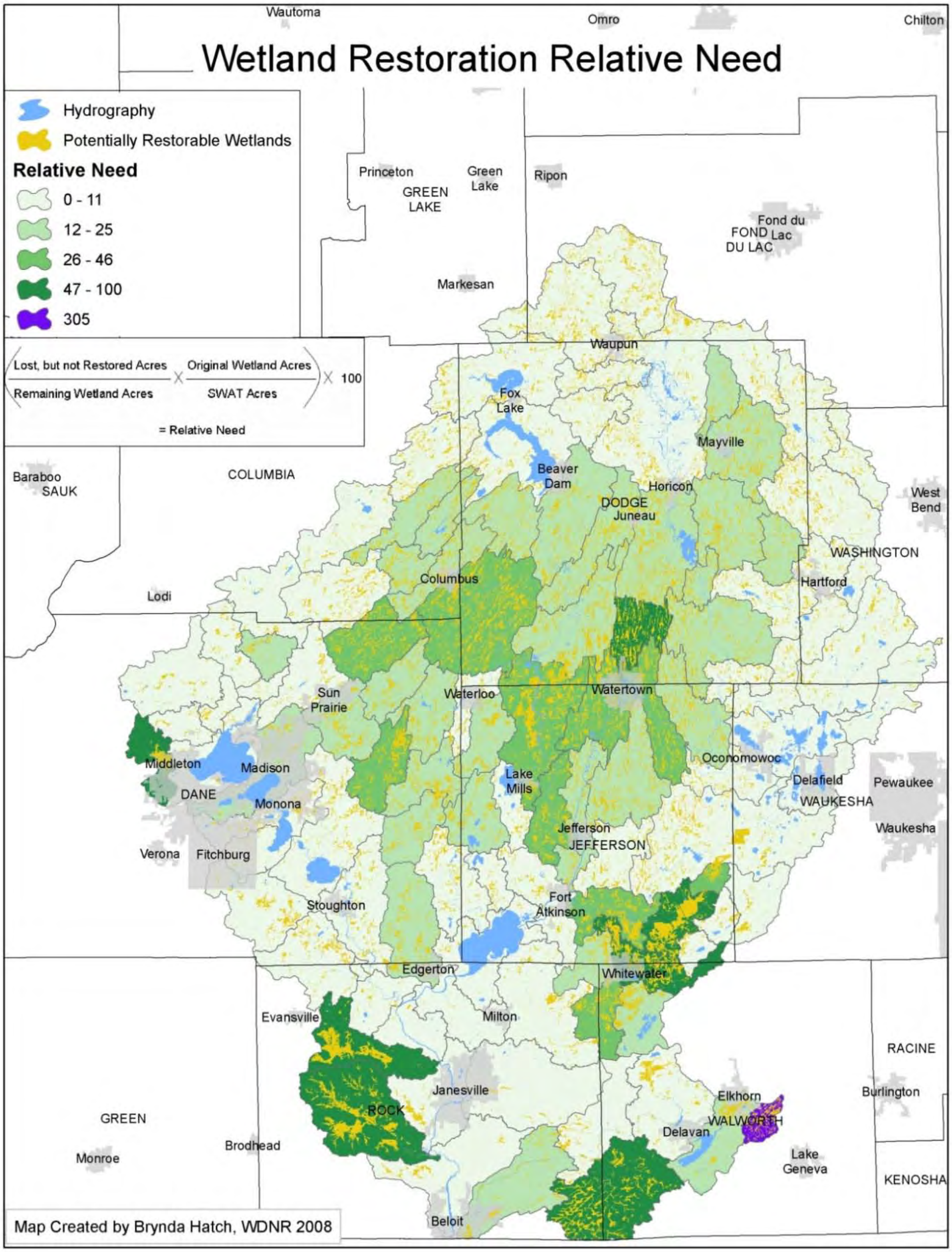


Figure E-1. Map of "Wetland Restoration Relative Need" in the Rock River Basin. Relative Need is expressed as the ratio of lost wetland acres to remaining wetland acres, multiplied by the percent of the sub-basin that was original wetland.

Table E-1. Summary of Potentially Restorable Wetlands in Rock River Basin. See Figure F-1 for sub-basin locations.

Sub-basin ID	Restorable Wetlands (acres)
AFT01	120
AFT02	4449
AFT03	171
AFT03b	166
AFT04	6056
AFT04b	1010
AFT05	748
AFT06	82
AFT06b	821
AFT07	329
AFT08	989
AFT09	2490
AFT10	1572
AFT11	1757
AFT12	380
AFT13	1741
AFT14	88
L0101	1542
L0102	1023
L0102b	41
L0103	1521
L0104	1406
L0105	2058
L0106	6124
L0601	292
L0602	1996
L0603	1472
L0701	39
L0702	1619
L0703	1719
L0801	549

Sub-basin ID	Restorable Wetlands (acres)
L1005	595
L1201	2159
L1202	3090
L1203	2019
L1204	1687
L1301	3717
L1302	82
L1303	378
L1304	5477
L1304b	293
L1401	2461
L1402	1213
L1403	1992
L1404	2137
L1501	4201
L1501b	1035
L1501c	252
L1502	667
L1502b	0
L1503	444
L1504	755
L1505	1809
L1506	424
U0101	1358
U0102	532
U0103	4177
U0104	3783
U0105	1392
U0106	2413
U0107	9083
U0108	458

Sub-basin ID	Restorable Wetlands (acres)
U0501b	661
U0502	4423
U0503	1593
U0504	1744
U0505	2038
U0601	1353
U0602	1597
U0603	2376
U0604	759
U0605	2491
U0606	1969
U0801	3312
U0802	3083
U0803	812
U0804	1335
U0805	1583
U0805b	4072
U0806	3553
U0807	1007
U0808	4294
U0809	3679
U0901	861
U0901b	159
U0902	246
U0903	1091
U0903b	165
U0903c	329
U1101	1087
U1102	865
U1103	1693
U1104	163

Sub-basin ID	Restorable Wetlands (acres)
L0801b	297
L0802	180
L0803	581
L0803b	66
L0901	396
L0902	744
L0903	506
L0904	123
L0905	823
L0906	88
L1001	273
L1002	284
L1003	111
L1003b	35
L1004	801

Sub-basin ID	Restorable Wetlands (acres)
U0109	8530
U0109b	2032
U0301	2433
U0302	3211
U0302b	1593
U0302c	840
U0303	1732
U0304	1647
U0304b	598
U0305	2066
U0306	3912
U0307	2374
U0307b	432
U0307c	247
U0501	89

Sub-basin ID	Restorable Wetlands (acres)
U1201	4784
U1201b	36
U1202	844
U1203	1028
U1204	3416
U1205	3071
U1301	132
U1301b	401
U1301c	170
U1302	1688
U1302b	25
U1303	1871
U1303b	957
U1304	644
U1304b	44
U1305	1092
U1306	3614

Table E-2: Sediment Load and Percent Reduction by Sub-basin Following 20%, 40%, 60%, and 80% Wetland Restoration. See Figure F-1 for sub-basin locations.

Sub-basin	Total Load (tons) Reduction 20%	Total Load (tons) Reduction 40%	Total Load (tons) Reduction 60%	Total Load (tons) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
AFT01	43.53	99.41	168.51	231.21	3%	6%	10%	14%
AFT02	1271.06	1681.11	1913.08	2068.52	47%	62%	71%	77%
AFT03	144.59	296.69	512.30	713.09	3%	5%	9%	13%
AFT03b	95.03	120.60	214.19	310.68	3%	4%	7%	10%
AFT04	2157.30	2873.85	3281.98	3556.95	46%	61%	70%	75%
AFT04b	1736.83	2484.76	2934.82	3250.50	34%	49%	58%	64%
AFT05	313.87	696.22	989.64	1222.09	7%	16%	23%	28%
AFT06	100.79	48.59	69.93	105.30	5%	3%	4%	6%
AFT06b	1043.65	1456.49	1700.71	1869.99	38%	53%	62%	68%
AFT07	21.94	47.52	66.86	82.08	8%	17%	24%	29%
AFT08	41.76	67.12	83.43	95.36	22%	35%	44%	50%
AFT09	44.63	64.90	77.23	85.94	32%	47%	56%	62%
AFT10	43.45	65.68	79.51	89.43	28%	42%	51%	57%
AFT11	70.62	117.24	147.75	170.24	20%	32%	41%	47%
AFT12	34.92	56.14	69.80	79.78	22%	35%	44%	50%
AFT13	122.21	173.11	203.53	224.77	36%	51%	60%	66%
AFT14	40.74	21.92	33.55	50.60	5%	3%	4%	6%
L0101	841.69	1377.95	1726.30	1982.17	21%	34%	42%	48%
L0102	387.86	564.51	671.99	747.94	32%	47%	56%	62%
L0102b	28.99	10.84	11.81	17.05	7%	3%	3%	4%
L0103	163.55	205.77	228.29	242.65	57%	72%	80%	85%
L0104	199.69	299.75	361.76	406.10	28%	43%	52%	58%
L0105	106.74	164.39	200.64	226.78	26%	40%	48%	55%
L0106	2613.86	3565.17	4118.17	4496.60	42%	57%	65%	71%
L0601	134.82	288.72	404.15	494.78	8%	17%	24%	30%
L0602	696.60	1099.69	1356.59	1543.30	23%	37%	46%	52%
L0603	371.55	614.42	773.00	889.81	20%	33%	41%	47%
L0701	7.86	14.82	19.68	23.38	12%	24%	31%	37%

Sub-basin	Total Load (tons) Reduction 20%	Total Load (tons) Reduction 40%	Total Load (tons) Reduction 60%	Total Load (tons) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
L0702	352.55	550.72	676.30	767.28	24%	38%	47%	53%
L0703	463.99	733.43	905.27	1030.21	23%	37%	46%	52%
L0801	79.30	122.10	149.01	168.42	26%	40%	48%	55%
L0801b	23.00	41.41	53.97	63.42	15%	26%	34%	40%
L0802	69.04	162.50	237.49	297.91	6%	14%	20%	25%
L0803	106.47	206.17	276.78	330.88	11%	22%	30%	35%
L0803b	2.52	6.38	10.45	14.02	3%	7%	12%	16%
L0901	123.77	178.21	211.11	234.24	33%	48%	57%	63%
L0902	440.60	766.08	984.11	1146.82	17%	29%	37%	43%
L0903	65.77	84.24	94.32	100.89	53%	68%	77%	82%
L0904	119.24	274.55	464.52	636.52	3%	6%	10%	14%
L0905	239.63	354.66	425.37	475.66	30%	44%	53%	60%
L0906	176.15	98.13	152.58	230.10	5%	3%	4%	6%
L1001	20.70	33.61	41.96	48.07	21%	34%	43%	49%
L1002	92.67	173.75	230.20	273.11	13%	24%	32%	38%
L1003	3.88	9.62	15.91	21.47	3%	7%	12%	16%
L1003b	57.86	149.07	231.96	301.58	4%	10%	15%	20%
L1004	675.60	1074.47	1329.68	1515.58	23%	36%	45%	51%
L1005	375.16	804.69	1127.20	1380.48	8%	17%	24%	30%
L1201	664.19	900.14	1036.58	1129.57	43%	58%	67%	73%
L1202	512.79	673.84	764.36	824.71	48%	63%	72%	78%
L1203	542.13	770.64	907.56	1003.32	35%	50%	59%	65%
L1204	880.69	1244.59	1461.77	1613.24	36%	51%	60%	66%
L1301	122.33	159.38	180.01	193.67	50%	65%	73%	79%
L1302	9.47	9.62	16.95	24.94	3%	3%	6%	9%
L1303	122.68	260.38	363.09	443.55	8%	18%	25%	30%
L1304	499.22	682.31	788.92	861.96	41%	56%	65%	71%
L1304b	15.20	37.34	55.87	71.02	5%	12%	18%	23%
L1401	110.91	143.73	161.90	173.87	51%	66%	74%	80%
L1402	181.71	260.38	307.77	341.04	34%	49%	58%	64%
L1403	166.78	230.02	267.10	292.64	40%	55%	64%	70%

Sub-basin	Total Load (tons) Reduction 20%	Total Load (tons) Reduction 40%	Total Load (tons) Reduction 60%	Total Load (tons) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
L1404	71.27	95.36	109.13	118.43	45%	60%	69%	75%
L1501	0.90	1.13	1.25	1.32	59%	73%	81%	86%
L1501b	428.86	532.43	586.56	620.43	60%	75%	82%	87%
L1501c	25.92	31.51	34.33	36.03	65%	79%	86%	90%
L1502	44.29	70.96	88.08	100.59	22%	36%	44%	50%
L1502b	0.00	0.00	0.00	0.00	0%	0%	0%	0%
L1503	191.58	302.42	373.05	424.38	23%	37%	46%	52%
L1504	92.49	124.18	142.36	154.68	44%	59%	68%	74%
L1505	318.33	425.00	485.88	526.96	45%	60%	69%	75%
L1506	105.83	157.61	189.55	212.32	29%	44%	53%	59%
U0101	51.00	74.46	88.77	98.89	32%	46%	55%	61%
U0102	129.34	178.41	207.18	227.01	40%	55%	64%	70%
U0103	322.08	438.01	505.25	551.17	42%	57%	66%	72%
U0104	870.81	1168.34	1338.90	1454.38	44%	60%	68%	74%
U0105	231.38	332.04	392.74	435.37	34%	49%	58%	64%
U0106	323.65	446.17	517.99	567.45	40%	55%	64%	70%
U0107	595.03	766.69	861.13	922.98	52%	67%	76%	81%
U0108	91.24	141.88	173.89	197.04	25%	39%	47%	54%
U0109	375.07	495.07	562.83	608.16	47%	63%	71%	77%
U0109b	264.99	348.40	395.31	426.59	48%	63%	72%	78%
U0301	174.80	241.15	280.06	306.87	40%	55%	64%	70%
U0302	162.20	207.10	231.53	247.38	54%	69%	77%	82%
U0302b	273.81	368.70	423.27	460.31	44%	59%	68%	74%
U0302c	317.12	434.85	503.57	550.75	41%	56%	65%	71%
U0303	80.88	129.54	160.79	183.60	22%	36%	44%	51%
U0304	137.07	215.34	265.10	301.20	24%	38%	46%	53%
U0304b	70.32	105.41	127.14	142.67	29%	43%	52%	58%
U0305	186.12	267.54	316.69	351.24	34%	48%	57%	64%
U0306	445.73	601.09	690.55	751.33	44%	59%	67%	73%
U0307	270.07	391.68	465.50	517.58	33%	47%	56%	62%
U0307b	98.73	136.23	158.23	173.39	40%	55%	64%	70%

Sub-basin	Total Load (tons) Reduction 20%	Total Load (tons) Reduction 40%	Total Load (tons) Reduction 60%	Total Load (tons) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
U0307c	75.78	105.72	123.43	135.70	38%	53%	62%	68%
U0501	28.85	74.83	118.62	155.89	3%	9%	14%	19%
U0501b	325.32	395.61	430.99	452.37	65%	79%	86%	90%
U0502	806.53	1078.88	1234.59	1339.80	45%	60%	69%	75%
U0503	845.26	1192.48	1399.45	1543.69	36%	51%	60%	66%
U0504	237.33	330.08	384.80	422.67	38%	53%	62%	68%
U0505	1010.26	1433.65	1687.05	1864.13	35%	50%	59%	65%
U0601	304.43	426.94	499.67	550.21	37%	52%	61%	67%
U0602	221.04	298.88	343.80	374.38	43%	58%	67%	73%
U0603	451.93	609.63	700.45	762.18	43%	59%	67%	73%
U0604	97.44	179.98	237.00	280.19	13%	25%	33%	39%
U0605	340.90	497.55	593.03	660.57	32%	46%	55%	61%
U0606	461.88	648.86	759.99	837.28	37%	52%	61%	67%
U0801	648.63	858.18	976.76	1056.25	47%	62%	71%	76%
U0802	416.67	568.28	656.41	716.72	42%	57%	65%	72%
U0803	136.71	199.59	237.93	265.04	32%	46%	55%	61%
U0804	101.68	163.35	203.02	232.00	22%	35%	44%	50%
U0805	48.46	65.41	75.18	81.83	43%	58%	67%	73%
U0805b	105.33	138.10	156.48	168.71	49%	64%	72%	78%
U0806	2950.04	4194.47	4940.25	5461.89	35%	50%	59%	65%
U0807	190.61	254.38	290.76	315.30	45%	61%	69%	75%
U0808	1181.53	1641.38	1912.50	2099.97	39%	54%	63%	69%
U0809	354.49	479.18	551.12	600.08	43%	58%	67%	73%
U0901	15.08	21.52	25.40	28.11	35%	49%	58%	65%
U0901b	29.83	54.36	71.19	83.89	14%	26%	33%	39%
U0902	21.11	52.79	79.89	102.21	5%	11%	17%	22%
U0903	336.18	605.80	789.72	928.21	15%	26%	34%	40%
U0903b	167.20	285.58	364.16	422.55	18%	30%	38%	45%
U0903c	536.55	824.32	1005.03	1135.25	26%	40%	49%	55%
U1101	880.63	1315.77	1584.74	1776.71	29%	43%	52%	58%
U1102	367.24	569.37	696.94	789.13	25%	39%	48%	54%

Sub-basin	Total Load (tons) Reduction 20%	Total Load (tons) Reduction 40%	Total Load (tons) Reduction 60%	Total Load (tons) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
U1103	78.98	117.05	140.47	157.13	30%	44%	53%	59%
U1104	184.06	350.97	468.22	557.72	12%	23%	31%	36%
U1201	36.65	52.57	62.17	68.91	34%	49%	58%	64%
U1201b	6.00	8.75	10.43	11.61	32%	46%	55%	62%
U1202	77.13	119.97	147.05	166.65	25%	39%	47%	54%
U1203	76.51	108.91	128.35	141.96	35%	50%	59%	65%
U1204	416.19	615.36	737.71	824.70	30%	45%	53%	60%
U1205	173.54	249.51	295.38	327.63	34%	48%	57%	64%
U1301	101.13	166.51	209.11	240.44	20%	33%	42%	48%
U1301b	140.38	188.58	216.24	234.99	44%	59%	68%	74%
U1301c	111.81	232.41	321.26	390.50	9%	19%	26%	31%
U1302	428.18	642.36	775.07	869.92	29%	43%	52%	58%
U1302b	1.28	1.88	2.26	2.52	30%	45%	54%	60%
U1303	451.13	687.37	835.04	941.15	27%	41%	50%	56%
U1303b	307.46	449.87	536.79	598.34	31%	46%	55%	61%
U1304	558.55	907.74	1133.71	1299.34	21%	34%	43%	49%
U1304b	100.89	152.31	184.29	207.19	28%	42%	51%	57%
U1305	226.02	373.53	469.81	540.71	20%	33%	41%	47%
U1306	1529.47	2155.80	2528.92	2788.83	36%	51%	60%	66%

Table E-3: Phosphorus Load and Percent Reduction by Sub-basin Following 20%, 40%, 60%, and 80% Wetland Restoration. See Figure F-1 for sub-basin locations.

Sub-basin	Total Load (lb) Reduction 20%	Total Load (lb) Reduction 40%	Total Load (lb) Reduction 60%	Total Load (lb) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
AFT01	200	458	776	1064	2%	5%	8%	11%
AFT02	5037	6661	7581	8197	38%	50%	57%	61%
AFT03	690	1415	2444	3401	2%	4%	7%	10%
AFT03b	491	623	1107	1606	2%	3%	5%	8%
AFT04	11005	14661	16743	18146	37%	49%	56%	60%
AFT04b	7789	11144	13162	14578	27%	39%	46%	51%
AFT05	1390	3083	4383	5412	6%	13%	18%	22%
AFT06	417	201	289	436	4%	2%	3%	5%
AFT06b	4226	5897	6886	7572	30%	42%	49%	54%
AFT07	137	298	419	514	6%	14%	19%	23%
AFT08	297	478	594	679	18%	28%	35%	40%
AFT09	603	877	1044	1162	26%	37%	45%	50%
AFT10	409	619	749	843	22%	33%	41%	46%
AFT11	617	1024	1290	1487	16%	26%	33%	38%
AFT12	184	295	367	419	18%	28%	35%	40%
AFT13	832	1179	1386	1531	29%	40%	48%	53%
AFT14	207	111	170	257	4%	2%	3%	5%
L0101	3439	5630	7053	8098	16%	27%	34%	39%
L0102	1882	2740	3261	3630	26%	37%	44%	49%
L0102b	158	59	64	93	6%	2%	2%	3%
L0103	754	949	1052	1119	46%	58%	64%	68%
L0104	1113	1671	2017	2264	23%	34%	41%	46%
L0105	765	1178	1438	1626	21%	32%	39%	44%
L0106	12039	16421	18968	20711	33%	45%	52%	57%
L0601	644	1378	1930	2362	7%	14%	19%	24%
L0602	3480	5494	6777	7710	19%	30%	37%	42%
L0603	1955	3233	4067	4682	16%	26%	33%	38%
L0701	25	48	64	76	10%	19%	25%	30%

Sub-basin	Total Load (lb) Reduction 20%	Total Load (lb) Reduction 40%	Total Load (lb) Reduction 60%	Total Load (lb) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
L0702	1872	2925	3592	4075	20%	31%	37%	43%
L0703	2226	3518	4342	4942	19%	30%	36%	42%
L0801	396	610	744	841	21%	32%	39%	44%
L0801b	137	247	321	378	12%	21%	27%	32%
L0802	339	798	1166	1463	5%	11%	16%	20%
L0803	422	818	1098	1312	9%	18%	24%	28%
L0803b	16	41	68	91	2%	6%	10%	13%
L0901	700	1008	1194	1325	27%	39%	46%	51%
L0902	2338	4065	5222	6086	13%	23%	30%	34%
L0903	332	425	476	509	43%	55%	61%	66%
L0904	600	1382	2339	3205	2%	5%	8%	11%
L0905	1367	2023	2427	2714	24%	36%	43%	48%
L0906	918	511	795	1199	4%	2%	3%	5%
L1001	166	270	337	386	17%	27%	34%	39%
L1002	509	954	1265	1500	10%	19%	25%	30%
L1003	22	55	91	123	2%	6%	9%	13%
L1003b	228	586	913	1186	3%	8%	12%	16%
L1004	3036	4828	5975	6810	18%	29%	36%	41%
L1005	1963	4210	5898	7223	6%	14%	19%	24%
L1201	3344	4532	5218	5687	34%	46%	53%	58%
L1202	2647	3478	3945	4257	39%	51%	58%	62%
L1203	2637	3748	4414	4880	28%	40%	47%	52%
L1204	4014	5673	6663	7353	29%	41%	48%	53%
L1301	1001	1304	1473	1584	40%	52%	59%	63%
L1302	68	69	122	179	3%	3%	5%	7%
L1303	669	1420	1980	2419	7%	14%	20%	24%
L1304	3387	4629	5352	5847	33%	45%	52%	57%
L1304b	111	274	409	520	4%	10%	15%	18%
L1401	736	954	1074	1154	41%	53%	60%	64%
L1402	1046	1499	1771	1963	27%	39%	46%	51%
L1403	1154	1592	1848	2025	32%	44%	51%	56%

Sub-basin	Total Load (lb) Reduction 20%	Total Load (lb) Reduction 40%	Total Load (lb) Reduction 60%	Total Load (lb) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
L1404	636	850	973	1056	36%	48%	55%	60%
L1501	380	475	526	557	47%	59%	65%	69%
L1501b	3003	3729	4108	4345	48%	60%	66%	70%
L1501c	182	221	241	253	52%	63%	69%	72%
L1502	267	428	532	607	18%	28%	35%	40%
L1502b	0	0	0	0	0%	0%	0%	0%
L1503	818	1291	1592	1812	19%	30%	37%	42%
L1504	539	724	830	902	35%	48%	55%	59%
L1505	1590	2123	2427	2632	36%	48%	55%	60%
L1506	455	678	816	914	23%	35%	42%	47%
U0101	443	647	771	859	25%	37%	44%	49%
U0102	679	937	1088	1192	32%	44%	51%	56%
U0103	2056	2796	3225	3518	34%	46%	53%	58%
U0104	4520	6065	6950	7549	36%	48%	55%	59%
U0105	1402	2012	2380	2639	27%	39%	46%	51%
U0106	1951	2690	3123	3421	32%	44%	51%	56%
U0107	4172	5375	6037	6471	42%	54%	60%	65%
U0108	594	924	1132	1283	20%	31%	38%	43%
U0109	2985	3939	4479	4839	38%	50%	57%	61%
U0109b	1566	2059	2337	2521	39%	51%	57%	62%
U0301	1180	1629	1891	2072	32%	44%	51%	56%
U0302	1181	1508	1686	1802	43%	55%	62%	66%
U0302b	1535	2067	2373	2581	35%	47%	54%	59%
U0302c	1868	2562	2967	3245	33%	45%	52%	57%
U0303	738	1182	1467	1675	18%	29%	35%	40%
U0304	1006	1580	1945	2210	19%	30%	37%	42%
U0304b	444	666	803	901	23%	34%	41%	46%
U0305	1233	1773	2099	2328	27%	39%	46%	51%
U0306	2803	3780	4342	4724	35%	47%	54%	59%
U0307	1822	2643	3141	3492	26%	38%	45%	50%
U0307b	557	769	893	978	32%	44%	51%	56%

Sub-basin	Total Load (lb) Reduction 20%	Total Load (lb) Reduction 40%	Total Load (lb) Reduction 60%	Total Load (lb) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
U0307c	417	582	679	747	30%	42%	49%	54%
U0501	164	426	676	888	3%	7%	11%	15%
U0501b	1605	1952	2127	2232	52%	63%	69%	72%
U0502	4672	6249	7151	7760	36%	48%	55%	60%
U0503	4052	5716	6708	7400	29%	41%	48%	53%
U0504	1546	2151	2507	2754	31%	43%	50%	55%
U0505	4473	6347	7469	8253	28%	40%	47%	52%
U0601	1651	2315	2710	2984	30%	42%	49%	54%
U0602	1253	1695	1949	2123	34%	47%	54%	58%
U0603	2210	2981	3425	3727	35%	47%	54%	59%
U0604	514	950	1251	1479	11%	20%	26%	31%
U0605	1984	2895	3451	3844	25%	37%	44%	49%
U0606	2402	3374	3952	4354	30%	41%	49%	54%
U0801	3200	4233	4818	5210	38%	50%	57%	61%
U0802	2158	2944	3400	3713	33%	45%	52%	57%
U0803	1136	1658	1977	2202	25%	37%	44%	49%
U0804	987	1586	1971	2253	18%	28%	35%	40%
U0805	533	720	827	900	35%	47%	54%	59%
U0805b	1104	1447	1640	1768	39%	51%	58%	62%
U0806	13273	18873	22228	24575	28%	40%	47%	52%
U0807	779	1040	1188	1288	36%	48%	55%	60%
U0808	5932	8241	9602	10543	31%	43%	50%	55%
U0809	2424	3276	3768	4103	34%	47%	54%	58%
U0901	237	339	400	443	28%	40%	47%	52%
U0901b	168	306	401	473	11%	20%	27%	32%
U0902	129	322	487	623	4%	9%	14%	18%
U0903	1702	3067	3998	4699	12%	21%	27%	32%
U0903b	734	1255	1600	1856	14%	24%	31%	36%
U0903c	2435	3741	4561	5152	21%	32%	39%	44%
U1101	4182	6249	7526	8438	23%	35%	42%	47%
U1102	1865	2891	3539	4007	20%	31%	38%	43%

Sub-basin	Total Load (lb) Reduction 20%	Total Load (lb) Reduction 40%	Total Load (lb) Reduction 60%	Total Load (lb) Reduction 80%	Total % Reduction 20%	Total % Reduction 40%	Total % Reduction 60%	Total % Reduction 80%
U1103	694	1029	1235	1381	24%	35%	43%	48%
U1104	898	1713	2285	2722	10%	18%	24%	29%
U1201	1261	1809	2139	2371	27%	39%	46%	51%
U1201b	46	67	80	89	26%	37%	44%	49%
U1202	508	790	968	1097	20%	31%	38%	43%
U1203	635	903	1065	1177	28%	40%	47%	52%
U1204	2573	3804	4560	5098	24%	36%	43%	48%
U1205	1344	1932	2288	2537	27%	39%	46%	51%
U1301	487	802	1007	1158	16%	26%	33%	38%
U1301b	748	1004	1152	1252	35%	47%	54%	59%
U1301c	568	1181	1632	1984	7%	15%	21%	25%
U1302	2624	3936	4749	5331	23%	34%	41%	46%
U1302b	13	19	23	26	24%	36%	43%	48%
U1303	2297	3500	4252	4793	21%	33%	40%	45%
U1303b	1507	2206	2632	2934	25%	37%	44%	49%
U1304	2523	4101	5122	5870	17%	27%	34%	39%
U1304b	420	634	768	863	22%	34%	41%	46%
U1305	1182	1954	2458	2829	16%	26%	33%	38%
U1306	7620	10740	12599	13894	29%	41%	48%	53%

APPENDIX F. SWAT SUB-BASINS

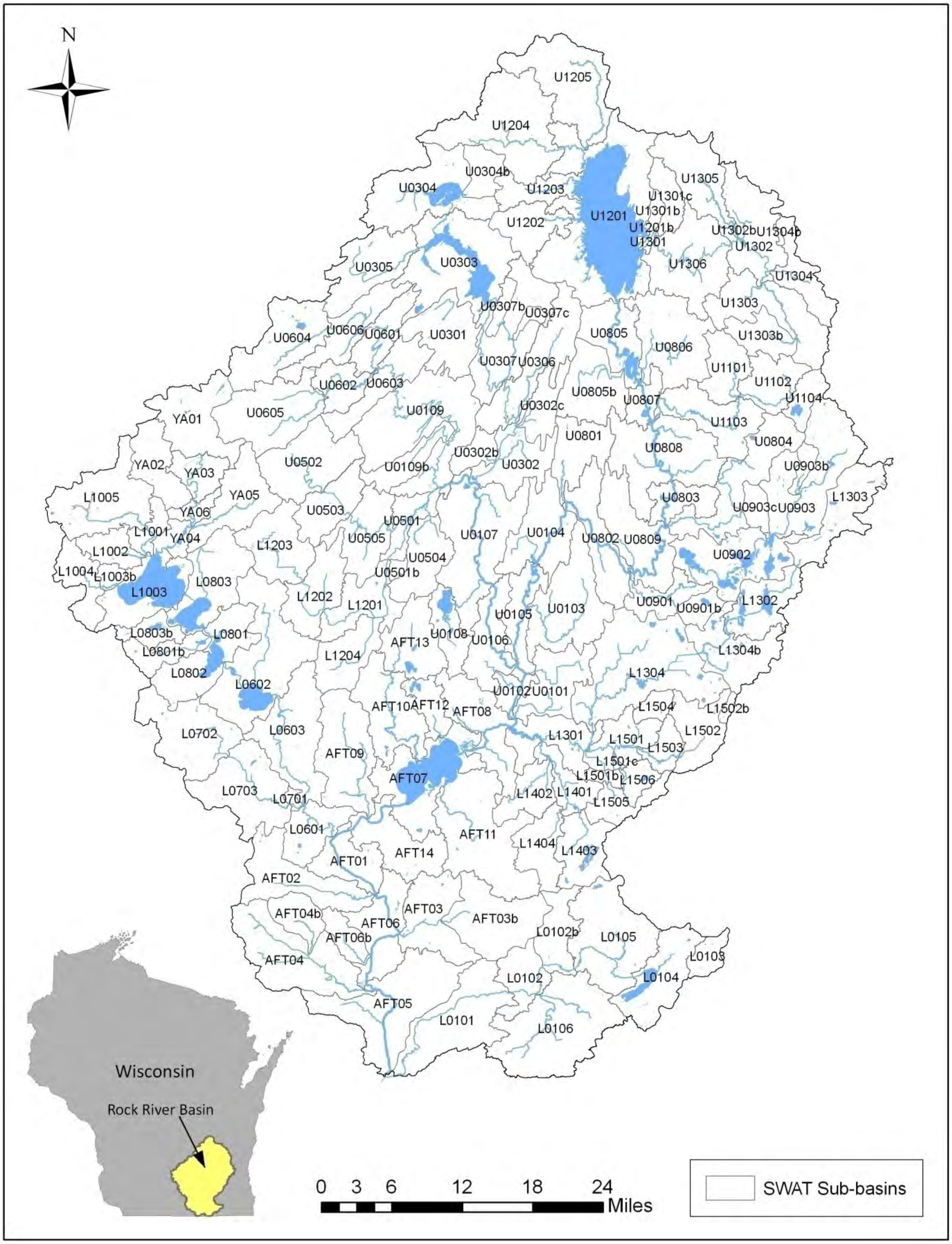


Figure F-1. Map of SWAT sub-basins in the Rock River Basin.

Table F-1. Unit-area nonpoint source loading of TP and TSS by SWAT sub-basin.

Sub-basin	Basin	Area (km^2)	TP (lbs/ac)	TSS (tons/ac)
AFT01	Afton	55	0.251	0.040
AFT02	Afton	93	0.134	0.029
AFT03	Afton	83	0.520	0.087
AFT03b	Afton	100	0.258	0.038
AFT04	Afton	132	0.386	0.058
AFT04b	Afton	37	1.168	0.209
AFT05	Afton	153	0.298	0.063
AFT06	Afton	76	0.195	0.042
AFT06b	Afton	27	0.493	0.099
AFT07	Afton	117	0.100	0.013
AFT08	Afton	86	0.076	0.008
AFT09	Afton	110	0.046	0.001
AFT10	Afton	92	0.074	0.007
AFT11	Afton	155	0.096	0.009
AFT12	Afton	32	0.145	0.022
AFT13	Afton	70	0.098	0.010
AFT14	Afton	78	0.215	0.033
L1201	Afton	63	0.470	0.069
L1202	Afton	70	0.209	0.025
L1203	Afton	77	0.290	0.047
L1204	Afton	60	0.670	0.122
L1301	Bark	66	0.132	0.013
L1302	Bark	63	0.104	0.012
L1303	Bark	76	0.212	0.024
L1304	Bark	197	0.207	0.023
L1304b	Bark	79	0.100	0.010
L1401	Bark	38	0.162	0.021
L1402	Bark	43	0.300	0.039
L1403	Bark	60	0.231	0.026
L1404	Bark	53	0.140	0.011
L1501	Bark	51	0.052	0.000
L1501b	Bark	9	1.695	0.193
L1501c	Bark	2	0.438	0.048
L1502	Bark	58	0.104	0.014
L1502b	Bark	5	0.185	0.026
L1503	Bark	26	0.503	0.099
L1504	Bark	17	0.321	0.043
L1505	Bark	36	0.347	0.060
L1506	Bark	21	0.316	0.069
U0106	Crawfish	65	0.232	0.027
U0107	Crawfish	157	0.172	0.017
U0108	Crawfish	40	0.232	0.028
U0109	Crawfish	177	0.170	0.014
U0109b	Crawfish	38	0.339	0.041
U0301	Crawfish	78	0.206	0.019
U0302	Crawfish	67	0.179	0.016
U0302b	Crawfish	24	0.360	0.050
U0302c	Crawfish	39	0.556	0.067
U0303	Crawfish	157	0.129	0.008
U0304	Crawfish	124	0.170	0.015
U0304b	Crawfish	31	0.231	0.025
U0305	Crawfish	86	0.207	0.020
U0306	Crawfish	96	0.320	0.036
U0307	Crawfish	105	0.271	0.029
U0307b	Crawfish	14	0.712	0.095
U0307c	Crawfish	8	0.632	0.088
U0501	Crawfish	35	0.461	0.059
U0501b	Crawfish	6	0.864	0.129
U0502	Crawfish	96	0.320	0.040
U0503	Crawfish	57	0.595	0.097
U0504	Crawfish	60	0.226	0.024
U0505	Crawfish	71	0.487	0.086
U0601	Crawfish	44	0.449	0.061
U0602	Crawfish	39	0.249	0.033
U0603	Crawfish	62	0.340	0.049
U0604	Crawfish	97	0.144	0.022
U0605	Crawfish	110	0.159	0.019
U0606	Crawfish	66	0.453	0.064
U0101	Middle	71	0.091	0.009
U0102	Middle	20	0.443	0.066

Sub-basin	Basin	Area (km^2)	TP (lbs/ac)	TSS (tons/ac)
U0103	Middle	117	0.214	0.024
U0104	Middle	86	0.499	0.072
U0105	Middle	51	0.243	0.029
L0101	Turtle	123	0.130	0.026
L0102	Turtle	48	0.525	0.087
L0102b	Turtle	50	0.173	0.024
L0103	Turtle	22	0.238	0.040
L0104	Turtle	83	0.203	0.028
L0105	Turtle	132	0.094	0.010
L0106	Turtle	167	0.308	0.054
U0801	Upper	59	0.487	0.075
U0802	Upper	76	0.302	0.046
U0803	Upper	40	0.448	0.041
U0804	Upper	104	0.135	0.009
U0805	Upper	65	0.119	0.004
U0805b	Upper	78	0.150	0.009
U0806	Upper	109	0.991	0.177
U0807	Upper	26	0.277	0.054
U0808	Upper	136	0.513	0.078
U0809	Upper	93	0.302	0.034
U0901	Upper	41	0.095	0.004
U0901b	Upper	21	0.299	0.040
U0902	Upper	108	0.151	0.021
U0903	Upper	136	0.248	0.035
U0903b	Upper	14	0.732	0.125
U0903c	Upper	19	1.454	0.238
U1101	Upper	48	0.759	0.118
U1102	Upper	52	0.468	0.067
U1103	Upper	79	0.093	0.006
U1104	Upper	26	0.967	0.151
U1201	Upper	289	0.111	0.001
U1201b	Upper	3	0.403	0.040
U1202	Upper	54	0.201	0.021
U1203	Upper	45	0.266	0.022
U1204	Upper	153	0.274	0.032
U1205	Upper	123	0.166	0.013
U1301	Upper	4	1.193	0.182

Sub-basin	Basin	Area (km^2)	TP (lbs/ac)	TSS (tons/ac)
U1301b	Upper	8	0.990	0.139
U1301c	Upper	30	1.053	0.153
U1302	Upper	92	0.406	0.048
U1302b	Upper	1	0.144	0.011
U1303	Upper	99	0.284	0.043
U1303b	Upper	41	0.366	0.059
U1304	Upper	49	0.786	0.133
U1304b	Upper	2	1.819	0.344
U1305	Upper	77	0.260	0.035
U1306	Upper	113	0.642	0.107
L0601	Yahara	52	0.483	0.081
L0602	Yahara	160	0.360	0.057
L0603	Yahara	115	0.339	0.051
L0701	Yahara	5	0.139	0.039
L0702	Yahara	105	0.231	0.036
L0703	Yahara	107	0.284	0.048
L0801	Yahara	40	0.191	0.031
L0801b	Yahara	35	0.059	0.006
L0802	Yahara	48	0.384	0.059
L0803	Yahara	93	0.261	0.066
L0803b	Yahara	26	0.027	0.006
L1001	Yahara	26	0.132	0.011
L1002	Yahara	33	0.289	0.041
L1003	Yahara	82	0.062	0.012
L1003b	Yahara	11	1.850	0.362
L1004	Yahara	47	0.777	0.140
L1005	Yahara	111	0.690	0.101
YA01	Yahara	89	0.545	0.074
YA02	Yahara	57	0.979	0.145
YA03	Yahara	35	0.336	0.041
YA04	Yahara	19	0.226	0.033
YA05	Yahara	75	0.513	0.071
YA06	Yahara	16	0.394	0.049

Appendix G. Growing-Season Median Total Phosphorus Concentrations After TMDL Implementation Using SWAT-Simulated Flows for 1989 - 1998

Reach	Waterbody Name	Waterbody Extents	TP Water Quality Target (mg/L)	Growing Season (May-October) Median Instream TP Concentration (mg/L)										Median TP Concentration 1989 - 1998 (mg/L)	Number of Exceedances of TP Target
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998		
1	West Branch Rock River	South Branch Rock River to Mile 39	0.075	0.06	0.03	0.05	0.17	0.03	0.25	0.04	0.06	0.05	0.13	0.04	3
2	South Branch Rock River	Mile 3 to 20	0.075	0.08	0.06	0.06	0.07	0.04	0.10	0.11	0.06	0.08	0.07	0.07	3
3	South Branch Rock River	Mile 1 to 3	0.075	0.08	0.06	0.06	0.07	0.04	0.10	0.11	0.06	0.07	0.07	0.06	3
4	West Branch Rock River/Horicon Marsh	Mile 0 to South Branch Rock River	0.075	0.07	0.04	0.06	0.09	0.03	0.14	0.06	0.06	0.05	0.08	0.05	3
5	Wayne Creek	Mile 4.1 to 4.8	0.075	0.06	0.06	0.05	0.09	0.04	0.09	0.07	0.04	0.06	0.07	0.06	2
6	Wayne Creek	Kohlsville River to Mile 4.1	0.075	0.06	0.07	0.05	0.09	0.04	0.09	0.08	0.04	0.07	0.08	0.06	2
7	Kohlsville River	Mile 0 to 9	0.075	0.06	0.07	0.05	0.09	0.04	0.09	0.08	0.04	0.07	0.08	0.06	2
8	Limestone Creek	Mile 0 to 1	0.075	0.06	0.07	0.05	0.09	0.04	0.09	0.09	0.04	0.06	0.08	0.06	3
9	East Branch Rock River	Kohlsville River to Limestone Creek	0.075	0.06	0.07	0.05	0.09	0.04	0.09	0.09	0.04	0.06	0.08	0.06	3
10	East Branch Rock River	Kummel Creek to Kohlsville River	0.075	0.06	0.07	0.05	0.09	0.04	0.09	0.09	0.04	0.06	0.08	0.06	3
11	Kummel Creek	Mile 14 to 18	0.075	0.06	0.07	0.06	0.09	0.04	0.08	0.08	0.04	0.06	0.07	0.06	2
12	Kummel Creek	Mile 0 to 14	0.075	0.06	0.07	0.06	0.09	0.04	0.08	0.08	0.04	0.06	0.07	0.06	2
13	East Branch Rock River	Mile 11 to Kummel Creek	0.075	0.06	0.07	0.05	0.09	0.04	0.08	0.08	0.04	0.06	0.07	0.06	3
14	East Branch Rock River	Gill Creek to Mile 11	0.075	0.06	0.07	0.05	0.09	0.04	0.08	0.08	0.04	0.06	0.07	0.06	3
15	Gill Creek	Mile 0 to 6	0.075	0.05	0.02	0.04	0.18	0.03	0.21	0.03	0.04	0.04	0.08	0.04	3
16	Irish Creek	Mile 0 to 3	0.075	0.06	0.02	0.04	0.18	0.03	0.20	0.03	0.04	0.04	0.09	0.04	3
17	East Branch Rock River	Mile 0 to Irish Creek	0.075	0.06	0.07	0.05	0.09	0.04	0.09	0.08	0.04	0.06	0.08	0.06	2
18	Rock River	Mile 296 to 305	0.075	0.06	0.06	0.06	0.09	0.03	0.11	0.07	0.05	0.06	0.08	0.06	2
19	Dead Creek	Mile 0 to 3	0.075	0.05	0.03	0.06	0.16	0.03	0.20	0.04	0.07	0.05	0.10	0.05	3
20	Rock River	Mile 270 to 293	0.1	0.10	0.08	0.10	0.18	0.05	0.17	0.12	0.07	0.09	0.13	0.10	4
21	Rock River	Oconomowoc River to Mile 270	0.1	0.10	0.08	0.10	0.18	0.05	0.17	0.12	0.07	0.09	0.12	0.10	4
22	Flynn Creek	Mile 0 to 6	0.075	0.06	0.04	0.06	0.11	0.04	0.12	0.08	0.03	0.05	0.08	0.06	3
23	Oconomowoc River	Mason Creek to Flynn Creek	0.075	0.06	0.04	0.07	0.11	0.04	0.12	0.08	0.03	0.05	0.08	0.06	2
24	Mason Creek	Mile 0 to 5.2	0.075	0.06	0.04	0.06	0.11	0.04	0.13	0.08	0.03	0.05	0.07	0.06	2
25	Oconomowoc River	Battle Creek to Mason Creek	0.075	0.06	0.05	0.05	0.11	0.04	0.12	0.07	0.04	0.06	0.06	0.06	2
26	Battle Creek	Mile 2.1 to 4.6	0.075	0.06	0.06	0.06	0.12	0.04	0.12	0.06	0.06	0.06	0.05	0.06	2
27	Oconomowoc River	Rock River to Battle Creek	0.075	0.06	0.05	0.05	0.11	0.04	0.12	0.07	0.04	0.06	0.06	0.06	2
28	Rock River	Mile 249 to Oconomowoc River	0.1	0.10	0.08	0.09	0.17	0.05	0.16	0.11	0.07	0.09	0.11	0.09	4
29	Rock River	Johnson Creek to Mile 249	0.1	0.10	0.08	0.09	0.17	0.05	0.15	0.11	0.07	0.09	0.11	0.09	4
30	Johnson Creek	Mile 0 to 17.5	0.075	0.09	0.06	0.06	0.16	0.03	0.06	0.07	0.05	0.05	0.05	0.06	2
31	Rock River	Crawfish River to Johnson Creek	0.1	0.10	0.08	0.09	0.17	0.05	0.15	0.11	0.06	0.09	0.10	0.09	3
32	Alto Creek	Mile 0 to 6.15	0.075	0.07	0.03	0.06	0.08	0.02	0.19	0.07	0.05	0.05	0.06	0.05	2
33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	0.075	0.07	0.03	0.06	0.10	0.03	0.21	0.07	0.05	0.06	0.06	0.05	2
34	Beaver Dam River	Calamus Creek to Mile 30	0.075	0.07	0.04	0.06	0.10	0.03	0.14	0.07	0.05	0.06	0.06	0.06	2
35	Calamus Creek	Mile 0 to 17	0.075	0.08	0.05	0.05	0.09	0.03	0.14	0.06	0.05	0.07	0.05	0.06	3
36	Beaver Dam River	Mile 14 to Calamus Creek	0.075	0.08	0.04	0.06	0.09	0.03	0.16	0.07	0.05	0.06	0.06	0.06	2
37	Park Creek	Mile 0 to 3	0.075	0.09	0.04	0.05	0.08	0.02	0.14	0.10	0.04	0.07	0.05	0.05	4
38	Schultz Creek	Mile 0 to 5	0.075	0.08	0.04	0.05	0.08	0.02	0.16	0.09	0.04	0.06	0.05	0.05	4
39	Shaw Brook	Beaver Dam River to Schultz Creek	0.075	0.08	0.04	0.05	0.08	0.02	0.16	0.09	0.04	0.07	0.05	0.05	3
40	Beaver Dam River	Casper Creek to Mile 14	0.075	0.08	0.04	0.05	0.09	0.03	0.16	0.07	0.05	0.06	0.05	0.06	2
41	Casper Creek	Mile 0 to 2	0.075	0.08	0.06	0.06	0.14	0.03	0.06	0.10	0.05	0.06	0.07	0.06	3
42	Beaver Dam River	Lau Creek to Casper Creek	0.075	0.08	0.04	0.06	0.10	0.03	0.14	0.08	0.05	0.06	0.06	0.06	3
43	Lau Creek	Mile 0 to 6	0.075	0.09	0.07	0.05	0.13	0.03	0.06	0.10	0.05	0.06	0.06	0.07	3
44	Beaver Dam River	Mile 0 to Lau Creek	0.075	0.08	0.04	0.06	0.10	0.03	0.12	0.08	0.05	0.06	0.06	0.06	4
45	Maunesha River	Mile 13.21 to 31.8	0.075	0.15	0.05	0.07	0.08	0.03	0.10	0.06	0.04	0.07	0.05	0.06	3
46	Maunesha River	Mile 5.5 to 13.2	0.075	0.13	0.05	0.07	0.09	0.03	0.12	0.06	0.04	0.07	0.05	0.06	3
47	Maunesha River	Stony Brook to Mile 13.2	0.075	0.12	0.05	0.07	0.09	0.03	0.12	0.06	0.04	0.07	0.05	0.06	3
48	Stony Brook	Mile 0 to 15	0.075	0.09	0.05	0.07	0.11	0.04	0.16	0.08	0.03	0.07	0.05	0.06	3
49	Maunesha River	Mile 0 to Stony Brook	0.075	0.12	0.05	0.07	0.09	0.03	0.13	0.06	0.04	0.07	0.05	0.06	3

Reach	Waterbody Name	Waterbody Extents	TP Water Quality Target (mg/L)	Growing Season (May-October) Median Instream TP Concentration (mg/L)										Median TP Concentration 1989 - 1998 (mg/L)	Number of Exceedances of TP Target
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998		
50	Mud Creek	Mile 0 to 10	0.075	0.07	0.04	0.05	0.08	0.03	0.15	0.08	0.04	0.07	0.05	0.06	2
51	Crawfish River	Maunesha River to Mud Creek	0.075	0.11	0.05	0.06	0.09	0.03	0.12	0.07	0.05	0.07	0.05	0.06	3
52	Crawfish River	Beaver Dam River to Maunesha Creek	0.075	0.11	0.05	0.07	0.08	0.03	0.13	0.07	0.04	0.07	0.05	0.06	3
53	Crawfish River	Rock River to Beaver Dam River	0.1	0.12	0.06	0.08	0.11	0.04	0.16	0.09	0.05	0.08	0.06	0.07	3
54	Rock River	Bark River to Crawfish River	0.1	0.10	0.07	0.09	0.14	0.04	0.15	0.10	0.06	0.09	0.08	0.08	2
55	Bark River	Mile 35 to 41	0.075	0.07	0.06	0.05	0.12	0.04	0.11	0.07	0.05	0.05	0.06	0.06	2
56	Bark River	Scuppernong River to Mile 35	0.075	0.07	0.05	0.05	0.12	0.03	0.11	0.07	0.04	0.05	0.05	0.06	2
57	Spring Creek	Mile 0 to 5	0.075	0.10	0.05	0.08	0.08	0.03	0.10	0.04	0.05	0.06	0.04	0.07	3
58	Steel Brook	Mile 3 to 4	0.075	0.19	0.04	0.09	0.09	0.02	0.15	0.03	0.04	0.05	0.03	0.06	4
59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	0.075	0.09	0.04	0.07	0.11	0.02	0.11	0.05	0.04	0.05	0.04	0.06	3
60	Rock River	Mile 213 to Bark River	0.1	0.10	0.07	0.09	0.14	0.04	0.15	0.09	0.06	0.08	0.08	0.08	2
61	Rock River	Mile 201 to 207	0.1	0.10	0.06	0.09	0.15	0.04	0.17	0.09	0.06	0.09	0.07	0.09	2
62	Pheasant Branch Creek	Mile 1 to 9	0.075	0.10	0.07	0.06	0.09	0.02	0.08	0.05	0.06	0.07	0.03	0.05	3
63	Spring (Dorn) Creek	Mile 1 to 6	0.075	0.18	0.05	0.06	0.10	0.03	0.11	0.06	0.04	0.08	0.04	0.06	3
64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	0.075	0.13	0.06	0.05	0.08	0.03	0.08	0.06	0.05	0.08	0.04	0.06	2
65	Nine Springs Creek	Mile 0 to 6	0.075	0.15	0.06	0.06	0.09	0.04	0.09	0.07	0.05	0.07	0.04	0.06	3
66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	0.075	0.14	0.08	0.07	0.10	0.03	0.10	0.08	0.04	0.08	0.05	0.05	6
67	Yahara River	Mile 16 to 22	0.1	0.23	0.12	0.10	0.16	0.05	0.16	0.12	0.08	0.13	0.07	0.10	6
68	Yahara River	Mile 7 to 16	0.1	0.23	0.12	0.10	0.15	0.05	0.16	0.12	0.08	0.12	0.07	0.10	6
69	Yahara River	Mile 0 to 7	0.1	0.18	0.11	0.10	0.14	0.06	0.14	0.10	0.08	0.12	0.07	0.10	5
70	Rock River	Mile 193 to 201	0.1	0.11	0.07	0.09	0.15	0.04	0.16	0.09	0.06	0.09	0.07	0.09	3
71	Rock River	Blackhawk Creek to Mile 193	0.1	0.11	0.07	0.09	0.15	0.04	0.16	0.09	0.06	0.09	0.07	0.09	3
72	Blackhawk Creek	Mile 2 to 4	0.075	0.16	0.05	0.08	0.10	0.03	0.11	0.07	0.03	0.05	0.03	0.05	3
73	Blackhawk Creek	Rock River to Mile 2	0.075	0.16	0.05	0.08	0.10	0.02	0.11	0.07	0.03	0.05	0.03	0.05	3
74	Rock River	Mile 183 to Blackhawk Creek	0.1	0.12	0.07	0.09	0.15	0.04	0.16	0.09	0.06	0.09	0.07	0.09	3
75	Markham Creek	Mile 0 to 5	0.075	0.19	0.05	0.08	0.11	0.02	0.11	0.07	0.03	0.05	0.03	0.06	3
76	Rock River	Bass Creek to Mile 183	0.1	0.12	0.07	0.09	0.15	0.04	0.16	0.09	0.06	0.09	0.07	0.09	3
77	Stevens Creek	Mile 0 to 8	0.075	0.12	0.05	0.08	0.10	0.03	0.11	0.07	0.04	0.06	0.03	0.06	3
78	Bass Creek	Rock River to Stevens Creek	0.075	0.12	0.05	0.08	0.10	0.03	0.11	0.07	0.04	0.06	0.03	0.06	3
79	Rock River	Mile 171 to Bass Creek	0.1	0.12	0.07	0.09	0.15	0.04	0.15	0.09	0.06	0.09	0.07	0.09	3
80	Turtle Creek	Mile 24 to 32	0.075	0.08	0.05	0.07	0.08	0.03	0.12	0.03	0.05	0.07	0.03	0.06	2
81	Turtle Creek	Rock River to Mile 24	0.075	0.12	0.06	0.07	0.07	0.03	0.09	0.06	0.05	0.06	0.05	0.06	2
82	Fox Lake		0.04	0.04	0.03	0.03	0.03	0.02	0.03	0.04	0.02	0.03	0.02	0.02	0
83	Lake Koshkonong		0.1	0.11	0.07	0.09	0.16	0.04	0.14	0.09	0.06	0.08	0.07	0.07	3
	Lake Sinnissippi		0.075	0.06	0.06	0.07	0.13	0.03	0.11	0.07	0.05	0.06	0.10	0.05	3

Appendix H. Required Percent Reduction of TP from Annual Baseline Load
Note: Baseline load is defined in Section 4.2. Average percent load reduction is the average of the monthly average percent load reductions.

***Note that the non-permitted urban percentage of baseline load is not a percent reduction. This column is shown to facilitate division of nonpoint source load between agricultural and non-permitted urban sources. See Section 6.3 for specific allocation approach.**

Reach	Waterbody Name	Waterbody Extents	Required Average Percent Reduction of TP from Baseline Load			Non-Permitted Urban Percentage of Baseline Load*
			Nonpoint Source	MS4	WWTF	
1	West Branch Rock River	South Branch Rock River to Mile 39	23%	-	-	2%
2	South Branch Rock River	Mile 3 to 20	29%	29%	19%	6%
3	South Branch Rock River	Mile 1 to 3	67%	82%	92%	19%
4	West Branch Rock River/Horicon Marsh	Mile 0 to South Branch Rock River	38%	-	7%	6%
5	Wayne Creek	Mile 4.1 to 4.8	47%	-	-	0%
6	Wayne Creek	Kohlsville River to Mile 4.1	32%	-	-	0%
7	Kohlsville River	Mile 0 to 9	32%	-	-	0%
8	Limestone Creek	Mile 0 to 1	24%	-	-	0%
9	East Branch Rock River	Kohlsville River to Limestone Creek	30%	-	1%	0%
10	East Branch Rock River	Kummel Creek to Kohlsville River	27%	-	-	5%
11	Kummel Creek	Mile 14 to 18	19%	-	-	0%
12	Kummel Creek	Mile 0 to 14	29%	-	10%	3%
13	East Branch Rock River	Mile 11 to Kummel Creek	37%	-	15%	3%
14	East Branch Rock River	Gill Creek to Mile 11	56%	-	78%	13%
15	Gill Creek	Mile 0 to 6	40%	-	-	0%
16	Irish Creek	Mile 0 to 3	39%	-	-	0%
17	East Branch Rock River	Mile 0 to Irish Creek	45%	-	48%	1%
18	Rock River	Mile 296 to 305	62%	-	77%	46%
19	Dead Creek	Mile 0 to 3	41%	-	60%	6%
20	Rock River	Mile 270 to 293	27%	14%	0%	1%
21	Rock River	Oconomowoc River to Mile 270	27%	10%	0%	3%
22	Flynn Creek	Mile 0 to 6	30%	-	-	0%
23	Oconomowoc River	Mason Creek to Flynn Creek	29%	12%	-	2%
24	Mason Creek	Mile 0 to 5.2	39%	11%	-	0%
25	Oconomowoc River	Battle Creek to Mason Creek	52%	64%	77%	33%
26	Battle Creek	Mile 2.1 to 4.6	32%	35%	-	13%
27	Oconomowoc River	Rock River to Battle Creek	10%	0%	-	9%
28	Rock River	Mile 249 to Oconomowoc River	15%	1%	-	6%
29	Rock River	Johnson Creek to Mile 249	36%	51%	64%	2%
30	Johnson Creek	Mile 0 to 17.5	24%	0%	-	1%
31	Rock River	Crawfish River to Johnson Creek	47%	-	72%	41%
32	Alto Creek	Mile 0 to 6.15	27%	-	-	0%
33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	34%	29%	22%	11%
34	Beaver Dam River	Calamus Creek to Mile 30	37%	81%	92%	0%
35	Calamus Creek	Mile 0 to 17	18%	-	-	0%
36	Beaver Dam River	Mile 14 to Calamus Creek	23%	-	-	0%
37	Park Creek	Mile 0 to 3	39%	66%	-	0%
38	Schultz Creek	Mile 0 to 5	30%	-	-	0%
39	Shaw Brook	Beaver Dam River to Schultz Creek	27%	0%	-	0%
40	Beaver Dam River	Casper Creek to Mile 14	28%	-	0%	7%
41	Casper Creek	Mile 0 to 2	27%	-	-	0%
42	Beaver Dam River	Lau Creek to Casper Creek	22%	-	-	0%

Reach	Waterbody Name	Waterbody Extents	Required Average Percent Reduction of TP from Baseline Load			Non-Permitted Urban Percentage of Baseline Load*
			Nonpoint Source	MS4	WWTF	
43	Lau Creek	Mile 0 to 6	24%	-	-	0%
44	Beaver Dam River	Mile 0 to Lau Creek	22%	-	-	0%
45	Maunesha River	Mile 13.21 to 31.8	35%	13%	-	1%
46	Maunesha River	Mile 5.5 to 13.2	37%	-	33%	2%
47	Maunesha River	Stony Brook to Mile 13.2	41%	-	73%	0%
48	Stony Brook	Mile 0 to 15	28%	-	-	0%
49	Maunesha River	Mile 0 to Stony Brook	29%	-	-	0%
50	Mud Creek	Mile 0 to 10	24%	-	-	0%
51	Crawfish River	Maunesha River to Mud Creek	30%	14%	0%	2%
52	Crawfish River	Beaver Dam River to Maunesha Creek	-	-	-	0%
53	Crawfish River	Rock River to Beaver Dam River	18%	-	0%	9%
54	Rock River	Bark River to Crawfish River	36%	61%	77%	0%
55	Bark River	Mile 35 to 41	54%	68%	79%	14%
56	Bark River	Scuppernong River to Mile 35	33%	19%	6%	2%
57	Spring Creek	Mile 0 to 5	49%	-	88%	9%
58	Steel Brook	Mile 3 to 4	26%	-	-	0%
59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	41%	54%	67%	4%
60	Rock River	Mile 213 to Bark River	23%	29%	29%	0%
61	Rock River	Mile 201 to 207	8%	6%	5%	17%
62	Pheasant Branch Creek	Mile 1 to 9	57%	70%	-	5%
63	Spring (Dorn) Creek	Mile 1 to 6	36%	14%	-	0%
64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	41%	47%	29%	7%
65	Nine Springs Creek	Mile 0 to 6	43%	49%	35%	53%
66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	39%	37%	-	3%
67	Yahara River	Mile 16 to 22	5%	0%	-	6%
68	Yahara River	Mile 7 to 16	36%	52%	65%	0%
69	Yahara River	Mile 0 to 7	45%	72%	86%	3%
70	Rock River	Mile 193 to 201	29%	1%	-	0%
71	Rock River	Blackhawk Creek to Mile 193	33%	29%	-	9%
72	Blackhawk Creek	Mile 2 to 4	32%	0%	-	0%
73	Blackhawk Creek	Rock River to Mile 2	43%	51%	-	7%
74	Rock River	Mile 183 to Blackhawk Creek	21%	17%	-	18%
75	Markham Creek	Mile 0 to 5	34%	15%	-	0%
76	Rock River	Bass Creek to Mile 183	49%	75%	88%	18%
77	Stevens Creek	Mile 0 to 8	40%	-	-	0%
78	Bass Creek	Rock River to Stevens Creek	33%	4%	0%	1%
79	Rock River	Mile 171 to Bass Creek	40%	54%	70%	4%
80	Turtle Creek	Mile 24 to 32	49%	-	75%	19%
81	Turtle Creek	Rock River to Mile 24	34%	20%	1%	4%
82	Fox Lake		40%	-	-	12%
83	Lake Koshkonong		37%	37%	30%	4%
	Lake Sinnissippi		-	-	-	0%

Appendix I. Required Percent Reduction of TSS from Annual Baseline Load
Note: Baseline load is defined in Section 4.2. Average percent load reduction is the average of the monthly average percent load reductions.

***Note that the non-permitted urban percentage of baseline load is not a percent reduction. This column is shown to facilitate division of nonpoint source load between agricultural and non-permitted urban sources. See Section 6.3 for specific allocation approach.**

Reach	Waterbody Name	Waterbody Extents	Required Average Annual Percent Reduction of TSS from Baseline Load			Non-Permitted Urban Percentage of Baseline Load*
			Nonpoint Source	MS4	WWTF	
1	West Branch Rock River	South Branch Rock River to Mile 39	18%	-	-	2%
2	South Branch Rock River	Mile 3 to 20	20%	1%	0%	5%
3	South Branch Rock River	Mile 1 to 3	20%	26%	23%	58%
4	West Branch Rock River/Horicon Marsh	Mile 0 to South Branch Rock River	16%	-	11%	12%
5	Wayne Creek	Mile 4.1 to 4.8	52%	-	-	0%
6	Wayne Creek	Kohlsville River to Mile 4.1	36%	-	-	0%
7	Kohlsville River	Mile 0 to 9	36%	-	-	0%
8	Limestone Creek	Mile 0 to 1	24%	-	-	0%
9	East Branch Rock River	Kohlsville River to Limestone Creek	20%	-	-	0%
10	East Branch Rock River	Kummel Creek to Kohlsville River	24%	-	-	3%
11	Kummel Creek	Mile 14 to 18	19%	-	-	0%
12	Kummel Creek	Mile 0 to 14	19%	-	0%	2%
13	East Branch Rock River	Mile 11 to Kummel Creek	29%	-	1%	2%
14	East Branch Rock River	Gill Creek to Mile 11	33%	-	15%	9%
15	Gill Creek	Mile 0 to 6	38%	-	-	0%
16	Irish Creek	Mile 0 to 3	37%	-	-	0%
17	East Branch Rock River	Mile 0 to Irish Creek	40%	-	13%	0%
18	Rock River	Mile 296 to 305	24%	-	11%	64%
19	Dead Creek	Mile 0 to 3	14%	-	1%	9%
20	Rock River	Mile 270 to 293	23%	0%	0%	1%
21	Rock River	Oconomowoc River to Mile 270	19%	0%	0%	3%
22	Flynn Creek	Mile 0 to 6	36%	-	-	0%
23	Oconomowoc River	Mason Creek to Flynn Creek	33%	11%	-	1%
24	Mason Creek	Mile 0 to 5.2	43%	12%	-	0%
25	Oconomowoc River	Battle Creek to Mason Creek	29%	32%	17%	26%
26	Battle Creek	Mile 2.1 to 4.6	26%	29%	-	9%
27	Oconomowoc River	Rock River to Battle Creek	2%	0%	-	21%
28	Rock River	Mile 249 to Oconomowoc River	16%	0%	-	4%
29	Rock River	Johnson Creek to Mile 249	24%	7%	0%	1%
30	Johnson Creek	Mile 0 to 17.5	23%	0%	-	0%
31	Rock River	Crawfish River to Johnson Creek	13%	-	2%	36%
32	Alto Creek	Mile 0 to 6.15	23%	-	-	0%
33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	20%	9%	1%	12%
34	Beaver Dam River	Calamus Creek to Mile 30	22%	31%	33%	0%
35	Calamus Creek	Mile 0 to 17	14%	-	-	0%
36	Beaver Dam River	Mile 14 to Calamus Creek	20%	-	-	0%
37	Park Creek	Mile 0 to 3	35%	54%	-	0%
38	Schultz Creek	Mile 0 to 5	29%	-	-	0%
39	Shaw Brook	Beaver Dam River to Schultz Creek	26%	0%	-	0%
40	Beaver Dam River	Casper Creek to Mile 14	19%	-	3%	7%
41	Casper Creek	Mile 0 to 2	27%	-	-	0%
42	Beaver Dam River	Lau Creek to Casper Creek	13%	-	-	0%

Reach	Waterbody Name	Waterbody Extents	Required Average Annual Percent Reduction of TSS from Baseline Load			Non-Permitted Urban Percentage of Baseline Load*
			Nonpoint Source	MS4	WWTF	
43	Lau Creek	Mile 0 to 6	30%	-	-	0%
44	Beaver Dam River	Mile 0 to Lau Creek	13%	-	-	0%
45	Maunesha River	Mile 13.21 to 31.8	35%	8%	-	1%
46	Maunesha River	Mile 5.5 to 13.2	30%	-	4%	1%
47	Maunesha River	Stony Brook to Mile 13.2	26%	-	4%	0%
48	Stony Brook	Mile 0 to 15	27%	-	-	0%
49	Maunesha River	Mile 0 to Stony Brook	28%	-	-	0%
50	Mud Creek	Mile 0 to 10	23%	-	-	0%
51	Crawfish River	Maunesha River to Mud Creek	23%	0%	1%	2%
52	Crawfish River	Beaver Dam River to Maunesha Creek	-	-	-	0%
53	Crawfish River	Rock River to Beaver Dam River	8%	-	0%	8%
54	Rock River	Bark River to Crawfish River	24%	6%	0%	0%
55	Bark River	Mile 35 to 41	39%	43%	28%	11%
56	Bark River	Scuppernong River to Mile 35	24%	0%	5%	1%
57	Spring Creek	Mile 0 to 5	34%	-	11%	5%
58	Steel Brook	Mile 3 to 4	34%	-	-	0%
59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	31%	15%	1%	3%
60	Rock River	Mile 213 to Bark River	7%	1%	0%	0%
61	Rock River	Mile 201 to 207	5%	2%	0%	16%
62	Pheasant Branch Creek	Mile 1 to 9	61%	70%	-	3%
63	Spring (Dorn) Creek	Mile 1 to 6	34%	11%	-	0%
64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	49%	55%	42%	4%
65	Nine Springs Creek	Mile 0 to 6	41%	46%	35%	46%
66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	41%	37%	-	2%
67	Yahara River	Mile 16 to 22	7%	0%	-	4%
68	Yahara River	Mile 7 to 16	33%	18%	0%	0%
69	Yahara River	Mile 0 to 7	28%	21%	9%	2%
70	Rock River	Mile 193 to 201	30%	1%	-	0%
71	Rock River	Blackhawk Creek to Mile 193	37%	31%	-	4%
72	Blackhawk Creek	Mile 2 to 4	31%	0%	-	0%
73	Blackhawk Creek	Rock River to Mile 2	41%	49%	-	5%
74	Rock River	Mile 183 to Blackhawk Creek	23%	20%	7%	8%
75	Markham Creek	Mile 0 to 5	38%	19%	-	0%
76	Rock River	Bass Creek to Mile 183	23%	29%	26%	8%
77	Stevens Creek	Mile 0 to 8	42%	-	-	0%
78	Bass Creek	Rock River to Stevens Creek	29%	0%	3%	1%
79	Rock River	Mile 171 to Bass Creek	39%	37%	34%	1%
80	Turtle Creek	Mile 24 to 32	25%	-	1%	15%
81	Turtle Creek	Rock River to Mile 24	33%	7%	2%	3%
82	Fox Lake		34%	-	-	12%
83	Lake Koshkonong		35%	25%	5%	2%
	Lake Sinnissippi		-	-	-	0%

Appendix J. Daily Total Phosphorus Allocations

Reach Waterbody Name and Extents	Allocation Component	Daily TP Load (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
1	Total Loading Capacity	1.70	5.65	8.12	9.39	10.64	9.07	7.32	2.68	1.91	1.89	1.61	1.26	1859.51
West Branch Rock River	Load Allocation	1.70	5.65	8.12	9.39	10.64	9.06	7.31	2.67	1.90	1.89	1.61	1.26	1858.29
South Branch Rock River to Mile 39	Background	0.00	0.03	0.03	0.03	0.09	0.20	0.19	0.15	0.06	0.06	0.01	0.00	25.96
	Ag/Non-Permitted Urban	1.70	5.62	8.09	9.36	10.55	8.86	7.12	2.52	1.84	1.83	1.60	1.26	1832.33
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.22
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.22
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Total Loading Capacity	23.14	27.84	25.72	28.32	26.61	29.05	26.99	27.66	27.49	26.52	26.49	24.71	5397.91
South Branch Rock River	Load Allocation	0.87	2.84	4.87	8.28	9.12	8.47	7.34	4.43	3.82	2.83	2.36	1.58	1729.66
Mile 3 to 20	Background	0.00	0.02	0.02	0.11	0.15	0.15	0.06	0.02	0.04	0.04	0.03	0.01	19.76
	Ag/Non-Permitted Urban	0.87	2.82	4.85	8.17	8.97	8.32	7.28	4.41	3.78	2.79	2.33	1.57	1709.90
	Wasteload Allocation	22.27	25.00	20.85	20.04	17.49	20.58	19.65	23.23	23.67	23.69	24.13	23.13	3668.25
	General Permit Sources	0.02	0.10	0.10	0.10	0.07	0.08	0.12	0.08	0.08	0.03	0.02	0.01	24.53
	MS4	0.60	0.83	0.88	1.23	1.38	2.06	2.42	2.44	1.96	1.41	1.01	0.79	518.56
	WWTF	21.65	24.07	19.87	18.71	16.04	18.44	17.11	20.71	21.63	22.25	23.10	22.33	3125.16
3	Total Loading Capacity	2.86	3.86	3.70	3.89	3.79	3.81	3.38	2.73	2.68	2.60	2.72	2.65	537.18
South Branch Rock River	Load Allocation	0.01	0.06	0.11	0.18	0.23	0.27	0.26	0.20	0.14	0.08	0.04	0.02	48.79
Mile 1 to 3	Background	0.00	0.02	0.02	0.04	0.07	0.12	0.14	0.13	0.09	0.04	0.01	0.00	20.76
	Ag/Non-Permitted Urban	0.01	0.04	0.09	0.14	0.16	0.15	0.12	0.07	0.05	0.04	0.03	0.02	28.03
	Wasteload Allocation	2.85	3.80	3.59	3.71	3.56	3.54	3.12	2.53	2.54	2.52	2.68	2.63	488.39
	General Permit Sources	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.00	0.00	3.37
	MS4	0.02	0.05	0.06	0.08	0.11	0.13	0.14	0.09	0.08	0.05	0.04	0.03	26.80
	WWTF	2.83	3.75	3.52	3.62	3.44	3.40	2.96	2.42	2.44	2.46	2.64	2.60	458.22
4	Total Loading Capacity	4.68	14.82	16.29	16.52	16.29	14.70	10.98	4.64	3.19	3.04	2.41	2.34	2859.71
West Branch Rock River/Horicon Marsh	Load Allocation	1.57	7.11	10.37	14.61	14.59	13.44	9.88	4.09	2.56	2.05	1.13	0.91	2498.54
Mile 0 to South Branch Rock River	Background	0.00	0.30	0.29	1.43	1.73	2.51	1.83	1.72	1.07	0.54	0.03	0.01	349.32
	Ag/Non-Permitted Urban	1.57	6.81	10.08	13.18	12.86	10.93	8.05	2.37	1.49	1.51	1.10	0.90	2149.22
	Wasteload Allocation	3.11	7.71	5.92	1.91	1.70	1.26	1.10	0.55	0.63	0.99	1.28	1.43	361.17
	General Permit Sources	0.01	0.01	0.01	0.05	0.05	0.12	0.13	0.19	0.15	0.09	0.03	0.01	25.97
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	3.10	7.70	5.91	1.86	1.65	1.14	0.97	0.36	0.48	0.90	1.25	1.42	335.20
5	Total Loading Capacity	0.18	0.24	0.27	0.29	0.26	0.24	0.20	0.18	0.16	0.17	0.18	0.18	77.46
Wayne Creek	Load Allocation	0.18	0.24	0.27	0.29	0.26	0.24	0.20	0.18	0.16	0.17	0.18	0.18	77.46
Mile 4.1 to 4.8	Background	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.02	0.02	3.37
	Ag/Non-Permitted Urban	0.18	0.24	0.26	0.28	0.25	0.23	0.19	0.18	0.16	0.15	0.16	0.16	74.09
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Daily TP Load (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
6	Total Loading Capacity	1.41	1.87	1.97	2.18	2.08	1.92	1.58	1.35	1.22	1.30	1.34	1.39	595.64
Wayne Creek	Load Allocation	1.41	1.87	1.97	2.18	2.08	1.92	1.58	1.35	1.22	1.30	1.34	1.39	595.64
Kohlsville River to Mile 4.1	Background	0.01	0.10	0.31	0.33	0.25	0.03	0.01	0.01	0.01	0.17	0.17	0.16	47.52
	Ag/Non-Permitted Urban	1.40	1.77	1.66	1.85	1.83	1.89	1.57	1.34	1.21	1.13	1.17	1.23	548.12
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Total Loading Capacity	2.51	3.32	3.52	3.86	3.69	3.40	2.82	2.39	2.16	2.31	2.38	2.48	1058.28
Kohlsville River	Load Allocation	2.51	3.32	3.52	3.86	3.69	3.40	2.82	2.39	2.16	2.31	2.38	2.48	1058.28
Mile 0 to 9	Background	0.02	0.17	0.56	0.58	0.44	0.05	0.02	0.02	0.01	0.30	0.30	0.29	84.11
	Ag/Non-Permitted Urban	2.49	3.15	2.96	3.28	3.25	3.35	2.80	2.37	2.15	2.01	2.08	2.19	974.17
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Total Loading Capacity	3.30	4.18	4.25	4.78	4.57	4.46	3.73	3.44	3.14	3.11	3.10	3.17	1374.11
Limestone Creek	Load Allocation	3.30	4.18	4.25	4.78	4.57	4.46	3.73	3.44	3.14	3.11	3.10	3.17	1374.11
Mile 0 to 1	Background	0.01	0.56	0.51	0.69	0.19	0.19	0.01	0.07	0.07	0.07	0.00	0.00	70.84
	Ag/Non-Permitted Urban	3.29	3.62	3.74	4.09	4.38	4.27	3.72	3.37	3.07	3.04	3.10	3.17	1303.27
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Total Loading Capacity	17.46	18.44	16.06	15.61	15.34	17.36	15.72	15.21	13.75	13.97	14.93	16.16	3498.06
East Branch Rock River	Load Allocation	1.98	5.05	6.76	9.52	8.68	6.80	4.92	4.15	4.00	3.78	3.02	2.62	1861.19
Kohlsville River to Limestone Creek	Background	0.05	1.89	1.73	2.44	0.76	0.76	0.06	0.42	0.44	0.43	0.01	0.01	269.68
	Ag/Non-Permitted Urban	1.93	3.16	5.03	7.08	7.92	6.04	4.86	3.73	3.56	3.35	3.01	2.61	1591.51
	Wasteload Allocation	15.48	13.39	9.30	6.09	6.66	10.56	10.80	11.06	9.75	10.19	11.91	13.54	1636.87
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	15.48	13.39	9.30	6.09	6.66	10.56	10.80	11.06	9.75	10.19	11.91	13.54	1636.87
10	Total Loading Capacity	5.26	7.01	7.28	8.45	7.95	7.56	6.48	5.76	5.26	5.04	5.08	5.25	2320.40
East Branch Rock River	Load Allocation	5.25	6.90	7.17	8.32	7.85	7.46	6.36	5.70	5.20	5.01	5.06	5.24	2294.38
Kummel Creek to Kohlsville River	Background	0.03	1.48	1.33	1.77	0.46	0.50	0.16	0.39	0.50	0.40	0.12	0.00	214.01
	Ag/Non-Permitted Urban	5.22	5.42	5.84	6.55	7.39	6.96	6.20	5.31	4.70	4.61	4.94	5.24	2080.37
	Wasteload Allocation	0.01	0.11	0.11	0.13	0.10	0.10	0.12	0.06	0.06	0.03	0.02	0.01	26.02
	General Permit Sources	0.01	0.11	0.11	0.13	0.10	0.10	0.12	0.06	0.06	0.03	0.02	0.01	26.02
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
11	Total Loading Capacity	1.45	1.78	1.80	2.01	1.94	1.90	1.65	1.42	1.30	1.30	1.42	1.45	590.05
Kummel Creek	Load Allocation	1.45	1.78	1.80	2.01	1.94	1.90	1.65	1.42	1.30	1.30	1.42	1.45	590.05
Mile 14 to 18	Background	0.00	0.04	0.04	0.04	0.00	0.01	0.01	0.03	0.03	0.03	0.00	0.00	6.93
	Ag/Non-Permitted Urban	1.45	1.74	1.76	1.97	1.94	1.89	1.64	1.39	1.27	1.27	1.42	1.45	583.12
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Total Loading Capacity	12.79	14.52	12.63	12.38	11.54	12.85	11.55	10.78	9.93	10.20	11.50	12.14	2363.72
Kummel Creek	Load Allocation	0.85	1.79	3.19	4.81	4.93	3.72	3.02	2.09	1.94	1.67	1.57	1.28	939.25
Mile 0 to 14	Background	0.01	0.15	0.13	0.14	0.02	0.02	0.03	0.12	0.12	0.10	0.00	0.00	25.31
	Ag/Non-Permitted Urban	0.84	1.64	3.06	4.67	4.91	3.70	2.99	1.97	1.82	1.57	1.57	1.28	913.94
	Wasteload Allocation	11.94	12.73	9.44	7.57	6.61	9.13	8.53	8.69	7.99	8.53	9.93	10.86	1424.47
	General Permit Sources	0.00	0.00	0.01	0.01	0.03	0.03	0.04	0.02	0.01	0.01	0.00	0.00	4.91
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	11.94	12.73	9.43	7.56	6.58	9.10	8.49	8.67	7.98	8.52	9.93	10.86	1419.56
13	Total Loading Capacity	15.72	18.65	16.26	15.48	14.64	15.89	14.22	13.06	12.09	12.80	14.00	15.07	3359.76
East Branch Rock River	Load Allocation	1.74	3.66	6.20	9.30	9.25	7.37	5.99	4.53	3.97	3.64	3.13	2.69	1870.82
Mile 11 to Kummel Creek	Background	0.01	0.15	0.60	0.75	0.61	0.15	0.03	0.12	0.12	0.31	0.22	0.21	99.99
	Ag/Non-Permitted Urban	1.73	3.51	5.60	8.55	8.64	7.22	5.96	4.41	3.85	3.33	2.91	2.48	1770.83
	Wasteload Allocation	13.98	14.99	10.06	6.18	5.39	8.52	8.23	8.53	8.12	9.16	10.87	12.38	1488.94
	General Permit Sources	0.01	0.01	0.04	0.05	0.12	0.11	0.12	0.06	0.05	0.04	0.03	0.03	20.50
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	13.97	14.98	10.02	6.13	5.27	8.41	8.11	8.47	8.07	9.12	10.84	12.35	1468.44
14	Total Loading Capacity	6.13	7.32	6.43	6.46	5.85	6.27	5.64	5.44	5.19	5.41	5.76	6.01	1166.82
East Branch Rock River	Load Allocation	0.27	0.66	1.39	2.10	2.22	1.71	1.38	0.96	0.82	0.70	0.58	0.46	403.56
Gill Creek to Mile 11	Background	0.00	0.04	0.17	0.21	0.17	0.04	0.01	0.03	0.03	0.09	0.06	0.06	27.75
	Ag/Non-Permitted Urban	0.27	0.62	1.22	1.89	2.05	1.67	1.37	0.93	0.79	0.61	0.52	0.40	375.81
	Wasteload Allocation	5.86	6.66	5.04	4.36	3.63	4.56	4.26	4.48	4.37	4.71	5.18	5.55	763.26
	General Permit Sources	0.02	0.02	0.06	0.07	0.18	0.17	0.19	0.09	0.07	0.07	0.05	0.05	31.82
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	5.84	6.64	4.98	4.29	3.45	4.39	4.07	4.39	4.30	4.64	5.13	5.50	731.44
15	Total Loading Capacity	0.79	1.72	2.40	2.72	2.74	1.96	1.50	0.57	0.75	0.78	0.89	0.70	531.64
Gill Creek	Load Allocation	0.79	1.72	2.40	2.72	2.74	1.96	1.50	0.57	0.75	0.78	0.89	0.70	531.64
Mile 0 to 6	Background	0.00	0.03	0.04	0.13	0.16	0.19	0.11	0.06	0.07	0.04	0.04	0.01	26.76
	Ag/Non-Permitted Urban	0.79	1.69	2.36	2.59	2.58	1.77	1.39	0.51	0.68	0.74	0.85	0.69	504.88
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Daily TP Load (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
16	Total Loading Capacity	0.27	0.60	0.83	0.95	0.97	0.74	0.58	0.22	0.25	0.25	0.29	0.24	187.86
Irish Creek	Load Allocation	0.27	0.60	0.83	0.95	0.97	0.74	0.58	0.22	0.25	0.25	0.29	0.24	187.86
Mile 0 to 3	Background	0.00	0.00	0.01	0.04	0.05	0.06	0.04	0.02	0.02	0.01	0.01	0.00	7.93
	Ag/Non-Permitted Urban	0.27	0.60	0.82	0.91	0.92	0.68	0.54	0.20	0.23	0.24	0.28	0.24	179.93
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Total Loading Capacity	0.72	1.28	1.49	1.40	1.25	0.95	0.77	0.44	0.59	0.64	0.75	0.62	201.94
East Branch Rock River	Load Allocation	0.04	0.20	0.44	0.68	0.71	0.46	0.38	0.16	0.20	0.15	0.12	0.06	109.54
Mile 0 to Irish Creek	Background	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.61
	Ag/Non-Permitted Urban	0.04	0.20	0.44	0.68	0.71	0.45	0.37	0.16	0.20	0.15	0.12	0.06	108.93
	Wasteload Allocation	0.68	1.08	1.05	0.72	0.54	0.49	0.39	0.28	0.39	0.49	0.63	0.56	92.40
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.68	1.08	1.05	0.72	0.54	0.49	0.39	0.28	0.39	0.49	0.63	0.56	92.40
18	Total Loading Capacity	2.24	4.90	5.73	6.21	5.97	4.80	3.49	1.54	1.82	2.25	2.39	2.04	751.26
Rock River	Load Allocation	0.14	0.56	1.01	1.57	1.83	1.59	1.27	0.67	0.68	0.57	0.32	0.18	316.25
Mile 296 to 305	Background	0.00	0.04	0.04	0.06	0.15	0.22	0.35	0.43	0.43	0.26	0.05	0.00	62.05
	Ag/Non-Permitted Urban	0.14	0.52	0.97	1.51	1.68	1.37	0.92	0.24	0.25	0.31	0.27	0.18	254.20
	Wasteload Allocation	2.10	4.34	4.72	4.64	4.14	3.21	2.22	0.87	1.14	1.68	2.07	1.86	435.01
	General Permit Sources	0.02	0.05	0.04	0.06	0.05	0.08	0.17	0.16	0.16	0.07	0.07	0.04	29.55
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	2.08	4.29	4.68	4.58	4.09	3.13	2.05	0.71	0.98	1.61	2.00	1.82	405.46
19	Total Loading Capacity	3.51	9.44	11.61	12.37	13.21	11.39	9.32	3.63	3.22	3.44	3.39	2.77	1488.90
Dead Creek	Load Allocation	0.14	1.04	2.10	3.43	4.40	3.84	2.90	1.12	0.92	0.74	0.37	0.20	645.52
Mile 0 to 3	Background	0.00	0.12	0.11	0.13	0.21	0.27	0.42	0.52	0.54	0.35	0.07	0.01	83.88
	Ag/Non-Permitted Urban	0.14	0.92	1.99	3.30	4.19	3.57	2.48	0.60	0.38	0.39	0.30	0.19	561.64
	Wasteload Allocation	3.37	8.40	9.51	8.94	8.81	7.55	6.42	2.51	2.30	2.70	3.02	2.57	843.38
	General Permit Sources	0.01	0.01	0.01	0.01	0.06	0.06	0.08	0.03	0.02	0.01	0.01	0.01	9.79
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	3.36	8.39	9.50	8.93	8.75	7.49	6.34	2.48	2.28	2.69	3.01	2.56	833.59
20	Total Loading Capacity	209.81	299.80	274.44	272.19	277.13	241.16	209.76	177.13	178.02	167.37	164.97	180.21	47387.97
Rock River	Load Allocation	15.77	42.29	72.00	109.53	134.41	113.06	77.99	44.96	34.39	29.87	22.55	15.81	21685.13
Mile 270 to 293	Background	2.64	3.12	2.94	1.86	2.35	3.52	2.35	2.64	2.74	2.42	1.46	0.22	857.12
	Ag/Non-Permitted Urban	13.13	39.17	69.06	107.67	132.06	109.54	75.64	42.32	31.65	27.45	21.09	15.59	20828.01
	Wasteload Allocation	194.04	257.51	202.44	162.66	142.72	128.10	131.77	132.17	143.63	137.50	142.42	164.40	25702.84
	General Permit Sources	0.08	0.10	0.10	0.08	0.09	0.21	0.42	0.56	0.49	0.25	0.09	0.04	76.64
	MS4	2.57	4.28	4.31	5.41	5.25	6.69	8.42	7.65	6.20	3.98	2.82	2.75	1836.27
	WWTF	191.39	253.13	198.03	157.17	137.38	121.20	122.93	123.96	136.94	133.27	139.51	161.61	23789.93

Reach Waterbody Name and Extents	Allocation Component	Daily TP Load (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
21	Total Loading Capacity	13.70	23.33	24.34	26.59	25.92	26.12	22.68	17.32	13.73	11.06	10.95	11.51	5141.45
Rock River	Load Allocation	2.47	6.74	10.52	15.97	17.19	17.82	13.62	8.38	4.90	3.85	2.71	2.37	3241.12
Oconomowoc River to Mile 270	Background	0.58	1.16	1.07	0.71	0.59	1.06	1.07	1.11	0.65	0.73	0.32	0.34	284.87
	Ag/Non-Permitted Urban	1.89	5.58	9.45	15.26	16.60	16.76	12.55	7.27	4.25	3.12	2.39	2.03	2956.25
	Wasteload Allocation	11.23	16.59	13.82	10.62	8.73	8.30	9.06	8.94	8.83	7.21	8.24	9.14	1900.33
	General Permit Sources	0.02	0.03	0.02	0.03	0.03	0.08	0.12	0.12	0.08	0.01	0.01	0.01	17.07
	MS4	0.89	1.61	1.65	1.99	1.86	2.20	2.93	2.53	1.87	1.12	0.87	0.86	620.02
	WWTF	10.32	14.95	12.15	8.60	6.84	6.02	6.01	6.29	6.88	6.08	7.36	8.27	1263.24
22	Total Loading Capacity	0.97	1.37	1.46	1.82	1.88	1.75	1.26	0.92	0.83	0.80	0.79	0.83	445.78
Flynn Creek	Load Allocation	0.97	1.37	1.46	1.82	1.88	1.75	1.26	0.92	0.83	0.80	0.79	0.83	445.78
Mile 0 to 6	Background	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.04	0.03	0.02	6.43
	Ag/Non-Permitted Urban	0.97	1.37	1.45	1.81	1.86	1.73	1.24	0.90	0.81	0.76	0.76	0.81	439.35
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Total Loading Capacity	6.94	10.10	11.03	13.95	14.38	13.92	9.95	7.59	6.71	6.49	5.99	5.87	3429.65
Oconomowoc River	Load Allocation	2.88	5.49	7.33	10.55	10.57	9.06	5.41	3.95	3.72	3.88	3.17	2.62	2084.56
Mason Creek to Flynn Creek	Background	0.11	0.20	0.23	0.37	0.39	0.62	0.47	0.72	1.10	1.09	0.77	0.13	188.74
	Ag/Non-Permitted Urban	2.77	5.29	7.10	10.18	10.18	8.44	4.94	3.23	2.62	2.79	2.40	2.49	1895.82
	Wasteload Allocation	4.06	4.61	3.70	3.40	3.81	4.86	4.54	3.64	2.99	2.61	2.82	3.25	1345.09
	General Permit Sources	0.01	0.01	0.01	0.03	0.08	0.08	0.08	0.04	0.04	0.03	0.02	0.01	13.44
	MS4	4.05	4.60	3.69	3.37	3.73	4.78	4.46	3.60	2.95	2.58	2.80	3.24	1331.65
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	Total Loading Capacity	0.85	1.40	1.59	1.99	2.04	2.01	1.45	1.15	0.95	0.89	0.70	0.66	476.23
Mason Creek	Load Allocation	0.33	0.80	1.15	1.66	1.70	1.51	0.93	0.66	0.55	0.55	0.35	0.28	318.10
Mile 0 to 5.2	Background	0.00	0.01	0.02	0.03	0.03	0.04	0.03	0.05	0.03	0.04	0.01	0.01	9.16
	Ag/Non-Permitted Urban	0.33	0.79	1.13	1.63	1.67	1.47	0.90	0.61	0.52	0.51	0.34	0.27	308.94
	Wasteload Allocation	0.52	0.60	0.44	0.33	0.34	0.50	0.52	0.49	0.40	0.34	0.35	0.38	158.13
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.52	0.60	0.44	0.33	0.34	0.50	0.52	0.49	0.40	0.34	0.35	0.38	158.13
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	Total Loading Capacity	21.79	26.61	26.66	28.46	26.42	26.36	21.20	18.48	17.14	17.63	20.14	19.46	4316.84
Oconomowoc River	Load Allocation	0.40	0.80	1.55	2.05	2.49	2.21	1.87	1.18	0.88	0.79	0.67	0.50	468.88
Battle Creek to Mason Creek	Background	0.06	0.07	0.10	0.14	0.15	0.18	0.14	0.13	0.06	0.13	0.13	0.13	43.30
	Ag/Non-Permitted Urban	0.34	0.73	1.45	1.91	2.34	2.03	1.73	1.05	0.82	0.66	0.54	0.37	425.58
	Wasteload Allocation	21.39	25.81	25.11	26.41	23.93	24.15	19.33	17.30	16.26	16.84	19.47	18.96	3847.96
	General Permit Sources	0.05	0.23	0.23	0.25	0.10	0.09	0.30	0.30	0.30	0.06	0.05	0.04	60.62
	MS4	1.13	1.94	2.51	3.43	3.77	4.54	4.23	3.29	2.49	2.03	1.74	1.33	987.31
	WWTF	20.21	23.64	22.37	22.73	20.06	19.52	14.80	13.71	13.47	14.75	17.68	17.59	2800.03

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
26	Total Loading Capacity	1.60	2.20	2.45	2.75	2.64	2.80	2.38	1.91	1.51	1.39	1.53	1.38	745.55
Battle Creek	Load Allocation	0.34	0.57	0.93	1.11	1.17	1.06	0.83	0.59	0.66	0.60	0.60	0.28	265.80
Mile 2.1 to 4.6	Background	0.02	0.04	0.09	0.18	0.15	0.19	0.17	0.18	0.41	0.38	0.38	0.06	68.47
	Ag/Non-Permitted Urban	0.32	0.53	0.84	0.93	1.02	0.87	0.66	0.41	0.25	0.22	0.22	0.22	197.33
	Wasteload Allocation	1.26	1.63	1.52	1.64	1.47	1.74	1.55	1.32	0.85	0.79	0.93	1.10	479.75
	General Permit Sources	0.00	0.02	0.02	0.03	0.01	0.01	0.03	0.03	0.03	0.01	0.01	0.00	6.06
	MS4	1.26	1.61	1.50	1.61	1.46	1.73	1.52	1.29	0.82	0.78	0.92	1.10	473.69
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Total Loading Capacity	1.77	2.46	2.72	3.05	3.04	3.27	2.78	2.31	1.72	1.54	1.54	1.49	841.43
Oconomowoc River	Load Allocation	1.44	2.07	2.45	2.81	2.82	2.98	2.47	2.00	1.47	1.35	1.31	1.22	741.31
Rock River to Battle Creek	Background	0.12	0.13	0.14	0.05	0.05	0.06	0.05	0.05	0.03	0.02	0.02	0.01	22.08
	Ag/Non-Permitted Urban	1.32	1.94	2.31	2.76	2.77	2.92	2.42	1.95	1.44	1.33	1.29	1.21	719.23
	Wasteload Allocation	0.33	0.39	0.27	0.24	0.22	0.29	0.31	0.31	0.25	0.19	0.23	0.27	100.12
	General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.00	0.00	0.00	3.34
	MS4	0.33	0.38	0.26	0.23	0.21	0.28	0.29	0.29	0.23	0.19	0.23	0.27	96.78
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Total Loading Capacity	14.76	20.48	22.42	25.96	28.82	30.79	26.71	19.55	16.67	15.32	15.53	13.56	7617.28
Rock River	Load Allocation	4.43	8.60	12.40	16.78	19.96	20.05	14.99	9.20	7.18	6.92	5.96	4.38	3980.58
Mile 249 to Oconomowoc River	Background	0.23	0.70	0.64	0.43	0.07	0.37	0.59	0.76	0.49	0.26	0.03	0.02	138.87
	Ag/Non-Permitted Urban	4.20	7.90	11.76	16.35	19.89	19.68	14.40	8.44	6.69	6.66	5.93	4.36	3841.71
	Wasteload Allocation	10.33	11.88	10.02	9.18	8.86	10.74	11.72	10.35	9.49	8.40	9.57	9.18	3636.70
	General Permit Sources	0.03	0.11	0.10	0.10	0.08	0.11	0.17	0.17	0.14	0.07	0.02	0.02	34.02
	MS4	10.30	11.77	9.92	9.08	8.78	10.63	11.55	10.18	9.35	8.33	9.55	9.16	3602.68
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	Total Loading Capacity	34.55	51.64	52.99	57.26	57.98	61.23	59.16	47.98	42.38	33.98	32.64	30.25	9093.27
Rock River	Load Allocation	1.27	4.02	7.49	11.53	16.40	16.05	13.08	5.99	4.83	3.21	2.46	1.10	2663.40
Johnson Creek to Mile 249	Background	0.24	0.34	0.28	0.18	0.98	1.54	2.10	1.22	1.27	0.59	0.61	0.10	288.33
	Ag/Non-Permitted Urban	1.03	3.68	7.21	11.35	15.42	14.51	10.98	4.77	3.56	2.62	1.85	1.00	2375.07
	Wasteload Allocation	33.28	47.62	45.50	45.73	41.58	45.18	46.08	41.99	37.55	30.77	30.18	29.15	6429.87
	General Permit Sources	0.02	0.03	0.03	0.03	0.06	0.10	0.16	0.13	0.10	0.04	0.04	0.02	23.20
	MS4	0.58	1.11	1.41	1.96	1.98	2.96	3.72	3.14	2.14	1.25	0.86	0.69	664.55
	WWTF	32.68	46.48	44.06	43.74	39.54	42.12	42.20	38.72	35.31	29.48	29.28	28.44	5742.12
30	Total Loading Capacity	2.58	5.51	6.83	8.79	10.10	10.85	9.64	7.06	5.23	3.63	2.31	1.96	2265.48
Johnson Creek	Load Allocation	1.20	3.48	5.06	7.54	8.81	9.75	7.65	5.03	3.27	2.48	1.43	1.10	1728.37
Mile 0 to 17.5	Background	0.12	0.46	0.43	0.61	0.30	0.62	0.39	0.39	0.07	0.26	0.27	0.26	126.63
	Ag/Non-Permitted Urban	1.08	3.02	4.63	6.93	8.51	9.13	7.26	4.64	3.20	2.22	1.16	0.84	1601.74
	Wasteload Allocation	1.38	2.03	1.77	1.25	1.29	1.10	1.99	2.03	1.96	1.15	0.88	0.86	537.11
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.92
	MS4	1.38	2.03	1.77	1.25	1.29	1.10	1.98	2.02	1.95	1.15	0.88	0.86	536.19
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component			Daily TP Load (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
31	Total Loading Capacity			8.46	13.78	14.95	17.22	17.07	17.08	14.93	12.23	10.64	8.36	7.16	6.90	2215.30
Rock River		Load Allocation		0.25	0.85	1.64	2.37	2.76	2.58	2.39	1.45	1.04	0.59	0.37	0.22	502.90
Crawfish River to Johnson Creek			Background	0.05	0.07	0.09	0.06	0.05	0.08	0.06	0.06	0.03	0.02	0.02	0.00	17.89
			Ag/Non-Permitted Urban	0.20	0.78	1.55	2.31	2.71	2.50	2.33	1.39	1.01	0.57	0.35	0.22	485.01
		Wasteload Allocation		8.21	12.93	13.31	14.85	14.31	14.50	12.54	10.78	9.60	7.77	6.79	6.68	1712.40
			General Permit Sources	0.05	0.06	0.09	0.09	0.10	0.14	0.34	0.33	0.33	0.12	0.11	0.05	55.26
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	8.16	12.87	13.22	14.76	14.21	14.36	12.20	10.45	9.27	7.65	6.68	6.63	1657.14
32	Total Loading Capacity			0.32	1.10	1.47	2.04	2.19	2.34	1.68	0.83	0.28	0.15	0.11	0.11	383.15
Alto Creek		Load Allocation		0.32	1.10	1.47	2.04	2.19	2.34	1.68	0.83	0.28	0.15	0.11	0.11	383.15
Mile 0 to 6.15			Background	0.00	0.02	0.02	0.16	0.20	0.22	0.10	0.15	0.13	0.11	0.00	0.00	33.84
			Ag/Non-Permitted Urban	0.32	1.08	1.45	1.88	1.99	2.12	1.58	0.68	0.15	0.04	0.11	0.11	349.31
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	Total Loading Capacity			8.77	23.76	27.51	33.00	35.15	35.57	25.00	12.92	5.30	3.60	3.72	3.70	4952.70
Mill Creek, Beaver Dam Lake		Load Allocation		0.97	5.08	9.17	16.89	20.40	20.61	12.98	5.46	2.34	1.79	0.66	0.55	2948.16
Beaver Dam to Fox Lake			Background	0.01	0.02	0.03	0.04	0.87	1.10	1.06	1.49	1.34	1.29	0.02	0.01	223.12
			Ag/Non-Permitted Urban	0.96	5.06	9.14	16.85	19.53	19.51	11.92	3.97	1.00	0.50	0.64	0.54	2725.04
		Wasteload Allocation		7.80	18.68	18.34	16.11	14.75	14.96	12.02	7.46	2.96	1.81	3.06	3.15	2004.54
			General Permit Sources	0.02	0.03	0.02	0.05	0.12	0.23	0.24	0.23	0.15	0.12	0.06	0.04	40.03
			MS4	0.71	2.14	2.59	3.46	3.66	4.52	4.37	2.25	0.69	0.31	0.39	0.34	772.85
			WWTF	7.07	16.51	15.73	12.60	10.97	10.21	7.41	4.98	2.12	1.38	2.61	2.77	1191.66
34	Total Loading Capacity			5.42	6.27	5.83	6.22	6.03	6.33	6.08	5.94	5.93	5.60	5.66	5.42	927.18
Beaver Dam River		Load Allocation		0.01	0.10	0.17	0.23	0.23	0.19	0.14	0.05	0.05	0.04	0.03	0.01	37.95
Calamus Creek to Mile 30			Background	0.00	0.04	0.03	0.04	0.01	0.02	0.02	0.01	0.01	0.01	0.00	0.00	5.70
			Ag/Non-Permitted Urban	0.01	0.06	0.14	0.19	0.22	0.17	0.12	0.04	0.04	0.03	0.03	0.01	32.25
		Wasteload Allocation		5.41	6.17	5.66	5.99	5.80	6.14	5.94	5.89	5.88	5.56	5.63	5.41	889.23
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.04	0.03	0.02	0.02	0.01	9.74
			WWTF	5.40	6.15	5.64	5.96	5.77	6.10	5.89	5.85	5.85	5.54	5.61	5.40	879.49
35	Total Loading Capacity			2.95	4.91	6.17	8.17	8.53	8.61	7.31	6.11	5.23	4.32	3.52	2.92	2090.99
Calamus Creek		Load Allocation		2.95	4.91	6.17	8.17	8.53	8.61	7.31	6.11	5.23	4.32	3.52	2.92	2090.99
Mile 0 to 17			Background	0.01	0.01	0.01	0.02	0.03	0.03	0.02	0.03	0.03	0.03	0.00	0.01	7.02
			Ag/Non-Permitted Urban	2.94	4.90	6.16	8.15	8.50	8.58	7.29	6.08	5.20	4.29	3.52	2.91	2083.97
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
36	Total Loading Capacity	0.46	1.16	1.56	2.11	2.13	2.26	2.01	1.56	1.20	0.89	0.68	0.51	502.70
Beaver Dam River	Load Allocation	0.46	1.16	1.56	2.11	2.13	2.26	2.01	1.56	1.20	0.89	0.68	0.51	502.70
Mile 14 to Calamus Creek	Background	0.01	0.15	0.13	0.16	0.06	0.10	0.07	0.05	0.03	0.03	0.02	0.02	24.97
	Ag/Non-Permitted Urban	0.45	1.01	1.43	1.95	2.07	2.16	1.94	1.51	1.17	0.86	0.66	0.49	477.73
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Total Loading Capacity	0.18	0.58	0.79	1.16	1.16	1.28	1.06	0.85	0.60	0.46	0.32	0.22	263.36
Park Creek	Load Allocation	0.10	0.22	0.30	0.58	0.61	0.66	0.41	0.23	0.08	0.07	0.04	0.06	102.14
Mile 0 to 3	Background	0.09	0.13	0.08	0.14	0.12	0.21	0.09	0.10	0.01	0.02	0.01	0.05	31.79
	Ag/Non-Permitted Urban	0.01	0.09	0.22	0.44	0.49	0.45	0.32	0.13	0.07	0.05	0.03	0.01	70.35
	Wasteload Allocation	0.08	0.36	0.49	0.58	0.55	0.62	0.65	0.62	0.52	0.39	0.28	0.16	161.22
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.08	0.36	0.49	0.58	0.55	0.62	0.65	0.62	0.52	0.39	0.28	0.16	161.22
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	Total Loading Capacity	0.12	0.36	0.48	0.71	0.73	0.80	0.69	0.53	0.40	0.29	0.23	0.16	167.28
Schultz Creek	Load Allocation	0.12	0.36	0.48	0.71	0.73	0.80	0.69	0.53	0.40	0.29	0.23	0.16	167.28
Mile 0 to 5	Background	0.02	0.05	0.02	0.09	0.07	0.10	0.03	0.12	0.09	0.09	0.00	0.02	21.27
	Ag/Non-Permitted Urban	0.10	0.31	0.46	0.62	0.66	0.70	0.66	0.41	0.31	0.20	0.23	0.14	146.01
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	Total Loading Capacity	1.02	2.57	3.43	4.65	4.70	4.98	4.44	3.45	2.65	1.96	1.50	1.11	1108.77
Shaw Brook	Load Allocation	0.37	1.62	2.65	4.16	4.10	4.11	3.15	2.11	1.41	1.04	0.62	0.41	783.09
Beaver Dam River to Schultz Creek	Background	0.03	0.34	0.28	0.35	0.14	0.22	0.16	0.12	0.07	0.07	0.04	0.04	55.96
	Ag/Non-Permitted Urban	0.34	1.28	2.37	3.81	3.96	3.89	2.99	1.99	1.34	0.97	0.58	0.37	727.13
	Wasteload Allocation	0.65	0.95	0.78	0.49	0.60	0.87	1.29	1.34	1.24	0.92	0.88	0.70	325.68
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.65	0.95	0.78	0.49	0.60	0.87	1.29	1.34	1.24	0.92	0.88	0.70	325.68
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	Total Loading Capacity	6.24	10.86	13.11	15.15	14.89	14.31	11.89	10.49	9.70	8.33	6.80	5.65	2664.62
Beaver Dam River	Load Allocation	0.85	3.64	5.72	9.23	9.35	8.84	7.22	4.92	3.67	2.42	1.44	0.97	1772.27
Casper Creek to Mile 14	Background	0.01	1.17	1.05	1.22	0.20	0.30	0.19	0.16	0.07	0.04	0.01	0.01	132.22
	Ag/Non-Permitted Urban	0.84	2.47	4.67	8.01	9.15	8.54	7.03	4.76	3.60	2.38	1.43	0.96	1640.05
	Wasteload Allocation	5.39	7.22	7.39	5.92	5.54	5.47	4.67	5.57	6.03	5.91	5.36	4.68	892.35
	General Permit Sources	0.01	0.02	0.01	0.02	0.05	0.11	0.20	0.16	0.14	0.03	0.03	0.01	24.13
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	5.38	7.20	7.38	5.90	5.49	5.36	4.47	5.41	5.89	5.88	5.33	4.67	868.22

Reach Waterbody Name and Extents	Allocation Component			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
				Daily TP Load (lbs/day)												
41	Total Loading Capacity			0.71	1.20	1.56	1.90	2.36	2.53	2.44	1.79	1.44	1.11	0.89	0.68	566.55
Casper Creek		Load Allocation		0.71	1.20	1.56	1.90	2.36	2.53	2.44	1.79	1.44	1.11	0.89	0.68	566.55
Mile 0 to 2			Background	0.02	0.11	0.10	0.09	0.27	0.38	0.37	0.14	0.04	0.07	0.04	0.04	50.89
			Ag/Non-Permitted Urban	0.69	1.09	1.46	1.81	2.09	2.15	2.07	1.65	1.40	1.04	0.85	0.64	515.66
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	Total Loading Capacity			0.98	1.61	2.07	2.60	3.36	3.74	3.63	2.70	2.19	1.65	1.31	0.98	816.75
Beaver Dam River		Load Allocation		0.98	1.61	2.07	2.60	3.36	3.74	3.63	2.70	2.19	1.65	1.31	0.98	816.75
Lau Creek to Casper Creek			Background	0.00	0.51	0.49	0.57	1.06	1.22	2.03	1.56	1.46	0.51	0.01	0.01	287.54
			Ag/Non-Permitted Urban	0.98	1.10	1.58	2.03	2.30	2.52	1.60	1.14	0.73	1.14	1.30	0.97	529.21
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	Total Loading Capacity			1.06	1.71	2.14	2.67	3.54	4.07	3.97	2.93	2.32	1.72	1.35	1.00	867.34
Lau Creek		Load Allocation		1.06	1.71	2.14	2.67	3.54	4.07	3.97	2.93	2.32	1.72	1.35	1.00	867.34
Mile 0 to 6			Background	0.02	0.10	0.09	0.14	0.08	0.18	0.41	0.42	0.34	0.03	0.00	0.00	55.15
			Ag/Non-Permitted Urban	1.04	1.61	2.05	2.53	3.46	3.89	3.56	2.51	1.98	1.69	1.35	1.00	812.19
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	Total Loading Capacity			0.34	0.57	0.72	0.91	1.18	1.32	1.27	0.95	0.77	0.58	0.46	0.34	286.54
Beaver Dam River		Load Allocation		0.34	0.57	0.72	0.91	1.18	1.32	1.27	0.95	0.77	0.58	0.46	0.34	286.54
Mile 0 to Lau Creek			Background	0.00	0.18	0.17	0.20	0.37	0.43	0.71	0.55	0.51	0.18	0.00	0.00	100.62
			Ag/Non-Permitted Urban	0.34	0.39	0.55	0.71	0.81	0.89	0.56	0.40	0.26	0.40	0.46	0.34	185.92
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	Total Loading Capacity			7.63	11.23	14.84	20.16	23.02	23.62	18.64	13.85	11.10	9.85	8.88	7.19	5172.86
Maunesha River		Load Allocation		3.23	6.87	12.29	18.56	21.14	20.23	14.58	9.75	6.93	5.79	4.36	2.96	3856.70
Mile 13.21 to 31.8			Background	0.02	0.04	1.22	1.75	1.76	1.55	1.19	1.14	0.36	0.18	0.14	0.01	286.24
			Ag/Non-Permitted Urban	3.21	6.83	11.07	16.81	19.38	18.68	13.39	8.61	6.57	5.61	4.22	2.95	3570.46
		Wasteload Allocation		4.40	4.36	2.55	1.60	1.88	3.39	4.06	4.10	4.17	4.06	4.52	4.23	1316.16
			General Permit Sources	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.06	0.05	0.02	0.02	0.01	13.72
			MS4	4.39	4.34	2.52	1.56	1.83	3.33	3.98	4.04	4.12	4.04	4.50	4.22	1302.44
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
46	Total Loading Capacity	8.78	11.77	11.40	12.03	11.53	11.90	11.51	10.92	11.47	9.73	9.31	8.02	2250.71
Maunesha River	Load Allocation	0.76	2.10	3.67	5.07	5.02	4.07	4.00	3.26	3.16	1.88	1.08	0.62	1055.71
Mile 5.5 to 13.2	Background	0.20	0.32	0.36	0.20	0.10	0.03	0.49	0.73	0.74	0.25	0.01	0.03	105.32
	Ag/Non-Permitted Urban	0.56	1.78	3.31	4.87	4.92	4.04	3.51	2.53	2.42	1.63	1.07	0.59	950.39
	Wasteload Allocation	8.02	9.67	7.73	6.96	6.51	7.83	7.51	7.66	8.31	7.85	8.23	7.40	1195.00
	General Permit Sources	0.01	0.01	0.01	0.01	0.01	0.03	0.05	0.07	0.05	0.02	0.01	0.01	8.86
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	8.01	9.66	7.72	6.95	6.50	7.80	7.46	7.59	8.26	7.83	8.22	7.39	1186.14
47	Total Loading Capacity	2.37	3.33	3.43	3.89	3.71	3.74	3.22	2.92	2.85	2.57	2.44	2.22	601.91
Maunesha River	Load Allocation	0.20	0.50	0.81	1.03	0.99	0.74	0.95	0.87	0.86	0.41	0.18	0.12	233.15
Stony Brook to Mile 13.2	Background	0.14	0.22	0.24	0.13	0.06	0.03	0.35	0.49	0.49	0.18	0.04	0.05	73.67
	Ag/Non-Permitted Urban	0.06	0.28	0.57	0.90	0.93	0.71	0.60	0.38	0.37	0.23	0.14	0.07	159.48
	Wasteload Allocation	2.17	2.83	2.62	2.86	2.72	3.00	2.27	2.05	1.99	2.16	2.26	2.10	368.76
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	2.17	2.83	2.62	2.86	2.72	3.00	2.27	2.05	1.99	2.16	2.26	2.10	368.76
48	Total Loading Capacity	2.52	4.34	5.28	6.56	6.20	5.68	4.82	4.16	3.89	3.23	2.72	2.38	1573.31
Stony Brook	Load Allocation	2.52	4.34	5.28	6.56	6.20	5.68	4.82	4.16	3.89	3.23	2.72	2.38	1573.31
Mile 0 to 15	Background	0.24	0.38	0.33	0.29	0.18	0.20	0.52	1.78	1.83	1.28	0.01	0.02	215.39
	Ag/Non-Permitted Urban	2.28	3.96	4.95	6.27	6.02	5.48	4.30	2.38	2.06	1.95	2.71	2.36	1357.92
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	Total Loading Capacity	0.23	0.37	0.44	0.52	0.51	0.47	0.44	0.39	0.38	0.28	0.23	0.19	135.24
Maunesha River	Load Allocation	0.23	0.37	0.44	0.52	0.51	0.47	0.44	0.39	0.38	0.28	0.23	0.19	135.24
Mile 0 to Stony Brook	Background	0.04	0.06	0.06	0.03	0.02	0.01	0.09	0.13	0.13	0.05	0.01	0.01	19.48
	Ag/Non-Permitted Urban	0.19	0.31	0.38	0.49	0.49	0.46	0.35	0.26	0.25	0.23	0.22	0.18	115.76
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	Total Loading Capacity	1.20	2.38	3.11	4.17	4.22	4.29	3.62	3.00	2.36	1.94	1.46	1.24	1003.27
Mud Creek	Load Allocation	1.20	2.38	3.11	4.17	4.22	4.29	3.62	3.00	2.36	1.94	1.46	1.24	1003.27
Mile 0 to 10	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	1.20	2.38	3.11	4.17	4.22	4.29	3.62	3.00	2.36	1.94	1.46	1.24	1003.27
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
51	Total Loading Capacity	44.43	65.61	72.33	87.01	92.97	94.94	78.45	66.58	58.79	52.81	46.87	40.86	16019.39
Crawfish River	Load Allocation	4.02	14.10	25.84	48.25	57.11	59.60	42.92	27.54	18.57	14.13	7.54	4.82	9881.38
Maunesha River to Mud Creek	Background	0.02	0.20	0.36	2.01	3.11	3.05	1.53	2.27	2.53	2.29	0.23	0.02	537.80
	Ag/Non-Permitted Urban	4.00	13.90	25.48	46.24	54.00	56.55	41.39	25.27	16.04	11.84	7.31	4.80	9343.58
	Wasteload Allocation	40.41	51.51	46.49	38.76	35.86	35.34	35.53	39.04	40.22	38.68	39.33	36.04	6138.01
	General Permit Sources	0.03	0.07	0.05	0.12	0.19	0.27	0.30	0.36	0.32	0.20	0.05	0.03	60.72
	MS4	0.09	0.11	0.13	0.17	0.18	0.25	0.39	0.37	0.29	0.17	0.12	0.09	72.00
	WWTF	40.29	51.33	46.31	38.47	35.49	34.82	34.84	38.31	39.61	38.31	39.16	35.92	6005.29
52	Total Loading Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawfish River	Load Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beaver Dam River to Maunesha Creek	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	Total Loading Capacity	60.82	89.36	95.66	113.39	115.55	116.75	97.24	86.12	81.78	70.81	62.49	54.27	19704.25
Crawfish River	Load Allocation	8.12	20.88	35.44	51.24	53.07	49.89	44.08	34.14	27.02	18.04	11.06	7.50	10973.03
Rock River to Beaver Dam River	Background	0.74	1.35	1.46	0.82	0.33	0.02	1.43	2.21	2.33	1.08	0.31	0.32	376.87
	Ag/Non-Permitted Urban	7.38	19.53	33.98	50.42	52.74	49.87	42.65	31.93	24.69	16.96	10.75	7.18	10596.16
	Wasteload Allocation	52.70	68.48	60.22	62.15	62.48	66.86	53.16	51.98	54.76	52.77	51.43	46.77	8731.22
	General Permit Sources	0.06	0.09	0.11	0.11	0.11	0.17	0.48	0.65	0.58	0.22	0.02	0.03	80.38
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	52.64	68.39	60.11	62.04	62.37	66.69	52.68	51.33	54.18	52.55	51.41	46.74	8650.84
54	Total Loading Capacity	8.85	14.29	16.31	19.60	17.83	16.57	14.36	12.28	11.18	9.47	8.80	8.57	2333.13
Rock River	Load Allocation	0.21	0.61	1.70	2.83	3.64	2.94	2.24	1.23	1.07	0.67	0.54	0.21	545.38
Bark River to Crawfish River	Background	0.00	0.04	0.13	0.13	0.19	0.16	0.45	0.37	0.54	0.22	0.22	0.00	74.78
	Ag/Non-Permitted Urban	0.21	0.57	1.57	2.70	3.45	2.78	1.79	0.86	0.53	0.45	0.32	0.21	470.60
	Wasteload Allocation	8.64	13.68	14.61	16.77	14.19	13.63	12.12	11.05	10.11	8.80	8.26	8.36	1787.75
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.01	0.02	0.03	0.04	0.04	0.05	0.06	0.05	0.03	0.02	0.01	0.01	11.28
	WWTF	8.63	13.66	14.58	16.73	14.15	13.58	12.06	11.00	10.08	8.78	8.25	8.35	1776.47
55	Total Loading Capacity	16.26	28.15	30.53	38.55	35.94	35.37	27.13	20.81	16.10	12.44	12.38	13.91	5585.13
Bark River	Load Allocation	4.06	6.79	9.51	10.20	10.75	8.16	4.98	2.29	1.78	2.01	1.76	1.48	1934.60
Mile 35 to 41	Background	3.65	5.51	6.61	4.39	3.70	2.16	1.27	0.68	0.86	1.31	1.16	0.95	974.65
	Ag/Non-Permitted Urban	0.41	1.28	2.90	5.81	7.05	6.00	3.71	1.61	0.92	0.70	0.60	0.53	959.95
	Wasteload Allocation	12.20	21.36	21.02	28.35	25.19	27.21	22.15	18.52	14.32	10.43	10.62	12.43	3650.53
	General Permit Sources	0.10	0.21	0.25	0.22	0.14	0.11	0.40	0.41	0.42	0.09	0.06	0.04	74.51
	MS4	0.96	2.33	2.96	5.31	5.56	7.11	6.64	4.90	3.05	1.78	1.33	1.26	1315.10
	WWTF	11.14	18.82	17.81	22.82	19.49	19.99	15.11	13.21	10.85	8.56	9.23	11.13	2260.92

Reach Waterbody Name and Extents	Allocation Component	Daily TP Load (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
56	Total Loading Capacity	7.55	14.48	15.48	17.74	17.03	16.93	12.51	9.19	6.99	4.93	3.90	4.30	2716.85
Bark River	Load Allocation	2.02	4.29	6.99	9.67	10.01	8.80	6.24	3.57	2.14	1.34	0.93	0.83	1727.32
Scuppernong River to Mile 35	Background	1.04	1.16	1.05	0.13	0.15	0.39	0.31	0.32	0.09	0.14	0.11	0.11	150.80
	Ag/Non-Permitted Urban	0.98	3.13	5.94	9.54	9.86	8.41	5.93	3.25	2.05	1.20	0.82	0.72	1576.52
	Wasteload Allocation	5.53	10.19	8.49	8.07	7.02	8.13	6.27	5.62	4.85	3.59	2.97	3.47	989.53
	General Permit Sources	0.01	0.01	0.01	0.01	0.01	0.02	0.05	0.05	0.05	0.01	0.01	0.01	7.63
	MS4	0.07	0.16	0.17	0.26	0.27	0.44	0.44	0.34	0.20	0.10	0.06	0.06	78.23
	WWTF	5.45	10.02	8.31	7.80	6.74	7.67	5.78	5.23	4.60	3.48	2.90	3.40	903.67
57	Total Loading Capacity	4.72	5.31	5.23	5.89	6.15	6.31	5.44	4.83	4.39	4.33	4.48	4.60	868.74
Spring Creek	Load Allocation	0.07	0.26	0.42	0.64	0.83	0.71	0.56	0.25	0.24	0.16	0.17	0.11	134.48
Mile 0 to 5	Background	0.01	0.15	0.14	0.13	0.01	0.01	0.03	0.03	0.03	0.00	0.00	0.00	16.12
	Ag/Non-Permitted Urban	0.06	0.11	0.28	0.51	0.82	0.70	0.53	0.22	0.21	0.16	0.17	0.11	118.36
	Wasteload Allocation	4.65	5.05	4.81	5.25	5.32	5.60	4.88	4.58	4.15	4.17	4.31	4.49	734.26
	General Permit Sources	0.01	0.05	0.04	0.04	0.02	0.04	0.05	0.04	0.02	0.01	0.01	0.01	10.28
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	4.64	5.00	4.77	5.21	5.30	5.56	4.83	4.54	4.13	4.16	4.30	4.48	723.98
58	Total Loading Capacity	0.61	0.84	1.02	1.28	1.48	1.45	1.09	0.75	0.55	0.52	0.48	0.50	321.39
Steel Brook	Load Allocation	0.61	0.84	1.02	1.28	1.48	1.45	1.09	0.75	0.55	0.52	0.48	0.50	321.39
Mile 3 to 4	Background	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.00	0.00	0.00	2.75
	Ag/Non-Permitted Urban	0.61	0.84	1.02	1.27	1.47	1.44	1.07	0.73	0.53	0.52	0.48	0.50	318.64
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	Total Loading Capacity	27.14	37.34	41.39	46.95	49.29	47.11	36.69	27.69	22.71	23.56	23.26	25.14	6958.03
Steel Brook, Scuppernong River, Bark River	Load Allocation	2.81	5.05	8.87	13.17	15.90	13.12	9.23	4.64	3.64	3.07	2.86	1.97	2566.29
Rock River to Steel Brook, Spring Creek	Background	1.64	1.81	1.70	0.14	0.17	0.20	0.56	0.52	0.56	0.15	0.16	0.05	230.97
	Ag/Non-Permitted Urban	1.17	3.24	7.17	13.03	15.73	12.92	8.67	4.12	3.08	2.92	2.70	1.92	2335.32
	Wasteload Allocation	24.33	32.29	32.52	33.78	33.39	33.99	27.46	23.05	19.07	20.49	20.40	23.17	4391.74
	General Permit Sources	0.03	0.04	0.06	0.06	0.14	0.24	0.28	0.22	0.12	0.07	0.05	0.03	40.95
	MS4	0.41	0.70	0.91	1.28	1.59	2.26	2.31	1.75	1.11	0.84	0.54	0.49	432.60
	WWTF	23.89	31.55	31.55	32.44	31.66	31.49	24.87	21.08	17.84	19.58	19.81	22.65	3918.19
60	Total Loading Capacity	35.28	51.41	57.41	67.48	66.73	61.67	47.92	36.38	30.91	28.06	28.01	29.77	8042.03
Rock River	Load Allocation	0.62	1.64	3.88	5.73	6.69	4.72	2.66	1.23	0.87	0.95	0.73	0.56	921.71
Mile 213 to Bark River	Background	0.02	0.03	0.03	0.02	0.07	0.09	0.09	0.04	0.01	0.00	0.00	0.01	12.50
	Ag/Non-Permitted Urban	0.60	1.61	3.85	5.71	6.62	4.63	2.57	1.19	0.86	0.95	0.73	0.55	909.21
	Wasteload Allocation	34.66	49.77	53.53	61.75	60.04	56.95	45.26	35.15	30.04	27.11	27.28	29.21	7120.32
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.88	1.86	2.66	3.98	4.89	5.72	5.48	3.72	2.55	1.68	1.23	1.00	1086.09
	WWTF	33.78	47.91	50.87	57.77	55.15	51.23	39.78	31.43	27.49	25.43	26.05	28.21	6034.23

Reach Waterbody Name and Extents	Allocation Component	Daily TP Load (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
61	Total Loading Capacity	458.23	684.62	517.23	353.21	573.00	134.14	102.46	22.83	168.47	133.36	154.54	276.94	57446.28
Rock River	Load Allocation	24.85	56.59	82.66	76.85	154.13	33.93	25.19	4.24	25.89	18.06	17.39	20.65	16429.50
Mile 201 to 207	Background	0.68	0.76	0.76	0.19	0.34	0.53	0.47	0.28	0.56	0.52	0.56	0.04	172.27
	Ag/Non-Permitted Urban	24.17	55.83	81.90	76.66	153.79	33.40	24.72	3.96	25.33	17.54	16.83	20.61	16257.23
	Wasteload Allocation	433.38	628.03	434.57	276.36	418.87	100.21	77.27	18.59	142.58	115.30	137.15	256.29	41016.78
	General Permit Sources	0.27	0.13	0.16	0.14	0.23	0.39	0.68	0.57	0.45	0.12	0.29	0.22	111.49
	MS4	10.57	21.67	19.03	16.04	29.29	9.19	8.83	1.85	11.22	6.61	5.40	8.07	4474.01
	WWTF	422.54	606.23	415.38	260.18	389.35	90.63	67.76	16.17	130.91	108.57	131.46	248.00	36431.28
62	Total Loading Capacity	2.03	2.98	3.68	3.88	4.06	3.44	2.90	2.07	1.90	1.74	1.65	1.57	969.09
Pheasant Branch Creek	Load Allocation	0.56	1.28	2.38	2.84	2.83	1.85	1.19	0.75	0.76	0.69	0.57	0.42	489.86
Mile 1 to 9	Background	0.08	0.13	0.23	0.29	0.29	0.17	0.28	0.29	0.42	0.22	0.16	0.05	79.48
	Ag/Non-Permitted Urban	0.48	1.15	2.15	2.55	2.54	1.68	0.91	0.46	0.34	0.47	0.41	0.37	410.38
	Wasteload Allocation	1.47	1.70	1.30	1.04	1.23	1.59	1.71	1.32	1.14	1.05	1.08	1.15	479.23
	General Permit Sources	0.01	0.01	0.02	0.03	0.09	0.09	0.14	0.10	0.11	0.06	0.04	0.02	22.02
	MS4	1.46	1.69	1.28	1.01	1.14	1.50	1.57	1.22	1.03	0.99	1.04	1.13	457.21
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63	Total Loading Capacity	1.10	1.85	2.55	3.48	3.77	4.04	3.46	2.74	1.92	1.39	1.16	0.99	865.80
Spring (Dorn) Creek	Load Allocation	0.70	1.30	2.05	3.04	3.27	3.41	2.57	1.83	1.11	0.78	0.52	0.46	640.26
Mile 1 to 6	Background	0.40	0.52	0.41	0.10	0.25	0.38	0.54	0.49	0.38	0.20	0.02	0.09	114.74
	Ag/Non-Permitted Urban	0.30	0.78	1.64	2.94	3.02	3.03	2.03	1.34	0.73	0.58	0.50	0.37	525.52
	Wasteload Allocation	0.40	0.55	0.50	0.44	0.50	0.63	0.89	0.91	0.81	0.61	0.64	0.53	225.54
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.40	0.55	0.50	0.44	0.50	0.63	0.89	0.91	0.81	0.61	0.64	0.53	225.54
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	Total Loading Capacity	33.10	49.51	60.64	70.88	74.29	76.45	68.57	53.93	42.35	33.11	32.05	29.01	17331.07
Yahara River, Lake Mendota, Lake Monona	Load Allocation	5.41	15.49	28.67	41.43	44.51	38.94	26.31	14.59	9.29	8.93	7.59	5.74	7510.18
Nine Springs Creek to Spring (Dorn) Creek,	Background	0.21	2.81	4.22	4.45	1.84	0.47	0.38	0.51	0.39	0.56	0.58	0.41	507.41
Pheasant Branch Creek	Ag/Non-Permitted Urban	5.20	12.68	24.45	36.98	42.67	38.47	25.93	14.08	8.90	8.37	7.01	5.33	7002.77
	Wasteload Allocation	27.69	34.02	31.97	29.45	29.78	37.51	42.26	39.34	33.06	24.18	24.46	23.27	9820.89
	General Permit Sources	0.64	0.16	0.23	0.31	0.31	0.48	0.50	0.51	0.24	0.14	0.63	0.64	146.35
	MS4	17.66	22.51	18.35	19.60	22.46	30.80	36.00	31.97	26.13	19.17	17.46	17.14	8495.23
	WWTF	9.39	11.35	13.39	9.54	7.01	6.23	5.76	6.86	6.69	4.87	6.37	5.49	1179.31
65	Total Loading Capacity	4.38	4.94	5.17	5.71	5.49	5.57	4.87	4.32	4.08	4.07	4.83	4.49	1468.60
Nine Springs Creek	Load Allocation	0.34	0.53	0.79	1.04	1.17	1.05	0.94	0.67	0.60	0.51	0.45	0.37	257.53
Mile 0 to 6	Background	0.05	0.07	0.03	0.08	0.16	0.18	0.23	0.14	0.17	0.06	0.04	0.04	38.07
	Ag/Non-Permitted Urban	0.29	0.46	0.76	0.96	1.01	0.87	0.71	0.53	0.43	0.45	0.41	0.33	219.46
	Wasteload Allocation	4.04	4.41	4.38	4.67	4.32	4.52	3.93	3.65	3.48	3.56	4.38	4.12	1211.07
	General Permit Sources	0.13	0.04	0.04	0.03	0.09	0.14	0.19	0.15	0.13	0.05	0.14	0.12	38.19
	MS4	1.76	2.36	2.56	3.31	3.22	3.49	3.09	2.75	2.41	2.34	2.31	2.06	962.86
	WWTF	2.15	2.01	1.78	1.33	1.01	0.89	0.65	0.75	0.94	1.17	1.93	1.94	210.02

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
66	Total Loading Capacity	12.13	17.22	20.83	26.38	28.76	30.00	26.09	20.21	16.06	13.43	13.06	11.76	7176.67
Yahara River, Lake Waubesa, Lake Kegonsa	Load Allocation	2.58	7.40	12.22	17.49	18.78	17.32	13.28	8.35	6.86	4.82	4.30	2.73	3531.86
Mile 16 to Nine Springs Creek, Lake Waubesa	Background	0.05	2.98	3.64	5.58	5.12	4.38	5.38	2.96	3.79	0.81	0.89	0.08	1081.88
	Ag/Non-Permitted Urban	2.53	4.42	8.58	11.91	13.66	12.94	7.90	5.39	3.07	4.01	3.41	2.65	2449.98
	Wasteload Allocation	9.55	9.82	8.61	8.89	9.98	12.68	12.81	11.86	9.20	8.61	8.76	9.03	3644.81
	General Permit Sources	0.08	0.02	0.02	0.03	0.06	0.10	0.14	0.10	0.09	0.04	0.10	0.09	26.59
	MS4	9.47	9.80	8.59	8.86	9.92	12.58	12.67	11.76	9.11	8.57	8.66	8.94	3618.22
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67	Total Loading Capacity	40.14	67.26	88.74	107.79	100.58	87.54	75.08	61.55	57.94	47.77	46.97	39.54	24945.88
Yahara River	Load Allocation	14.53	26.27	45.98	61.91	61.56	50.98	35.88	24.78	19.85	19.76	19.91	15.23	12064.38
Mile 16 to 22	Background	0.02	0.15	0.86	0.96	0.82	0.42	0.31	0.31	0.02	0.03	0.03	0.01	120.26
	Ag/Non-Permitted Urban	14.51	26.12	45.12	60.95	60.74	50.56	35.57	24.47	19.83	19.73	19.88	15.22	11944.12
	Wasteload Allocation	25.61	40.99	42.76	45.88	39.02	36.56	39.20	36.77	38.09	28.01	27.06	24.31	12881.50
	General Permit Sources	0.01	0.05	0.06	0.06	0.04	0.08	0.08	0.08	0.03	0.03	0.02	0.02	17.02
	MS4	25.60	40.94	42.70	45.82	38.98	36.48	39.12	36.69	38.06	27.98	27.04	24.29	12864.48
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	Total Loading Capacity	11.02	14.97	15.13	17.63	18.40	18.55	17.25	14.45	14.01	11.58	11.07	10.36	2878.15
Yahara River	Load Allocation	0.54	1.07	2.87	4.17	5.29	4.86	3.66	2.32	1.41	1.34	1.07	0.70	893.58
Mile 7 to 16	Background	0.03	0.18	1.02	1.14	0.98	0.50	0.37	0.37	0.03	0.03	0.03	0.01	143.15
	Ag/Non-Permitted Urban	0.51	0.89	1.85	3.03	4.31	4.36	3.29	1.95	1.38	1.31	1.04	0.69	750.43
	Wasteload Allocation	10.48	13.90	12.26	13.46	13.11	13.69	13.59	12.13	12.60	10.24	10.00	9.66	1984.57
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.21	0.42	0.48	0.69	0.76	1.04	1.33	1.07	0.87	0.48	0.33	0.25	241.64
	WWTF	10.27	13.48	11.78	12.77	12.35	12.65	12.26	11.06	11.73	9.76	9.67	9.41	1742.93
69	Total Loading Capacity	151.35	170.55	154.13	160.52	156.41	164.21	153.03	144.68	144.99	145.12	154.56	151.90	25446.67
Yahara River	Load Allocation	1.49	3.54	8.88	11.96	15.50	12.13	13.15	9.96	10.33	7.61	5.48	2.93	3141.24
Mile 0 to 7	Background	0.31	0.46	0.69	0.55	0.55	0.77	2.12	4.02	4.10	2.61	0.61	0.17	518.35
	Ag/Non-Permitted Urban	1.18	3.08	8.19	11.41	14.95	11.36	11.03	5.94	6.23	5.00	4.87	2.76	2622.89
	Wasteload Allocation	149.86	167.01	145.25	148.56	140.91	152.08	139.88	134.72	134.66	137.51	149.08	148.97	22305.43
	General Permit Sources	0.03	0.04	0.05	0.06	0.14	0.25	0.44	0.47	0.38	0.16	0.04	0.03	63.94
	MS4	0.08	0.13	0.14	0.19	0.23	0.32	0.37	0.31	0.25	0.18	0.14	0.10	74.35
	WWTF	149.75	166.84	145.06	148.31	140.54	151.51	139.07	133.94	134.03	137.17	148.90	148.84	22167.14
70	Total Loading Capacity	6.64	7.74	7.86	9.97	10.47	9.37	6.30	4.34	4.20	4.72	5.66	6.31	2538.56
Rock River	Load Allocation	3.69	4.45	5.63	7.90	8.57	6.71	3.49	2.12	1.95	2.80	3.47	3.85	1660.15
Mile 193 to 201	Background	0.01	0.01	0.02	0.02	0.00	0.00	0.01	0.07	0.27	0.28	0.24	0.04	29.51
	Ag/Non-Permitted Urban	3.68	4.44	5.61	7.88	8.57	6.71	3.48	2.05	1.68	2.52	3.23	3.81	1630.64
	Wasteload Allocation	2.95	3.29	2.23	2.07	1.90	2.66	2.81	2.22	2.25	1.92	2.19	2.46	878.41
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	2.95	3.29	2.23	2.07	1.90	2.66	2.81	2.22	2.25	1.92	2.19	2.46	878.41
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
71	Total Loading Capacity	7.85	10.41	13.56	17.93	18.46	15.61	8.93	5.45	4.03	4.82	5.83	6.37	3622.12
Rock River	Load Allocation	2.96	4.12	7.18	9.87	10.52	7.06	2.81	1.08	0.66	1.29	2.03	2.34	1577.54
Blackhawk Creek to Mile 193	Background	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	1.84
	Ag/Non-Permitted Urban	2.95	4.12	7.18	9.87	10.52	7.06	2.81	1.07	0.65	1.28	2.02	2.33	1575.70
	Wasteload Allocation	4.89	6.29	6.38	8.06	7.94	8.55	6.12	4.37	3.37	3.53	3.80	4.03	2044.58
	General Permit Sources	0.00	0.01	0.01	0.03	0.06	0.10	0.13	0.14	0.09	0.06	0.01	0.01	19.89
	MS4	4.89	6.28	6.37	8.03	7.88	8.45	5.99	4.23	3.28	3.47	3.79	4.02	2024.69
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	Total Loading Capacity	6.44	8.92	11.84	15.87	17.71	15.96	10.48	6.23	3.95	4.09	4.53	5.27	3382.92
Blackhawk Creek	Load Allocation	3.82	5.61	9.29	13.79	15.90	13.09	6.64	3.11	1.54	2.21	2.77	3.39	2467.94
Mile 2 to 4	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	1.53
	Ag/Non-Permitted Urban	3.82	5.61	9.29	13.79	15.90	13.09	6.64	3.10	1.53	2.20	2.76	3.38	2466.41
	Wasteload Allocation	2.62	3.31	2.55	2.08	1.81	2.87	3.84	3.12	2.41	1.88	1.76	1.88	914.98
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	2.62	3.31	2.55	2.08	1.81	2.87	3.84	3.12	2.41	1.88	1.76	1.88	914.98
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	Total Loading Capacity	4.64	6.10	8.00	11.00	11.86	11.04	7.28	4.86	2.97	2.97	3.39	3.97	2373.78
Blackhawk Creek	Load Allocation	1.17	1.75	3.62	5.88	7.11	5.27	2.50	1.13	0.63	0.94	1.11	1.21	983.78
Rock River to Mile 2	Background	0.00	0.00	0.04	0.05	0.04	0.00	0.01	0.01	0.01	0.00	0.00	0.00	4.90
	Ag/Non-Permitted Urban	1.17	1.75	3.58	5.83	7.07	5.27	2.49	1.12	0.62	0.94	1.11	1.21	978.88
	Wasteload Allocation	3.47	4.35	4.38	5.12	4.75	5.77	4.78	3.73	2.34	2.03	2.28	2.76	1390.00
	General Permit Sources	0.01	0.01	0.03	0.04	0.09	0.10	0.14	0.10	0.08	0.03	0.02	0.02	20.50
	MS4	3.46	4.34	4.35	5.08	4.66	5.67	4.64	3.63	2.26	2.00	2.26	2.74	1369.50
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	Total Loading Capacity	7.58	9.11	10.82	14.02	14.90	13.50	8.68	5.74	4.05	4.54	5.68	6.55	3195.69
Rock River	Load Allocation	2.39	2.87	4.45	5.85	6.62	4.89	2.32	1.00	0.65	1.12	1.78	2.05	1093.91
Mile 183 to Blackhawk Creek	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	2.39	2.87	4.45	5.85	6.62	4.89	2.32	1.00	0.65	1.12	1.78	2.05	1093.91
	Wasteload Allocation	5.19	6.24	6.37	8.17	8.28	8.61	6.36	4.74	3.40	3.42	3.90	4.50	2101.78
	General Permit Sources	0.02	0.08	0.07	0.08	0.05	0.09	0.10	0.10	0.06	0.04	0.02	0.02	22.14
	MS4	5.17	6.16	6.30	8.09	8.23	8.52	6.26	4.64	3.34	3.38	3.88	4.48	2079.64
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	Total Loading Capacity	2.47	2.61	2.97	3.82	3.99	3.39	1.87	1.17	0.90	1.20	1.77	2.11	858.66
Markham Creek	Load Allocation	1.27	1.45	2.17	2.90	3.01	1.92	0.71	0.31	0.24	0.56	0.96	1.17	506.40
Mile 0 to 5	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	1.27	1.45	2.17	2.90	3.01	1.92	0.71	0.31	0.24	0.56	0.96	1.17	506.40
	Wasteload Allocation	1.20	1.16	0.80	0.92	0.98	1.47	1.16	0.86	0.66	0.64	0.81	0.94	352.26
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	1.20	1.16	0.80	0.92	0.98	1.47	1.16	0.86	0.66	0.64	0.81	0.94	352.26
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
76	Total Loading Capacity	33.00	35.87	33.30	35.56	33.81	33.19	28.93	28.29	28.77	28.94	31.63	31.91	5055.70
Rock River	Load Allocation	0.09	0.17	0.37	0.69	1.37	1.37	0.94	0.27	0.14	0.20	0.22	0.16	182.76
Bass Creek to Mile 183	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.09	0.17	0.37	0.69	1.37	1.37	0.94	0.27	0.14	0.20	0.22	0.16	182.76
	Wasteload Allocation	32.91	35.70	32.93	34.87	32.44	31.82	27.99	28.02	28.63	28.74	31.41	31.75	4872.94
	General Permit Sources	0.01	0.05	0.05	0.05	0.03	0.06	0.07	0.06	0.04	0.03	0.01	0.01	14.26
	MS4	0.12	0.21	0.27	0.36	0.42	0.51	0.54	0.46	0.39	0.28	0.22	0.16	120.03
	WWTF	32.78	35.44	32.61	34.46	31.99	31.25	27.38	27.50	28.20	28.43	31.18	31.58	4738.65
77	Total Loading Capacity	4.32	4.86	5.43	7.01	7.60	6.84	4.79	3.52	2.82	3.20	3.71	4.31	1775.75
Stevens Creek	Load Allocation	4.32	4.86	5.43	7.01	7.60	6.84	4.79	3.52	2.82	3.20	3.71	4.31	1775.75
Mile 0 to 8	Background	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84
	Ag/Non-Permitted Urban	4.32	4.86	5.41	6.99	7.58	6.84	4.79	3.52	2.82	3.20	3.71	4.31	1773.91
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	Total Loading Capacity	27.29	29.50	24.25	26.08	27.42	27.21	20.23	14.00	12.99	14.87	19.36	23.56	5782.15
Bass Creek	Load Allocation	6.10	8.14	10.54	16.43	19.33	17.60	10.49	6.41	4.96	6.98	7.64	8.00	3730.17
Rock River to Stevens Creek	Background	0.00	0.00	0.11	0.28	0.28	0.17	0.00	0.00	0.00	0.17	0.17	0.17	41.23
	Ag/Non-Permitted Urban	6.10	8.14	10.43	16.15	19.05	17.43	10.49	6.41	4.96	6.81	7.47	7.83	3688.94
	Wasteload Allocation	21.19	21.36	13.71	9.65	8.09	9.61	9.74	7.59	8.03	7.89	11.72	15.56	2051.98
	General Permit Sources	0.01	0.04	0.04	0.04	0.03	0.05	0.05	0.04	0.02	0.02	0.01	0.01	10.92
	MS4	0.92	1.16	0.84	0.94	0.86	1.51	1.78	1.32	1.00	0.66	0.65	0.76	376.82
	WWTF	20.26	20.16	12.83	8.67	7.20	8.05	7.91	6.23	7.01	7.21	11.06	14.79	1664.24
79	Total Loading Capacity	87.38	95.35	89.32	102.38	103.77	99.34	74.65	60.40	53.33	58.50	69.14	81.02	14853.91
Rock River	Load Allocation	1.98	3.50	7.83	13.73	18.99	15.69	8.69	3.85	2.90	4.70	4.91	4.18	2771.72
Mile 171 to Bass Creek	Background	0.00	0.08	0.52	0.61	0.52	0.08	0.00	0.00	0.23	0.67	0.69	0.45	117.50
	Ag/Non-Permitted Urban	1.98	3.42	7.31	13.12	18.47	15.61	8.69	3.85	2.67	4.03	4.22	3.73	2654.22
	Wasteload Allocation	85.40	91.85	81.49	88.65	84.78	83.65	65.96	56.55	50.43	53.80	64.23	76.84	12082.19
	General Permit Sources	0.01	0.11	0.09	0.11	0.06	0.13	0.15	0.14	0.09	0.05	0.02	0.01	29.39
	MS4	1.80	2.90	3.40	4.95	5.54	6.68	6.40	4.90	3.58	2.75	2.35	2.14	1442.83
	WWTF	83.59	88.84	78.00	83.59	79.18	76.84	59.41	51.51	46.76	51.00	61.86	74.69	10609.97
80	Total Loading Capacity	40.16	49.69	44.03	44.79	39.68	36.76	24.97	19.47	18.98	20.89	25.68	30.97	6055.13
Turtle Creek	Load Allocation	3.13	5.37	7.66	8.96	8.91	6.76	3.97	2.29	2.10	2.00	2.15	1.84	1673.26
Mile 24 to 32	Background	1.20	1.45	1.47	0.32	0.21	0.11	0.29	0.31	0.32	0.09	0.07	0.01	176.18
	Ag/Non-Permitted Urban	1.93	3.92	6.19	8.64	8.70	6.65	3.68	1.98	1.78	1.91	2.08	1.83	1497.08
	Wasteload Allocation	37.03	44.32	36.37	35.83	30.77	30.00	21.00	17.18	16.88	18.89	23.53	29.13	4381.87
	General Permit Sources	0.16	0.24	0.20	0.16	0.33	0.51	0.65	0.42	0.35	0.15	0.14	0.07	102.90
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	36.87	44.08	36.17	35.67	30.44	29.49	20.35	16.76	16.53	18.74	23.39	29.06	4278.97

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (lbs/year)
		Daily TP Load (lbs/day)												
81	Total Loading Capacity	37.28	38.13	37.78	40.93	41.97	43.98	41.96	40.76	40.08	39.52	43.03	40.92	10501.14
Turtle Creek	Load Allocation	5.06	8.08	14.32	23.00	26.41	23.82	15.78	9.92	7.02	9.93	9.94	8.27	4920.03
Rock River to Mile 24	Background	0.00	0.15	0.14	0.14	0.00	0.00	0.01	0.01	0.01	0.20	0.20	0.19	31.75
	Ag/Non-Permitted Urban	5.06	7.93	14.18	22.86	26.41	23.82	15.77	9.91	7.01	9.73	9.74	8.08	4888.28
	Wasteload Allocation	32.22	30.05	23.46	17.93	15.56	20.16	26.18	30.84	33.06	29.59	33.09	32.65	5581.11
	General Permit Sources	0.11	0.07	0.09	0.10	0.18	0.28	0.42	0.30	0.21	0.06	0.15	0.12	63.84
	MS4	3.81	4.46	3.97	4.60	4.54	7.44	10.96	12.15	10.45	7.29	5.42	4.59	2428.79
	WWTF	28.30	25.52	19.40	13.23	10.84	12.44	14.80	18.39	22.40	22.24	27.52	27.94	3088.48
82	Total Loading Capacity	0.87	2.73	3.49	4.73	4.79	4.74	3.12	1.38	0.61	0.36	0.29	0.27	830.22
Fox Lake	Load Allocation	0.86	2.71	3.46	4.68	4.70	4.58	2.96	1.20	0.50	0.28	0.28	0.25	802.09
	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.86	2.71	3.46	4.68	4.70	4.58	2.96	1.20	0.50	0.28	0.28	0.25	802.09
	Wasteload Allocation	0.01	0.02	0.03	0.05	0.09	0.16	0.16	0.18	0.11	0.08	0.01	0.02	28.13
	General Permit Sources	0.01	0.02	0.03	0.05	0.09	0.16	0.16	0.18	0.11	0.08	0.01	0.02	28.13
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
83	Total Loading Capacity	79.30	112.33	117.74	127.19	118.60	103.67	81.02	64.53	65.00	61.74	67.77	67.36	20370.54
Lake Koshkonong	Load Allocation	9.80	23.21	40.96	56.38	54.91	45.25	33.72	21.53	16.66	12.29	10.06	7.40	10099.29
	Background	3.11	3.73	4.87	3.38	3.68	2.57	3.30	2.49	2.32	0.29	0.43	0.36	926.54
	Ag/Non-Permitted Urban	6.69	19.48	36.09	53.00	51.23	42.68	30.42	19.04	14.34	12.00	9.63	7.04	9172.75
	Wasteload Allocation	69.50	89.12	76.78	70.81	63.69	58.42	47.30	43.00	48.34	49.45	57.71	59.96	10271.25
	General Permit Sources	0.09	0.11	0.15	0.15	0.29	0.51	0.87	0.72	0.52	0.10	0.10	0.06	112.16
	MS4	2.34	3.58	3.85	5.02	5.15	6.05	6.03	5.22	4.49	3.52	2.84	2.48	1538.53
	WWTF	67.07	85.43	72.78	65.64	58.25	51.86	40.40	37.06	43.33	45.83	54.77	57.42	8620.56
Lake Sinnissippi	Total Loading Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Load Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix K. Daily Total Suspended Solids Allocations

Reach Waterbody Name and Extents	Allocation Component	Daily TSS Load (tons/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
1	Total Loading Capacity	0.40	1.02	1.14	1.26	1.44	1.14	0.77	0.25	0.21	0.24	0.23	0.31	254.81
West Branch Rock River	Load Allocation	0.40	1.02	1.14	1.26	1.44	1.14	0.77	0.25	0.21	0.24	0.23	0.31	254.81
South Branch Rock River to Mile 39	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.40	1.02	1.14	1.26	1.44	1.14	0.77	0.25	0.21	0.24	0.23	0.31	254.81
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Total Loading Capacity	1.50	2.10	2.11	2.54	2.52	2.52	2.09	1.68	1.35	1.62	1.82	1.67	664.74
South Branch Rock River	Load Allocation	0.45	0.95	1.22	1.69	1.76	1.61	1.23	0.74	0.54	0.64	0.75	0.62	370.76
Mile 3 to 20	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.45	0.95	1.22	1.69	1.76	1.61	1.23	0.74	0.54	0.64	0.75	0.62	370.76
	Wasteload Allocation	1.05	1.15	0.89	0.85	0.76	0.91	0.86	0.94	0.81	0.98	1.07	1.05	293.98
	General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	2.42
	MS4	0.82	0.89	0.65	0.60	0.52	0.66	0.62	0.70	0.56	0.75	0.83	0.82	255.70
	WWTF	0.23	0.25	0.23	0.24	0.23	0.24	0.23	0.23	0.24	0.23	0.24	0.23	35.86
3	Total Loading Capacity	0.52	0.66	0.44	0.41	0.38	0.36	0.25	0.21	0.26	0.29	0.34	0.49	80.99
South Branch Rock River	Load Allocation	0.02	0.04	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.02	7.55
Mile 1 to 3	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.02	0.04	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.02	7.55
	Wasteload Allocation	0.50	0.62	0.42	0.38	0.35	0.33	0.23	0.20	0.25	0.28	0.33	0.47	73.44
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.15	0.23	0.07	0.07	0.07	0.08	0.06	0.05	0.05	0.05	0.04	0.12	31.31
	WWTF	0.35	0.39	0.35	0.31	0.28	0.25	0.17	0.15	0.20	0.23	0.29	0.35	42.13
4	Total Loading Capacity	0.58	1.59	1.80	2.12	2.12	1.81	1.15	0.44	0.30	0.32	0.24	0.36	384.24
West Branch Rock River/Horicon Marsh	Load Allocation	0.56	1.57	1.78	2.09	2.09	1.78	1.12	0.40	0.27	0.29	0.22	0.34	378.74
Mile 0 to South Branch Rock River	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.56	1.57	1.78	2.09	2.09	1.78	1.12	0.40	0.27	0.29	0.22	0.34	378.74
	Wasteload Allocation	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.02	0.02	5.50
	General Permit Sources	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.00	0.00	2.45
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	3.05
5	Total Loading Capacity	0.09	0.10	0.04	0.04	0.04	0.02	0.01	0.02	0.02	0.02	0.02	0.08	15.10
Wayne Creek	Load Allocation	0.09	0.10	0.04	0.04	0.04	0.02	0.01	0.02	0.02	0.02	0.02	0.08	15.10
Mile 4.1 to 4.8	Background	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
	Ag/Non-Permitted Urban	0.09	0.10	0.03	0.03	0.03	0.02	0.01	0.02	0.02	0.02	0.02	0.08	14.18
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Daily TSS Load (tons/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
6	Total Loading Capacity	0.35	0.46	0.29	0.27	0.26	0.23	0.14	0.13	0.14	0.17	0.18	0.33	89.25
Wayne Creek	Load Allocation	0.35	0.46	0.29	0.27	0.26	0.23	0.14	0.13	0.14	0.17	0.18	0.33	89.25
Kohlsville River to Mile 4.1	Background	0.01	0.03	0.06	0.06	0.06	0.03	0.01	0.01	0.01	0.02	0.01	0.01	9.72
	Ag/Non-Permitted Urban	0.34	0.43	0.23	0.21	0.20	0.20	0.13	0.12	0.13	0.15	0.17	0.32	79.53
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Total Loading Capacity	0.51	0.70	0.50	0.50	0.47	0.41	0.27	0.22	0.23	0.29	0.32	0.50	148.96
Kohlsville River	Load Allocation	0.51	0.70	0.50	0.50	0.47	0.41	0.27	0.22	0.23	0.29	0.32	0.50	148.96
Mile 0 to 9	Background	0.02	0.05	0.10	0.11	0.10	0.05	0.02	0.01	0.01	0.04	0.02	0.02	16.71
	Ag/Non-Permitted Urban	0.49	0.65	0.40	0.39	0.37	0.36	0.25	0.21	0.22	0.25	0.30	0.48	132.25
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Total Loading Capacity	0.62	0.82	0.60	0.62	0.59	0.54	0.37	0.33	0.32	0.37	0.42	0.60	187.84
Limestone Creek	Load Allocation	0.62	0.82	0.60	0.62	0.59	0.54	0.37	0.33	0.32	0.37	0.42	0.60	187.84
Mile 0 to 1	Background	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	4.54
	Ag/Non-Permitted Urban	0.61	0.80	0.58	0.60	0.57	0.52	0.36	0.32	0.31	0.36	0.42	0.60	183.30
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Total Loading Capacity	1.18	1.62	1.49	1.63	1.56	1.43	1.02	0.85	0.71	0.91	1.05	1.20	444.47
East Branch Rock River	Load Allocation	1.18	1.62	1.49	1.63	1.56	1.43	1.02	0.85	0.71	0.91	1.05	1.20	444.47
Kohlsville River to Limestone Creek	Background	0.04	0.08	0.07	0.07	0.07	0.07	0.03	0.00	0.00	0.00	0.00	0.00	12.95
	Ag/Non-Permitted Urban	1.14	1.54	1.42	1.56	1.49	1.36	0.99	0.85	0.71	0.91	1.05	1.20	431.52
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Total Loading Capacity	0.86	1.20	1.03	1.12	1.06	0.94	0.68	0.56	0.50	0.59	0.68	0.86	305.64
East Branch Rock River	Load Allocation	0.86	1.19	1.02	1.11	1.05	0.93	0.67	0.55	0.49	0.59	0.68	0.86	303.22
Kummel Creek to Kohlsville River	Background	0.03	0.06	0.05	0.06	0.03	0.03	0.00	0.00	0.03	0.03	0.03	0.00	10.52
	Ag/Non-Permitted Urban	0.83	1.13	0.97	1.05	1.02	0.90	0.67	0.55	0.46	0.56	0.65	0.86	292.70
	Wasteload Allocation	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	2.42
	General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	2.42
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
				Daily TSS Load (tons/day)												
11	Total Loading Capacity			0.36	0.44	0.26	0.25	0.24	0.22	0.15	0.13	0.15	0.16	0.20	0.34	87.76
Kummel Creek		Load Allocation		0.36	0.44	0.26	0.25	0.24	0.22	0.15	0.13	0.15	0.16	0.20	0.34	87.76
Mile 14 to 18			Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Ag/Non-Permitted Urban	0.36	0.44	0.26	0.25	0.24	0.22	0.15	0.13	0.15	0.16	0.20	0.34	87.76
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Total Loading Capacity			0.98	1.27	1.07	1.12	1.08	1.00	0.75	0.61	0.55	0.67	0.82	0.99	309.52
Kummel Creek		Load Allocation		0.88	1.16	0.97	1.02	0.98	0.90	0.65	0.51	0.45	0.57	0.72	0.89	294.13
Mile 0 to 14			Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Ag/Non-Permitted Urban	0.88	1.16	0.97	1.02	0.98	0.90	0.65	0.51	0.45	0.57	0.72	0.89	294.13
		Wasteload Allocation		0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	15.39
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	15.39
13	Total Loading Capacity			1.15	1.60	1.52	1.67	1.63	1.45	1.09	0.85	0.72	0.91	1.07	1.21	429.87
East Branch Rock River		Load Allocation		1.05	1.49	1.42	1.56	1.52	1.34	0.98	0.74	0.61	0.81	0.97	1.11	412.65
Mile 11 to Kummel Creek			Background	0.00	0.03	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98
			Ag/Non-Permitted Urban	1.05	1.46	1.39	1.53	1.51	1.34	0.98	0.74	0.61	0.81	0.97	1.11	409.67
		Wasteload Allocation		0.10	0.11	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	17.22
			General Permit Sources	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.83
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	15.39
14	Total Loading Capacity			0.68	0.86	0.65	0.61	0.58	0.55	0.40	0.37	0.40	0.47	0.51	0.69	163.55
East Branch Rock River		Load Allocation		0.45	0.61	0.41	0.44	0.43	0.36	0.25	0.20	0.19	0.23	0.28	0.45	130.20
Gill Creek to Mile 11			Background	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89
			Ag/Non-Permitted Urban	0.45	0.60	0.40	0.43	0.43	0.36	0.25	0.20	0.19	0.23	0.28	0.45	129.31
		Wasteload Allocation		0.23	0.25	0.24	0.17	0.15	0.19	0.15	0.17	0.21	0.24	0.23	0.24	33.35
			General Permit Sources	0.00	0.00	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.00	0.01	3.38
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.23	0.25	0.23	0.16	0.13	0.18	0.13	0.16	0.20	0.23	0.23	0.23	29.97
15	Total Loading Capacity			0.24	0.43	0.35	0.34	0.35	0.23	0.14	0.05	0.09	0.10	0.13	0.20	80.07
Gill Creek		Load Allocation		0.24	0.43	0.35	0.34	0.35	0.23	0.14	0.05	0.09	0.10	0.13	0.20	80.07
Mile 0 to 6			Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Ag/Non-Permitted Urban	0.24	0.43	0.35	0.34	0.35	0.23	0.14	0.05	0.09	0.10	0.13	0.20	80.07
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
16	Total Loading Capacity	0.11	0.20	0.12	0.11	0.12	0.08	0.05	0.02	0.04	0.04	0.04	0.10	31.06
Irish Creek	Load Allocation	0.11	0.20	0.12	0.11	0.12	0.08	0.05	0.02	0.04	0.04	0.04	0.10	31.06
Mile 0 to 3	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.11	0.20	0.12	0.11	0.12	0.08	0.05	0.02	0.04	0.04	0.04	0.10	31.06
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Total Loading Capacity	0.15	0.24	0.15	0.14	0.13	0.09	0.05	0.04	0.08	0.07	0.08	0.13	34.05
East Branch Rock River	Load Allocation	0.12	0.20	0.12	0.10	0.10	0.06	0.03	0.02	0.04	0.04	0.04	0.10	29.23
Mile 0 to Irish Creek	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.12	0.20	0.12	0.10	0.10	0.06	0.03	0.02	0.04	0.04	0.04	0.10	29.23
	Wasteload Allocation	0.03	0.04	0.03	0.04	0.03	0.03	0.02	0.02	0.04	0.03	0.04	0.03	4.82
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.03	0.04	0.03	0.04	0.03	0.03	0.02	0.02	0.04	0.03	0.04	0.03	4.82
18	Total Loading Capacity	0.35	0.63	0.51	0.53	0.54	0.42	0.26	0.13	0.18	0.24	0.24	0.34	109.25
Rock River	Load Allocation	0.23	0.49	0.38	0.40	0.41	0.29	0.17	0.07	0.09	0.11	0.11	0.21	89.40
Mile 296 to 305	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.23	0.49	0.38	0.40	0.41	0.29	0.17	0.07	0.09	0.11	0.11	0.21	89.40
	Wasteload Allocation	0.12	0.14	0.13	0.13	0.13	0.13	0.09	0.06	0.09	0.13	0.13	0.13	19.85
	General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	3.34
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.12	0.13	0.12	0.12	0.12	0.12	0.08	0.05	0.08	0.12	0.12	0.12	16.51
19	Total Loading Capacity	0.46	0.97	0.95	1.04	1.16	0.96	0.67	0.29	0.30	0.32	0.32	0.40	204.64
Dead Creek	Load Allocation	0.31	0.80	0.80	0.88	1.01	0.80	0.51	0.14	0.14	0.17	0.16	0.25	180.69
Mile 0 to 3	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.31	0.80	0.80	0.88	1.01	0.80	0.51	0.14	0.14	0.17	0.16	0.25	180.69
	Wasteload Allocation	0.15	0.17	0.15	0.16	0.15	0.16	0.16	0.15	0.16	0.15	0.16	0.15	23.95
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.31
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.15	0.17	0.15	0.16	0.15	0.16	0.15	0.15	0.16	0.15	0.16	0.15	23.64
20	Total Loading Capacity	6.71	11.57	21.68	27.91	30.99	25.21	19.81	11.40	6.64	9.19	10.61	6.92	5558.76
Rock River	Load Allocation	4.36	8.70	18.54	24.90	27.97	21.97	15.85	8.16	4.36	6.59	7.66	4.51	4675.68
Mile 270 to 293	Background	0.22	0.25	0.12	0.13	0.22	0.22	0.10	0.05	0.06	0.06	0.01	0.11	46.88
	Ag/Non-Permitted Urban	4.14	8.45	18.42	24.77	27.75	21.75	15.75	8.11	4.30	6.53	7.65	4.40	4628.80
	Wasteload Allocation	2.35	2.87	3.14	3.01	3.02	3.24	3.96	3.24	2.28	2.60	2.95	2.41	883.08
	General Permit Sources	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.05	0.04	0.02	0.01	0.01	7.02
	MS4	1.49	1.92	2.28	2.12	2.16	2.34	3.08	2.34	1.36	1.73	2.06	1.55	743.69
	WWTF	0.85	0.94	0.85	0.88	0.85	0.88	0.85	0.85	0.88	0.85	0.88	0.85	132.37

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
21	Total Loading Capacity	1.13	2.05	2.43	3.01	3.09	3.00	2.25	1.37	0.87	0.88	0.91	1.06	661.12
Rock River	Load Allocation	0.52	1.24	1.81	2.47	2.60	2.49	1.63	0.82	0.44	0.48	0.49	0.51	470.89
Oconomowoc River to Mile 270	Background	0.00	0.04	0.04	0.10	0.10	0.10	0.04	0.00	0.00	0.00	0.00	0.00	12.70
	Ag/Non-Permitted Urban	0.52	1.20	1.77	2.37	2.50	2.39	1.59	0.82	0.44	0.48	0.49	0.51	458.19
	Wasteload Allocation	0.61	0.81	0.62	0.54	0.49	0.51	0.62	0.55	0.43	0.40	0.42	0.55	190.23
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.22
	MS4	0.57	0.77	0.58	0.50	0.45	0.46	0.57	0.50	0.38	0.36	0.38	0.51	182.90
	WWTF	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	6.11
22	Total Loading Capacity	0.27	0.37	0.21	0.22	0.23	0.20	0.11	0.08	0.10	0.10	0.11	0.23	67.39
Flynn Creek	Load Allocation	0.27	0.37	0.21	0.22	0.23	0.20	0.11	0.08	0.10	0.10	0.11	0.23	67.39
Mile 0 to 6	Background	0.03	0.02	0.02	0.04	0.03	0.02	0.00	0.01	0.01	0.01	0.02	0.03	7.29
	Ag/Non-Permitted Urban	0.24	0.35	0.19	0.18	0.20	0.18	0.11	0.07	0.09	0.09	0.09	0.20	60.10
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Total Loading Capacity	1.03	1.56	1.55	1.89	1.98	1.79	1.09	0.73	0.61	0.75	0.79	0.94	446.25
Oconomowoc River	Load Allocation	0.68	1.11	1.20	1.57	1.56	1.23	0.58	0.39	0.38	0.52	0.57	0.66	316.87
Mason Creek to Flynn Creek	Background	0.22	0.17	0.15	0.30	0.22	0.15	0.00	0.08	0.16	0.23	0.31	0.30	69.56
	Ag/Non-Permitted Urban	0.46	0.94	1.05	1.27	1.34	1.08	0.58	0.31	0.22	0.29	0.26	0.36	247.31
	Wasteload Allocation	0.35	0.45	0.35	0.32	0.42	0.56	0.51	0.34	0.23	0.23	0.22	0.28	129.38
	General Permit Sources	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.92
	MS4	0.35	0.45	0.35	0.32	0.41	0.55	0.50	0.34	0.23	0.23	0.22	0.28	128.46
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	Total Loading Capacity	0.25	0.38	0.23	0.25	0.25	0.23	0.13	0.11	0.11	0.11	0.09	0.19	70.41
Mason Creek	Load Allocation	0.15	0.28	0.19	0.22	0.22	0.18	0.09	0.07	0.07	0.08	0.06	0.11	51.95
Mile 0 to 5.2	Background	0.01	0.02	0.01	0.03	0.03	0.02	0.01	0.01	0.01	0.02	0.01	0.01	5.76
	Ag/Non-Permitted Urban	0.14	0.26	0.18	0.19	0.19	0.16	0.08	0.06	0.06	0.06	0.05	0.10	46.19
	Wasteload Allocation	0.10	0.10	0.04	0.03	0.03	0.05	0.04	0.04	0.04	0.03	0.03	0.08	18.46
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.10	0.10	0.04	0.03	0.03	0.05	0.04	0.04	0.04	0.03	0.03	0.08	18.46
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	Total Loading Capacity	1.56	2.10	2.14	2.31	2.21	2.10	1.52	1.13	0.93	1.21	1.52	1.53	545.19
Oconomowoc River	Load Allocation	0.51	0.71	0.82	0.84	0.82	0.61	0.35	0.20	0.19	0.24	0.34	0.38	182.20
Battle Creek to Mason Creek	Background	0.21	0.27	0.25	0.22	0.14	0.07	0.00	0.00	0.04	0.04	0.07	0.11	42.81
	Ag/Non-Permitted Urban	0.30	0.44	0.57	0.62	0.68	0.54	0.35	0.20	0.15	0.20	0.27	0.27	139.39
	Wasteload Allocation	1.05	1.39	1.32	1.47	1.39	1.49	1.17	0.93	0.74	0.97	1.18	1.15	362.99
	General Permit Sources	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	5.46
	MS4	0.65	0.94	0.91	1.06	1.06	1.18	0.94	0.71	0.51	0.64	0.77	0.75	307.38
	WWTF	0.39	0.43	0.39	0.39	0.32	0.30	0.21	0.20	0.21	0.32	0.40	0.39	50.15

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
26	Total Loading Capacity	0.39	0.52	0.35	0.34	0.33	0.33	0.22	0.18	0.17	0.17	0.22	0.34	107.74
Battle Creek	Load Allocation	0.11	0.17	0.15	0.15	0.15	0.13	0.07	0.04	0.04	0.04	0.06	0.08	36.00
Mile 2.1 to 4.6	Background	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.01	0.01	0.02	0.02	4.84
	Ag/Non-Permitted Urban	0.09	0.15	0.13	0.13	0.14	0.12	0.07	0.04	0.03	0.03	0.04	0.06	31.16
	Wasteload Allocation	0.28	0.35	0.20	0.19	0.18	0.20	0.15	0.14	0.13	0.13	0.16	0.26	71.74
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.28	0.35	0.20	0.19	0.18	0.20	0.15	0.14	0.13	0.13	0.16	0.26	71.74
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Total Loading Capacity	0.41	0.57	0.40	0.39	0.39	0.39	0.27	0.22	0.18	0.20	0.22	0.35	120.80
Oconomowoc River	Load Allocation	0.29	0.42	0.32	0.33	0.34	0.33	0.22	0.17	0.14	0.15	0.16	0.25	94.50
Rock River to Battle Creek	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.29	0.42	0.32	0.33	0.34	0.33	0.22	0.17	0.14	0.15	0.16	0.25	94.50
	Wasteload Allocation	0.12	0.15	0.08	0.06	0.05	0.06	0.05	0.05	0.04	0.05	0.06	0.10	26.30
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.12	0.15	0.08	0.06	0.05	0.06	0.05	0.05	0.04	0.05	0.06	0.10	26.30
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Total Loading Capacity	1.72	2.59	3.10	3.63	4.08	4.10	3.19	1.94	1.33	1.67	1.99	1.70	943.42
Rock River	Load Allocation	0.40	0.88	1.54	2.31	2.91	2.71	1.69	0.78	0.48	0.70	0.72	0.51	475.67
Mile 249 to Oconomowoc River	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.40	0.88	1.54	2.31	2.91	2.71	1.69	0.78	0.48	0.70	0.72	0.51	475.67
	Wasteload Allocation	1.32	1.71	1.56	1.32	1.17	1.39	1.50	1.16	0.85	0.97	1.27	1.19	467.75
	General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	2.73
	MS4	1.32	1.70	1.55	1.31	1.16	1.38	1.49	1.15	0.84	0.96	1.27	1.19	465.02
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	Total Loading Capacity	2.66	3.93	4.64	5.38	5.88	5.42	4.60	2.84	1.98	2.16	2.76	2.57	1120.85
Rock River	Load Allocation	0.48	1.38	2.30	3.04	3.59	3.52	2.60	1.20	0.68	0.78	0.73	0.50	632.69
Johnson Creek to Mile 249	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.31
	Ag/Non-Permitted Urban	0.48	1.38	2.30	3.04	3.59	3.52	2.59	1.20	0.68	0.78	0.73	0.50	632.38
	Wasteload Allocation	2.18	2.55	2.34	2.34	2.29	1.90	2.00	1.64	1.30	1.38	2.03	2.07	488.16
	General Permit Sources	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.53
	MS4	0.66	0.87	0.82	0.77	0.76	1.05	1.38	1.12	0.77	0.77	0.72	0.60	313.07
	WWTF	1.52	1.68	1.52	1.57	1.52	0.84	0.61	0.51	0.52	0.61	1.31	1.47	173.56
30	Total Loading Capacity	0.53	1.00	0.97	1.17	1.36	1.38	1.04	0.68	0.49	0.43	0.32	0.43	297.44
Johnson Creek	Load Allocation	0.14	0.45	0.58	0.89	1.06	1.16	0.72	0.33	0.16	0.16	0.12	0.15	179.84
Mile 0 to 17.5	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.14	0.45	0.58	0.89	1.06	1.16	0.72	0.33	0.16	0.16	0.12	0.15	179.84
	Wasteload Allocation	0.39	0.55	0.39	0.28	0.30	0.22	0.32	0.35	0.33	0.27	0.20	0.28	117.60
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.39	0.55	0.39	0.28	0.30	0.22	0.32	0.35	0.33	0.27	0.20	0.28	117.60
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component			Daily TSS Load (tons/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
31	Total Loading Capacity			0.79	1.25	1.14	1.27	1.29	1.21	0.95	0.71	0.62	0.57	0.56	0.70	291.81
Rock River		Load Allocation		0.58	1.01	0.93	1.05	1.08	0.99	0.72	0.48	0.38	0.36	0.34	0.49	254.92
Crawfish River to Johnson Creek			Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Ag/Non-Permitted Urban	0.58	1.01	0.93	1.05	1.08	0.99	0.72	0.48	0.38	0.36	0.34	0.49	254.92
		Wasteload Allocation		0.21	0.24	0.21	0.22	0.21	0.22	0.23	0.23	0.24	0.21	0.22	0.21	36.89
			General Permit Sources	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.03	0.01	0.01	0.01	5.49
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.20	0.23	0.20	0.21	0.20	0.21	0.20	0.20	0.21	0.20	0.21	0.20	31.40
32	Total Loading Capacity			0.13	0.31	0.22	0.26	0.27	0.28	0.15	0.08	0.04	0.02	0.02	0.05	55.20
Alto Creek		Load Allocation		0.13	0.31	0.22	0.26	0.27	0.28	0.15	0.08	0.04	0.02	0.02	0.05	55.20
Mile 0 to 6.15			Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Ag/Non-Permitted Urban	0.13	0.31	0.22	0.26	0.27	0.28	0.15	0.08	0.04	0.02	0.02	0.05	55.20
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	Total Loading Capacity			0.82	2.01	2.57	3.62	4.10	3.98	2.45	1.01	0.43	0.37	0.34	0.48	660.44
Mill Creek, Beaver Dam Lake		Load Allocation		0.32	1.04	1.62	2.66	3.16	2.99	1.62	0.52	0.18	0.16	0.13	0.19	443.21
Beaver Dam to Fox Lake			Background	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	5.52
			Ag/Non-Permitted Urban	0.32	1.04	1.62	2.66	3.13	2.96	1.59	0.49	0.15	0.13	0.13	0.19	437.69
		Wasteload Allocation		0.50	0.97	0.95	0.96	0.94	0.99	0.83	0.49	0.25	0.21	0.21	0.29	217.23
			General Permit Sources	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.00	3.66
			MS4	0.44	0.91	0.89	0.89	0.87	0.91	0.75	0.41	0.17	0.14	0.14	0.23	204.41
			WWTF	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	9.16
34	Total Loading Capacity			1.08	1.26	0.77	0.71	0.66	0.65	0.51	0.52	0.58	0.66	0.75	1.07	130.75
Beaver Dam River		Load Allocation		0.02	0.09	0.06	0.08	0.09	0.07	0.04	0.01	0.01	0.01	0.02	0.02	15.67
Calamus Creek to Mile 30			Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Ag/Non-Permitted Urban	0.02	0.09	0.06	0.08	0.09	0.07	0.04	0.01	0.01	0.01	0.02	0.02	15.67
		Wasteload Allocation		1.06	1.17	0.71	0.63	0.57	0.58	0.47	0.51	0.57	0.65	0.73	1.05	115.08
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.04	0.04	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.03	8.18
			WWTF	1.02	1.13	0.70	0.61	0.55	0.56	0.45	0.49	0.55	0.63	0.72	1.02	106.90
35	Total Loading Capacity			0.58	0.93	0.87	1.09	1.14	1.08	0.77	0.59	0.49	0.51	0.48	0.57	276.17
Calamus Creek		Load Allocation		0.58	0.93	0.87	1.09	1.14	1.08	0.77	0.59	0.49	0.51	0.48	0.57	276.17
Mile 0 to 17			Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Ag/Non-Permitted Urban	0.58	0.93	0.87	1.09	1.14	1.08	0.77	0.59	0.49	0.51	0.48	0.57	276.17
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Daily TSS Load (tons/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
36	Total Loading Capacity	0.16	0.33	0.23	0.26	0.27	0.27	0.19	0.15	0.14	0.12	0.10	0.16	72.02
Beaver Dam River	Load Allocation	0.16	0.33	0.23	0.26	0.27	0.27	0.19	0.15	0.14	0.12	0.10	0.16	72.02
Mile 14 to Calamus Creek	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.16	0.33	0.23	0.26	0.27	0.27	0.19	0.15	0.14	0.12	0.10	0.16	72.02
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Total Loading Capacity	0.08	0.19	0.11	0.14	0.14	0.15	0.10	0.07	0.08	0.06	0.05	0.09	38.07
Park Creek	Load Allocation	0.00	0.03	0.03	0.06	0.07	0.07	0.04	0.01	0.01	0.01	0.01	0.01	10.61
Mile 0 to 3	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.00	0.03	0.03	0.06	0.07	0.07	0.04	0.01	0.01	0.01	0.01	0.01	10.61
	Wasteload Allocation	0.08	0.16	0.08	0.08	0.07	0.08	0.06	0.06	0.07	0.05	0.04	0.08	27.46
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.08	0.16	0.08	0.08	0.07	0.08	0.06	0.06	0.07	0.05	0.04	0.08	27.46
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	Total Loading Capacity	0.07	0.14	0.07	0.09	0.09	0.09	0.06	0.05	0.05	0.04	0.03	0.07	25.67
Schultz Creek	Load Allocation	0.07	0.14	0.07	0.09	0.09	0.09	0.06	0.05	0.05	0.04	0.03	0.07	25.67
Mile 0 to 5	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.07	0.14	0.07	0.09	0.09	0.09	0.06	0.05	0.05	0.04	0.03	0.07	25.67
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	Total Loading Capacity	0.28	0.58	0.48	0.60	0.61	0.61	0.45	0.32	0.28	0.24	0.21	0.28	149.70
Shaw Brook	Load Allocation	0.04	0.15	0.22	0.39	0.46	0.47	0.30	0.13	0.08	0.07	0.07	0.06	74.18
Beaver Dam River to Schultz Creek	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.04	0.15	0.22	0.39	0.46	0.47	0.30	0.13	0.08	0.07	0.07	0.06	74.18
	Wasteload Allocation	0.24	0.43	0.26	0.21	0.15	0.14	0.15	0.19	0.20	0.17	0.14	0.22	75.52
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.24	0.43	0.26	0.21	0.15	0.14	0.15	0.19	0.20	0.17	0.14	0.22	75.52
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	Total Loading Capacity	0.64	1.21	1.29	1.63	1.64	1.46	1.06	0.76	0.62	0.62	0.54	0.61	349.45
Beaver Dam River	Load Allocation	0.56	1.12	1.21	1.55	1.55	1.37	0.96	0.67	0.53	0.54	0.46	0.53	335.28
Casper Creek to Mile 14	Background	0.00	0.08	0.07	0.08	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	8.04
	Ag/Non-Permitted Urban	0.56	1.04	1.14	1.47	1.54	1.36	0.95	0.66	0.53	0.54	0.46	0.53	327.24
	Wasteload Allocation	0.08	0.09	0.08	0.08	0.09	0.09	0.10	0.09	0.09	0.08	0.08	0.08	14.17
	General Permit Sources	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	1.84
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	12.33

Reach Waterbody Name and Extents	Allocation Component	Daily TSS Load (tons/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
41	Total Loading Capacity	0.22	0.34	0.22	0.23	0.29	0.30	0.23	0.17	0.16	0.14	0.13	0.20	79.69
Casper Creek	Load Allocation	0.22	0.34	0.22	0.23	0.29	0.30	0.23	0.17	0.16	0.14	0.13	0.20	79.69
Mile 0 to 2	Background	0.00	0.01	0.02	0.02	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.00	3.65
	Ag/Non-Permitted Urban	0.22	0.33	0.20	0.21	0.26	0.28	0.21	0.17	0.16	0.14	0.13	0.20	76.04
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	Total Loading Capacity	0.27	0.41	0.30	0.33	0.43	0.45	0.36	0.25	0.23	0.21	0.18	0.26	111.66
Beaver Dam River	Load Allocation	0.27	0.41	0.30	0.33	0.43	0.45	0.36	0.25	0.23	0.21	0.18	0.26	111.66
Lau Creek to Casper Creek	Background	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.02	0.02	0.02	0.00	0.00	4.60
	Ag/Non-Permitted Urban	0.27	0.41	0.30	0.33	0.40	0.42	0.33	0.23	0.21	0.19	0.18	0.26	107.06
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	Total Loading Capacity	0.29	0.43	0.31	0.34	0.45	0.49	0.39	0.28	0.24	0.22	0.19	0.27	118.35
Lau Creek	Load Allocation	0.29	0.43	0.31	0.34	0.45	0.49	0.39	0.28	0.24	0.22	0.19	0.27	118.35
Mile 0 to 6	Background	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89
	Ag/Non-Permitted Urban	0.29	0.42	0.30	0.33	0.45	0.49	0.39	0.28	0.24	0.22	0.19	0.27	117.46
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	Total Loading Capacity	0.14	0.19	0.11	0.11	0.14	0.15	0.11	0.09	0.10	0.08	0.07	0.12	42.71
Beaver Dam River	Load Allocation	0.14	0.19	0.11	0.11	0.14	0.15	0.11	0.09	0.10	0.08	0.07	0.12	42.71
Mile 0 to Lau Creek	Background	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	1.84
	Ag/Non-Permitted Urban	0.14	0.19	0.11	0.11	0.13	0.14	0.10	0.08	0.09	0.07	0.07	0.12	40.87
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	Total Loading Capacity	1.10	1.68	2.06	2.78	3.23	3.12	2.15	1.36	0.94	1.10	1.16	1.09	661.83
Maunesha River	Load Allocation	0.46	1.03	1.68	2.56	2.96	2.70	1.69	0.95	0.56	0.61	0.52	0.44	491.53
Mile 13.21 to 31.8	Background	0.01	0.01	0.03	0.05	0.04	0.02	0.00	0.01	0.01	0.01	0.01	0.01	6.39
	Ag/Non-Permitted Urban	0.45	1.02	1.65	2.51	2.92	2.68	1.69	0.94	0.55	0.60	0.51	0.43	485.14
	Wasteload Allocation	0.64	0.65	0.38	0.22	0.27	0.42	0.46	0.41	0.38	0.49	0.64	0.65	170.30
	General Permit Sources	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.92
	MS4	0.64	0.65	0.38	0.22	0.26	0.41	0.45	0.41	0.38	0.49	0.64	0.65	169.38
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
46	Total Loading Capacity	0.75	1.13	1.01	1.10	1.06	0.95	0.79	0.67	0.63	0.63	0.64	0.71	292.56
Maunesha River	Load Allocation	0.69	1.06	0.95	1.04	1.00	0.89	0.73	0.60	0.57	0.57	0.58	0.65	282.97
Mile 5.5 to 13.2	Background	0.01	0.03	0.03	0.02	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	4.52
	Ag/Non-Permitted Urban	0.68	1.03	0.92	1.02	1.00	0.89	0.72	0.58	0.55	0.56	0.58	0.65	278.45
	Wasteload Allocation	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.06	9.59
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.31
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	9.28
47	Total Loading Capacity	0.32	0.46	0.31	0.32	0.29	0.27	0.21	0.19	0.23	0.19	0.19	0.29	87.51
Maunesha River	Load Allocation	0.27	0.40	0.26	0.26	0.24	0.21	0.16	0.14	0.17	0.14	0.13	0.24	79.25
Stony Brook to Mile 13.2	Background	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	1.81
	Ag/Non-Permitted Urban	0.27	0.39	0.25	0.25	0.24	0.21	0.15	0.13	0.16	0.14	0.13	0.24	77.44
	Wasteload Allocation	0.05	0.06	0.05	0.06	0.05	0.06	0.05	0.05	0.06	0.05	0.06	0.05	8.26
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.05	0.06	0.05	0.06	0.05	0.06	0.05	0.05	0.06	0.05	0.06	0.05	8.26
48	Total Loading Capacity	0.52	0.85	0.75	0.87	0.81	0.70	0.48	0.40	0.38	0.39	0.37	0.49	212.44
Stony Brook	Load Allocation	0.52	0.85	0.75	0.87	0.81	0.70	0.48	0.40	0.38	0.39	0.37	0.49	212.44
Mile 0 to 15	Background	0.04	0.07	0.04	0.05	0.02	0.02	0.00	0.06	0.06	0.06	0.00	0.02	13.30
	Ag/Non-Permitted Urban	0.48	0.78	0.71	0.82	0.79	0.68	0.48	0.34	0.32	0.33	0.37	0.47	199.14
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	Total Loading Capacity	0.10	0.14	0.06	0.06	0.06	0.05	0.03	0.03	0.05	0.04	0.03	0.08	22.02
Maunesha River	Load Allocation	0.10	0.14	0.06	0.06	0.06	0.05	0.03	0.03	0.05	0.04	0.03	0.08	22.02
Mile 0 to Stony Brook	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.10	0.14	0.06	0.06	0.06	0.05	0.03	0.03	0.05	0.04	0.03	0.08	22.02
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	Total Loading Capacity	0.31	0.55	0.45	0.54	0.55	0.52	0.36	0.28	0.25	0.24	0.20	0.31	138.20
Mud Creek	Load Allocation	0.31	0.55	0.45	0.54	0.55	0.52	0.36	0.28	0.25	0.24	0.20	0.31	138.20
Mile 0 to 10	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.31	0.55	0.45	0.54	0.55	0.52	0.36	0.28	0.25	0.24	0.20	0.31	138.20
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
51	Total Loading Capacity	2.30	4.02	6.32	9.50	10.80	10.52	7.61	4.61	2.70	3.29	3.17	2.37	1999.79
Crawfish River	Load Allocation	2.02	3.69	6.03	9.21	10.49	10.19	7.25	4.25	2.37	2.97	2.86	2.08	1930.01
Maunesha River to Mud Creek	Background	0.00	0.03	0.08	0.23	0.28	0.24	0.09	0.05	0.11	0.13	0.08	0.03	41.10
	Ag/Non-Permitted Urban	2.02	3.66	5.95	8.98	10.21	9.95	7.16	4.20	2.26	2.84	2.78	2.05	1888.91
	Wasteload Allocation	0.28	0.33	0.29	0.29	0.31	0.33	0.36	0.36	0.33	0.32	0.31	0.29	69.78
	General Permit Sources	0.00	0.01	0.01	0.01	0.02	0.03	0.03	0.03	0.03	0.02	0.01	0.00	6.09
	MS4	0.07	0.08	0.07	0.06	0.08	0.08	0.12	0.12	0.08	0.09	0.08	0.08	30.77
	WWTF	0.21	0.24	0.21	0.22	0.21	0.22	0.21	0.21	0.22	0.21	0.22	0.21	32.92
52	Total Loading Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawfish River	Load Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beaver Dam River to Maunesha Creek	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	Total Loading Capacity	2.86	4.96	8.29	11.35	11.81	10.93	8.74	5.81	3.49	4.17	4.12	2.86	2394.93
Crawfish River	Load Allocation	2.75	4.84	8.18	11.24	11.70	10.81	8.60	5.66	3.35	4.05	4.02	2.76	2372.82
Rock River to Beaver Dam River	Background	0.13	0.20	0.14	0.07	0.01	0.00	0.00	0.05	0.05	0.05	0.00	0.06	22.84
	Ag/Non-Permitted Urban	2.62	4.64	8.04	11.17	11.69	10.81	8.60	5.61	3.30	4.00	4.02	2.70	2349.98
	Wasteload Allocation	0.11	0.12	0.11	0.11	0.11	0.12	0.14	0.15	0.14	0.12	0.10	0.10	22.11
	General Permit Sources	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.05	0.04	0.02	0.00	0.00	6.72
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	15.39
54	Total Loading Capacity	1.12	1.60	1.55	1.78	1.72	1.54	1.21	1.00	0.95	0.96	1.00	1.11	309.06
Rock River	Load Allocation	0.34	0.72	0.77	0.97	0.95	0.74	0.43	0.23	0.15	0.19	0.20	0.33	182.40
Bark River to Crawfish River	Background	0.00	0.03	0.05	0.05	0.02	0.00	0.00	0.00	0.01	0.01	0.01	0.00	5.42
	Ag/Non-Permitted Urban	0.34	0.69	0.72	0.92	0.93	0.74	0.43	0.23	0.14	0.18	0.19	0.33	176.98
	Wasteload Allocation	0.78	0.88	0.78	0.81	0.77	0.80	0.78	0.77	0.80	0.77	0.80	0.78	126.66
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.03	0.05	0.03	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	9.68
	WWTF	0.75	0.83	0.75	0.78	0.75	0.78	0.75	0.75	0.78	0.75	0.78	0.75	116.98
55	Total Loading Capacity	1.47	2.49	2.99	3.68	3.59	3.26	2.21	1.39	0.92	0.95	1.08	1.29	716.11
Bark River	Load Allocation	0.74	1.34	1.76	2.11	2.04	1.46	0.69	0.24	0.17	0.22	0.31	0.44	349.05
Mile 35 to 41	Background	0.51	0.85	0.97	0.90	0.65	0.33	0.11	0.00	0.05	0.05	0.13	0.21	143.60
	Ag/Non-Permitted Urban	0.23	0.49	0.79	1.21	1.39	1.13	0.58	0.24	0.12	0.17	0.18	0.23	205.45
	Wasteload Allocation	0.73	1.15	1.23	1.57	1.55	1.80	1.52	1.15	0.75	0.73	0.77	0.85	367.06
	General Permit Sources	0.01	0.02	0.03	0.02	0.02	0.01	0.03	0.03	0.03	0.01	0.01	0.01	7.00
	MS4	0.42	0.78	0.87	1.27	1.30	1.55	1.31	0.95	0.58	0.55	0.49	0.53	322.37
	WWTF	0.30	0.35	0.33	0.28	0.23	0.24	0.18	0.17	0.14	0.17	0.27	0.31	37.69

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
56	Total Loading Capacity	0.78	1.42	1.53	1.82	1.81	1.63	1.01	0.61	0.44	0.38	0.33	0.51	361.11
Bark River	Load Allocation	0.66	1.26	1.41	1.68	1.65	1.42	0.85	0.47	0.32	0.27	0.24	0.40	322.09
Scuppernong River to Mile 35	Background	0.07	0.07	0.07	0.07	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.00	12.36
	Ag/Non-Permitted Urban	0.59	1.19	1.34	1.61	1.59	1.35	0.85	0.47	0.32	0.27	0.24	0.40	309.73
	Wasteload Allocation	0.12	0.16	0.12	0.14	0.16	0.21	0.16	0.14	0.12	0.11	0.09	0.11	39.02
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.07	0.10	0.07	0.09	0.11	0.16	0.11	0.09	0.07	0.06	0.04	0.06	31.27
	WWTF	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	7.75
57	Total Loading Capacity	0.57	0.68	0.46	0.46	0.48	0.44	0.31	0.30	0.33	0.35	0.40	0.54	122.75
Spring Creek	Load Allocation	0.37	0.46	0.26	0.28	0.33	0.31	0.20	0.13	0.12	0.15	0.19	0.34	95.06
Mile 0 to 5	Background	0.04	0.06	0.07	0.05	0.05	0.03	0.02	0.00	0.00	0.01	0.03	0.02	11.49
	Ag/Non-Permitted Urban	0.33	0.40	0.19	0.23	0.28	0.28	0.18	0.13	0.12	0.14	0.16	0.32	83.57
	Wasteload Allocation	0.20	0.22	0.20	0.18	0.15	0.13	0.11	0.17	0.21	0.20	0.21	0.20	27.69
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.20	0.22	0.20	0.18	0.15	0.13	0.11	0.17	0.21	0.20	0.21	0.20	27.69
58	Total Loading Capacity	0.20	0.26	0.15	0.15	0.18	0.17	0.10	0.07	0.07	0.07	0.07	0.16	49.91
Steel Brook	Load Allocation	0.20	0.26	0.15	0.15	0.18	0.17	0.10	0.07	0.07	0.07	0.07	0.16	49.91
Mile 3 to 4	Background	0.01	0.00	0.02	0.03	0.03	0.01	0.00	0.00	0.00	0.01	0.02	0.02	4.59
	Ag/Non-Permitted Urban	0.19	0.26	0.13	0.12	0.15	0.16	0.10	0.07	0.07	0.06	0.05	0.14	45.32
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	Total Loading Capacity	1.88	2.78	3.47	4.23	4.67	4.12	2.85	1.81	1.32	1.63	1.82	1.84	880.22
Steel Brook, Scuppernong River, Bark River	Load Allocation	1.03	1.72	2.50	3.23	3.66	3.04	1.84	0.84	0.48	0.73	0.95	0.97	637.83
Rock River to Steel Brook, Spring Creek	Background	0.19	0.21	0.37	0.34	0.36	0.18	0.02	0.00	0.00	0.07	0.07	0.07	57.06
	Ag/Non-Permitted Urban	0.84	1.51	2.13	2.89	3.30	2.86	1.82	0.84	0.48	0.66	0.88	0.90	580.77
	Wasteload Allocation	0.85	1.06	0.97	1.00	1.01	1.08	1.01	0.97	0.84	0.90	0.87	0.87	242.39
	General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.00	3.95
	MS4	0.36	0.51	0.47	0.48	0.51	0.55	0.55	0.47	0.33	0.40	0.35	0.38	162.92
	WWTF	0.49	0.54	0.49	0.51	0.49	0.51	0.44	0.48	0.50	0.49	0.51	0.49	75.52
60	Total Loading Capacity	2.26	3.39	4.30	5.28	5.41	4.75	3.41	2.26	1.70	1.92	2.15	2.16	1009.13
Rock River	Load Allocation	0.69	1.27	2.02	2.48	2.39	1.47	0.62	0.24	0.16	0.33	0.46	0.55	384.70
Mile 213 to Bark River	Background	0.03	0.03	0.05	0.08	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.03	9.72
	Ag/Non-Permitted Urban	0.66	1.24	1.97	2.40	2.32	1.44	0.62	0.24	0.16	0.33	0.46	0.52	374.98
	Wasteload Allocation	1.57	2.12	2.28	2.80	3.02	3.28	2.79	2.02	1.54	1.59	1.69	1.61	624.43
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.76	1.22	1.47	1.96	2.21	2.44	1.98	1.21	0.70	0.78	0.85	0.80	498.17
	WWTF	0.81	0.90	0.81	0.84	0.81	0.84	0.81	0.81	0.84	0.81	0.84	0.81	126.26

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
61	Total Loading Capacity	10.89	19.79	36.73	31.18	55.44	11.82	8.61	1.76	6.25	7.33	9.87	9.16	6195.45
Rock River	Load Allocation	7.05	13.54	28.20	24.16	43.94	8.16	5.34	0.58	3.31	4.24	6.38	5.78	4588.45
Mile 201 to 207	Background	0.11	0.12	0.18	0.15	0.11	0.04	0.00	0.00	0.04	0.07	0.11	0.07	30.30
	Ag/Non-Permitted Urban	6.94	13.42	28.02	24.01	43.83	8.12	5.34	0.58	3.27	4.17	6.27	5.71	4558.15
	Wasteload Allocation	3.84	6.25	8.53	7.02	11.50	3.66	3.27	1.18	2.94	3.09	3.49	3.38	1607.00
	General Permit Sources	0.02	0.02	0.02	0.02	0.02	0.03	0.05	0.05	0.04	0.01	0.03	0.02	10.05
	MS4	3.08	5.41	7.77	6.24	10.74	2.87	2.48	0.39	2.14	2.34	2.70	2.62	1482.00
	WWTF	0.74	0.82	0.74	0.76	0.74	0.76	0.74	0.74	0.76	0.74	0.76	0.74	114.95
62	Total Loading Capacity	0.44	0.65	0.52	0.50	0.53	0.42	0.27	0.19	0.21	0.23	0.23	0.36	137.74
Pheasant Branch Creek	Load Allocation	0.20	0.37	0.38	0.40	0.40	0.26	0.11	0.07	0.09	0.12	0.11	0.17	81.11
Mile 1 to 9	Background	0.07	0.09	0.06	0.08	0.06	0.04	0.00	0.02	0.04	0.06	0.05	0.07	19.36
	Ag/Non-Permitted Urban	0.13	0.28	0.32	0.32	0.34	0.22	0.11	0.05	0.05	0.06	0.06	0.10	61.75
	Wasteload Allocation	0.24	0.28	0.14	0.10	0.13	0.16	0.16	0.12	0.12	0.11	0.12	0.19	56.63
	General Permit Sources	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	2.14
	MS4	0.24	0.28	0.14	0.10	0.12	0.15	0.15	0.11	0.11	0.10	0.11	0.19	54.49
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
63	Total Loading Capacity	0.30	0.46	0.37	0.44	0.48	0.49	0.34	0.26	0.21	0.18	0.17	0.26	120.07
Spring (Dorn) Creek	Load Allocation	0.18	0.32	0.30	0.39	0.43	0.43	0.26	0.15	0.09	0.08	0.09	0.14	86.70
Mile 1 to 6	Background	0.03	0.03	0.02	0.01	0.03	0.04	0.04	0.01	0.00	0.00	0.01	0.01	6.98
	Ag/Non-Permitted Urban	0.15	0.29	0.28	0.38	0.40	0.39	0.22	0.14	0.09	0.08	0.08	0.13	79.72
	Wasteload Allocation	0.12	0.14	0.07	0.05	0.05	0.06	0.08	0.11	0.12	0.10	0.08	0.12	33.37
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.12	0.14	0.07	0.05	0.05	0.06	0.08	0.11	0.12	0.10	0.08	0.12	33.37
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	Total Loading Capacity	2.68	4.49	7.30	9.56	10.42	10.19	8.55	5.14	2.77	3.18	3.61	2.74	2127.13
Yahara River, Lake Mendota, Lake Monona	Load Allocation	1.34	2.54	4.87	6.91	7.52	6.62	4.62	2.31	1.29	1.42	1.80	1.35	1296.05
Nine Springs Creek to Spring (Dorn) Creek,	Background	0.47	0.77	0.85	1.15	0.94	0.94	0.89	0.66	0.60	0.39	0.59	0.52	266.28
Pheasant Branch Creek	Ag/Non-Permitted Urban	0.87	1.77	4.02	5.76	6.58	5.68	3.73	1.65	0.69	1.03	1.21	0.83	1029.77
	Wasteload Allocation	1.34	1.95	2.43	2.65	2.90	3.57	3.93	2.83	1.48	1.76	1.81	1.39	831.08
	General Permit Sources	0.05	0.02	0.03	0.03	0.03	0.06	0.06	0.06	0.03	0.02	0.05	0.05	14.96
	MS4	1.20	1.81	2.20	2.46	2.74	3.40	3.77	2.68	1.39	1.67	1.67	1.27	799.71
	WWTF	0.09	0.12	0.20	0.16	0.13	0.11	0.10	0.09	0.06	0.07	0.09	0.07	16.41
65	Total Loading Capacity	0.72	0.90	0.68	0.71	0.70	0.66	0.49	0.40	0.39	0.48	0.62	0.74	198.41
Nine Springs Creek	Load Allocation	0.15	0.19	0.17	0.17	0.20	0.17	0.12	0.07	0.07	0.10	0.11	0.13	50.06
Mile 0 to 6	Background	0.05	0.05	0.03	0.03	0.06	0.06	0.05	0.02	0.03	0.05	0.05	0.05	16.11
	Ag/Non-Permitted Urban	0.10	0.14	0.14	0.14	0.14	0.11	0.07	0.05	0.04	0.05	0.06	0.08	33.95
	Wasteload Allocation	0.57	0.71	0.51	0.54	0.50	0.49	0.37	0.33	0.32	0.38	0.51	0.61	148.35
	General Permit Sources	0.01	0.01	0.00	0.00	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	3.35
	MS4	0.36	0.47	0.34	0.41	0.39	0.39	0.29	0.26	0.23	0.26	0.30	0.40	124.36
	WWTF	0.20	0.23	0.17	0.13	0.10	0.09	0.06	0.06	0.08	0.11	0.20	0.20	20.64

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
66	Total Loading Capacity	1.50	2.28	2.88	3.69	4.07	3.99	3.11	2.01	1.29	1.47	1.69	1.54	897.62
Yahara River, Lake Waubesa, Lake Kegonsa	Load Allocation	0.47	1.09	1.80	2.53	2.80	2.52	1.64	0.78	0.57	0.65	0.76	0.54	491.00
Mile 16 to Nine Springs Creek, Lake Waubesa	Background	0.06	0.34	0.40	0.58	0.58	0.50	0.48	0.15	0.33	0.23	0.31	0.13	124.05
	Ag/Non-Permitted Urban	0.41	0.75	1.40	1.95	2.22	2.02	1.16	0.63	0.24	0.42	0.45	0.41	366.95
	Wasteload Allocation	1.03	1.19	1.08	1.16	1.27	1.47	1.47	1.23	0.72	0.82	0.93	1.00	406.62
	General Permit Sources	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	2.45
	MS4	1.02	1.19	1.08	1.16	1.26	1.46	1.46	1.22	0.71	0.82	0.92	0.99	404.17
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67	Total Loading Capacity	3.38	6.11	11.95	15.98	15.08	12.27	9.90	6.31	3.88	4.81	5.78	3.67	3016.48
Yahara River	Load Allocation	1.74	3.19	7.29	10.19	10.15	7.92	5.27	2.78	1.46	2.19	2.92	1.87	1734.01
Mile 16 to 22	Background	0.02	0.08	0.15	0.16	0.12	0.06	0.03	0.02	0.02	0.04	0.04	0.02	23.04
	Ag/Non-Permitted Urban	1.72	3.11	7.14	10.03	10.03	7.86	5.24	2.76	1.44	2.15	2.88	1.85	1710.97
	Wasteload Allocation	1.64	2.92	4.66	5.79	4.93	4.35	4.63	3.53	2.42	2.62	2.86	1.80	1282.47
	General Permit Sources	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	1.81
	MS4	1.64	2.91	4.65	5.78	4.93	4.34	4.62	3.52	2.42	2.62	2.86	1.80	1280.66
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	Total Loading Capacity	1.11	1.52	1.44	1.66	1.80	1.71	1.38	1.05	0.94	0.96	1.02	1.10	372.40
Yahara River	Load Allocation	0.45	0.72	0.78	0.95	1.10	0.97	0.62	0.34	0.24	0.32	0.38	0.45	222.22
Mile 7 to 16	Background	0.02	0.10	0.18	0.19	0.14	0.07	0.04	0.02	0.03	0.05	0.05	0.02	27.57
	Ag/Non-Permitted Urban	0.43	0.62	0.60	0.76	0.96	0.90	0.58	0.32	0.21	0.27	0.33	0.43	194.65
	Wasteload Allocation	0.66	0.80	0.66	0.71	0.70	0.74	0.76	0.71	0.70	0.64	0.64	0.65	150.18
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.18	0.27	0.18	0.21	0.22	0.24	0.28	0.23	0.20	0.16	0.14	0.17	75.28
	WWTF	0.48	0.53	0.48	0.50	0.48	0.50	0.48	0.48	0.50	0.48	0.50	0.48	74.90
69	Total Loading Capacity	9.60	12.61	15.31	16.91	16.91	16.66	15.35	11.95	7.72	11.64	14.31	10.43	2853.72
Yahara River	Load Allocation	1.06	2.05	5.09	6.33	6.65	5.97	4.98	2.98	1.91	2.63	3.76	1.49	1367.78
Mile 0 to 7	Background	0.23	0.33	0.37	0.25	0.18	0.07	0.17	0.34	0.37	0.29	0.11	0.13	86.25
	Ag/Non-Permitted Urban	0.83	1.72	4.72	6.08	6.47	5.90	4.81	2.64	1.54	2.34	3.65	1.36	1281.53
	Wasteload Allocation	8.54	10.56	10.22	10.58	10.26	10.69	10.37	8.97	5.81	9.01	10.55	8.94	1485.94
	General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.02	0.04	0.04	0.03	0.02	0.00	0.00	5.80
	MS4	0.05	0.07	0.11	0.13	0.15	0.23	0.23	0.17	0.08	0.10	0.11	0.06	45.43
	WWTF	8.49	10.48	10.10	10.44	10.10	10.44	10.10	8.76	5.70	8.89	10.44	8.88	1434.71
70	Total Loading Capacity	1.00	1.28	1.10	1.34	1.42	1.18	0.66	0.42	0.41	0.56	0.75	0.99	336.89
Rock River	Load Allocation	0.74	0.94	0.91	1.14	1.21	0.90	0.39	0.23	0.22	0.38	0.54	0.75	253.23
Mile 193 to 201	Background	0.05	0.06	0.05	0.08	0.05	0.05	0.00	0.00	0.03	0.03	0.05	0.03	14.49
	Ag/Non-Permitted Urban	0.69	0.88	0.86	1.06	1.16	0.85	0.39	0.23	0.19	0.35	0.49	0.72	238.74
	Wasteload Allocation	0.26	0.34	0.19	0.20	0.21	0.28	0.27	0.19	0.19	0.18	0.21	0.24	83.66
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.26	0.34	0.19	0.20	0.21	0.28	0.27	0.19	0.19	0.18	0.21	0.24	83.66
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
71	Total Loading Capacity	1.13	1.59	1.89	2.47	2.56	2.02	0.96	0.52	0.39	0.56	0.77	0.99	480.93
Rock River	Load Allocation	0.70	0.96	1.27	1.64	1.71	1.10	0.36	0.14	0.10	0.21	0.38	0.57	277.24
Blackhawk Creek to Mile 193	Background	0.10	0.08	0.04	0.06	0.06	0.06	0.01	0.03	0.03	0.04	0.04	0.08	19.10
	Ag/Non-Permitted Urban	0.60	0.88	1.23	1.58	1.65	1.04	0.35	0.11	0.07	0.17	0.34	0.49	258.14
	Wasteload Allocation	0.43	0.63	0.62	0.83	0.85	0.92	0.60	0.38	0.29	0.35	0.39	0.42	203.69
	General Permit Sources	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	1.84
	MS4	0.43	0.63	0.62	0.83	0.84	0.91	0.59	0.37	0.28	0.34	0.39	0.42	201.85
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	Total Loading Capacity	0.98	1.42	1.66	2.17	2.45	2.07	1.15	0.60	0.39	0.49	0.61	0.86	450.85
Blackhawk Creek	Load Allocation	0.49	0.82	1.30	1.87	2.20	1.65	0.68	0.26	0.14	0.26	0.35	0.47	318.72
Mile 2 to 4	Background	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.82
	Ag/Non-Permitted Urban	0.49	0.82	1.30	1.85	2.18	1.63	0.68	0.26	0.14	0.26	0.35	0.47	316.90
	Wasteload Allocation	0.49	0.60	0.36	0.30	0.25	0.42	0.47	0.34	0.25	0.23	0.26	0.39	132.13
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.49	0.60	0.36	0.30	0.25	0.42	0.47	0.34	0.25	0.23	0.26	0.39	132.13
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	Total Loading Capacity	0.79	1.08	1.12	1.48	1.61	1.41	0.77	0.47	0.31	0.35	0.46	0.70	320.15
Blackhawk Creek	Load Allocation	0.21	0.34	0.56	0.88	1.05	0.75	0.29	0.12	0.07	0.12	0.16	0.22	144.99
Rock River to Mile 2	Background	0.00	0.00	0.00	0.02	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.51
	Ag/Non-Permitted Urban	0.21	0.34	0.56	0.86	1.04	0.73	0.29	0.12	0.07	0.12	0.16	0.22	143.48
	Wasteload Allocation	0.58	0.74	0.56	0.60	0.56	0.66	0.48	0.35	0.24	0.23	0.30	0.48	175.16
	General Permit Sources	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.53
	MS4	0.58	0.74	0.56	0.60	0.55	0.65	0.47	0.34	0.23	0.23	0.30	0.48	173.63
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	Total Loading Capacity	1.20	1.57	1.63	2.01	2.15	1.83	1.03	0.63	0.47	0.62	0.85	1.11	422.18
Rock River	Load Allocation	0.56	0.72	0.85	1.02	1.13	0.77	0.29	0.12	0.10	0.18	0.33	0.48	198.67
Mile 183 to Blackhawk Creek	Background	0.05	0.06	0.06	0.06	0.05	0.04	0.01	0.02	0.03	0.04	0.04	0.03	14.84
	Ag/Non-Permitted Urban	0.51	0.66	0.79	0.96	1.08	0.73	0.28	0.10	0.07	0.14	0.29	0.45	183.83
	Wasteload Allocation	0.64	0.85	0.78	0.99	1.02	1.06	0.74	0.51	0.37	0.44	0.52	0.63	223.51
	General Permit Sources	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	2.11
	MS4	0.46	0.64	0.59	0.80	0.84	0.87	0.57	0.37	0.24	0.27	0.34	0.45	195.47
	WWTF	0.18	0.20	0.18	0.18	0.18	0.18	0.16	0.13	0.12	0.17	0.18	0.18	25.93
75	Total Loading Capacity	0.51	0.59	0.42	0.50	0.51	0.41	0.17	0.11	0.10	0.15	0.25	0.45	126.24
Markham Creek	Load Allocation	0.40	0.46	0.36	0.42	0.42	0.27	0.07	0.04	0.05	0.10	0.19	0.35	94.72
Mile 0 to 5	Background	0.04	0.05	0.05	0.06	0.04	0.04	0.00	0.01	0.02	0.03	0.04	0.03	12.40
	Ag/Non-Permitted Urban	0.36	0.41	0.31	0.36	0.38	0.23	0.07	0.03	0.03	0.07	0.15	0.32	82.32
	Wasteload Allocation	0.11	0.13	0.06	0.08	0.09	0.14	0.10	0.07	0.05	0.05	0.06	0.10	31.52
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.11	0.13	0.06	0.08	0.09	0.14	0.10	0.07	0.05	0.05	0.06	0.10	31.52
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Reach Waterbody Name and Extents	Allocation Component			Daily TSS Load (tons/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
76	Total Loading Capacity			3.57	4.38	3.96	4.00	3.76	3.53	2.73	2.44	2.12	2.80	3.62	3.61	618.66
Rock River		Load Allocation		0.18	0.29	0.42	0.54	0.66	0.53	0.28	0.11	0.09	0.19	0.25	0.21	113.97
Bass Creek to Mile 183			Background	0.03	0.04	0.04	0.04	0.03	0.03	0.00	0.01	0.02	0.03	0.03	0.02	9.68
			Ag/Non-Permitted Urban	0.15	0.25	0.38	0.50	0.63	0.50	0.28	0.10	0.07	0.16	0.22	0.19	104.29
		Wasteload Allocation		3.39	4.09	3.54	3.46	3.10	3.00	2.45	2.33	2.03	2.61	3.37	3.40	504.69
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.92
			MS4	0.09	0.16	0.17	0.22	0.22	0.25	0.24	0.21	0.15	0.15	0.14	0.11	64.17
			WWTF	3.30	3.93	3.37	3.24	2.88	2.74	2.20	2.11	1.88	2.46	3.23	3.29	439.60
77	Total Loading Capacity			0.75	0.92	0.77	0.93	1.02	0.85	0.49	0.33	0.29	0.38	0.50	0.76	242.36
Stevens Creek		Load Allocation		0.75	0.92	0.77	0.93	1.02	0.85	0.49	0.33	0.29	0.38	0.50	0.76	242.36
Mile 0 to 8			Background	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	1.81
			Ag/Non-Permitted Urban	0.74	0.91	0.77	0.92	1.01	0.84	0.49	0.33	0.29	0.38	0.50	0.75	240.55
		Wasteload Allocation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	Total Loading Capacity			1.81	2.37	2.36	2.94	3.29	2.99	1.80	1.04	0.80	1.21	1.70	1.86	722.95
Bass Creek		Load Allocation		1.41	1.86	2.05	2.63	2.99	2.57	1.35	0.74	0.55	0.96	1.39	1.49	606.97
Rock River to Stevens Creek			Background	0.00	0.00	0.00	0.03	0.03	0.03	0.00	0.03	0.03	0.03	0.00	0.00	5.49
			Ag/Non-Permitted Urban	1.41	1.86	2.05	2.60	2.96	2.54	1.35	0.71	0.52	0.93	1.39	1.49	601.48
		Wasteload Allocation		0.40	0.51	0.31	0.31	0.30	0.42	0.45	0.30	0.25	0.25	0.31	0.37	115.98
			General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			MS4	0.35	0.45	0.26	0.26	0.25	0.37	0.40	0.25	0.20	0.20	0.26	0.32	108.23
			WWTF	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	7.75
79	Total Loading Capacity			4.61	6.09	7.81	9.45	10.02	8.97	6.15	3.98	2.58	4.01	5.67	4.82	1766.44
Rock River		Load Allocation		2.03	2.69	3.84	5.37	6.14	5.04	2.83	1.50	1.05	1.74	2.47	2.22	1122.52
Mile 171 to Bass Creek			Background	0.63	0.62	0.56	0.77	0.86	0.77	0.41	0.26	0.42	0.59	0.73	0.67	221.44
			Ag/Non-Permitted Urban	1.40	2.07	3.28	4.60	5.28	4.27	2.42	1.24	0.63	1.15	1.74	1.55	901.08
		Wasteload Allocation		2.58	3.40	3.97	4.08	3.88	3.93	3.32	2.48	1.53	2.27	3.20	2.60	643.92
			General Permit Sources	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	2.73
			MS4	0.33	0.61	0.84	1.13	1.16	1.37	1.29	0.89	0.45	0.53	0.55	0.39	290.41
			WWTF	2.25	2.78	3.12	2.94	2.71	2.55	2.02	1.58	1.07	1.73	2.65	2.21	350.78
80	Total Loading Capacity			2.34	3.28	3.50	3.68	3.40	2.90	1.79	1.25	1.15	1.44	1.90	2.08	750.01
Turtle Creek		Load Allocation		1.76	2.63	2.92	3.08	2.81	2.27	1.17	0.69	0.53	0.86	1.30	1.51	652.36
Mile 24 to 32			Background	0.05	0.05	0.05	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.01	6.63
			Ag/Non-Permitted Urban	1.71	2.58	2.87	3.06	2.79	2.26	1.17	0.69	0.53	0.86	1.29	1.50	645.73
		Wasteload Allocation		0.58	0.65	0.58	0.60	0.59	0.63	0.62	0.56	0.62	0.58	0.60	0.57	97.65
			General Permit Sources	0.02	0.03	0.02	0.02	0.03	0.05	0.06	0.04	0.04	0.02	0.02	0.01	10.94
			MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			WWTF	0.56	0.62	0.56	0.58	0.56	0.58	0.56	0.52	0.58	0.56	0.58	0.56	86.71

Reach Waterbody Name and Extents	Allocation Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Load Allocation (tons/year)
		Daily TSS Load (tons/day)												
81	Total Loading Capacity	2.23	2.91	3.71	4.75	5.15	5.01	4.12	3.09	2.09	2.85	3.46	2.68	1257.42
Turtle Creek	Load Allocation	1.28	1.82	2.81	3.81	4.26	3.67	2.26	1.24	0.71	1.39	1.94	1.56	813.66
Rock River to Mile 24	Background	0.08	0.09	0.06	0.06	0.00	0.00	0.00	0.00	0.03	0.08	0.14	0.14	20.58
	Ag/Non-Permitted Urban	1.20	1.73	2.75	3.75	4.26	3.67	2.26	1.24	0.68	1.31	1.80	1.42	793.08
	Wasteload Allocation	0.95	1.09	0.90	0.94	0.89	1.34	1.86	1.85	1.38	1.46	1.52	1.12	443.76
	General Permit Sources	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.02	0.01	0.01	0.01	5.49
	MS4	0.84	0.97	0.79	0.82	0.78	1.21	1.73	1.72	1.25	1.35	1.40	1.01	422.38
	WWTF	0.10	0.11	0.10	0.11	0.10	0.11	0.10	0.10	0.11	0.10	0.11	0.10	15.89
82	Total Loading Capacity	0.25	0.60	0.50	0.62	0.62	0.58	0.31	0.13	0.08	0.05	0.04	0.10	117.16
Fox Lake	Load Allocation	0.25	0.60	0.50	0.61	0.61	0.56	0.29	0.11	0.07	0.04	0.04	0.10	114.10
	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.25	0.60	0.50	0.61	0.61	0.56	0.29	0.11	0.07	0.04	0.04	0.10	114.10
	Wasteload Allocation	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	3.06
	General Permit Sources	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	3.06
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
83	Total Loading Capacity	3.71	6.15	10.51	13.42	12.92	10.55	7.68	4.61	3.05	3.92	4.80	3.61	2469.30
Lake Koshkonong	Load Allocation	2.84	5.03	9.30	12.01	11.44	8.95	6.08	3.35	2.09	2.71	3.49	2.61	2125.27
	Background	1.13	1.40	1.48	1.54	1.30	0.84	0.35	0.26	0.44	0.57	0.75	0.83	329.82
	Ag/Non-Permitted Urban	1.71	3.63	7.82	10.47	10.14	8.11	5.73	3.09	1.65	2.14	2.74	1.78	1795.45
	Wasteload Allocation	0.87	1.12	1.21	1.41	1.48	1.60	1.60	1.26	0.96	1.21	1.31	1.00	344.03
	General Permit Sources	0.01	0.01	0.02	0.02	0.03	0.05	0.07	0.06	0.04	0.01	0.01	0.01	10.39
	MS4	0.31	0.50	0.64	0.82	0.90	0.98	1.03	0.78	0.50	0.65	0.73	0.44	252.15
	WWTF	0.55	0.61	0.55	0.57	0.55	0.57	0.50	0.42	0.42	0.55	0.57	0.55	81.49
Lake Sinnissippi	Total Loading Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Load Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Background	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Ag/Non-Permitted Urban	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Wasteload Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	General Permit Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	WWTF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix L. Agricultural/Non-Permitted Urban TP Load Summary -- Baseline Loads, Load Allocations, and Percent Reductions
Note: Baseline load is defined in Section 4.2.

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction										Annual Load Allocation (lbs)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
1	West Branch Rock River	South Branch Rock River to Mile 39	Baseline	1862	6969	4889	1625	10487	641	5695	7083	2542	8180	1832
			Percent Reduction	2%	74%	63%	0%	83%	0%	68%	74%	28%	78%	
2	South Branch Rock River	Mile 3 to 20	Baseline	3496	13503	9836	3936	22762	1293	13237	12777	3242	22309	1710
			Percent Reduction	51%	87%	83%	57%	92%	0%	87%	87%	47%	92%	
3	South Branch Rock River	Mile 1 to 3	Baseline	165	445	481	145	570	88	452	487	269	609	28
			Percent Reduction	83%	94%	94%	81%	95%	68%	94%	94%	90%	95%	
4	West Branch Rock River/Horicon Marsh	Mile 0 to South Branch Rock River	Baseline	3103	11595	10257	2900	16146	1337	11530	13031	5117	16198	2149
			Percent Reduction	31%	81%	79%	26%	87%	0%	81%	84%	58%	87%	
5	Wayne Creek	Mile 4.1 to 4.8	Baseline	962	3629	978	473	2551	731	1213	5760	917	1661	74
			Percent Reduction	92%	98%	92%	84%	97%	90%	94%	99%	92%	96%	
6	Wayne Creek	Kohlsville River to Mile 4.1	Baseline	6843	8591	2653	1055	6377	2417	2370	17056	1880	4606	548
			Percent Reduction	92%	94%	79%	48%	91%	77%	77%	97%	71%	88%	
7	Kohlsville River	Mile 0 to 9	Baseline	12166	15272	4717	1876	11337	4296	4213	30322	3342	8189	974
			Percent Reduction	92%	94%	79%	48%	91%	77%	77%	97%	71%	88%	
8	Limestone Creek	Mile 0 to 1	Baseline	4184	9205	3841	1187	7465	2379	2890	19908	2666	6229	1303
			Percent Reduction	69%	86%	66%	0%	83%	45%	55%	93%	51%	79%	
9	East Branch Rock River	Kohlsville River to Limestone Creek	Baseline	8778	14648	6630	2530	12652	5232	5822	36747	4057	9821	1592
			Percent Reduction	82%	89%	76%	37%	87%	70%	73%	96%	61%	84%	
10	East Branch Rock River	Kummel Creek to Kohlsville River	Baseline	11595	16029	7067	2403	14363	4976	6658	34934	5835	11646	2080
			Percent Reduction	82%	87%	71%	13%	86%	58%	69%	94%	64%	82%	
11	Kummel Creek	Mile 14 to 18	Baseline	1823	1498	1046	261	1824	643	737	5380	753	1495	583
			Percent Reduction	68%	61%	44%	0%	68%	9%	21%	89%	23%	61%	
12	Kummel Creek	Mile 0 to 14	Baseline	6989	5806	4112	1089	7098	2536	2910	20461	2920	5821	914
			Percent Reduction	87%	84%	78%	16%	87%	64%	69%	96%	69%	84%	
13	East Branch Rock River	Mile 11 to Kummel Creek	Baseline	25968	20407	11686	3538	24053	8822	10346	63966	9552	23066	1771
			Percent Reduction	93%	91%	85%	50%	93%	80%	83%	97%	81%	92%	
14	East Branch Rock River	Gill Creek to Mile 11	Baseline	7638	6283	3879	1399	7510	2870	3341	18338	2917	7095	376
			Percent Reduction	95%	94%	90%	73%	95%	87%	89%	98%	87%	95%	
15	Gill Creek	Mile 0 to 6	Baseline	2819	12181	5314	2176	14805	786	11142	13287	2789	13708	505
			Percent Reduction	82%	96%	90%	77%	97%	36%	95%	96%	82%	96%	
16	Irish Creek	Mile 0 to 3	Baseline	897	3331	2057	779	4170	217	3236	3646	1191	3445	180
			Percent Reduction	80%	95%	91%	77%	96%	17%	94%	95%	85%	95%	
17	East Branch Rock River	Mile 0 to Irish Creek	Baseline	1423	4406	2240	996	4768	321	4950	5405	1407	4378	109
			Percent Reduction	92%	98%	95%	89%	98%	66%	98%	98%	92%	98%	
18	Rock River	Mile 296 to 305	Baseline	806	1996	1936	1115	2774	740	1870	1744	933	2451	254
			Percent Reduction	68%	87%	87%	77%	91%	66%	86%	85%	73%	90%	
19	Dead Creek	Mile 0 to 3	Baseline	1077	3759	3174	1319	4977	473	3249	3738	1699	5036	562
			Percent Reduction	48%	85%	82%	57%	89%	0%	83%	85%	67%	89%	
20	Rock River	Mile 270 to 293	Baseline	51949	120393	89414	26402	295354	58407	47548	255500	100567	69291	20828
			Percent Reduction	60%	83%	77%	21%	93%	64%	56%	92%	79%	70%	
21	Rock River	Oconomowoc River to Mile 270	Baseline	3803	10071	11412	3466	27795	9469	8072	25217	12234	8996	2956
			Percent Reduction	22%	71%	74%	15%	89%	69%	63%	88%	76%	67%	
22	Flynn Creek	Mile 0 to 6	Baseline	2724	7791	3958	1018	16003	1668	1657	11614	3219	2476	439
			Percent Reduction	84%	94%	89%	57%	97%	74%	73%	96%	86%	82%	
23	Oconomowoc River	Mason Creek to Flynn Creek	Baseline	6235	18628	9191	4242	41513	3480	5257	25722	7671	6756	1896
			Percent Reduction	70%	90%	79%	55%	95%	46%	64%	93%	75%	72%	
24	Mason Creek	Mile 0 to 5.2	Baseline	4314	11651	8488	1444	31879	3036	3110	18436	5359	6283	309
			Percent Reduction	93%	97%	96%	79%	99%	90%	90%	98%	94%	95%	
25	Oconomowoc River	Battle Creek to Mason Creek	Baseline	1349	2259	3426	1584	5033	1743	2839	3559	1788	3426	426
			Percent Reduction	68%	81%	88%	73%	92%	76%	85%	88%	76%	88%	
26	Battle Creek	Mile 2.1 to 4.6	Baseline	322	593	1196	328	1483	406	974	1242	651	876	197
			Percent Reduction	39%	67%	84%	40%	87%	51%	80%	84%	70%	77%	

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction										Annual Load Allocation (lbs)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
27	Oconomowoc River	Rock River to Battle Creek	Baseline	259	373	743	273	882	326	634	674	388	694	719
			Percent Reduction	0%	0%	3%	0%	18%	0%	0%	0%	0%	0%	
28	Rock River	Mile 249 to Oconomowoc River	Baseline	979	3297	7083	1981	13438	6253	6089	9389	9368	6383	3842
			Percent Reduction	0%	0%	46%	0%	71%	39%	37%	59%	59%	40%	
29	Rock River	Johnson Creek to Mile 249	Baseline	3866	10217	21265	4883	55249	21826	18208	47381	27123	22301	2375
			Percent Reduction	39%	77%	89%	51%	96%	89%	87%	95%	91%	89%	
30	Johnson Creek	Mile 0 to 17.5	Baseline	789	2889	5850	1655	13999	7014	4275	9757	8318	6407	1602
			Percent Reduction	0%	45%	73%	3%	89%	77%	63%	84%	81%	75%	
31	Rock River	Crawfish River to Johnson Creek	Baseline	994	2506	2556	1157	3858	1066	2105	8502	1582	3653	485
			Percent Reduction	51%	81%	81%	58%	87%	54%	77%	94%	69%	87%	
32	Alto Creek	Mile 0 to 6.15	Baseline	676	2711	1799	473	4195	179	1863	3520	577	3425	349
			Percent Reduction	48%	87%	81%	26%	92%	0%	81%	90%	39%	90%	
33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	Baseline	3465	12116	9124	3003	18192	1420	8798	12482	4301	15073	2725
			Percent Reduction	21%	78%	70%	9%	85%	0%	69%	78%	37%	82%	
34	Beaver Dam River	Calamus Creek to Mile 30	Baseline	154	625	456	113	1191	50	507	702	160	873	32
			Percent Reduction	79%	95%	93%	72%	97%	36%	94%	95%	80%	96%	
35	Calamus Creek	Mile 0 to 17	Baseline	1117	4297	4091	985	8141	395	3601	5576	1733	7228	2084
			Percent Reduction	0%	52%	49%	0%	74%	0%	42%	63%	0%	71%	
36	Beaver Dam River	Mile 14 to Calamus Creek	Baseline	648	2626	1918	477	5003	211	2129	2950	671	3667	478
			Percent Reduction	26%	82%	75%	0%	90%	0%	78%	84%	29%	87%	
37	Park Creek	Mile 0 to 3	Baseline	692	1984	1464	198	2803	141	1713	1986	455	3055	70
			Percent Reduction	90%	96%	95%	64%	97%	50%	96%	96%	85%	98%	
38	Schultz Creek	Mile 0 to 5	Baseline	932	2303	1437	267	2363	155	1161	2467	427	2218	146
			Percent Reduction	84%	94%	90%	45%	94%	6%	87%	94%	66%	93%	
39	Shaw Brook	Beaver Dam River to Schultz Creek	Baseline	1427	5784	4224	1050	11022	466	4689	6498	1479	8079	727
			Percent Reduction	49%	87%	83%	31%	93%	0%	84%	89%	51%	91%	
40	Beaver Dam River	Casper Creek to Mile 14	Baseline	2914	9959	8261	2523	14484	943	8231	11050	2929	19665	1640
			Percent Reduction	44%	84%	80%	35%	89%	0%	80%	85%	44%	92%	
41	Casper Creek	Mile 0 to 2	Baseline	672	1809	2828	913	22925	7212	3969	8349	5852	2882	516
			Percent Reduction	23%	71%	82%	44%	98%	93%	87%	94%	91%	82%	
42	Beaver Dam River	Lau Creek to Casper Creek	Baseline	310	733	1686	452	6041	2615	1550	2843	2297	1687	529
			Percent Reduction	0%	28%	69%	0%	91%	80%	66%	81%	77%	69%	
43	Lau Creek	Mile 0 to 6	Baseline	796	1559	3567	903	12963	6151	2954	6216	5025	3714	812
			Percent Reduction	0%	48%	77%	10%	94%	87%	73%	87%	84%	78%	
44	Beaver Dam River	Mile 0 to Lau Creek	Baseline	109	258	592	159	2123	919	544	999	807	593	186
			Percent Reduction	0%	28%	69%	0%	91%	80%	66%	81%	77%	69%	
45	Maunesha River	Mile 13.21 to 31.8	Baseline	3416	21693	22331	12691	95207	13496	14211	72657	12609	39496	3570
			Percent Reduction	0%	84%	84%	72%	96%	74%	75%	95%	72%	91%	
46	Maunesha River	Mile 5.5 to 13.2	Baseline	3126	11271	6350	2187	14375	2070	5737	48403	7000	13521	950
			Percent Reduction	70%	92%	85%	57%	93%	54%	83%	98%	86%	93%	
47	Maunesha River	Stony Brook to Mile 13.2	Baseline	1065	3272	1264	503	2867	404	1675	9242	1447	2725	159
			Percent Reduction	85%	95%	87%	68%	94%	61%	90%	98%	89%	94%	
48	Stony Brook	Mile 0 to 15	Baseline	2492	9127	5407	1537	10984	1097	4692	38974	3861	10810	1358
			Percent Reduction	46%	85%	75%	12%	88%	0%	71%	97%	65%	87%	
49	Maunesha River	Mile 0 to Stony Brook	Baseline	312	959	370	147	840	118	491	2709	424	799	116
			Percent Reduction	63%	88%	69%	21%	86%	2%	76%	96%	73%	86%	
50	Mud Creek	Mile 0 to 10	Baseline	1294	5812	3834	1515	7664	345	3322	6264	1545	9060	1003
			Percent Reduction	22%	83%	74%	34%	87%	0%	70%	84%	35%	89%	
51	Crawfish River	Maunesha River to Mud Creek	Baseline	14375	52481	36761	18281	116255	17692	37421	62063	20164	66452	9344
			Percent Reduction	35%	82%	75%	49%	92%	47%	75%	85%	54%	86%	
52	Crawfish River	Beaver Dam River to Maunesha Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
53	Crawfish River	Rock River to Beaver Dam River	Baseline	5948	16846	14440	4999	22491	4550	12112	74293	12177	24652	10596
			Percent Reduction	0%	37%	27%	0%	53%	0%	13%	86%	13%	57%	

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction 1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Annual Load Allocation (lbs)
54	Rock River	Bark River to Crawfish River	Baseline	1289	2935	1713	1709	9728	1847	3928	4783	5295	5593	471
			Percent Reduction	63%	84%	73%	72%	95%	75%	88%	90%	91%	92%	
55	Bark River	Mile 35 to 41	Baseline	2724	15779	7177	3484	20671	4873	5195	15215	21658	7086	960
			Percent Reduction	65%	94%	87%	72%	95%	80%	82%	94%	96%	86%	
56	Bark River	Scuppernong River to Mile 35	Baseline	3253	6788	10941	2503	25682	4731	9440	21982	6782	10197	1577
			Percent Reduction	52%	77%	86%	37%	94%	67%	83%	93%	77%	85%	
57	Spring Creek	Mile 0 to 5	Baseline	350	2331	884	730	6161	572	1748	2691	4344	3245	118
			Percent Reduction	66%	95%	87%	84%	98%	79%	93%	96%	97%	96%	
58	Steel Brook	Mile 3 to 4	Baseline	242	2536	570	589	6994	450	1452	2260	4171	2676	319
			Percent Reduction	0%	87%	44%	46%	95%	29%	78%	86%	92%	88%	
59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	Baseline	4973	30980	10893	9566	93086	8871	28309	31426	49560	40268	2335
			Percent Reduction	53%	92%	79%	76%	97%	74%	92%	93%	95%	94%	
60	Rock River	Mile 213 to Bark River	Baseline	614	1000	893	1145	4116	809	1959	1795	1550	2628	909
			Percent Reduction	0%	9%	0%	21%	78%	0%	54%	49%	41%	65%	
61	Rock River	Mile 201 to 207	Baseline	2342	5738	5002	3523	18843	3243	7723	7544	9575	11283	16257
			Percent Reduction	0%	0%	0%	0%	14%	0%	0%	0%	0%	0%	
62	Pheasant Branch Creek	Mile 1 to 9	Baseline	1224	13314	21829	6874	43827	6968	8119	43094	4392	32268	410
			Percent Reduction	66%	97%	98%	94%	99%	94%	95%	99%	91%	99%	
63	Spring (Dorn) Creek	Mile 1 to 6	Baseline	286	2920	3410	1386	7924	2251	1471	18907	998	6679	526
			Percent Reduction	0%	82%	85%	62%	93%	77%	64%	97%	47%	92%	
64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	Baseline	8445	90382	75124	29405	249447	30196	46659	327998	26785	151822	7003
			Percent Reduction	17%	92%	91%	76%	97%	77%	85%	98%	74%	95%	
65	Nine Springs Creek	Mile 0 to 6	Baseline	436	932	1231	699	3026	664	751	2367	381	1925	219
			Percent Reduction	50%	76%	82%	69%	93%	67%	71%	91%	42%	89%	
66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	Baseline	1908	15158	20934	10145	49895	8554	11449	46802	6084	34713	2450
			Percent Reduction	0%	84%	88%	76%	95%	71%	79%	95%	60%	93%	
67	Yahara River	Mile 16 to 22	Baseline	2188	3497	3528	3288	11763	3248	6395	5412	5381	8436	11944
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
68	Yahara River	Mile 7 to 16	Baseline	1986	3158	3155	3026	11258	2998	6103	5203	5216	8032	750
			Percent Reduction	62%	76%	76%	75%	93%	75%	88%	86%	86%	91%	
69	Yahara River	Mile 0 to 7	Baseline	6898	19847	22053	13847	78582	10978	33002	37058	30461	52536	2623
			Percent Reduction	62%	87%	88%	81%	97%	76%	92%	93%	91%	95%	
70	Rock River	Mile 193 to 201	Baseline	378	2817	2530	3420	25998	3458	2639	22330	15052	8171	1631
			Percent Reduction	0%	42%	36%	52%	94%	53%	38%	93%	89%	80%	
71	Rock River	Blackhawk Creek to Mile 193	Baseline	325	4037	4523	2816	47861	3594	3925	45324	34605	8694	1576
			Percent Reduction	0%	61%	65%	44%	97%	56%	60%	97%	95%	82%	
72	Blackhawk Creek	Mile 2 to 4	Baseline	428	6584	5669	4697	54218	7782	5529	55373	44615	14914	2466
			Percent Reduction	0%	63%	56%	47%	95%	68%	55%	96%	94%	83%	
73	Blackhawk Creek	Rock River to Mile 2	Baseline	698	6690	6047	5655	71655	8080	7316	64097	63797	17343	979
			Percent Reduction	0%	85%	84%	83%	99%	88%	87%	98%	98%	94%	
74	Rock River	Mile 183 to Blackhawk Creek	Baseline	212	1210	1315	929	8589	1136	1105	9378	7520	2235	1094
			Percent Reduction	0%	10%	17%	0%	87%	4%	1%	88%	85%	51%	
75	Markham Creek	Mile 0 to 5	Baseline	128	3019	3097	2141	32630	2883	3168	40591	35710	5937	506
			Percent Reduction	0%	83%	84%	76%	98%	82%	84%	99%	99%	91%	
76	Rock River	Bass Creek to Mile 183	Baseline	141	799	868	613	5649	749	729	6165	4943	1472	183
			Percent Reduction	0%	77%	79%	70%	97%	76%	75%	97%	96%	88%	
77	Stevens Creek	Mile 0 to 8	Baseline	1193	11398	7371	7615	66503	12020	10148	77125	64745	25394	1774
			Percent Reduction	0%	84%	76%	77%	97%	85%	83%	98%	97%	93%	
78	Bass Creek	Rock River to Stevens Creek	Baseline	1444	11911	14560	6048	77623	11952	10750	68174	49797	40247	3689
			Percent Reduction	0%	69%	75%	39%	95%	69%	66%	95%	93%	91%	
79	Rock River	Mile 171 to Bass Creek	Baseline	1465	8961	8832	6419	48785	9225	7666	54823	32343	18892	2654
			Percent Reduction	0%	70%	70%	59%	95%	71%	65%	95%	92%	86%	
80	Turtle Creek	Mile 24 to 32	Baseline	3149	18323	11104	4309	22203	6061	10258	25528	17030	13633	1497
			Percent Reduction	52%	92%	87%	65%	93%	75%	85%	94%	91%	89%	

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction										Annual Load Allocation (lbs)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
81	Turtle Creek	Rock River to Mile 24	Baseline	1515	24167	18655	10394	173570	20581	18253	165415	138106	41902	4888
			Percent Reduction	0%	80%	74%	53%	97%	76%	73%	97%	96%	88%	
82	Fox Lake		Baseline	2115	7362	5028	1653	10239	980	5221	7900	2227	10441	802
			Percent Reduction	62%	89%	84%	51%	92%	18%	85%	90%	64%	92%	
83	Lake Koshkonong		Baseline	12108	43759	37942	17177	92088	15493	34205	162300	34603	69587	9173
			Percent Reduction	24%	79%	76%	47%	90%	41%	73%	94%	73%	87%	
	Lake Sinnissippi		Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Appendix M. Agricultural/Non-Permitted Urban TSS Load Summary -- Baseline Loads, Load Allocations, and Percent Reductions
Note: Baseline load is defined in Section 4.2.

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
1	West Branch Rock River	South Branch Rock River to Mile 39	Baseline	199	800	428	122	1374	38	425	796	154	812	255
			Percent Reduction	0%	68%	41%	0%	81%	0%	40%	68%	0%	69%	
2	South Branch Rock River	Mile 3 to 20	Baseline	448	1814	1188	445	3277	130	1421	1663	278	3007	371
			Percent Reduction	17%	80%	69%	17%	89%	0%	74%	78%	0%	88%	
3	South Branch Rock River	Mile 1 to 3	Baseline	5	12	11	5	19	4	9	10	4	17	8
			Percent Reduction	0%	38%	32%	0%	60%	0%	14%	28%	0%	56%	
4	West Branch Rock River/Horicon Marsh	Mile 0 to South Branch Rock River	Baseline	155	879	563	147	1445	58	637	986	161	1200	379
			Percent Reduction	0%	57%	33%	0%	74%	0%	41%	62%	0%	68%	
5	Wayne Creek	Mile 4.1 to 4.8	Baseline	195	700	183	97	514	134	219	1127	161	296	14
			Percent Reduction	93%	98%	92%	85%	97%	89%	94%	99%	91%	95%	
6	Wayne Creek	Kohlsville River to Mile 4.1	Baseline	1259	1551	459	201	1172	411	388	3027	301	768	80
			Percent Reduction	94%	95%	83%	61%	93%	81%	79%	97%	74%	90%	
7	Kohlsville River	Mile 0 to 9	Baseline	2239	2757	816	358	2083	731	689	5381	535	1365	132
			Percent Reduction	94%	95%	84%	63%	94%	82%	81%	98%	75%	90%	
8	Limestone Creek	Mile 0 to 1	Baseline	691	1643	605	186	1270	358	401	3302	370	955	183
			Percent Reduction	73%	89%	70%	2%	86%	49%	54%	94%	51%	81%	
9	East Branch Rock River	Kohlsville River to Limestone Creek	Baseline	1353	2596	959	377	2129	775	748	5978	486	1395	432
			Percent Reduction	68%	83%	55%	0%	80%	44%	42%	93%	11%	69%	
10	East Branch Rock River	Kummel Creek to Kohlsville River	Baseline	1515	2379	809	290	1994	570	744	4671	643	1373	293
			Percent Reduction	81%	88%	64%	0%	85%	49%	61%	94%	54%	79%	
11	Kummel Creek	Mile 14 to 18	Baseline	295	260	146	30	302	88	83	877	91	200	88
			Percent Reduction	70%	66%	40%	0%	71%	0%	0%	90%	3%	56%	
12	Kummel Creek	Mile 0 to 14	Baseline	1122	995	564	121	1154	340	323	3319	350	770	294
			Percent Reduction	74%	70%	48%	0%	75%	13%	9%	91%	16%	62%	
13	East Branch Rock River	Mile 11 to Kummel Creek	Baseline	4319	3600	1724	498	4060	1337	1446	10523	1312	3548	410
			Percent Reduction	91%	89%	76%	18%	90%	69%	72%	96%	69%	88%	
14	East Branch Rock River	Gill Creek to Mile 11	Baseline	1248	1061	537	179	1201	413	448	2996	395	1049	129
			Percent Reduction	90%	88%	76%	28%	89%	69%	71%	96%	67%	88%	
15	Gill Creek	Mile 0 to 6	Baseline	439	2076	774	315	2570	104	1610	2131	357	2066	80
			Percent Reduction	82%	96%	90%	75%	97%	23%	95%	96%	78%	96%	
16	Irish Creek	Mile 0 to 3	Baseline	133	530	285	109	672	26	440	544	152	476	31
			Percent Reduction	77%	94%	89%	71%	95%	0%	93%	94%	79%	93%	
17	East Branch Rock River	Mile 0 to Irish Creek	Baseline	244	818	339	154	894	45	755	908	202	670	29
			Percent Reduction	88%	96%	91%	81%	97%	35%	96%	97%	86%	96%	
18	Rock River	Mile 296 to 305	Baseline	56	139	118	80	196	59	104	102	53	148	89
			Percent Reduction	0%	36%	24%	0%	54%	0%	14%	12%	0%	39%	
19	Dead Creek	Mile 0 to 3	Baseline	72	324	212	89	449	29	178	272	83	443	181
			Percent Reduction	0%	44%	15%	0%	60%	0%	0%	34%	0%	59%	
20	Rock River	Mile 270 to 293	Baseline	8856	20752	13972	3959	51735	9226	6322	43107	15454	10497	4629
			Percent Reduction	48%	78%	67%	0%	91%	50%	27%	89%	70%	56%	
21	Rock River	Oconomowoc River to Mile 270	Baseline	284	1012	1077	271	3135	1064	728	2527	1229	871	458
			Percent Reduction	0%	55%	57%	0%	85%	57%	37%	82%	63%	47%	
22	Flynn Creek	Mile 0 to 6	Baseline	489	1487	695	187	3079	300	276	2037	523	420	60
			Percent Reduction	88%	96%	91%	68%	98%	80%	78%	97%	89%	86%	
23	Oconomowoc River	Mason Creek to Flynn Creek	Baseline	983	3176	1324	652	7080	518	719	3896	1010	951	247
			Percent Reduction	75%	92%	81%	62%	97%	52%	66%	94%	76%	74%	
24	Mason Creek	Mile 0 to 5.2	Baseline	751	2109	1517	249	5888	500	489	3163	848	1056	46
			Percent Reduction	94%	98%	97%	81%	99%	91%	91%	99%	95%	96%	
25	Oconomowoc River	Battle Creek to Mason Creek	Baseline	163	285	352	186	646	184	311	473	213	361	139
			Percent Reduction	15%	51%	60%	25%	78%	24%	55%	71%	35%	61%	
26	Battle Creek	Mile 2.1 to 4.6	Baseline	40	87	163	37	219	47	129	193	95	103	31
			Percent Reduction	22%	64%	81%	17%	86%	34%	76%	84%	67%	70%	

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
27	Oconomowoc River	Rock River to Battle Creek	Baseline	11	21	27	9	60	10	25	39	15	27	95
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
28	Rock River	Mile 249 to Oconomowoc River	Baseline	105	499	1028	243	2273	927	771	1518	1502	977	476
			Percent Reduction	0%	5%	54%	0%	79%	49%	38%	69%	68%	51%	
29	Rock River	Johnson Creek to Mile 249	Baseline	524	1582	3101	636	9243	3444	2353	7586	4220	3236	632
			Percent Reduction	0%	60%	80%	1%	93%	82%	73%	92%	85%	80%	
30	Johnson Creek	Mile 0 to 17.5	Baseline	69	362	618	162	1989	893	388	1295	1093	765	180
			Percent Reduction	0%	50%	71%	0%	91%	80%	54%	86%	84%	76%	
31	Rock River	Crawfish River to Johnson Creek	Baseline	93	288	280	116	465	106	222	1214	189	414	255
			Percent Reduction	0%	12%	9%	0%	45%	0%	0%	79%	0%	38%	
32	Alto Creek	Mile 0 to 6.15	Baseline	84	356	212	52	584	16	188	487	52	427	55
			Percent Reduction	34%	85%	74%	0%	91%	0%	71%	89%	0%	87%	
33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	Baseline	380	1372	815	263	2206	115	650	1375	303	1608	438
			Percent Reduction	0%	68%	46%	0%	80%	0%	33%	68%	0%	73%	
34	Beaver Dam River	Calamus Creek to Mile 30	Baseline	19	77	52	12	155	5	50	86	13	104	16
			Percent Reduction	16%	80%	70%	0%	90%	0%	69%	82%	0%	85%	
35	Calamus Creek	Mile 0 to 17	Baseline	111	528	446	78	1177	27	281	734	121	899	276
			Percent Reduction	0%	48%	38%	0%	77%	0%	2%	62%	0%	69%	
36	Beaver Dam River	Mile 14 to Calamus Creek	Baseline	78	324	217	49	652	21	211	363	55	436	72
			Percent Reduction	8%	78%	67%	0%	89%	0%	66%	80%	0%	83%	
37	Park Creek	Mile 0 to 3	Baseline	106	296	211	24	419	18	215	280	56	429	11
			Percent Reduction	90%	96%	95%	55%	97%	42%	95%	96%	81%	98%	
38	Schultz Creek	Mile 0 to 5	Baseline	148	351	212	35	342	21	150	362	56	319	26
			Percent Reduction	83%	93%	88%	27%	92%	0%	83%	93%	54%	92%	
39	Shaw Brook	Beaver Dam River to Schultz Creek	Baseline	172	715	477	108	1436	46	465	801	122	960	74
			Percent Reduction	57%	90%	84%	32%	95%	0%	84%	91%	39%	92%	
40	Beaver Dam River	Casper Creek to Mile 14	Baseline	372	1313	1007	276	1985	80	845	1466	256	2618	327
			Percent Reduction	12%	75%	68%	0%	84%	0%	61%	78%	0%	88%	
41	Casper Creek	Mile 0 to 2	Baseline	89	251	342	122	3299	957	467	1142	763	363	76
			Percent Reduction	14%	70%	78%	37%	98%	92%	84%	93%	90%	79%	
42	Beaver Dam River	Lau Creek to Casper Creek	Baseline	27	77	141	37	771	295	133	320	252	167	107
			Percent Reduction	0%	0%	24%	0%	86%	64%	20%	67%	57%	36%	
43	Lau Creek	Mile 0 to 6	Baseline	152	237	504	159	1905	850	355	904	692	500	117
			Percent Reduction	23%	50%	77%	26%	94%	86%	67%	87%	83%	77%	
44	Beaver Dam River	Mile 0 to Lau Creek	Baseline	9	27	50	13	271	104	47	112	88	59	41
			Percent Reduction	0%	0%	18%	0%	85%	61%	13%	64%	54%	30%	
45	Maunesha River	Mile 13.21 to 31.8	Baseline	426	3596	3393	1707	15367	1905	1930	12441	1830	5985	485
			Percent Reduction	0%	87%	86%	72%	97%	75%	75%	96%	73%	92%	
46	Maunesha River	Mile 5.5 to 13.2	Baseline	464	2000	1056	343	2597	342	846	8823	1182	2226	278
			Percent Reduction	40%	86%	74%	19%	89%	19%	67%	97%	76%	87%	
47	Maunesha River	Stony Brook to Mile 13.2	Baseline	132	477	157	65	428	52	207	1376	190	351	77
			Percent Reduction	41%	84%	51%	0%	82%	0%	63%	94%	59%	78%	
48	Stony Brook	Mile 0 to 15	Baseline	284	1292	683	191	1590	130	539	5729	463	1378	199
			Percent Reduction	30%	85%	71%	0%	87%	0%	63%	97%	57%	86%	
49	Maunesha River	Mile 0 to Stony Brook	Baseline	39	140	46	19	125	15	61	403	56	103	22
			Percent Reduction	43%	84%	52%	0%	82%	0%	64%	95%	60%	79%	
50	Mud Creek	Mile 0 to 10	Baseline	172	825	498	198	1100	38	366	876	174	1254	138
			Percent Reduction	20%	83%	72%	30%	87%	0%	62%	84%	21%	89%	
51	Crawfish River	Maunesha River to Mud Creek	Baseline	2060	7829	4785	2210	17689	2425	4364	9085	2416	9117	1889
			Percent Reduction	8%	76%	61%	15%	89%	22%	57%	79%	22%	79%	
52	Crawfish River	Beaver Dam River to Maunesha Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
53	Crawfish River	Rock River to Beaver Dam River	Baseline	549	2063	1530	522	2832	446	1168	10005	1321	2674	2350
			Percent Reduction	0%	0%	0%	0%	17%	0%	0%	77%	0%	12%	

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
54	Rock River	Bark River to Crawfish River	Baseline	131	403	194	187	1312	186	423	657	703	666	177
			Percent Reduction	0%	56%	9%	5%	87%	5%	58%	73%	75%	73%	
55	Bark River	Mile 35 to 41	Baseline	322	2453	703	460	3001	510	506	2059	3015	709	205
			Percent Reduction	36%	92%	71%	55%	93%	60%	59%	90%	93%	71%	
56	Bark River	Scuppernong River to Mile 35	Baseline	355	845	1245	287	3302	503	942	2756	719	1081	310
			Percent Reduction	13%	63%	75%	0%	91%	38%	67%	89%	57%	71%	
57	Spring Creek	Mile 0 to 5	Baseline	49	399	189	130	1061	75	403	448	668	573	84
			Percent Reduction	0%	79%	56%	36%	92%	0%	79%	81%	87%	85%	
58	Steel Brook	Mile 3 to 4	Baseline	30	403	87	90	1176	60	288	353	613	413	45
			Percent Reduction	0%	89%	48%	50%	96%	25%	84%	87%	93%	89%	
59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	Baseline	454	4198	1321	1154	12965	862	3455	3938	6248	4804	581
			Percent Reduction	0%	86%	56%	50%	96%	33%	83%	85%	91%	88%	
60	Rock River	Mile 213 to Bark River	Baseline	43	121	114	138	528	63	201	200	159	287	375
			Percent Reduction	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	
61	Rock River	Mile 201 to 207	Baseline	190	723	551	320	2694	275	821	968	1347	1341	4558
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
62	Pheasant Branch Creek	Mile 1 to 9	Baseline	187	2484	4086	1206	8407	1200	1388	8092	760	5804	62
			Percent Reduction	67%	98%	98%	95%	99%	95%	96%	99%	92%	99%	
63	Spring (Dorn) Creek	Mile 1 to 6	Baseline	26	412	485	180	1130	313	172	2963	119	931	80
			Percent Reduction	0%	81%	84%	56%	93%	75%	54%	97%	33%	91%	
64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	Baseline	1108	14243	11047	4195	40357	4402	6477	52224	4001	21185	1030
			Percent Reduction	7%	93%	91%	75%	97%	77%	84%	98%	74%	95%	
65	Nine Springs Creek	Mile 0 to 6	Baseline	44	89	132	68	423	66	75	350	49	229	34
			Percent Reduction	23%	62%	74%	50%	92%	49%	55%	90%	31%	85%	
66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	Baseline	206	2413	3325	1633	8223	1237	1758	7863	953	5316	367
			Percent Reduction	0%	85%	89%	78%	96%	70%	79%	95%	61%	93%	
67	Yahara River	Mile 16 to 22	Baseline	297	540	529	536	1808	484	931	809	780	1229	1711
			Percent Reduction	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	
68	Yahara River	Mile 7 to 16	Baseline	278	509	495	510	1764	460	902	788	761	1193	195
			Percent Reduction	30%	62%	61%	62%	89%	58%	78%	75%	74%	84%	
69	Yahara River	Mile 0 to 7	Baseline	992	3254	3625	2291	13450	1670	5327	5843	4890	8141	1282
			Percent Reduction	0%	61%	65%	44%	90%	23%	76%	78%	74%	84%	
70	Rock River	Mile 193 to 201	Baseline	58	518	427	546	4706	538	414	3943	2579	1352	239
			Percent Reduction	0%	54%	44%	56%	95%	56%	42%	94%	91%	82%	
71	Rock River	Blackhawk Creek to Mile 193	Baseline	85	851	909	594	9777	672	777	8906	6852	1600	258
			Percent Reduction	0%	70%	72%	57%	97%	62%	67%	97%	96%	84%	
72	Blackhawk Creek	Mile 2 to 4	Baseline	33	982	790	656	8969	1157	770	8629	6938	2008	317
			Percent Reduction	0%	68%	60%	52%	96%	73%	59%	96%	95%	84%	
73	Blackhawk Creek	Rock River to Mile 2	Baseline	83	1090	955	881	12525	1360	1172	10719	10495	2731	143
			Percent Reduction	0%	87%	85%	84%	99%	89%	88%	99%	99%	95%	
74	Rock River	Mile 183 to Blackhawk Creek	Baseline	45	236	242	179	1680	202	209	1792	1436	409	184
			Percent Reduction	0%	22%	24%	0%	89%	9%	12%	90%	87%	55%	
75	Markham Creek	Mile 0 to 5	Baseline	45	633	623	447	6531	578	629	7941	6950	1168	82
			Percent Reduction	0%	87%	87%	82%	99%	86%	87%	99%	99%	93%	
76	Rock River	Bass Creek to Mile 183	Baseline	29	155	160	118	1104	133	137	1178	944	269	104
			Percent Reduction	0%	33%	35%	11%	91%	22%	24%	91%	89%	61%	
77	Stevens Creek	Mile 0 to 8	Baseline	192	2023	1238	1281	12157	2161	1688	13857	11606	4370	241
			Percent Reduction	0%	88%	81%	81%	98%	89%	86%	98%	98%	94%	
78	Bass Creek	Rock River to Stevens Creek	Baseline	137	1797	2207	675	12856	1679	1497	10763	8038	6185	601
			Percent Reduction	0%	67%	73%	11%	95%	64%	60%	94%	93%	90%	
79	Rock River	Mile 171 to Bass Creek	Baseline	529	1941	1866	1361	8628	1729	1644	9091	5492	3236	901
			Percent Reduction	0%	54%	52%	34%	90%	48%	45%	90%	84%	72%	
80	Turtle Creek	Mile 24 to 32	Baseline	311	2706	1421	468	3038	779	1181	3834	2376	1646	646
			Percent Reduction	0%	76%	55%	0%	79%	17%	45%	83%	73%	61%	

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
81	Turtle Creek	Rock River to Mile 24	Baseline	218	4189	3187	1794	33040	3657	3136	29413	24725	6991	793
			Percent Reduction	0%	81%	75%	56%	98%	78%	75%	97%	97%	89%	
82	Fox Lake		Baseline	242	843	480	146	1217	84	419	906	188	1168	114
			Percent Reduction	53%	86%	76%	22%	91%	0%	73%	87%	39%	90%	
83	Lake Koshkonong		Baseline	1735	6922	5826	2662	14577	2024	4548	26028	4787	9606	1795
			Percent Reduction	0%	74%	69%	33%	88%	11%	61%	93%	62%	81%	
	Lake Sinnissippi		Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Appendix N. MS4 TP Load Summary -- Baseline Loads, Load Allocations, and Percent Reductions
Note: Baseline load is defined in Section 4.2.

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction										Annual Load Allocation (lbs)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
1	West Branch Rock River	South Branch Rock River to Mile 39	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
2	South Branch Rock River	Mile 3 to 20	Baseline	656	1061	1181	852	1386	826	900	630	528	1156	519
			Percent Reduction	21%	51%	56%	39%	63%	37%	42%	18%	2%	55%	
3	South Branch Rock River	Mile 1 to 3	Baseline	247	400	445	321	523	311	339	237	199	436	27
			Percent Reduction	89%	93%	94%	92%	95%	91%	92%	89%	87%	94%	
4	West Branch Rock River/Horicon Marsh	Mile 0 to South Branch Rock River	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
5	Wayne Creek	Mile 4.1 to 4.8	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
6	Wayne Creek	Kohlsville River to Mile 4.1	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
7	Kohlsville River	Mile 0 to 9	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
8	Limestone Creek	Mile 0 to 1	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
9	East Branch Rock River	Kohlsville River to Limestone Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
10	East Branch Rock River	Kummel Creek to Kohlsville River	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
11	Kummel Creek	Mile 14 to 18	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
12	Kummel Creek	Mile 0 to 14	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
13	East Branch Rock River	Mile 11 to Kummel Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
14	East Branch Rock River	Gill Creek to Mile 11	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
15	Gill Creek	Mile 0 to 6	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
16	Irish Creek	Mile 0 to 3	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
17	East Branch Rock River	Mile 0 to Irish Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
18	Rock River	Mile 296 to 305	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
19	Dead Creek	Mile 0 to 3	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
20	Rock River	Mile 270 to 293	Baseline	1273	2059	2293	1655	2692	1605	1747	1223	1025	2245	1836
			Percent Reduction	0%	11%	20%	0%	32%	0%	0%	0%	0%	18%	
21	Rock River	Oconomowoc River to Mile 270	Baseline	357	577	643	464	754	450	490	343	287	629	620
			Percent Reduction	0%	0%	4%	0%	18%	0%	0%	0%	0%	1%	
22	Flynn Creek	Mile 0 to 6	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
23	Oconomowoc River	Mason Creek to Flynn Creek	Baseline	773	1250	1391	1005	1634	974	1060	742	622	1362	1332
			Percent Reduction	0%	0%	4%	0%	18%	0%	0%	0%	0%	2%	
24	Mason Creek	Mile 0 to 5.2	Baseline	85	138	153	111	180	107	117	82	68	150	158
			Percent Reduction	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	
25	Oconomowoc River	Battle Creek to Mason Creek	Baseline	4080	6599	7347	5304	8626	5142	5598	3919	3286	7194	987
			Percent Reduction	76%	85%	87%	81%	89%	81%	82%	75%	70%	86%	
26	Battle Creek	Mile 2.1 to 4.6	Baseline	742	1200	1336	964	1568	935	1018	713	597	1308	474
			Percent Reduction	36%	61%	65%	51%	70%	49%	53%	34%	21%	64%	

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction										Annual Load Allocation (lbs)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
27	Oconomowoc River	Rock River to Battle Creek	Baseline	11	18	20	15	24	14	15	11	9	20	97
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
28	Rock River	Mile 249 to Oconomowoc River	Baseline	871	1409	1568	1132	1841	1098	1195	837	701	1536	3603
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
29	Rock River	Johnson Creek to Mile 249	Baseline	1628	2634	2933	2117	3443	2052	2235	1565	1312	2872	665
			Percent Reduction	59%	75%	77%	69%	81%	68%	70%	58%	49%	77%	
30	Johnson Creek	Mile 0 to 17.5	Baseline	71	114	127	92	150	89	97	68	57	125	536
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
31	Rock River	Crawfish River to Johnson Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
32	Alto Creek	Mile 0 to 6.15	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	Baseline	704	1139	1268	915	1488	887	966	676	567	1241	773
			Percent Reduction	0%	32%	39%	16%	48%	13%	20%	0%	0%	38%	
34	Beaver Dam River	Calamus Creek to Mile 30	Baseline	87	141	157	114	185	110	120	84	70	154	10
			Percent Reduction	89%	93%	94%	91%	95%	91%	92%	88%	86%	94%	
35	Calamus Creek	Mile 0 to 17	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
36	Beaver Dam River	Mile 14 to Calamus Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
37	Park Creek	Mile 0 to 3	Baseline	702	1136	1264	913	1485	885	963	675	566	1238	161
			Percent Reduction	77%	86%	87%	82%	89%	82%	83%	76%	71%	87%	
38	Schultz Creek	Mile 0 to 5	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
39	Shaw Brook	Beaver Dam River to Schultz Creek	Baseline	25	40	45	32	53	31	34	24	20	44	326
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
40	Beaver Dam River	Casper Creek to Mile 14	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
41	Casper Creek	Mile 0 to 2	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
42	Beaver Dam River	Lau Creek to Casper Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
43	Lau Creek	Mile 0 to 6	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
44	Beaver Dam River	Mile 0 to Lau Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
45	Maunesha River	Mile 13.21 to 31.8	Baseline	707	1144	1274	920	1496	892	971	680	570	1247	1302
			Percent Reduction	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	
46	Maunesha River	Mile 5.5 to 13.2	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
47	Maunesha River	Stony Brook to Mile 13.2	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
48	Stony Brook	Mile 0 to 15	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
49	Maunesha River	Mile 0 to Stony Brook	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
50	Mud Creek	Mile 0 to 10	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
51	Crawfish River	Maunesha River to Mud Creek	Baseline	50	80	90	65	105	63	68	48	40	88	72
			Percent Reduction	0%	11%	20%	0%	32%	0%	0%	0%	0%	18%	
52	Crawfish River	Beaver Dam River to Maunesha Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
53	Crawfish River	Rock River to Beaver Dam River	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction 1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Annual Load Allocation (lbs)
54	Rock River	Bark River to Crawfish River	Baseline	38	61	68	49	80	48	52	36	31	67	11
			Percent Reduction	70%	82%	83%	77%	86%	76%	78%	69%	63%	83%	
55	Bark River	Mile 35 to 41	Baseline	5849	9461	10534	7605	12368	7372	8027	5620	4711	10314	1315
			Percent Reduction	78%	86%	88%	83%	89%	82%	84%	77%	72%	87%	
56	Bark River	Scuppernong River to Mile 35	Baseline	59	96	106	77	125	74	81	57	48	104	78
			Percent Reduction	0%	18%	26%	0%	37%	0%	3%	0%	0%	25%	
57	Spring Creek	Mile 0 to 5	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
58	Steel Brook	Mile 3 to 4	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	Baseline	1201	1943	2164	1562	2540	1514	1649	1154	968	2119	433
			Percent Reduction	64%	78%	80%	72%	83%	71%	74%	63%	55%	80%	
60	Rock River	Mile 213 to Bark River	Baseline	1240	2005	2233	1612	2621	1562	1701	1191	999	2186	1086
			Percent Reduction	12%	46%	51%	33%	59%	30%	36%	9%	0%	50%	
61	Rock River	Mile 201 to 207	Baseline	894	1445	1609	1162	1889	1126	1226	858	720	1576	4474
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
62	Pheasant Branch Creek	Mile 1 to 9	Baseline	2838	4590	5111	3690	6001	3577	3894	2726	2286	5004	457
			Percent Reduction	84%	90%	91%	88%	92%	87%	88%	83%	80%	91%	
63	Spring (Dorn) Creek	Mile 1 to 6	Baseline	160	259	288	208	339	202	220	154	129	282	226
			Percent Reduction	0%	13%	22%	0%	33%	0%	0%	0%	0%	20%	
64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	Baseline	20963	33908	37754	27254	44326	26420	28767	20140	16884	36965	8495
			Percent Reduction	59%	75%	77%	69%	81%	68%	70%	58%	50%	77%	
65	Nine Springs Creek	Mile 0 to 6	Baseline	2567	4152	4623	3337	5428	3235	3523	2466	2068	4526	963
			Percent Reduction	62%	77%	79%	71%	82%	70%	73%	61%	53%	79%	
66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	Baseline	6430	10400	11580	8359	13595	8103	8823	6177	5179	11338	3618
			Percent Reduction	44%	65%	69%	57%	73%	55%	59%	41%	30%	68%	
67	Yahara River	Mile 16 to 22	Baseline	1455	2354	2621	1892	3077	1834	1997	1398	1172	2566	12864
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
68	Yahara River	Mile 7 to 16	Baseline	614	994	1107	799	1299	774	843	590	495	1084	242
			Percent Reduction	61%	76%	78%	70%	81%	69%	71%	59%	51%	78%	
69	Yahara River	Mile 0 to 7	Baseline	413	668	743	537	873	520	566	397	332	728	74
			Percent Reduction	82%	89%	90%	86%	91%	86%	87%	81%	78%	90%	
70	Rock River	Mile 193 to 201	Baseline	228	369	411	297	483	288	313	219	184	403	878
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
71	Rock River	Blackhawk Creek to Mile 193	Baseline	2484	4018	4474	3230	5253	3131	3409	2387	2001	4381	2025
			Percent Reduction	19%	50%	55%	37%	61%	35%	41%	15%	0%	54%	
72	Blackhawk Creek	Mile 2 to 4	Baseline	105	169	188	136	221	132	144	101	84	185	915
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
73	Blackhawk Creek	Rock River to Mile 2	Baseline	3815	6170	6870	4960	8066	4808	5235	3665	3073	6727	1370
			Percent Reduction	64%	78%	80%	72%	83%	72%	74%	63%	55%	80%	
74	Rock River	Mile 183 to Blackhawk Creek	Baseline	1538	2488	2770	2000	3253	1939	2111	1478	1239	2713	2080
			Percent Reduction	0%	16%	25%	0%	36%	0%	1%	0%	0%	23%	
75	Markham Creek	Mile 0 to 5	Baseline	237	384	427	309	502	299	326	228	191	418	352
			Percent Reduction	0%	8%	18%	0%	30%	0%	0%	0%	0%	16%	
76	Rock River	Bass Creek to Mile 183	Baseline	771	1247	1388	1002	1630	972	1058	741	621	1359	120
			Percent Reduction	84%	90%	91%	88%	93%	88%	89%	84%	81%	91%	
77	Stevens Creek	Mile 0 to 8	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
78	Bass Creek	Rock River to Stevens Creek	Baseline	144	233	260	188	305	182	198	139	116	255	377
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
79	Rock River	Mile 171 to Bass Creek	Baseline	4275	6915	7699	5558	9039	5387	5866	4107	3443	7538	1443
			Percent Reduction	66%	79%	81%	74%	84%	73%	75%	65%	58%	81%	
80	Turtle Creek	Mile 24 to 32	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Reach	Waterbody Name	Waterbody Extents		TP Load (pounds) or Percent Reduction										Annual Load Allocation (lbs)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
81	Turtle Creek	Rock River to Mile 24	Baseline	2141	3464	3857	2784	4528	2699	2939	2057	1725	3776	2429
			Percent Reduction	0%	30%	37%	13%	46%	10%	17%	0%	0%	36%	
82	Fox Lake		Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
83	Lake Koshkonong		Baseline	2704	4374	4870	3516	5718	3408	3711	2598	2178	4769	1539
			Percent Reduction	43%	65%	68%	56%	73%	55%	59%	41%	29%	68%	
	Lake Sinnissippi		Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Appendix O. MS4 TSS Load Summary -- Baseline Loads, Load Allocations, and Percent Reductions
Note: Baseline load is defined in Section 4.2.

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
1	West Branch Rock River	South Branch Rock River to Mile 39	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
2	South Branch Rock River	Mile 3 to 20	Baseline	69	101	115	89	119	86	93	65	62	106	519
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
3	South Branch Rock River	Mile 1 to 3	Baseline	26	38	44	34	45	32	35	25	23	40	27
			Percent Reduction	0%	18%	28%	7%	30%	3%	11%	0%	0%	22%	
4	West Branch Rock River/Horicon Marsh	Mile 0 to South Branch Rock River	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
5	Wayne Creek	Mile 4.1 to 4.8	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
6	Wayne Creek	Kohlsville River to Mile 4.1	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
7	Kohlsville River	Mile 0 to 9	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
8	Limestone Creek	Mile 0 to 1	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
9	East Branch Rock River	Kohlsville River to Limestone Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
10	East Branch Rock River	Kummel Creek to Kohlsville River	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
11	Kummel Creek	Mile 14 to 18	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
12	Kummel Creek	Mile 0 to 14	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
13	East Branch Rock River	Mile 11 to Kummel Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
14	East Branch Rock River	Gill Creek to Mile 11	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
15	Gill Creek	Mile 0 to 6	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
16	Irish Creek	Mile 0 to 3	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
17	East Branch Rock River	Mile 0 to Irish Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
18	Rock River	Mile 296 to 305	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
19	Dead Creek	Mile 0 to 3	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
20	Rock River	Mile 270 to 293	Baseline	134	197	224	173	231	166	181	126	119	206	1836
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
21	Rock River	Oconomowoc River to Mile 270	Baseline	37	55	63	48	65	47	51	35	33	58	620
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
22	Flynn Creek	Mile 0 to 6	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
23	Oconomowoc River	Mason Creek to Flynn Creek	Baseline	81	119	136	105	140	101	110	77	73	125	1332
			Percent Reduction	0%	0%	6%	0%	8%	0%	0%	0%	0%	0%	
24	Mason Creek	Mile 0 to 5.2	Baseline	9	13	15	12	15	11	12	8	8	14	158
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
25	Oconomowoc River	Battle Creek to Mason Creek	Baseline	429	630	718	555	740	533	581	405	383	659	987
			Percent Reduction	28%	51%	57%	45%	58%	42%	47%	24%	20%	53%	
26	Battle Creek	Mile 2.1 to 4.6	Baseline	78	115	131	101	135	97	106	74	70	120	474
			Percent Reduction	8%	37%	45%	29%	47%	26%	32%	3%	0%	40%	

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
27	Oconomowoc River	Rock River to Battle Creek	Baseline	1	2	2	2	2	1	2	1	1	2	97
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
28	Rock River	Mile 249 to Oconomowoc River	Baseline	92	135	153	118	158	114	124	86	82	141	3603
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
29	Rock River	Johnson Creek to Mile 249	Baseline	171	252	287	221	295	213	232	162	153	263	665
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
30	Johnson Creek	Mile 0 to 17.5	Baseline	7	11	12	10	13	9	10	7	7	11	536
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
31	Rock River	Crawfish River to Johnson Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
32	Alto Creek	Mile 0 to 6.15	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	Baseline	74	109	124	96	128	92	100	70	66	114	773
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
34	Beaver Dam River	Calamus Creek to Mile 30	Baseline	9	14	15	12	16	11	12	9	8	14	10
			Percent Reduction	11%	39%	47%	31%	48%	28%	34%	6%	0%	42%	
35	Calamus Creek	Mile 0 to 17	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
36	Beaver Dam River	Mile 14 to Calamus Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
37	Park Creek	Mile 0 to 3	Baseline	74	109	124	95	127	92	100	70	66	113	161
			Percent Reduction	63%	75%	78%	71%	78%	70%	73%	61%	58%	76%	
38	Schultz Creek	Mile 0 to 5	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
39	Shaw Brook	Beaver Dam River to Schultz Creek	Baseline	3	4	4	3	5	3	4	2	2	4	326
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
40	Beaver Dam River	Casper Creek to Mile 14	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
41	Casper Creek	Mile 0 to 2	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
42	Beaver Dam River	Lau Creek to Casper Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
43	Lau Creek	Mile 0 to 6	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
44	Beaver Dam River	Mile 0 to Lau Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
45	Maunesha River	Mile 13.21 to 31.8	Baseline	74	109	125	96	128	93	101	70	66	114	1302
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
46	Maunesha River	Mile 5.5 to 13.2	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
47	Maunesha River	Stony Brook to Mile 13.2	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
48	Stony Brook	Mile 0 to 15	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
49	Maunesha River	Mile 0 to Stony Brook	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
50	Mud Creek	Mile 0 to 10	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
51	Crawfish River	Maunesha River to Mud Creek	Baseline	5	8	9	7	9	7	7	5	5	8	72
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
52	Crawfish River	Beaver Dam River to Maunesha Creek	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
53	Crawfish River	Rock River to Beaver Dam River	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
54	Rock River	Bark River to Crawfish River	Baseline	4	6	7	5	7	5	5	4	4	6	11
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
55	Bark River	Mile 35 to 41	Baseline	615	904	1030	795	1061	765	834	581	549	944	1315
			Percent Reduction	48%	64%	69%	59%	70%	58%	61%	44%	41%	66%	
56	Bark River	Scuppernong River to Mile 35	Baseline	6	9	10	8	11	8	8	6	6	10	78
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
57	Spring Creek	Mile 0 to 5	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
58	Steel Brook	Mile 3 to 4	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	Baseline	126	186	212	163	218	157	171	119	113	194	433
			Percent Reduction	0%	12%	23%	0%	25%	0%	5%	0%	0%	16%	
60	Rock River	Mile 213 to Bark River	Baseline	130	192	218	169	225	162	177	123	116	200	1086
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
61	Rock River	Mile 201 to 207	Baseline	94	138	157	121	162	117	127	89	84	144	4474
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
62	Pheasant Branch Creek	Mile 1 to 9	Baseline	298	439	500	386	515	371	404	282	266	458	457
			Percent Reduction	82%	88%	89%	86%	89%	85%	87%	81%	80%	88%	
63	Spring (Dorn) Creek	Mile 1 to 6	Baseline	17	25	28	22	29	21	23	16	15	26	226
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	Baseline	2203	3240	3690	2850	3802	2741	2988	2082	1967	3384	8495
			Percent Reduction	64%	75%	78%	72%	79%	71%	73%	62%	59%	76%	
65	Nine Springs Creek	Mile 0 to 6	Baseline	270	397	452	349	466	336	366	255	241	414	963
			Percent Reduction	54%	69%	72%	64%	73%	63%	66%	51%	48%	70%	
66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	Baseline	676	994	1132	874	1166	841	916	638	603	1038	3618
			Percent Reduction	40%	59%	64%	54%	65%	52%	56%	37%	33%	61%	
67	Yahara River	Mile 16 to 22	Baseline	153	225	256	198	264	190	207	144	137	235	12864
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
68	Yahara River	Mile 7 to 16	Baseline	65	95	108	84	111	80	88	61	58	99	242
			Percent Reduction	0%	21%	30%	10%	32%	6%	14%	0%	0%	24%	
69	Yahara River	Mile 0 to 7	Baseline	43	64	73	56	75	54	59	41	39	67	74
			Percent Reduction	0%	29%	37%	19%	39%	16%	23%	0%	0%	32%	
70	Rock River	Mile 193 to 201	Baseline	24	35	40	31	41	30	33	23	21	37	878
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
71	Rock River	Blackhawk Creek to Mile 193	Baseline	261	384	437	338	451	325	354	247	233	401	2025
			Percent Reduction	23%	47%	54%	40%	55%	38%	43%	18%	13%	50%	
72	Blackhawk Creek	Mile 2 to 4	Baseline	11	16	18	14	19	14	15	10	10	17	915
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
73	Blackhawk Creek	Rock River to Mile 2	Baseline	401	590	672	519	692	499	544	379	358	616	1370
			Percent Reduction	57%	71%	74%	67%	75%	65%	68%	54%	52%	72%	
74	Rock River	Mile 183 to Blackhawk Creek	Baseline	162	238	271	209	279	201	219	153	144	248	2080
			Percent Reduction	0%	18%	28%	7%	30%	3%	11%	0%	0%	21%	
75	Markham Creek	Mile 0 to 5	Baseline	25	37	42	32	43	31	34	24	22	38	352
			Percent Reduction	0%	14%	25%	2%	27%	0%	7%	0%	0%	18%	
76	Rock River	Bass Creek to Mile 183	Baseline	81	119	136	105	140	101	110	77	72	124	120
			Percent Reduction	21%	46%	53%	39%	54%	36%	42%	16%	11%	48%	
77	Stevens Creek	Mile 0 to 8	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
78	Bass Creek	Rock River to Stevens Creek	Baseline	15	22	25	20	26	19	21	14	14	23	377
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
79	Rock River	Mile 171 to Bass Creek	Baseline	449	661	753	581	775	559	609	424	401	690	1443
			Percent Reduction	35%	56%	61%	50%	63%	48%	52%	32%	28%	58%	
80	Turtle Creek	Mile 24 to 32	Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Reach	Waterbody Name	Waterbody Extents		TSS Load (tons) or Percent Reduction										Annual Load Allocation (tons)
				1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
81	Turtle Creek	Rock River to Mile 24	Baseline	225	331	377	291	388	280	305	213	201	346	2429
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
82	Fox Lake		Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
83	Lake Koshkonong		Baseline	284	418	476	368	490	354	385	269	254	437	1539
			Percent Reduction	11%	40%	47%	31%	49%	29%	35%	6%	1%	42%	
	Lake Sinnissippi		Baseline	0	0	0	0	0	0	0	0	0	0	0
			Percent Reduction	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Appendix P. Monthly Total Phosphorus Allocations by Wastewater Treatment Facility

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Monthly TP Wasteload Allocation (lbs/month)											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0001945	General Motors Corp	74	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0001961	Wisconsin Electric Power Company	64	3	44.05	14.68	13.48	6.26	8.54	14.29	7.18	9.82	8.70	11.42	28.92	18.91
0001996	National Rivet and Manufacturing	2	3	24.17	24.27	22.18	20.21	17.91	19.92	19.10	23.12	23.37	24.84	24.96	24.93
0002003	Alto Dairy Cooperative	2	3	201.93	202.78	185.33	168.88	149.61	166.44	159.59	193.17	195.24	207.53	208.51	208.28
0002038	Renew Energy LLC	31	2	68.23	97.20	110.54	119.44	118.82	116.20	102.01	87.38	75.01	63.97	54.06	55.44
0002488	Rushing Waters Fisheries Inc	57	1	60.18	58.58	61.87	65.40	68.74	69.79	62.65	58.89	51.84	53.96	53.97	58.11
0002534	Sensient Flavors, Inc.	19	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0002585	Wisconsin Department of Natural Resources Nevin Fish Hatchery	65	1	27.89	23.55	23.09	16.69	13.10	11.17	8.43	9.73	11.80	15.18	24.23	25.16
0020001	Whitewater WWTP	59	2	291.50	347.71	384.97	383.06	386.31	371.84	303.46	257.21	210.66	238.91	233.92	276.37
0020192	Hartford Treatment Facility	20	7	1761.31	2104.05	1822.41	1399.73	1264.27	1079.39	1131.29	1140.77	1219.57	1226.45	1242.46	1487.25
0020231	City of Horicon WWTP	18	1	26.98	50.26	60.70	57.49	53.05	39.29	26.59	9.21	12.30	20.88	25.10	23.61
0020290	Slinger Treatment Facility	20	7	448.64	535.95	464.21	356.54	322.04	274.94	288.16	290.58	310.65	312.40	316.48	378.84
0020303	Village of Hustisford WWTP	20	7	115.46	137.93	119.47	91.76	82.88	70.76	74.16	74.78	79.95	80.40	81.45	97.50
0020338	Stoughton WWTP	68	1	133.21	157.92	152.79	160.29	160.19	158.79	159.02	143.46	147.24	126.59	121.38	122.05
0020346	Edgerton WWTP	61	3	1992.96	2582.65	1959.19	1187.58	1836.42	413.68	319.60	76.27	597.54	512.08	600.05	1169.72
0020478	Sun Prairie	83	5	657.41	756.33	713.38	622.64	570.96	491.93	395.99	363.26	411.01	449.22	519.53	562.82
0020486	Village of Iron Ridge WWTP 3	20	7	89.53	106.96	92.64	71.15	64.27	54.87	57.51	57.99	61.99	62.34	63.16	75.60
0020532	Village of Lomira WWTP	13	2	110.54	107.06	79.28	46.94	41.70	64.40	64.17	67.02	61.80	72.16	83.01	97.72
0020681	Oregon WWTP	69	2	67.50	67.92	65.38	64.69	63.34	66.09	62.68	60.37	58.46	61.83	64.95	67.09
0020702	Village of Clyman WWTP	19	3	3.20	7.23	9.06	8.24	8.35	6.91	6.05	2.37	2.10	2.57	2.78	2.44
0021008	City of Columbus WWTP	51	3	429.76	494.54	493.98	397.11	378.56	359.43	371.63	408.64	408.88	408.64	404.23	383.15
0021059	Consolidated Koshkonong Sanitary District	61	3	1708.25	2213.70	1679.31	1017.93	1574.07	354.58	273.94	65.37	512.17	438.93	514.32	1002.62
0021181	Oconomowoc Treatment Facility	25	1	262.14	276.95	290.15	285.31	260.19	245.02	191.97	177.83	169.08	191.32	221.92	228.15
0021351	Dousman	55	2	14.60	22.28	23.34	28.94	25.54	25.35	19.80	17.31	13.76	11.22	11.71	14.59
0021474	City of Juneau WWTP	19	3	40.38	91.07	114.16	103.85	105.15	87.10	76.19	29.80	26.51	32.33	35.00	30.76
0021512	Arlington WWTP	64	3	77.74	25.90	23.79	11.05	15.07	25.23	12.66	17.33	15.36	20.16	51.04	33.38
0021601	Village of Brownsville WWTP	12	2	39.11	37.66	30.89	23.96	21.55	28.84	27.81	28.40	25.29	27.91	31.48	35.57
0022039	Clinton WWTP	81	3	218.51	177.97	149.79	98.86	83.70	92.95	114.27	141.99	167.37	171.72	205.63	215.73
0022161	Johnson Creek Treatment Facility	31	2	37.61	53.58	60.93	65.83	65.49	64.05	56.23	48.16	41.35	35.26	29.79	30.56
0022322	Village of Theresa WWTP	13	2	70.66	68.44	50.68	30.01	26.66	41.17	41.02	42.84	39.50	46.13	53.06	62.47
0022489	Fort Atkinson WWTP	60	2	426.08	545.82	641.64	705.17	695.63	625.34	501.76	396.44	335.56	320.76	317.98	355.82
0022608	Sharon WWTP	81	3	148.56	121.00	101.84	67.21	56.91	63.20	77.69	96.54	113.80	116.75	139.81	146.67
0022772	City of Waupun WWTP	3	1	36.71	43.93	45.66	45.44	44.62	42.68	38.39	31.39	30.63	31.91	33.14	33.72
0023051	Lebanon Sanitary District #2 WWTP	20	7	24.46	29.22	25.31	19.44	17.56	14.99	15.71	15.84	16.94	17.03	17.26	20.66
0023345	City of Beaver Dam WWTP	34	1	70.04	72.05	73.15	74.81	74.84	76.57	76.40	75.88	73.43	71.86	70.42	70.04
0023370	City of Beloit Treatment Facility	79	2	1023.73	982.73	955.27	990.71	969.72	910.70	727.60	630.84	554.20	624.60	733.16	914.73
0023442	Brandon	2	3	54.71	54.94	50.21	45.76	40.54	45.10	43.24	52.34	52.90	56.23	56.49	56.43
0023744	Deerfield WWTP	83	5	84.29	96.98	91.47	79.84	73.21	63.08	50.78	46.58	52.70	57.60	66.61	72.17
0023973	Village of Fall River WWTP	51	3	78.22	90.01	89.90	72.27	68.90	65.42	67.64	74.37	74.42	74.37	73.57	69.73
0024023	Footville WWTP	78	2	208.04	186.98	131.74	86.16	73.93	79.99	81.22	63.97	69.66	74.04	109.91	151.87
0024333	City of Jefferson WWTP	54	1	111.94	160.03	189.11	210.00	183.54	170.46	156.43	142.68	126.53	113.88	103.56	108.31
0024597	Madison Metropolitan Sewerage District	69	2	1874.87	1886.69	1816.15	1796.94	1759.56	1835.71	1741.16	1676.93	1623.92	1717.37	1804.09	1863.48
0024627	Village of Marshall WWTP	46	1	103.90	113.17	100.13	87.24	84.31	97.91	96.76	98.45	103.68	101.56	103.18	95.85
0024643	City of Mayville WWTP	14	1	75.75	77.79	64.59	53.85	44.75	55.10	52.79	56.94	53.97	60.18	64.39	71.34
0025585	Village of Sullivan	56	3	26.91	44.69	41.04	37.28	33.28	36.66	28.54	25.83	21.98	17.19	13.86	16.79
0025941	Hormel Foods Cooling Water	81	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0026352	Rockdale WWTP	83	5	5.36	6.17	5.82	5.08	4.66	4.01	3.23	2.96	3.35	3.66	4.24	4.59
0026930	Town of Beloit Treatment Facility	79	2	60.49	58.07	56.45	58.54	57.30	53.81	42.99	37.28	32.75	36.91	43.32	54.05

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Monthly TP Wasteload Allocation (lbs/month)											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0026948	Cambridge WWTP	83	5	122.47	140.90	132.90	116.00	106.37	91.64	73.77	67.67	76.57	83.69	96.79	104.85
0028053	Allenton Treatment Facility	9	1	200.79	156.87	120.63	76.44	86.38	132.55	140.08	143.46	122.38	132.17	149.50	175.62
0028509	Village of Reesville WWTP	40	2	49.84	60.25	68.37	52.90	50.86	48.06	41.41	50.12	52.81	54.48	47.79	43.27
0028541	City of Watertown WWTP	29	1	423.88	544.54	571.49	549.04	512.86	528.70	547.36	502.23	443.22	382.38	367.53	368.89
0029271	Village of Lowell WWTP	40	2	19.94	24.10	27.35	21.16	20.35	19.22	16.57	20.05	21.12	21.79	19.12	17.31
0029611	Wisconsin Academy	51	3	14.61	16.81	16.80	13.50	12.87	12.22	12.64	13.89	13.90	13.89	13.74	13.03
0030350	Janesville	76	1	425.18	415.20	422.97	432.55	414.93	392.26	355.14	356.69	353.97	368.76	391.38	409.62
0030881	City of Waterloo WWTP	47	1	28.15	33.15	33.98	35.90	35.28	37.66	29.44	26.59	24.98	28.02	28.37	27.24
0031020	Palmyra	59	2	18.37	21.91	24.26	24.14	24.34	23.43	19.12	16.21	13.27	15.05	14.74	17.42
0031038	Ixonia Sanitary District No.1	21	1	133.86	175.15	157.59	107.95	88.72	75.56	77.95	81.59	86.36	78.86	92.38	107.27
0031054	Plymouth Town Sanitary District No. 1	78	2	54.75	49.21	34.67	22.67	19.46	21.05	21.37	16.83	18.33	19.48	28.92	39.97
0031160	Village of Randolph WWTP	33	1	91.70	193.42	204.03	158.16	142.29	128.16	96.11	64.59	26.61	17.90	32.76	35.93
0031194	City of Lake Mills WWTP	53	1	682.78	801.22	779.67	778.74	808.98	837.11	683.30	665.79	680.08	681.61	645.31	606.25
0031364	Lebanon Sanitary District	20	7	8.32	9.94	8.61	6.61	5.97	5.10	5.34	5.39	5.76	5.79	5.87	7.02
0031381	Ashippun Sanitary District	20	7	34.74	41.50	35.94	27.61	24.93	21.29	22.31	22.50	24.05	24.19	24.50	29.33
0031461	Walworth County Metropolitan Sewerage District	80	1	478.23	516.42	469.15	447.74	394.83	370.17	263.95	217.39	207.49	243.07	293.60	376.93
0031551	Burnett Sanitary District	4	1	40.21	90.21	76.66	23.35	21.40	14.31	12.58	4.67	6.03	11.67	15.69	18.42
0031844	Sullivan Sanitary District No.1	56	3	32.43	53.85	49.44	44.91	40.10	44.16	34.39	31.12	26.49	20.71	16.70	20.23
0032026	Delafield-Hartland	55	2	129.89	198.21	207.67	257.50	227.26	225.57	176.19	154.03	122.43	99.81	104.15	129.78
0035548	Village Kekoskee WWTP	17	1	8.82	12.65	13.62	9.04	7.00	6.15	5.06	3.63	4.90	6.36	7.91	7.26
0049379	Landmark Services Cooperative	83	5	0.41	0.47	0.44	0.39	0.35	0.30	0.25	0.23	0.25	0.28	0.32	0.35
0049956	Middleton Tiedeman Pond	64	3	0.00	92.39	136.40	102.43	67.31	38.68	54.87	61.82	59.91	31.58	0.00	18.91
0050016	Grande Cheese Company	12	2	115.76	111.48	91.43	70.93	63.79	85.38	82.31	84.06	74.87	82.60	93.17	105.29
0058220	Nasco Division of Aristotle	60	2	12.07	15.47	18.18	19.98	19.71	17.72	14.22	11.23	9.51	9.09	9.01	10.08
0060453	Milton WWTF	61	3	1779.43	2305.93	1749.28	1060.34	1639.66	369.36	285.36	68.10	533.51	457.22	535.76	1044.39
0060607	Great Lakes Investors	56	3	11.35	18.85	17.31	15.72	14.04	15.46	12.04	10.89	9.27	7.25	5.84	7.08

Appendix Q. Monthly Total Suspended Solids Allocations by Wastewater Treatment Facility

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Monthly TSS Wasteload Allocation (tons/month)											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0001945	General Motors Corp	74	1	2.33	2.34	2.33	2.26	2.33	2.26	2.08	1.69	1.51	2.21	2.26	2.33
0001961	Wisconsin Electric Power Company	64	3	0.88	0.45	0.61	0.33	0.47	0.65	0.37	0.37	0.23	0.43	0.85	0.56
0001996	National Rivet and Manufacturing	2	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0002003	Alto Dairy Cooperative	2	3	2.35	2.30	2.35	2.37	2.35	2.37	2.35	2.35	2.37	2.35	2.37	2.35
0002038	Renew Energy LLC	31	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0002488	Rushing Waters Fisheries Inc	57	1	2.59	2.58	2.59	2.26	1.95	1.63	1.43	2.21	2.64	2.59	2.64	2.59
0002534	Sensient Flavors, Inc.	19	3	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0002585	Wisconsin Department of Natural Resources Nevin Fish Hatchery	65	1	2.59	2.69	2.21	1.63	1.30	1.13	0.78	0.78	1.00	1.43	2.51	2.59
0020001	Whitewater WWTP	59	2	4.61	4.59	4.61	4.65	4.61	4.65	4.14	4.52	4.55	4.61	4.65	4.61
0020192	Hartford Treatment Facility	20	7	4.57	4.56	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57
0020231	City of Horicon WWTP	18	1	1.56	1.52	1.56	1.51	1.56	1.51	1.04	0.65	1.00	1.56	1.51	1.56
0020290	Slinger Treatment Facility	20	7	3.49	3.49	3.49	3.50	3.49	3.50	3.49	3.49	3.50	3.49	3.50	3.49
0020303	Village of Hustisford WWTP	20	7	1.80	1.79	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
0020338	Stoughton WWTP	68	1	6.23	6.21	6.23	6.28	6.23	6.28	6.23	6.23	6.28	6.23	6.28	6.23
0020346	Edgerton WWTP	61	3	2.66	2.66	2.66	2.64	2.66	2.64	2.66	2.66	2.64	2.66	2.64	2.66
0020478	Sun Prairie	83	5	3.88	3.88	3.88	3.89	3.88	3.89	3.53	2.96	2.87	3.88	3.89	3.88
0020486	Village of Iron Ridge WWTP 3	20	7	0.46	0.46	0.46	0.47	0.46	0.47	0.46	0.46	0.47	0.46	0.47	0.46
0020532	Village of Lomira WWTP	13	2	0.81	0.80	0.81	0.78	0.81	0.78	0.81	0.81	0.78	0.81	0.78	0.81
0020681	Oregon WWTP	69	2	3.83	4.27	4.55	4.55	4.55	4.55	4.55	3.95	2.49	4.01	4.55	4.00
0020702	Village of Clyman WWTP	19	3	0.37	0.38	0.37	0.38	0.37	0.38	0.37	0.37	0.38	0.37	0.38	0.37
0021008	City of Columbus WWTP	51	3	1.24	1.28	1.24	1.26	1.24	1.26	1.24	1.24	1.26	1.24	1.26	1.24
0021059	Consolidated Koshkonong Sanitary District	61	3	4.56	4.57	4.56	4.53	4.56	4.53	4.56	4.56	4.53	4.56	4.53	4.56
0021181	Oconomowoc Treatment Facility	25	1	5.06	5.04	5.06	4.90	4.15	3.77	2.72	2.59	2.64	4.15	5.02	5.06
0021351	Dousman	55	2	0.39	0.41	0.43	0.36	0.30	0.30	0.24	0.22	0.18	0.22	0.34	0.41
0021474	City of Juneau WWTP	19	3	1.56	1.60	1.56	1.61	1.56	1.61	1.56	1.56	1.61	1.56	1.61	1.56
0021512	Arlington WWTP	64	3	0.29	0.15	0.20	0.11	0.16	0.22	0.12	0.12	0.08	0.14	0.28	0.19
0021601	Village of Brownsville WWTP	12	2	0.33	0.33	0.33	0.32	0.33	0.32	0.33	0.33	0.32	0.33	0.32	0.33
0022039	Clinton WWTP	81	3	0.47	0.46	0.47	0.50	0.47	0.50	0.47	0.47	0.50	0.47	0.50	0.47
0022161	Johnson Creek Treatment Facility	31	2	2.59	2.69	2.59	2.64	2.59	2.64	2.59	2.59	2.64	2.59	2.64	2.59
0022322	Village of Theresa WWTP	13	2	0.49	0.49	0.49	0.47	0.49	0.47	0.49	0.49	0.47	0.49	0.47	0.49
0022489	Fort Atkinson WWTP	60	2	10.22	10.25	10.22	10.25	10.22	10.25	10.22	10.22	10.25	10.22	10.25	10.22
0022608	Sharon WWTP	81	3	0.64	0.63	0.64	0.68	0.64	0.68	0.64	0.64	0.68	0.64	0.68	0.64
0022772	City of Waupun WWTP	3	1	4.54	4.57	4.54	3.89	3.63	3.14	2.21	1.95	2.51	2.98	3.64	4.54
0023051	Lebanon Sanitary District #2 WWTP	20	7	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
0023345	City of Beaver Dam WWTP	34	1	13.23	13.24	9.08	7.66	7.13	7.03	5.84	6.36	6.90	8.17	9.04	13.23
0023370	City of Beloit Treatment Facility	79	2	27.56	30.75	38.21	34.84	33.19	30.22	24.74	19.35	12.68	21.19	31.41	27.07
0023442	Brandon	2	3	0.64	0.62	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
0023744	Deerfield WWTP	83	5	0.99	1.00	0.99	1.00	0.99	1.00	0.90	0.76	0.73	0.99	1.00	0.99
0023973	Village of Fall River WWTP	51	3	1.36	1.40	1.36	1.37	1.36	1.37	1.36	1.36	1.37	1.36	1.37	1.36
0024023	Footville WWTP	78	2	0.42	0.46	0.42	0.41	0.42	0.41	0.42	0.42	0.41	0.42	0.41	0.42
0024333	City of Jefferson WWTP	54	1	9.73	9.72	9.73	9.79	9.73	9.79	9.73	9.73	9.79	9.73	9.79	9.73
0024597	Madison Metropolitan Sewerage District	69	2	106.29	118.51	126.45	126.49	126.45	126.49	126.45	109.68	69.06	111.30	126.49	111.18
0024627	Village of Marshall WWTP	46	1	0.78	0.82	0.78	0.75	0.78	0.75	0.78	0.78	0.75	0.78	0.75	0.78
0024643	City of Mayville WWTP	14	1	2.98	2.93	2.98	2.01	1.69	2.26	1.69	2.08	2.51	2.98	2.89	2.98
0025585	Village of Sullivan	56	3	0.20	0.22	0.20	0.19	0.20	0.19	0.20	0.20	0.19	0.20	0.19	0.20
0025941	Hormel Foods Cooling Water	81	3	0.19	0.19	0.19	0.21	0.19	0.21	0.19	0.19	0.21	0.19	0.21	0.19
0026352	Rockdale WWTP	83	5	0.09	0.10	0.09	0.10	0.09	0.10	0.09	0.07	0.07	0.09	0.10	0.09
0026930	Town of Beloit Treatment Facility	79	2	1.63	1.82	2.26	2.06	1.96	1.79	1.46	1.14	0.75	1.25	1.86	1.60

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Monthly TSS Wasteload Allocation (tons/month)											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0026948	Cambridge WWTP	83	5	2.17	2.17	2.17	2.17	2.17	2.17	1.97	1.65	1.60	2.17	2.17	2.17
0028053	Allenton Treatment Facility	9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0028509	Village of Reesville WWTP	40	2	0.74	0.75	0.74	0.72	0.74	0.72	0.74	0.74	0.72	0.74	0.72	0.74
0028541	City of Watertown WWTP	29	1	19.72	19.68	19.72	19.71	19.72	10.54	7.91	6.62	6.53	7.91	16.44	19.07
0029271	Village of Lowell WWTP	40	2	0.30	0.30	0.30	0.29	0.30	0.29	0.30	0.30	0.29	0.30	0.29	0.30
0029611	Wisconsin Academy	51	3	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
0030350	Janesville	76	1	42.80	46.04	43.71	40.67	37.36	34.39	28.54	27.37	23.60	31.91	40.54	42.67
0030881	City of Waterloo WWTP	47	1	0.65	0.70	0.65	0.75	0.65	0.75	0.65	0.65	0.75	0.65	0.75	0.65
0031020	Palmyra	59	2	1.74	1.74	1.74	1.76	1.74	1.76	1.57	1.71	1.72	1.74	1.76	1.74
0031038	Ixonia Sanitary District No.1	21	1	0.52	0.47	0.52	0.50	0.52	0.50	0.52	0.52	0.50	0.52	0.50	0.52
0031054	Plymouth Town Sanitary District No. 1	78	2	0.22	0.24	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
0031160	Village of Randolph WWTP	33	1	0.78	0.70	0.78	0.75	0.78	0.75	0.78	0.78	0.75	0.78	0.75	0.78
0031194	City of Lake Mills WWTP	53	1	1.30	1.29	1.30	1.26	1.30	1.26	1.30	1.30	1.26	1.30	1.26	1.30
0031364	Lebanon Sanitary District	20	7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0031381	Ashippun Sanitary District	20	7	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
0031461	Walworth County Metropolitan Sewerage District	80	1	7.26	7.26	7.26	7.28	7.26	7.28	7.26	6.74	7.28	7.26	7.28	7.26
0031551	Burnett Sanitary District	4	1	0.26	0.23	0.26	0.25	0.26	0.25	0.26	0.26	0.25	0.26	0.25	0.26
0031844	Sullivan Sanitary District No.1	56	3	0.36	0.39	0.36	0.35	0.36	0.35	0.36	0.36	0.35	0.36	0.35	0.36
0032026	Delafield-Hartland	55	2	3.50	3.69	3.85	3.16	2.68	2.71	2.10	1.98	1.58	1.98	3.05	3.61
0035548	Village Kekoskee WWTP	17	1	0.39	0.47	0.39	0.50	0.39	0.38	0.26	0.26	0.50	0.39	0.50	0.39
0049379	Landmark Services Cooperative	83	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0049956	Middleton Tiedeman Pond	64	3	0.00	0.81	1.78	1.56	1.06	0.51	0.81	0.67	0.45	0.34	0.00	0.16
0050016	Grande Cheese Company	12	2	0.97	0.96	0.97	0.94	0.97	0.94	0.97	0.97	0.94	0.97	0.94	0.97
0058220	Nasco Division of Aristotle	60	2	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
0060453	Milton WWTF	61	3	2.38	2.38	2.38	2.36	2.38	2.36	2.38	2.38	2.36	2.38	2.36	2.38
0060607	Great Lakes Investors	56	3	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

Appendix R. Daily Total Phosphorus Allocations by Wastewater Treatment Facility

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Daily TP Wasteload Allocation (lbs/day) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0001945	General Motors Corp	74	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0001961	Wisconsin Electric Power Company	64	3	3.40	1.25	1.04	0.50	0.66	1.14	0.55	0.76	0.69	0.88	2.30	1.46
0001996	National Rivet and Manufacturing	2	3	1.86	2.07	1.71	1.61	1.38	1.59	1.47	1.78	1.86	1.92	1.99	1.92
0002003	Alto Dairy Cooperative	2	3	15.57	17.31	14.29	13.45	11.53	13.26	12.30	14.89	15.55	16.00	16.61	16.06
0002038	Renew Energy LLC	31	2	5.26	8.30	8.52	9.52	9.16	9.26	7.86	6.74	5.98	4.93	4.31	4.27
0002488	Rushing Waters Fisheries Inc	57	1	4.64	5.00	4.77	5.21	5.30	5.56	4.83	4.54	4.13	4.16	4.30	4.48
0002534	Sensient Flavors, Inc.	19	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0002585	Wisconsin Department of Natural Resources Nevin Fish Hatchery	65	1	2.15	2.01	1.78	1.33	1.01	0.89	0.65	0.75	0.94	1.17	1.93	1.94
0020001	Whitewater WWTP	59	2	22.47	29.68	29.68	30.52	29.78	29.62	23.40	19.83	16.78	18.42	18.64	21.31
0020192	Hartford Treatment Facility	20	7	135.79	179.60	140.50	111.51	97.47	85.99	87.22	87.95	97.16	94.55	98.98	114.66
0020231	City of Horicon WWTP	18	1	2.08	4.29	4.68	4.58	4.09	3.13	2.05	0.71	0.98	1.61	2.00	1.82
0020290	Slinger Treatment Facility	20	7	34.59	45.75	35.79	28.40	24.83	21.90	22.22	22.40	24.75	24.09	25.21	29.21
0020303	Village of Hustisford WWTP	20	7	8.90	11.77	9.21	7.31	6.39	5.64	5.72	5.77	6.37	6.20	6.49	7.52
0020338	Stoughton WWTP	68	1	10.27	13.48	11.78	12.77	12.35	12.65	12.26	11.06	11.73	9.76	9.67	9.41
0020346	Edgerton WWTP	61	3	153.65	220.45	151.05	94.61	141.58	32.96	24.64	5.88	47.60	39.48	47.80	90.18
0020478	Sun Prairie	83	5	50.68	64.56	55.00	49.60	44.02	39.19	30.53	28.01	32.74	34.63	41.39	43.39
0020486	Village of Iron Ridge WWTP 3	20	7	6.90	9.13	7.14	5.67	4.95	4.37	4.43	4.47	4.94	4.81	5.03	5.83
0020532	Village of Lomira WWTP	13	2	8.52	9.14	6.11	3.74	3.21	5.13	4.95	5.17	4.92	5.56	6.61	7.53
0020681	Oregon WWTP	69	2	5.20	5.80	5.04	5.15	4.88	5.26	4.83	4.65	4.66	4.77	5.17	5.17
0020702	Village of Clyman WWTP	19	3	0.25	0.62	0.70	0.66	0.64	0.55	0.47	0.18	0.17	0.20	0.22	0.19
0021008	City of Columbus WWTP	51	3	33.13	42.21	38.08	31.64	29.19	28.63	28.65	31.50	32.57	31.50	32.20	29.54
0021059	Consolidated Koshkonong Sanitary District	61	3	131.70	188.95	129.47	81.10	121.36	28.25	21.12	5.04	40.80	33.84	40.97	77.30
0021181	Oconomowoc Treatment Facility	25	1	20.21	23.64	22.37	22.73	20.06	19.52	14.80	13.71	13.47	14.75	17.68	17.59
0021351	Dousman	55	2	1.13	1.90	1.80	2.31	1.97	2.02	1.53	1.33	1.10	0.86	0.93	1.12
0021474	City of Juneau WWTP	19	3	3.11	7.77	8.80	8.27	8.11	6.94	5.87	2.30	2.11	2.49	2.79	2.37
0021512	Arlington WWTP	64	3	5.99	2.21	1.83	0.88	1.16	2.01	0.98	1.34	1.22	1.55	4.07	2.57
0021601	Village of Brownsville WWTP	12	2	3.02	3.21	2.38	1.91	1.66	2.30	2.14	2.19	2.02	2.15	2.51	2.74
0022039	Clinton WWTP	81	3	16.85	15.19	11.55	7.88	6.45	7.41	8.81	10.95	13.33	13.24	16.38	16.63
0022161	Johnson Creek Treatment Facility	31	2	2.90	4.57	4.70	5.24	5.05	5.10	4.34	3.71	3.29	2.72	2.37	2.36
0022322	Village of Theresa WWTP	13	2	5.45	5.84	3.91	2.39	2.06	3.28	3.16	3.30	3.15	3.56	4.23	4.82
0022489	Fort Atkinson WWTP	60	2	32.85	46.59	49.47	56.18	53.63	49.82	38.68	30.56	26.73	24.73	25.33	27.43
0022608	Sharon WWTP	81	3	11.45	10.33	7.85	5.35	4.39	5.03	5.99	7.44	9.07	9.00	11.14	11.31
0022772	City of Waupun WWTP	3	1	2.83	3.75	3.52	3.62	3.44	3.40	2.96	2.42	2.44	2.46	2.64	2.60
0023051	Lebanon Sanitary District #2 WWTP	20	7	1.89	2.49	1.95	1.55	1.35	1.19	1.21	1.22	1.35	1.31	1.37	1.59
0023345	City of Beaver Dam WWTP	34	1	5.40	6.15	5.64	5.96	5.77	6.10	5.89	5.85	5.85	5.54	5.61	5.40
0023370	City of Beloit Treatment Facility	79	2	78.93	83.88	73.65	78.93	74.76	72.55	56.10	48.64	44.15	48.15	58.41	70.52
0023442	Brandon	2	3	4.22	4.69	3.87	3.65	3.13	3.59	3.33	4.04	4.21	4.34	4.50	4.35
0023744	Deerfield WWTP	83	5	6.50	8.28	7.05	6.36	5.64	5.03	3.91	3.59	4.20	4.44	5.31	5.56
0023973	Village of Fall River WWTP	51	3	6.03	7.68	6.93	5.76	5.31	5.21	5.21	5.73	5.93	5.73	5.86	5.38
0024023	Footville WWTP	78	2	16.04	15.96	10.16	6.86	5.70	6.37	6.26	4.93	5.55	5.71	8.76	11.71
0024333	City of Jefferson WWTP	54	1	8.63	13.66	14.58	16.73	14.15	13.58	12.06	11.00	10.08	8.78	8.25	8.35
0024597	Madison Metropolitan Sewerage District	69	2	144.55	161.04	140.02	143.16	135.66	146.25	134.24	129.29	129.37	132.40	143.73	143.67
0024627	Village of Marshall WWTP	46	1	8.01	9.66	7.72	6.95	6.50	7.80	7.46	7.59	8.26	7.83	8.22	7.39
0024643	City of Mayville WWTP	14	1	5.84	6.64	4.98	4.29	3.45	4.39	4.07	4.39	4.30	4.64	5.13	5.50
0025585	Village of Sullivan	56	3	2.08	3.81	3.16	2.97	2.57	2.92	2.20	1.99	1.75	1.32	1.10	1.29
0025941	Hormel Foods Cooling Water	81	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0026352	Rockdale WWTP	83	5	0.41	0.53	0.45	0.40	0.36	0.32	0.25	0.23	0.27	0.28	0.34	0.35
0026930	Town of Beloit Treatment Facility	79	2	4.66	4.96	4.35	4.66	4.42	4.29	3.31	2.87	2.61	2.85	3.45	4.17

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Daily TP Wasteload Allocation (lbs/day)											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0026948	Cambridge WWTP	83	5	9.44	12.03	10.25	9.24	8.20	7.30	5.69	5.22	6.10	6.45	7.71	8.08
0028053	Allenton Treatment Facility	9	1	15.48	13.39	9.30	6.09	6.66	10.56	10.80	11.06	9.75	10.19	11.91	13.54
0028509	Village of Reesville WWTP	40	2	3.84	5.14	5.27	4.21	3.92	3.83	3.19	3.86	4.21	4.20	3.81	3.34
0028541	City of Watertown WWTP	29	1	32.68	46.48	44.06	43.74	39.54	42.12	42.20	38.72	35.31	29.48	29.28	28.44
0029271	Village of Lowell WWTP	40	2	1.54	2.06	2.11	1.69	1.57	1.53	1.28	1.55	1.68	1.68	1.52	1.33
0029611	Wisconsin Academy	51	3	1.13	1.44	1.29	1.08	0.99	0.97	0.97	1.07	1.11	1.07	1.09	1.00
0030350	Janesville	76	1	32.78	35.44	32.61	34.46	31.99	31.25	27.38	27.50	28.20	28.43	31.18	31.58
0030881	City of Waterloo WWTP	47	1	2.17	2.83	2.62	2.86	2.72	3.00	2.27	2.05	1.99	2.16	2.26	2.10
0031020	Palmyra	59	2	1.42	1.87	1.87	1.92	1.88	1.87	1.47	1.25	1.06	1.16	1.17	1.34
0031038	Ixonia Sanitary District No.1	21	1	10.32	14.95	12.15	8.60	6.84	6.02	6.01	6.29	6.88	6.08	7.36	8.27
0031054	Plymouth Town Sanitary District No. 1	78	2	4.22	4.20	2.67	1.81	1.50	1.68	1.65	1.30	1.46	1.50	2.30	3.08
0031160	Village of Randolph WWTP	33	1	7.07	16.51	15.73	12.60	10.97	10.21	7.41	4.98	2.12	1.38	2.61	2.77
0031194	City of Lake Mills WWTP	53	1	52.64	68.39	60.11	62.04	62.37	66.69	52.68	51.33	54.18	52.55	51.41	46.74
0031364	Lebanon Sanitary District	20	7	0.64	0.85	0.66	0.53	0.46	0.41	0.41	0.42	0.46	0.45	0.47	0.54
0031381	Ashippun Sanitary District	20	7	2.68	3.54	2.77	2.20	1.92	1.70	1.72	1.73	1.92	1.86	1.95	2.26
0031461	Walworth County Metropolitan Sewerage District	80	1	36.87	44.08	36.17	35.67	30.44	29.49	20.35	16.76	16.53	18.74	23.39	29.06
0031551	Burnett Sanitary District	4	1	3.10	7.70	5.91	1.86	1.65	1.14	0.97	0.36	0.48	0.90	1.25	1.42
0031844	Sullivan Sanitary District No.1	56	3	2.50	4.60	3.81	3.58	3.09	3.52	2.65	2.40	2.11	1.60	1.33	1.56
0032026	Delafield-Hartland	55	2	10.01	16.92	16.01	20.51	17.52	17.97	13.58	11.88	9.75	7.70	8.30	10.01
0035548	Village Kekoskee WWTP	17	1	0.68	1.08	1.05	0.72	0.54	0.49	0.39	0.28	0.39	0.49	0.63	0.56
0049379	Landmark Services Cooperative	83	5	0.03	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03
0049956	Middleton Tiedeman Pond	64	3	0.00	7.89	10.52	8.16	5.19	3.08	4.23	4.77	4.77	2.44	0.00	1.46
0050016	Grande Cheese Company	12	2	8.92	9.52	7.05	5.65	4.92	6.80	6.35	6.48	5.96	6.37	7.42	8.12
0058220	Nasco Division of Aristotle	60	2	0.93	1.32	1.40	1.59	1.52	1.41	1.10	0.87	0.76	0.70	0.72	0.78
0060453	Milton WWTF	61	3	137.19	196.83	134.86	84.47	126.41	29.43	22.00	5.25	42.50	35.25	42.68	80.52
0060607	Great Lakes Investors	56	3	0.87	1.61	1.33	1.25	1.08	1.23	0.93	0.84	0.74	0.56	0.47	0.55

Appendix S. Daily Total Suspended Solids Allocations by Wastewater Treatment Facility

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Daily TSS Wasteload Allocation (tons/day)											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0001945	General Motors Corp	74	1	0.18	0.20	0.18	0.18	0.18	0.18	0.16	0.13	0.12	0.17	0.18	0.18
0001961	Wisconsin Electric Power Company	64	3	0.07	0.04	0.05	0.03	0.04	0.05	0.03	0.03	0.02	0.03	0.07	0.04
0001996	National Rivet and Manufacturing	2	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0002003	Alto Dairy Cooperative	2	3	0.18	0.20	0.18	0.19	0.18	0.19	0.18	0.18	0.19	0.18	0.19	0.18
0002038	Renew Energy LLC	31	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0002488	Rushing Waters Fisheries Inc	57	1	0.20	0.22	0.20	0.18	0.15	0.13	0.11	0.17	0.21	0.20	0.21	0.20
0002534	Sensient Flavors, Inc.	19	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0002585	Wisconsin Department of Natural Resources Nevin Fish Hatchery	65	1	0.20	0.23	0.17	0.13	0.10	0.09	0.06	0.06	0.08	0.11	0.20	0.20
0020001	Whitewater WWTP	59	2	0.36	0.39	0.36	0.37	0.36	0.37	0.32	0.35	0.36	0.36	0.37	0.36
0020192	Hartford Treatment Facility	20	7	0.35	0.39	0.35	0.36	0.35	0.36	0.35	0.35	0.36	0.35	0.36	0.35
0020231	City of Horicon WWTP	18	1	0.12	0.13	0.12	0.12	0.12	0.12	0.08	0.05	0.08	0.12	0.12	0.12
0020290	Slinger Treatment Facility	20	7	0.27	0.30	0.27	0.28	0.27	0.28	0.27	0.27	0.28	0.27	0.28	0.27
0020303	Village of Hustisford WWTP	20	7	0.14	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
0020338	Stoughton WWTP	68	1	0.48	0.53	0.48	0.50	0.48	0.50	0.48	0.48	0.50	0.48	0.50	0.48
0020346	Edgerton WWTP	61	3	0.21	0.23	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
0020478	Sun Prairie	83	5	0.30	0.33	0.30	0.31	0.30	0.31	0.27	0.23	0.23	0.30	0.31	0.30
0020486	Village of Iron Ridge WWTP 3	20	7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0020532	Village of Lomira WWTP	13	2	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0020681	Oregon WWTP	69	2	0.30	0.36	0.35	0.36	0.35	0.36	0.35	0.30	0.20	0.31	0.36	0.31
0020702	Village of Clyman WWTP	19	3	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0021008	City of Columbus WWTP	51	3	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
0021059	Consolidated Koshkonong Sanitary District	61	3	0.35	0.39	0.35	0.36	0.35	0.36	0.35	0.35	0.36	0.35	0.36	0.35
0021181	Oconomowoc Treatment Facility	25	1	0.39	0.43	0.39	0.39	0.32	0.30	0.21	0.20	0.21	0.32	0.40	0.39
0021351	Dousman	55	2	0.03	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.03	0.03
0021474	City of Juneau WWTP	19	3	0.12	0.14	0.12	0.13	0.12	0.13	0.12	0.12	0.13	0.12	0.13	0.12
0021512	Arlington WWTP	64	3	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.01
0021601	Village of Brownsville WWTP	12	2	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0022039	Clinton WWTP	81	3	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0022161	Johnson Creek Treatment Facility	31	2	0.20	0.23	0.20	0.21	0.20	0.21	0.20	0.20	0.21	0.20	0.21	0.20
0022322	Village of Theresa WWTP	13	2	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0022489	Fort Atkinson WWTP	60	2	0.79	0.88	0.79	0.82	0.79	0.82	0.79	0.79	0.82	0.79	0.82	0.79
0022608	Sharon WWTP	81	3	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
0022772	City of Waupun WWTP	3	1	0.35	0.39	0.35	0.31	0.28	0.25	0.17	0.15	0.20	0.23	0.29	0.35
0023051	Lebanon Sanitary District #2 WWTP	20	7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0023345	City of Beaver Dam WWTP	34	1	1.02	1.13	0.70	0.61	0.55	0.56	0.45	0.49	0.55	0.63	0.72	1.02
0023370	City of Beloit Treatment Facility	79	2	2.12	2.62	2.95	2.78	2.56	2.41	1.91	1.49	1.01	1.63	2.50	2.09
0023442	Brandon	2	3	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
0023744	Deerfield WWTP	83	5	0.08	0.09	0.08	0.08	0.08	0.08	0.07	0.06	0.06	0.08	0.08	0.08
0023973	Village of Fall River WWTP	51	3	0.10	0.12	0.10	0.11	0.10	0.11	0.10	0.10	0.11	0.10	0.11	0.10
0024023	Footville WWTP	78	2	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0024333	City of Jefferson WWTP	54	1	0.75	0.83	0.75	0.78	0.75	0.78	0.75	0.75	0.78	0.75	0.78	0.75
0024597	Madison Metropolitan Sewerage District	69	2	8.19	10.12	9.75	10.08	9.75	10.08	9.75	8.46	5.50	8.58	10.08	8.57
0024627	Village of Marshall WWTP	46	1	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0024643	City of Mayville WWTP	14	1	0.23	0.25	0.23	0.16	0.13	0.18	0.13	0.16	0.20	0.23	0.23	0.23
0025585	Village of Sullivan	56	3	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0025941	Hormel Foods Cooling Water	81	3	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.01	0.02	0.01	0.02	0.01
0026352	Rockdale WWTP	83	5	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0026930	Town of Beloit Treatment Facility	79	2	0.13	0.16	0.17	0.16	0.15	0.14	0.11	0.09	0.06	0.10	0.15	0.12

Permit Number	Facility Name	Reach	Number of Permits Discharging into Reach	Daily TSS Wasteload Allocation (tons/day)											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0026948	Cambridge WWTP	83	5	0.17	0.19	0.17	0.17	0.17	0.17	0.15	0.13	0.13	0.17	0.17	0.17
0028053	Allenton Treatment Facility	9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0028509	Village of Reesville WWTP	40	2	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0028541	City of Watertown WWTP	29	1	1.52	1.68	1.52	1.57	1.52	0.84	0.61	0.51	0.52	0.61	1.31	1.47
0029271	Village of Lowell WWTP	40	2	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0029611	Wisconsin Academy	51	3	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0030350	Janesville	76	1	3.30	3.93	3.37	3.24	2.88	2.74	2.20	2.11	1.88	2.46	3.23	3.29
0030881	City of Waterloo WWTP	47	1	0.05	0.06	0.05	0.06	0.05	0.06	0.05	0.05	0.06	0.05	0.06	0.05
0031020	Palmyra	59	2	0.13	0.15	0.13	0.14	0.13	0.14	0.12	0.13	0.14	0.13	0.14	0.13
0031038	Ixonia Sanitary District No.1	21	1	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0031054	Plymouth Town Sanitary District No. 1	78	2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0031160	Village of Randolph WWTP	33	1	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
0031194	City of Lake Mills WWTP	53	1	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
0031364	Lebanon Sanitary District	20	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0031381	Ashippun Sanitary District	20	7	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0031461	Walworth County Metropolitan Sewerage District	80	1	0.56	0.62	0.56	0.58	0.56	0.58	0.56	0.52	0.58	0.56	0.58	0.56
0031551	Burnett Sanitary District	4	1	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0031844	Sullivan Sanitary District No.1	56	3	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
0032026	Delafield-Hartland	55	2	0.27	0.31	0.30	0.25	0.21	0.22	0.16	0.15	0.13	0.15	0.24	0.28
0035548	Village Kekoskee WWTP	17	1	0.03	0.04	0.03	0.04	0.03	0.03	0.02	0.02	0.04	0.03	0.04	0.03
0049379	Landmark Services Cooperative	83	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0049956	Middleton Tiedeman Pond	64	3	0.00	0.07	0.14	0.12	0.08	0.04	0.06	0.05	0.04	0.03	0.00	0.01
0050016	Grande Cheese Company	12	2	0.07	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
0058220	Nasco Division of Aristotle	60	2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0060453	Milton WWTF	61	3	0.18	0.20	0.18	0.19	0.18	0.19	0.18	0.18	0.19	0.18	0.19	0.18
0060607	Great Lakes Investors	56	3	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Appendix T. Daily Total Phosphorus Allocations by MS4

Municipality	Reach	Daily TP Wasteload Allocation (lbs/day)												Annual Wasteload Allocation (lbs/year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Beaver Dam, City	33	0.71	2.14	2.59	3.46	3.66	4.52	4.37	2.25	0.69	0.31	0.39	0.34	772.85
	34	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.04	0.03	0.02	0.02	0.01	9.74
	37	0.08	0.36	0.49	0.58	0.55	0.62	0.65	0.62	0.52	0.39	0.28	0.16	161.22
	39	0.65	0.95	0.78	0.49	0.60	0.87	1.29	1.34	1.24	0.92	0.88	0.70	325.68
Beloit, City	79	0.77	1.24	1.45	2.12	2.37	2.86	2.74	2.10	1.53	1.18	1.01	0.92	617.23
	81	2.34	2.74	2.44	2.83	2.79	4.57	6.74	7.47	6.42	4.48	3.33	2.82	1492.85
Beloit, Town	79	0.51	0.82	0.96	1.39	1.56	1.88	1.80	1.38	1.01	0.77	0.66	0.60	405.89
Blooming Grove, Town	64	0.06	0.08	0.06	0.07	0.08	0.11	0.12	0.11	0.09	0.07	0.06	0.06	29.03
	65	0.02	0.03	0.04	0.05	0.04	0.05	0.04	0.04	0.03	0.03	0.03	0.03	13.26
	66	0.62	0.64	0.56	0.58	0.65	0.82	0.83	0.77	0.60	0.56	0.57	0.59	236.89
Bristol, Town	45	4.22	4.17	2.42	1.50	1.76	3.20	3.82	3.88	3.96	3.88	4.32	4.05	1250.75
	51	0.07	0.09	0.10	0.13	0.14	0.19	0.30	0.29	0.22	0.13	0.09	0.07	55.76
	64	0.35	0.45	0.36	0.39	0.44	0.61	0.71	0.63	0.52	0.38	0.35	0.34	168.10
	83	0.02	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.05	0.04	0.03	0.03	16.22
Burke, Town	64	0.93	1.19	0.97	1.04	1.19	1.63	1.90	1.69	1.38	1.01	0.92	0.91	449.01
	66	0.06	0.07	0.06	0.06	0.07	0.09	0.09	0.08	0.06	0.06	0.06	0.06	24.83
	83	0.09	0.14	0.15	0.19	0.19	0.23	0.23	0.20	0.17	0.13	0.11	0.09	58.06
Cottage Grove, Town	66	1.12	1.16	1.01	1.05	1.17	1.49	1.50	1.39	1.08	1.01	1.02	1.06	427.33
	83	0.30	0.46	0.50	0.65	0.67	0.79	0.78	0.68	0.58	0.46	0.37	0.32	199.68
Cottage Grove, Village	66	0.42	0.44	0.38	0.39	0.44	0.56	0.56	0.52	0.41	0.38	0.39	0.40	161.07
	83	0.15	0.22	0.24	0.31	0.32	0.38	0.38	0.33	0.28	0.22	0.18	0.15	96.10
DeForest, Village	64	0.71	0.90	0.74	0.79	0.90	1.24	1.45	1.28	1.05	0.77	0.70	0.69	341.12
Delafield, City	25	0.02	0.03	0.04	0.05	0.06	0.07	0.07	0.05	0.04	0.03	0.03	0.02	15.82
	55	0.20	0.48	0.61	1.09	1.14	1.45	1.36	1.00	0.62	0.36	0.27	0.26	269.02
Delafield, Town	55	0.07	0.18	0.22	0.40	0.42	0.54	0.50	0.37	0.23	0.13	0.10	0.10	99.50
Dousmann, Village	55	0.04	0.09	0.12	0.21	0.22	0.29	0.27	0.20	0.12	0.07	0.05	0.05	53.16
Dunkirk, Town	61	0.61	1.24	1.09	0.92	1.68	0.53	0.51	0.11	0.64	0.38	0.31	0.46	257.02
	67	2.63	4.20	4.38	4.70	4.00	3.74	4.01	3.76	3.90	2.87	2.77	2.49	1319.37
	68	0.13	0.27	0.30	0.44	0.48	0.66	0.84	0.68	0.55	0.30	0.21	0.16	152.67
	69	0.03	0.04	0.05	0.06	0.07	0.10	0.12	0.10	0.08	0.06	0.05	0.03	23.96
Dunn, Town	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
	66	1.07	1.11	0.97	1.00	1.12	1.42	1.43	1.33	1.03	0.97	0.98	1.01	409.16
	67	0.16	0.26	0.28	0.30	0.25	0.23	0.25	0.24	0.25	0.18	0.17	0.16	82.86
	69	0.01	0.02	0.03	0.04	0.04	0.06	0.07	0.06	0.05	0.03	0.03	0.02	13.80
Fitchburg, City	64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
	65	1.03	1.38	1.50	1.94	1.89	2.04	1.81	1.61	1.41	1.37	1.35	1.21	563.84
	66	0.62	0.64	0.56	0.58	0.65	0.83	0.83	0.77	0.60	0.56	0.57	0.59	237.52
	69	0.04	0.06	0.07	0.09	0.11	0.16	0.18	0.15	0.12	0.09	0.07	0.05	36.59
Fort Atkinson, City	54	0.01	0.02	0.03	0.04	0.04	0.05	0.06	0.05	0.03	0.02	0.01	0.01	11.28
	59	0.02	0.03	0.04	0.05	0.07	0.10	0.10	0.07	0.05	0.04	0.02	0.02	18.45
	60	0.88	1.86	2.66	3.98	4.89	5.72	5.48	3.72	2.55	1.68	1.23	1.00	1086.09
Harmony, Town	61	3.16	6.48	5.69	4.80	8.76	2.75	2.64	0.55	3.36	1.98	1.62	2.41	1338.20
	71	0.13	0.17	0.17	0.22	0.21	0.23	0.16	0.11	0.09	0.09	0.10	0.11	54.21
	72	2.16	2.73	2.10	1.72	1.49	2.37	3.17	2.57	1.99	1.55	1.45	1.55	754.77
	73	0.29	0.37	0.37	0.43	0.40	0.48	0.39	0.31	0.19	0.17	0.19	0.23	116.41
	79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
	83	0.04	0.06	0.07	0.09	0.09	0.10	0.10	0.09	0.08	0.06	0.05	0.04	26.34

Municipality	Reach	Daily TP Wasteload Allocation (lbs/day)												Annual Wasteload Allocation (lbs/year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hartford, City	20	2.51	4.19	4.22	5.29	5.13	6.54	8.24	7.48	6.06	3.89	2.76	2.69	1795.96
	21	0.30	0.55	0.56	0.68	0.63	0.75	1.00	0.86	0.64	0.38	0.30	0.29	211.56
Hartland, Village	25	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	1.39
	55	0.14	0.35	0.45	0.80	0.84	1.07	1.00	0.74	0.46	0.27	0.20	0.19	198.21
Janesville, City	61	0.04	0.08	0.07	0.06	0.10	0.03	0.03	0.01	0.04	0.02	0.02	0.03	15.61
	71	4.03	5.17	5.25	6.62	6.49	6.96	4.93	3.48	2.70	2.86	3.12	3.31	1668.06
	73	2.94	3.69	3.70	4.32	3.96	4.82	3.95	3.09	1.92	1.70	1.92	2.33	1165.04
	74	4.59	5.46	5.59	7.18	7.30	7.56	5.55	4.12	2.96	3.00	3.44	3.97	1844.53
	75	0.19	0.19	0.13	0.15	0.16	0.24	0.19	0.14	0.11	0.10	0.13	0.15	56.39
	76	0.07	0.13	0.16	0.22	0.25	0.31	0.33	0.28	0.24	0.17	0.13	0.10	72.36
	79	0.02	0.03	0.04	0.06	0.06	0.08	0.07	0.06	0.04	0.03	0.03	0.02	16.74
Janesville, Town	61	0.34	0.70	0.61	0.51	0.94	0.29	0.28	0.06	0.36	0.21	0.17	0.26	143.60
	70	2.95	3.29	2.23	2.07	1.90	2.66	2.81	2.22	2.25	1.92	2.19	2.46	878.41
	71	0.73	0.94	0.95	1.20	1.18	1.26	0.89	0.63	0.49	0.52	0.57	0.60	302.41
	74	0.39	0.46	0.47	0.60	0.61	0.64	0.47	0.35	0.25	0.25	0.29	0.33	155.26
	75	0.47	0.46	0.32	0.36	0.39	0.58	0.46	0.34	0.26	0.25	0.32	0.37	138.81
	78	0.01	0.02	0.01	0.02	0.01	0.02	0.03	0.02	0.02	0.01	0.01	0.01	6.13
La Prairie, Town	72	0.46	0.58	0.45	0.36	0.32	0.50	0.67	0.55	0.42	0.33	0.31	0.33	160.21
	73	0.22	0.28	0.28	0.33	0.30	0.36	0.30	0.23	0.15	0.13	0.15	0.18	88.04
	76	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	1.70
	79	0.20	0.33	0.39	0.56	0.63	0.76	0.73	0.56	0.41	0.31	0.27	0.24	163.78
	81	0.11	0.13	0.12	0.13	0.13	0.22	0.32	0.35	0.30	0.21	0.16	0.13	70.43
Lisbon, Town	23	0.34	0.38	0.31	0.28	0.31	0.40	0.37	0.30	0.24	0.21	0.23	0.27	110.44
	55	0.13	0.31	0.39	0.70	0.73	0.94	0.87	0.64	0.40	0.23	0.17	0.17	172.96
Madison, City	62	0.52	0.60	0.45	0.36	0.40	0.53	0.56	0.43	0.37	0.35	0.37	0.40	162.23
	64	10.61	13.53	11.03	11.78	13.50	18.51	21.63	19.21	15.70	11.52	10.49	10.30	5104.86
	65	0.53	0.71	0.77	1.00	0.97	1.05	0.93	0.83	0.73	0.71	0.70	0.62	290.09
	66	3.00	3.10	2.72	2.80	3.14	3.98	4.01	3.72	2.88	2.71	2.74	2.83	1145.14
	83	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.03	0.02	0.02	12.76
Madison, Town	64	0.39	0.49	0.40	0.43	0.49	0.68	0.79	0.70	0.57	0.42	0.38	0.38	186.26
	65	0.08	0.11	0.12	0.16	0.15	0.16	0.15	0.13	0.11	0.11	0.11	0.10	45.22
Maple Bluff, Village	64	0.15	0.20	0.16	0.17	0.19	0.27	0.31	0.28	0.23	0.17	0.15	0.15	73.72
McFarland, Village	66	1.30	1.34	1.18	1.21	1.36	1.72	1.73	1.61	1.25	1.17	1.19	1.22	495.12
Merton, Town	21	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	4.44
	23	3.62	4.11	3.30	3.01	3.33	4.27	3.99	3.22	2.64	2.31	2.50	2.90	1189.88
	24	0.49	0.56	0.41	0.31	0.32	0.47	0.49	0.46	0.37	0.32	0.33	0.36	148.23
	25	0.19	0.32	0.42	0.57	0.62	0.75	0.70	0.54	0.41	0.34	0.29	0.22	163.52
	55	0.09	0.21	0.26	0.47	0.50	0.64	0.59	0.44	0.27	0.16	0.12	0.11	117.58
Merton, Village	23	0.10	0.11	0.09	0.08	0.09	0.11	0.10	0.08	0.07	0.06	0.07	0.08	31.33
	25	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	3.99
	55	0.10	0.24	0.31	0.55	0.58	0.74	0.69	0.51	0.32	0.18	0.14	0.13	136.25
Middleton, City	62	0.75	0.87	0.66	0.52	0.58	0.77	0.80	0.62	0.53	0.51	0.53	0.58	234.02
	63	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.04	0.04	0.03	0.03	0.02	9.95
	64	0.48	0.62	0.50	0.54	0.62	0.84	0.99	0.88	0.72	0.53	0.48	0.47	232.69
Middleton, Town	62	0.19	0.22	0.16	0.13	0.15	0.19	0.20	0.16	0.13	0.13	0.13	0.15	58.90
	64	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.03	0.03	0.02	0.02	0.02	8.89
Milton, City	61	6.26	12.83	11.26	9.49	17.34	5.44	5.23	1.10	6.64	3.91	3.20	4.78	2648.17
	83	0.09	0.14	0.15	0.20	0.20	0.24	0.24	0.21	0.18	0.14	0.11	0.10	61.09
Monona, City	64	0.38	0.48	0.39	0.42	0.48	0.65	0.77	0.68	0.56	0.41	0.37	0.36	180.53
	65	0.09	0.12	0.13	0.17	0.17	0.18	0.16	0.14	0.13	0.12	0.12	0.11	50.01
	66	0.50	0.52	0.45	0.47	0.52	0.66	0.67	0.62	0.48	0.45	0.46	0.47	190.28

Municipality	Reach	Daily TP Wasteload Allocation (lbs/day)												Annual Wasteload Allocation (lbs/year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Nashotah, Village	25	0.01	0.02	0.03	0.04	0.05	0.06	0.05	0.04	0.03	0.03	0.02	0.02	12.61
	55	0.04	0.10	0.13	0.22	0.23	0.30	0.28	0.21	0.13	0.08	0.06	0.05	55.54
Oconomowoc, City	25	0.37	0.64	0.83	1.13	1.24	1.49	1.39	1.08	0.82	0.67	0.57	0.44	324.78
	26	0.64	0.82	0.76	0.82	0.74	0.88	0.77	0.65	0.42	0.39	0.47	0.56	239.81
Oconomowoc, Town	20	0.06	0.09	0.09	0.12	0.12	0.15	0.18	0.17	0.14	0.09	0.06	0.06	40.31
	21	0.58	1.05	1.08	1.30	1.21	1.43	1.91	1.65	1.22	0.73	0.57	0.56	404.02
	24	0.03	0.04	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02	9.90
	25	0.46	0.80	1.03	1.41	1.55	1.87	1.74	1.35	1.02	0.84	0.72	0.55	406.14
Pleasant Springs, Town	61	0.17	0.35	0.30	0.26	0.47	0.15	0.14	0.03	0.18	0.11	0.09	0.13	71.41
	66	0.75	0.78	0.68	0.70	0.78	1.00	1.00	0.93	0.72	0.68	0.69	0.71	286.28
	67	7.11	11.37	11.86	12.72	10.82	10.13	10.86	10.19	10.57	7.77	7.51	6.74	3572.22
	68	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	2.29
	83	0.08	0.12	0.13	0.17	0.18	0.21	0.21	0.18	0.16	0.12	0.10	0.09	53.35
Rock, Town	74	0.20	0.24	0.24	0.31	0.32	0.33	0.24	0.18	0.13	0.13	0.15	0.17	79.85
	75	0.54	0.52	0.36	0.41	0.44	0.66	0.52	0.38	0.29	0.29	0.36	0.42	157.06
	76	0.05	0.08	0.10	0.14	0.16	0.20	0.21	0.18	0.15	0.11	0.08	0.06	45.97
	78	0.91	1.14	0.83	0.92	0.85	1.49	1.75	1.30	0.98	0.65	0.64	0.75	370.69
	79	0.22	0.35	0.41	0.60	0.67	0.81	0.78	0.60	0.44	0.33	0.29	0.26	175.74
Shorewood Hills, Village	64	0.19	0.24	0.19	0.21	0.24	0.33	0.38	0.34	0.28	0.20	0.19	0.18	90.18
Stoughton, City	66	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	4.59
	67	15.70	25.11	26.19	28.10	23.91	22.37	23.99	22.50	23.34	17.16	16.58	14.90	7890.03
	68	0.08	0.15	0.17	0.25	0.27	0.37	0.48	0.38	0.31	0.17	0.12	0.09	86.68
Summit, Town	25	0.07	0.12	0.15	0.21	0.23	0.27	0.25	0.20	0.15	0.12	0.10	0.08	59.07
	26	0.62	0.79	0.74	0.79	0.72	0.85	0.75	0.64	0.40	0.39	0.45	0.54	233.88
	27	0.33	0.38	0.26	0.23	0.21	0.28	0.29	0.29	0.23	0.19	0.23	0.27	96.78
	55	0.16	0.38	0.48	0.86	0.90	1.15	1.07	0.79	0.49	0.29	0.22	0.20	212.87
	56	0.07	0.16	0.17	0.26	0.27	0.44	0.44	0.34	0.20	0.10	0.06	0.06	78.23
Sun Prairie, City	45	0.17	0.16	0.10	0.06	0.07	0.13	0.15	0.15	0.16	0.15	0.17	0.16	49.20
	64	0.54	0.69	0.56	0.60	0.68	0.94	1.10	0.97	0.80	0.58	0.53	0.52	258.54
	83	1.54	2.36	2.54	3.31	3.40	3.99	3.98	3.44	2.96	2.32	1.87	1.64	1014.93
Turtle, Town	79	0.08	0.13	0.15	0.22	0.24	0.29	0.28	0.21	0.16	0.12	0.10	0.09	62.89
	81	1.36	1.59	1.41	1.64	1.62	2.65	3.91	4.33	3.72	2.60	1.93	1.64	865.50
Watertown, City	28	10.30	11.77	9.92	9.08	8.78	10.63	11.55	10.18	9.35	8.33	9.55	9.16	3602.68
	29	0.58	1.11	1.41	1.96	1.98	2.96	3.72	3.14	2.14	1.25	0.86	0.69	664.55
	30	1.38	2.03	1.77	1.25	1.29	1.10	1.98	2.02	1.95	1.15	0.88	0.86	536.19
Waunakee, Village	63	0.08	0.12	0.11	0.09	0.11	0.13	0.19	0.19	0.17	0.13	0.14	0.11	47.90
	64	0.92	1.18	0.96	1.03	1.18	1.61	1.88	1.67	1.37	1.00	0.91	0.90	444.64
Waupun, City	2	0.60	0.83	0.88	1.23	1.38	2.06	2.42	2.44	1.96	1.41	1.01	0.79	518.56
	3	0.02	0.05	0.06	0.08	0.11	0.13	0.14	0.09	0.08	0.05	0.04	0.03	26.80
Westport, Town	62	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	2.06
	63	0.30	0.41	0.37	0.33	0.37	0.47	0.66	0.68	0.60	0.45	0.48	0.39	167.70
	64	0.78	1.00	0.81	0.87	1.00	1.37	1.60	1.42	1.16	0.85	0.77	0.76	376.75
Whitewater, City	59	0.39	0.67	0.87	1.23	1.52	2.16	2.21	1.68	1.06	0.80	0.52	0.47	414.15
Windsor, Town	45	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2.49
	51	0.02	0.02	0.03	0.04	0.04	0.06	0.09	0.08	0.07	0.04	0.03	0.02	16.24
	64	1.14	1.46	1.19	1.27	1.46	2.00	2.33	2.07	1.69	1.24	1.13	1.11	550.76

Appendix U. Daily Total Suspended Solids Allocations by MS4

Municipality	Reach	Daily TSS Wasteload Allocation (tons/day)												Annual Wasteload Allocation (tons/year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Beaver Dam, City	33	0.44	0.91	0.89	0.89	0.87	0.91	0.75	0.41	0.17	0.14	0.14	0.23	204.41
	34	0.04	0.04	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.03	8.18
	37	0.08	0.16	0.08	0.08	0.07	0.08	0.06	0.06	0.07	0.05	0.04	0.08	27.46
	39	0.24	0.43	0.26	0.21	0.15	0.14	0.15	0.19	0.20	0.17	0.14	0.22	75.52
Beloit, City	79	0.14	0.26	0.36	0.48	0.50	0.59	0.55	0.38	0.19	0.23	0.24	0.17	124.24
	81	0.52	0.60	0.49	0.50	0.48	0.74	1.06	1.06	0.77	0.83	0.86	0.62	259.62
Beloit, Town	79	0.09	0.17	0.24	0.32	0.33	0.39	0.36	0.25	0.13	0.15	0.15	0.11	81.70
Blooming Grove, Town	64	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	2.73
	65	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	1.71
	66	0.07	0.08	0.07	0.08	0.08	0.10	0.10	0.08	0.05	0.05	0.06	0.06	26.46
Bristol, Town	45	0.61	0.62	0.36	0.21	0.25	0.39	0.43	0.39	0.36	0.47	0.61	0.62	162.66
	51	0.05	0.06	0.05	0.05	0.06	0.06	0.09	0.09	0.06	0.07	0.06	0.06	23.83
	64	0.02	0.04	0.04	0.05	0.05	0.07	0.07	0.05	0.03	0.03	0.03	0.03	15.82
	83	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	2.66
Burke, Town	64	0.06	0.10	0.12	0.13	0.14	0.18	0.20	0.14	0.07	0.09	0.09	0.07	42.27
	66	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	2.77
	83	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.03	0.02	0.02	0.03	0.02	9.51
Cottage Grove, Town	66	0.12	0.14	0.13	0.14	0.15	0.17	0.17	0.14	0.08	0.10	0.11	0.12	47.73
	83	0.04	0.06	0.08	0.11	0.12	0.13	0.13	0.10	0.06	0.08	0.09	0.06	32.73
Cottage Grove, Village	66	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.03	0.04	0.04	0.04	17.99
	83	0.02	0.03	0.04	0.05	0.06	0.06	0.06	0.05	0.03	0.04	0.05	0.03	15.75
DeForest, Village	64	0.05	0.07	0.09	0.10	0.11	0.14	0.15	0.11	0.06	0.07	0.07	0.05	32.11
Delafield, City	25	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	4.92
	55	0.09	0.16	0.18	0.26	0.27	0.32	0.27	0.19	0.12	0.11	0.10	0.11	65.95
Delafield, Town	55	0.03	0.06	0.07	0.10	0.10	0.12	0.10	0.07	0.04	0.04	0.04	0.04	24.39
Dousmann, Village	55	0.02	0.03	0.04	0.05	0.05	0.06	0.05	0.04	0.02	0.02	0.02	0.02	13.03
Dunkirk, Town	61	0.18	0.31	0.45	0.36	0.62	0.16	0.14	0.02	0.12	0.13	0.16	0.15	85.14
	67	0.17	0.30	0.48	0.59	0.51	0.45	0.47	0.36	0.25	0.27	0.29	0.18	131.34
	68	0.11	0.17	0.11	0.13	0.14	0.15	0.18	0.15	0.13	0.10	0.09	0.11	47.56
	69	0.02	0.02	0.04	0.04	0.05	0.07	0.07	0.05	0.03	0.03	0.04	0.02	14.64
Dunn, Town	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
	66	0.12	0.13	0.12	0.13	0.14	0.17	0.17	0.14	0.08	0.09	0.10	0.11	45.70
	67	0.01	0.02	0.03	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.01	8.25
	69	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.03	0.01	0.02	0.02	0.01	8.43
Fitchburg, City	64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	65	0.21	0.28	0.20	0.24	0.23	0.23	0.17	0.15	0.13	0.15	0.18	0.23	72.82
	66	0.07	0.08	0.07	0.08	0.08	0.10	0.10	0.08	0.05	0.05	0.06	0.06	26.53
	69	0.02	0.03	0.05	0.06	0.07	0.11	0.11	0.08	0.04	0.05	0.05	0.03	22.36
Fort Atkinson, City	54	0.03	0.05	0.03	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	9.68
	59	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.02	6.95
	60	0.76	1.22	1.47	1.96	2.21	2.44	1.98	1.21	0.70	0.78	0.85	0.80	498.17
Harmony, Town	61	0.92	1.62	2.32	1.87	3.21	0.86	0.74	0.12	0.64	0.70	0.81	0.78	443.27
	71	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	5.40
	72	0.40	0.49	0.30	0.25	0.21	0.35	0.39	0.28	0.21	0.19	0.21	0.32	108.99
	73	0.05	0.06	0.05	0.05	0.05	0.06	0.04	0.03	0.02	0.02	0.03	0.04	14.76
	79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	83	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	4.32

Municipality	Reach	Daily TSS Wasteload Allocation (tons/day)												Annual Wasteload Allocation (tons/year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Hartford, City	20	1.46	1.88	2.23	2.07	2.11	2.29	3.01	2.29	1.33	1.69	2.01	1.52	727.36
	21	0.19	0.26	0.20	0.17	0.15	0.16	0.19	0.17	0.13	0.12	0.13	0.17	62.41
Hartland, Village	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43
	55	0.06	0.12	0.13	0.19	0.20	0.23	0.20	0.14	0.09	0.08	0.07	0.08	48.59
Janesville, City	61	0.01	0.02	0.03	0.02	0.04	0.01	0.01	0.00	0.01	0.01	0.01	0.01	5.17
	71	0.35	0.52	0.51	0.68	0.69	0.75	0.49	0.30	0.23	0.28	0.32	0.35	166.30
	73	0.49	0.63	0.48	0.51	0.47	0.55	0.40	0.29	0.20	0.20	0.26	0.41	147.71
	74	0.41	0.57	0.52	0.71	0.75	0.77	0.51	0.33	0.21	0.24	0.30	0.40	173.37
	75	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.02	5.05
	76	0.05	0.10	0.10	0.13	0.13	0.15	0.14	0.13	0.09	0.09	0.08	0.07	38.68
	79	0.00	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.00	3.37
Janesville, Town	61	0.10	0.17	0.25	0.20	0.34	0.09	0.08	0.01	0.07	0.08	0.09	0.08	47.57
	70	0.26	0.34	0.19	0.20	0.21	0.28	0.27	0.19	0.19	0.18	0.21	0.24	83.66
	71	0.06	0.09	0.09	0.12	0.13	0.14	0.09	0.06	0.04	0.05	0.06	0.06	30.15
	74	0.03	0.05	0.04	0.06	0.06	0.06	0.04	0.03	0.02	0.02	0.03	0.03	14.59
	75	0.04	0.05	0.02	0.03	0.04	0.06	0.04	0.03	0.02	0.02	0.02	0.04	12.42
	78	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	1.76
La Prairie, Town	72	0.09	0.11	0.06	0.05	0.04	0.07	0.08	0.06	0.04	0.04	0.05	0.07	23.14
	73	0.04	0.05	0.04	0.04	0.04	0.04	0.03	0.02	0.01	0.01	0.02	0.03	11.16
	76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
	79	0.04	0.07	0.10	0.13	0.13	0.16	0.15	0.10	0.05	0.06	0.06	0.04	32.97
	81	0.02	0.03	0.02	0.02	0.02	0.04	0.05	0.05	0.04	0.04	0.04	0.03	12.25
Lisbon, Town	23	0.03	0.04	0.03	0.03	0.03	0.05	0.04	0.03	0.02	0.02	0.02	0.02	10.65
	55	0.06	0.10	0.11	0.17	0.17	0.20	0.17	0.12	0.08	0.07	0.06	0.07	42.40
Madison, City	62	0.09	0.10	0.05	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.07	19.33
	64	0.72	1.09	1.32	1.48	1.65	2.04	2.27	1.61	0.84	1.00	1.00	0.76	480.55
	65	0.11	0.14	0.10	0.12	0.12	0.12	0.09	0.08	0.07	0.08	0.09	0.12	37.47
	66	0.32	0.38	0.34	0.37	0.40	0.46	0.46	0.39	0.22	0.26	0.29	0.31	127.92
	83	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	2.09
Madison, Town	64	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.06	0.03	0.04	0.04	0.03	17.53
	65	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	5.84
Maple Bluff, Village	64	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.01	0.01	0.01	0.01	6.94
McFarland, Village	66	0.14	0.16	0.15	0.16	0.17	0.20	0.20	0.17	0.10	0.11	0.13	0.14	55.31
Merton, Town	21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
	23	0.31	0.40	0.31	0.29	0.37	0.49	0.45	0.30	0.21	0.21	0.20	0.25	114.78
	24	0.09	0.09	0.04	0.03	0.03	0.05	0.04	0.04	0.04	0.03	0.03	0.07	17.30
	25	0.11	0.16	0.15	0.18	0.18	0.20	0.16	0.12	0.08	0.11	0.13	0.12	50.91
	55	0.04	0.07	0.08	0.11	0.12	0.14	0.12	0.08	0.05	0.05	0.04	0.05	28.82
Merton, Village	23	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	3.02
	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24
	55	0.04	0.08	0.09	0.13	0.13	0.16	0.14	0.10	0.06	0.06	0.05	0.05	33.40
Middleton, City	62	0.12	0.14	0.07	0.05	0.06	0.08	0.08	0.06	0.06	0.05	0.06	0.10	27.89
	63	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	1.47
	64	0.03	0.05	0.06	0.07	0.08	0.09	0.10	0.07	0.04	0.05	0.05	0.03	21.91
Middleton, Town	62	0.03	0.04	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	7.02
	64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84
Milton, City	61	1.82	3.20	4.60	3.69	6.36	1.70	1.47	0.23	1.27	1.39	1.60	1.55	877.20
	83	0.01	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.03	0.03	0.02	10.01
Monona, City	64	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.06	0.03	0.04	0.04	0.03	16.99
	65	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	6.46
	66	0.05	0.06	0.06	0.06	0.07	0.08	0.08	0.06	0.04	0.04	0.05	0.05	21.26

Municipality	Reach	Daily TSS Wasteload Allocation (tons/day)												Annual Wasteload Allocation (tons/year)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Nashotah, Village	25	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	3.93
	55	0.02	0.03	0.04	0.05	0.05	0.07	0.06	0.04	0.02	0.02	0.02	0.02	13.62
Oconomowoc, City	25	0.21	0.31	0.30	0.35	0.35	0.39	0.31	0.23	0.17	0.21	0.25	0.25	101.11
	26	0.14	0.18	0.10	0.10	0.09	0.10	0.08	0.07	0.07	0.07	0.08	0.13	36.32
Oconomowoc, Town	20	0.03	0.04	0.05	0.05	0.05	0.05	0.07	0.05	0.03	0.04	0.05	0.03	16.33
	21	0.37	0.50	0.38	0.33	0.29	0.30	0.37	0.33	0.25	0.23	0.25	0.33	119.18
	24	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.16
	25	0.27	0.39	0.37	0.44	0.44	0.49	0.39	0.29	0.21	0.26	0.32	0.31	126.45
Pleasant Springs, Town	61	0.05	0.09	0.12	0.10	0.17	0.05	0.04	0.01	0.03	0.04	0.04	0.04	23.65
	66	0.08	0.09	0.09	0.09	0.10	0.12	0.12	0.10	0.06	0.06	0.07	0.08	31.98
	67	0.46	0.81	1.29	1.60	1.37	1.21	1.28	0.98	0.67	0.73	0.79	0.50	355.62
	68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
	83	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.03	0.02	0.02	0.03	0.02	8.74
Rock, Town	74	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.02	7.51
	75	0.05	0.06	0.03	0.04	0.04	0.06	0.04	0.03	0.02	0.02	0.03	0.04	14.05
	76	0.03	0.06	0.07	0.08	0.08	0.10	0.09	0.08	0.06	0.06	0.05	0.04	24.58
	78	0.34	0.44	0.26	0.26	0.25	0.36	0.39	0.25	0.20	0.20	0.26	0.31	106.47
	79	0.04	0.07	0.10	0.14	0.14	0.17	0.16	0.11	0.05	0.06	0.07	0.05	35.37
Shorewood Hills, Village	64	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.03	0.01	0.02	0.02	0.01	8.49
Stoughton, City	66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
	67	1.01	1.78	2.85	3.54	3.02	2.66	2.83	2.16	1.48	1.61	1.75	1.10	785.45
	68	0.06	0.10	0.06	0.08	0.08	0.09	0.10	0.08	0.07	0.06	0.05	0.06	27.00
Summit, Town	25	0.04	0.06	0.05	0.06	0.06	0.07	0.06	0.04	0.03	0.04	0.05	0.04	18.39
	26	0.14	0.17	0.10	0.09	0.09	0.10	0.07	0.07	0.06	0.06	0.08	0.13	35.42
	27	0.12	0.15	0.08	0.06	0.05	0.06	0.05	0.05	0.04	0.05	0.06	0.10	26.30
	55	0.07	0.13	0.14	0.21	0.21	0.25	0.21	0.15	0.09	0.09	0.08	0.09	52.18
	56	0.07	0.10	0.07	0.09	0.11	0.16	0.11	0.09	0.07	0.06	0.04	0.06	31.27
Sun Prairie, City	45	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.02	6.40
	64	0.04	0.06	0.07	0.07	0.08	0.10	0.11	0.08	0.04	0.05	0.05	0.04	24.34
	83	0.20	0.33	0.42	0.54	0.59	0.65	0.68	0.51	0.33	0.43	0.48	0.29	166.34
Turtle, Town	79	0.01	0.03	0.04	0.05	0.05	0.06	0.06	0.04	0.02	0.02	0.02	0.02	12.66
	81	0.30	0.35	0.28	0.29	0.28	0.43	0.62	0.61	0.45	0.48	0.50	0.36	150.52
Watertown, City	28	1.32	1.70	1.55	1.31	1.16	1.38	1.49	1.15	0.84	0.96	1.27	1.19	465.02
	29	0.66	0.87	0.82	0.77	0.76	1.05	1.38	1.12	0.77	0.77	0.72	0.60	313.07
	30	0.39	0.55	0.39	0.28	0.30	0.22	0.32	0.35	0.33	0.27	0.20	0.28	117.60
Waunakee, Village	63	0.03	0.03	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.02	0.02	0.03	7.09
	64	0.06	0.09	0.12	0.13	0.14	0.18	0.20	0.14	0.07	0.09	0.09	0.07	41.86
Waupun, City	2	0.82	0.89	0.65	0.60	0.52	0.66	0.62	0.70	0.56	0.75	0.83	0.82	255.70
	3	0.15	0.23	0.07	0.07	0.07	0.08	0.06	0.05	0.05	0.05	0.04	0.12	31.31
Westport, Town	62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
	63	0.09	0.10	0.05	0.04	0.04	0.04	0.06	0.08	0.09	0.07	0.06	0.09	24.81
	64	0.05	0.08	0.10	0.11	0.12	0.15	0.17	0.12	0.06	0.07	0.07	0.06	35.47
Whitewater, City	59	0.34	0.49	0.45	0.46	0.49	0.53	0.53	0.45	0.32	0.38	0.34	0.36	155.97
Windsor, Town	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
	51	0.02	0.02	0.02	0.01	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02	6.94
	64	0.08	0.12	0.14	0.16	0.18	0.22	0.24	0.17	0.09	0.11	0.11	0.08	51.85

Appendix V. Annual Wasteload Allocations By MS4

Municipality	Reach	Waterbody Name	Waterbody Extents	MS4 Area (acre)	Annual Baseline TP Load (lbs)	Annual TP Wasteload Allocation (lbs)	Annual Baseline TSS Load (tons)	Annual TSS Wasteload Allocation (tons)
Beaver Dam, City	33	Mill Creek, Beaver Dam Lake	Beaver Dam to Fox Lake	1267.80	985.06	772.85	97.19	204.41
Beaver Dam, City	34	Beaver Dam River	Calamus Creek to Mile 30	157.49	122.36	9.74	12.07	8.18
Beaver Dam, City	37	Park Creek	Mile 0 to 3	1264.68	982.63	161.22	96.95	27.46
Beaver Dam, City	39	Shaw Brook	Beaver Dam River to Schultz Creek	44.98	34.95	325.68	3.45	75.52
Beaver Dam, City	Total			2734.94	2125.00	1269.49	209.66	315.57
Beloit, City	79	Rock River	Mile 171 to Bass Creek	3293.91	2559.31	617.23	252.51	124.24
Beloit, City	81	Turtle Creek	Rock River to Mile 24	2370.83	1842.09	1492.85	181.75	259.62
Beloit, City	Total			5664.74	4401.41	2110.09	434.26	383.85
Beloit, Town	79	Rock River	Mile 171 to Bass Creek	2166.03	1682.97	405.89	166.05	81.70
Blooming Grove, Town	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	129.04	100.26	29.03	9.89	2.73
Blooming Grove, Town	65	Nine Springs Creek	Mile 0 to 6	63.69	49.48	13.26	4.88	1.71
Blooming Grove, Town	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	758.23	589.13	236.89	58.13	26.46
Blooming Grove, Town	Total			950.96	738.88	279.18	72.90	30.91
Bristol, Town	45	Maunesha River	Mile 13.21 to 31.8	1223.61	950.72	1250.75	93.80	162.66
Bristol, Town	51	Crawfish River	Maunesha River to Mud Creek	69.41	53.93	55.76	5.32	23.83
Bristol, Town	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	747.17	580.54	168.10	57.28	15.82
Bristol, Town	83	Lake Koshkonong		51.37	39.91	16.22	3.94	2.66
Bristol, Town	Total			2091.55	1625.10	1490.83	160.34	204.97
Burke, Town	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	1995.75	1550.67	449.01	152.99	42.27
Burke, Town	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	79.49	61.76	24.83	6.09	2.77
Burke, Town	83	Lake Koshkonong		183.81	142.82	58.06	14.09	9.51
Burke, Town	Total			2259.05	1755.24	531.90	173.18	54.56
Cottage Grove, Town	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	1367.80	1062.76	427.33	104.86	47.73
Cottage Grove, Town	83	Lake Koshkonong		632.20	491.21	199.68	48.46	32.73
Cottage Grove, Town	Total			2000.00	1553.97	627.01	153.32	80.46
Cottage Grove, Village	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	515.56	400.58	161.07	39.52	17.99
Cottage Grove, Village	83	Lake Koshkonong		304.25	236.40	96.10	23.32	15.75
Cottage Grove, Village	Total			819.81	636.98	257.17	62.85	33.74
DeForest, Village	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	1516.17	1178.04	341.12	116.23	32.11
Delafield, City	25	Oconomowoc River	Battle Creek to Mason Creek	117.72	91.46	15.82	9.02	4.92
Delafield, City	55	Bark River	Mile 35 to 41	2155.24	1674.58	269.02	165.22	65.95
Delafield, City	Total			2272.95	1766.05	284.84	174.25	70.87
Delafield, Town	55	Bark River	Mile 35 to 41	797.10	619.33	99.50	61.11	24.39
Dousman, Village	55	Bark River	Mile 35 to 41	425.90	330.92	53.16	32.65	13.03
Dunkirk, Town	61	Rock River	Mile 201 to 207	92.45	71.84	257.02	7.09	85.14
Dunkirk, Town	67	Yahara River	Mile 16 to 22	268.81	208.86	1319.37	20.61	131.34
Dunkirk, Town	68	Yahara River	Mile 7 to 16	699.28	543.33	152.67	53.61	47.56
Dunkirk, Town	69	Yahara River	Mile 0 to 7	239.55	186.12	23.96	18.36	14.64
Dunkirk, Town	Total			1300.09	1010.15	1753.01	99.67	278.68

Municipality	Reach	Waterbody Name	Waterbody Extents	MS4 Area (acre)	Annual Baseline TP Load (lbs)	Annual TP Wasteload Allocation (lbs)	Annual Baseline TSS Load (tons)	Annual TSS Wasteload Allocation (tons)
Dunn, Town	65	Nine Springs Creek	Mile 0 to 6	2.13	1.66	0.44	0.16	0.06
Dunn, Town	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	1309.63	1017.56	409.16	100.40	45.70
Dunn, Town	67	Yahara River	Mile 16 to 22	16.88	13.12	82.86	1.29	8.25
Dunn, Town	69	Yahara River	Mile 0 to 7	138.01	107.23	13.80	10.58	8.43
Dunn, Town	Total			1466.65	1139.56	506.26	112.43	62.44
Fitchburg, City	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	0.66	0.51	0.15	0.05	0.01
Fitchburg, City	65	Nine Springs Creek	Mile 0 to 6	2707.57	2103.74	563.84	207.56	72.82
Fitchburg, City	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	760.26	590.71	237.52	58.28	26.53
Fitchburg, City	69	Yahara River	Mile 0 to 7	365.89	284.29	36.59	28.05	22.36
Fitchburg, City	Total			3834.38	2979.25	838.10	293.94	121.73
Fort Atkinson, City	54	Rock River	Bark River to Crawfish River	68.25	53.03	11.28	5.23	9.68
Fort Atkinson, City	59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	92.28	71.70	18.45	7.07	6.95
Fort Atkinson, City	60	Rock River	Mile 213 to Bark River	2233.06	1735.05	1086.09	171.19	498.17
Fort Atkinson, City	Total			2393.59	1859.78	1115.82	183.49	514.80
Harmony, Town	61	Rock River	Mile 201 to 207	481.38	374.02	1338.20	36.90	443.27
Harmony, Town	71	Rock River	Blackhawk Creek to Mile 193	119.82	93.09	54.21	9.19	5.40
Harmony, Town	72	Blackhawk Creek	Mile 2 to 4	155.50	120.82	754.77	11.92	108.99
Harmony, Town	73	Blackhawk Creek	Rock River to Mile 2	584.08	453.82	116.41	44.78	14.76
Harmony, Town	79	Rock River	Mile 171 to Bass Creek	3.00	2.33	0.56	0.23	0.11
Harmony, Town	83	Lake Koshkonong		83.38	64.79	26.34	6.39	4.32
Harmony, Town	Total			1427.15	1108.87	2290.49	109.41	576.86
Hartford, City	20	Rock River	Mile 270 to 293	2242.85	1742.66	1795.96	171.94	727.36
Hartford, City	21	Rock River	Oconomowoc River to Mile 270	219.27	170.37	211.56	16.81	62.41
Hartford, City	Total			2462.13	1913.03	2007.52	188.75	789.77
Hartland, Village	25	Oconomowoc River	Battle Creek to Mason Creek	10.31	8.01	1.39	0.79	0.43
Hartland, Village	55	Bark River	Mile 35 to 41	1587.91	1233.78	198.21	121.73	48.59
Hartland, Village	Total			1598.22	1241.79	199.59	122.52	49.02
Janesville, City	61	Rock River	Mile 201 to 207	5.62	4.36	15.61	0.43	5.17
Janesville, City	71	Rock River	Blackhawk Creek to Mile 193	3686.56	2864.40	1668.06	282.61	166.30
Janesville, City	73	Blackhawk Creek	Rock River to Mile 2	5845.33	4541.72	1165.04	448.10	147.71
Janesville, City	74	Rock River	Mile 183 to Blackhawk Creek	2457.55	1909.48	1844.53	188.40	173.37
Janesville, City	75	Markham Creek	Mile 0 to 5	68.43	53.17	56.39	5.25	5.05
Janesville, City	76	Rock River	Bass Creek to Mile 183	837.05	650.38	72.36	64.17	38.68
Janesville, City	79	Rock River	Mile 171 to Bass Creek	89.35	69.43	16.74	6.85	3.37
Janesville, City	Total			12989.90	10092.93	4838.75	995.81	539.65
Janesville, Town	61	Rock River	Mile 201 to 207	51.65	40.13	143.60	3.96	47.57
Janesville, Town	70	Rock River	Mile 193 to 201	411.23	319.52	878.41	31.53	83.66
Janesville, Town	71	Rock River	Blackhawk Creek to Mile 193	668.36	519.30	302.41	51.24	30.15
Janesville, Town	74	Rock River	Mile 183 to Blackhawk Creek	206.85	160.72	155.26	15.86	14.59
Janesville, Town	75	Markham Creek	Mile 0 to 5	168.44	130.88	138.81	12.91	12.42
Janesville, Town	78	Bass Creek	Rock River to Stevens Creek	4.23	3.29	6.13	0.32	1.76
Janesville, Town	Total			1510.77	1173.85	1624.62	115.82	190.15

Municipality	Reach	Waterbody Name	Waterbody Extents	MS4 Area (acre)	Annual Baseline TP Load (lbs)	Annual TP Wasteload Allocation (lbs)	Annual Baseline TSS Load (tons)	Annual TSS Wasteload Allocation (tons)
La Prairie, Town	72	Blackhawk Creek	Mile 2 to 4	33.01	25.65	160.21	2.53	23.14
La Prairie, Town	73	Blackhawk Creek	Rock River to Mile 2	441.73	343.22	88.04	33.86	11.16
La Prairie, Town	76	Rock River	Bass Creek to Mile 183	19.62	15.24	1.70	1.50	0.91
La Prairie, Town	79	Rock River	Mile 171 to Bass Creek	874.02	679.10	163.78	67.00	32.97
La Prairie, Town	81	Turtle Creek	Rock River to Mile 24	111.85	86.91	70.43	8.57	12.25
La Prairie, Town	Total			1480.23	1150.11	484.16	113.47	80.42
Lisbon, Town	23	Oconomowoc River	Mason Creek to Flynn Creek	115.42	89.68	110.44	8.85	10.65
Lisbon, Town	55	Bark River	Mile 35 to 41	1385.62	1076.61	172.96	106.22	42.40
Lisbon, Town	Total			1501.05	1166.29	283.40	115.07	53.05
Madison, City	62	Pheasant Branch Creek	Mile 1 to 9	1813.81	1409.30	162.23	139.05	19.33
Madison, City	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	22689.80	17629.60	5104.86	1739.41	480.55
Madison, City	65	Nine Springs Creek	Mile 0 to 6	1393.04	1082.37	290.09	106.79	37.47
Madison, City	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	3665.36	2847.93	1145.14	280.99	127.92
Madison, City	83	Lake Koshkonong		40.41	31.40	12.76	3.10	2.09
Madison, City	Total			29602.43	23000.59	6715.09	2269.33	667.36
Madison, Town	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	827.86	643.23	186.26	63.46	17.53
Madison, Town	65	Nine Springs Creek	Mile 0 to 6	217.13	168.70	45.22	16.65	5.84
Madison, Town	Total			1044.99	811.94	231.47	80.11	23.37
Maple Bluff, Village	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	327.68	254.60	73.72	25.12	6.94
McFarland, Village	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	1584.78	1231.34	495.12	121.49	55.31
Merton, Town	21	Rock River	Oconomowoc River to Mile 270	4.61	3.58	4.44	0.35	1.31
Merton, Town	23	Oconomowoc River	Mason Creek to Flynn Creek	1243.52	966.20	1189.88	95.33	114.78
Merton, Town	24	Mason Creek	Mile 0 to 5.2	143.53	111.52	148.23	11.00	17.30
Merton, Town	25	Oconomowoc River	Battle Creek to Mason Creek	1217.05	945.63	163.52	93.30	50.91
Merton, Town	55	Bark River	Mile 35 to 41	942.00	731.92	117.58	72.21	28.82
Merton, Town	Total			3550.71	2758.84	1623.66	272.20	213.13
Merton, Village	23	Oconomowoc River	Mason Creek to Flynn Creek	32.74	25.44	31.33	2.51	3.02
Merton, Village	25	Oconomowoc River	Battle Creek to Mason Creek	29.68	23.06	3.99	2.28	1.24
Merton, Village	55	Bark River	Mile 35 to 41	1091.57	848.13	136.25	83.68	33.40
Merton, Village	Total			1153.99	896.63	171.57	88.47	37.66
Middleton, City	62	Pheasant Branch Creek	Mile 1 to 9	2616.39	2032.89	234.02	200.57	27.89
Middleton, City	63	Spring (Dorn) Creek	Mile 1 to 6	12.72	9.89	9.95	0.98	1.47
Middleton, City	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	1034.27	803.61	232.69	79.29	21.91
Middleton, City	Total			3663.39	2846.39	476.66	280.84	51.27
Middleton, Town	62	Pheasant Branch Creek	Mile 1 to 9	658.50	511.65	58.90	50.48	7.02
Middleton, Town	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	39.53	30.71	8.89	3.03	0.84
Middleton, Town	Total			698.03	542.36	67.79	53.51	7.86
Milton, City	61	Rock River	Mile 201 to 207	952.61	740.16	2648.17	73.03	877.20
Milton, City	83	Lake Koshkonong		193.43	150.29	61.09	14.83	10.01
Milton, City	Total			1146.03	890.45	2709.27	87.86	887.21

Municipality	Reach	Waterbody Name	Waterbody Extents	MS4 Area (acre)	Annual Baseline TP Load (lbs)	Annual TP Wasteload Allocation (lbs)	Annual Baseline TSS Load (tons)	Annual TSS Wasteload Allocation (tons)
Monona, City	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	802.42	623.46	180.53	61.51	16.99
Monona, City	65	Nine Springs Creek	Mile 0 to 6	240.14	186.59	50.01	18.41	6.46
Monona, City	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	609.05	473.22	190.28	46.69	21.26
Monona, City	Total			1651.61	1283.27	420.82	126.61	44.71
Nashotah, Village	25	Oconomowoc River	Battle Creek to Mason Creek	93.85	72.92	12.61	7.19	3.93
Nashotah, Village	55	Bark River	Mile 35 to 41	444.98	345.74	55.54	34.11	13.62
Nashotah, Village	Total			538.82	418.66	68.15	41.31	17.54
Oconomowoc, City	25	Oconomowoc River	Battle Creek to Mason Creek	2417.29	1878.19	324.78	185.31	101.11
Oconomowoc, City	26	Battle Creek	Mile 2.1 to 4.6	676.43	525.57	239.81	51.86	36.32
Oconomowoc, City	Total			3093.72	2403.76	564.59	237.17	137.43
Oconomowoc, Town	20	Rock River	Mile 270 to 293	50.34	39.11	40.31	3.86	16.33
Oconomowoc, Town	21	Rock River	Oconomowoc River to Mile 270	418.74	325.35	404.02	32.10	119.18
Oconomowoc, Town	24	Mason Creek	Mile 0 to 5.2	9.59	7.45	9.90	0.74	1.16
Oconomowoc, Town	25	Oconomowoc River	Battle Creek to Mason Creek	3022.87	2348.72	406.14	231.73	126.45
Oconomowoc, Town	Total			3501.54	2720.64	860.37	268.43	263.11
Pleasant Springs, Town	61	Rock River	Mile 201 to 207	25.69	19.96	71.41	1.97	23.65
Pleasant Springs, Town	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	916.32	711.96	286.28	70.25	31.98
Pleasant Springs, Town	67	Yahara River	Mile 16 to 22	727.80	565.49	3572.22	55.79	355.62
Pleasant Springs, Town	68	Yahara River	Mile 7 to 16	10.50	8.16	2.29	0.81	0.71
Pleasant Springs, Town	83	Lake Koshkonong		168.90	131.23	53.35	12.95	8.74
Pleasant Springs, Town	Total			1849.21	1436.80	3985.56	141.76	420.71
Rock, Town	74	Rock River	Mile 183 to Blackhawk Creek	106.39	82.66	79.85	8.16	7.51
Rock, Town	75	Markham Creek	Mile 0 to 5	190.58	148.08	157.06	14.61	14.05
Rock, Town	76	Rock River	Bass Creek to Mile 183	531.84	413.23	45.97	40.77	24.58
Rock, Town	78	Bass Creek	Rock River to Stevens Creek	255.74	198.70	370.69	19.60	106.47
Rock, Town	79	Rock River	Mile 171 to Bass Creek	937.83	728.68	175.74	71.89	35.37
Rock, Town	Total			2022.37	1571.35	829.31	155.04	187.98
Shorewood Hills, Village	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	400.81	311.42	90.18	30.73	8.49
Stoughton, City	66	Yahara River, Lake Waubesa, Lake Kegonsa	Mile 16 to Nine Springs Creek, Lake Waubesa	14.68	11.41	4.59	1.13	0.51
Stoughton, City	67	Yahara River	Mile 16 to 22	1607.50	1249.00	7890.03	123.23	785.45
Stoughton, City	68	Yahara River	Mile 7 to 16	397.03	308.49	86.68	30.44	27.00
Stoughton, City	Total			2019.21	1568.90	7981.30	154.79	812.97
Summit, Town	25	Oconomowoc River	Battle Creek to Mason Creek	439.63	341.58	59.07	33.70	18.39
Summit, Town	26	Battle Creek	Mile 2.1 to 4.6	659.68	512.56	233.88	50.57	35.42
Summit, Town	27	Oconomowoc River	Rock River to Battle Creek	20.20	15.69	96.78	1.55	26.30
Summit, Town	55	Bark River	Mile 35 to 41	1705.37	1325.05	212.87	130.73	52.18
Summit, Town	56	Bark River	Scuppernong River to Mile 35	106.37	82.65	78.23	8.15	31.27
Summit, Town	Total			2931.25	2277.53	680.82	224.71	163.56
Sun Prairie, City	45	Maunesha River	Mile 13.21 to 31.8	48.14	37.40	49.20	3.69	6.40
Sun Prairie, City	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	1149.13	892.86	258.54	88.09	24.34
Sun Prairie, City	83	Lake Koshkonong		3213.32	2496.70	1014.93	246.33	166.34
Sun Prairie, City	Total			4410.59	3426.95	1322.67	338.12	197.07

Municipality	Reach	Waterbody Name	Waterbody Extents	MS4 Area (acre)	Annual Baseline TP Load (lbs)	Annual TP Wasteload Allocation (lbs)	Annual Baseline TSS Load (tons)	Annual TSS Wasteload Allocation (tons)
Turtle, Town	79	Rock River	Mile 171 to Bass Creek	335.60	260.76	62.89	25.73	12.66
Turtle, Town	81	Turtle Creek	Rock River to Mile 24	1374.52	1067.98	865.50	105.37	150.52
Turtle, Town	Total			1710.12	1328.74	928.39	131.10	163.17
Watertown, City	28	Rock River	Mile 249 to Oconomowoc River	1568.66	1218.83	3602.68	120.25	465.02
Watertown, City	29	Rock River	Johnson Creek to Mile 249	2933.28	2279.11	664.55	224.87	313.07
Watertown, City	30	Johnson Creek	Mile 0 to 17.5	127.49	99.06	536.19	9.77	117.60
Watertown, City	Total			4629.44	3597.00	4803.42	354.89	895.69
Waunakee, Village	63	Spring (Dorn) Creek	Mile 1 to 6	61.26	47.60	47.90	4.70	7.09
Waunakee, Village	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	1976.31	1535.56	444.64	151.50	41.86
Waunakee, Village	Total			2037.57	1583.16	492.54	156.20	48.94
Waupun, City	2	South Branch Rock River	Mile 3 to 20	1180.98	917.60	518.56	90.53	255.70
Waupun, City	3	South Branch Rock River	Mile 1 to 3	445.19	345.90	26.80	34.13	31.31
Waupun, City	Total			1626.17	1263.51	545.36	124.66	287.01
Westport, Town	62	Pheasant Branch Creek	Mile 1 to 9	22.98	17.86	2.06	1.76	0.24
Westport, Town	63	Spring (Dorn) Creek	Mile 1 to 6	214.48	166.64	167.70	16.44	24.81
Westport, Town	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	1674.54	1301.09	376.75	128.37	35.47
Westport, Town	Total			1912.00	1485.59	546.50	146.57	60.52
Whitewater, City	59	Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	2071.81	1609.76	414.15	158.83	155.97
Windsor, Town	45	Maunesha River	Mile 13.21 to 31.8	2.43	1.89	2.49	0.19	0.32
Windsor, Town	51	Crawfish River	Maunesha River to Mud Creek	20.22	15.71	16.24	1.55	6.94
Windsor, Town	64	Yahara River, Lake Mendota, Lake Monona	Nine Springs Creek to Spring (Dorn) Creek, Pheasant Branch Creek	2448.00	1902.06	550.76	187.66	51.85
Windsor, Town	Total			2470.66	1919.66	569.49	189.40	59.11

Appendix W. Baseline Discharge Information for Wastewater Treatment Facilities

[1]**Load based on permitted or average measured TP concentration.**

[2]**Load based on lesser of actual TP concentration or 1 mg/L (baseline load; see Section 4.2.3).**

Permit Number	Facility Name	Reach	Month	Flow (MGD)	Flow (CFS)	TP Conc (mg/L)	[1]TP Load (lbs)	[2]TP Load (lbs)	TSS Conc (mg/L)	TSS Load (lbs)
0001945	General Motors Corp	74	All	0.454	0.703	0	0.00	0.00	40	4594
0001996	National Rivet and Manufacturing	2	All	0.11	0.170	1.59	44.25	27.83	0	0
0002003	Alto Dairy Cooperative	2	All	0.919	1.423	3	697.52	232.51	20	4650
0002038	Renew Energy LLC	31	All	1.27	1.966	5	1606.55	321.31	0	0
0002488	Rushing Waters Fisheries Inc	57	All	2.04	3.158	1	516.12	516.12	10	5161
0002534	Sensient Flavors, Inc.	19	All	0.15	0.232	0	0.00	0.00	0.875	33
0002585	DNR Nevin Fish Hatchery	65	All	2.1	3.251	0.05	26.57	26.57	10	5313
0020001	Whitewater WWTP	59	All	3.65	5.650	1	923.45	923.45	10	9235
0020192	Hartford Treatment Facility	20	All	3.6	5.573	1	910.80	910.80	10	9108
0020231	City of Horicon WWTP	18	All	0.582	0.901	1	147.25	147.25	21	3092
0020290	Slinger Treatment Facility	20	All	0.917	1.420	1	232.00	232.00	30	6960
0020303	Village of Hustisford WWTP	20	All	0.236	0.365	4.4	262.72	59.71	60	3582
0020338	Stoughton WWTP	68	All	1.65	2.554	1.5	626.18	417.45	30	12524
0020346	Edgerton WWTP	61	All	0.7	1.084	1	177.10	177.10	30	5313
0020478	Sun Prairie	83	All	3.065	4.745	1.4	1085.62	775.45	10	7754
0020486	Village of Iron Ridge WWTP 3	20	All	0.183	0.283	1	46.30	46.30	20	926
0020532	Village of Lomira WWTP	13	All	0.316	0.489	1	79.95	79.95	20	1599
0020681	Oregon WWTP	69	All	1.8	2.786	1.5	683.10	455.40	20	9108
0020702	Village of Clyman WWTP	19	All	0.05	0.077	1	12.65	12.65	60	759
0021008	City of Columbus WWTP	51	All	1	1.548	1	253.00	253.00	10	2530
0021059	Consolidated Koshkonong Sanitary District	61	All	0.6	0.929	5.3	804.54	151.80	60	9108
0021181	Oconomowoc Treatment Facility	25	All	4	6.192	1	1012.00	1012.00	10	10120
0021351	Dousman	55	All	0.35	0.542	1	88.55	88.55	10	886
0021474	City of Juneau WWTP	19	All	0.63	0.975	1	159.39	159.39	20	3188
0021601	Village of Brownsville WWTP	12	All	0.125	0.193	1	31.63	31.63	20	633
0022039	Clinton WWTP	81	All	0.378	0.585	1	95.63	95.63	10	956
0022161	Johnson Creek Treatment Facility	31	All	0.7	1.084	1	177.10	177.10	30	5313
0022322	Village of Theresa WWTP	13	All	0.202	0.313	1	51.11	51.11	19	971
0022489	Fort Atkinson WWTP	60	All	2.7	4.180	1.5	1024.65	683.10	30	20493
0022608	Sharon WWTP	81	All	0.257	0.398	2.55	165.80	65.02	20	1300
0022772	City of Waupun WWTP	3	All	1.8	2.786	1	455.40	455.40	20	9108
0023051	Lebanon Sanitary District #2 WWTP	20	All	0.05	0.077	1	12.65	12.65	20	253
0023345	City of Beaver Dam WWTP	34	All	3.5	5.418	1	885.50	885.50	30	26565
0023370	City of Beloit Treatment Facility	79	All	11	17.028	2	5566.00	2783.00	30	83490
0023442	Brandon	2	All	0.249	0.385	2.03	127.88	63.00	20	1260
0023744	Deerfield WWTP	83	All	0.393	0.608	1.7	169.03	99.43	20	1989
0023973	Village of Fall River WWTP	51	All	0.182	0.282	1	46.05	46.05	60	2763
0024023	Footville WWTP	78	All	0.114	0.176	2.96	85.37	28.84	30	865
0024333	City of Jefferson WWTP	54	All	2.568	3.975	1	649.70	649.70	30	19491
0024597	Madison Metropolitan Sewerage District	69	All	50	77.399	1.5	18975.00	12650.00	20	253000

Permit Number	Facility Name	Reach	Month	Flow (MGD)	Flow (CFS)	TP Conc (mg/L)	[1]TP Load (lbs)	[2]TP Load (lbs)	TSS Conc (mg/L)	TSS Load (lbs)
0024627	Village of Marshall WWTP	46	All	0.58	0.898	1.4	205.44	146.74	11	1614
0024643	City of Mayville WWTP	14	All	1.1	1.703	1	278.30	278.30	21	5844
0025585	Village of Sullivan	56	All	0.083	0.128	1	21.00	21.00	20	420
0025941	Hormel Foods Cooling Water	81	All	0.265	0.410	0	0.00	0.00	5.9	396
0026352	Rockdale WWTP	83	All	0.025	0.039	1	6.33	6.33	30	190
0026930	Town of Beloit Treatment Facility	79	All	0.65	1.006	1	164.45	164.45	30	4934
0026948	Cambridge WWTP	83	All	0.571	0.884	1.4	202.25	144.46	30	4334
0028053	Allenton Treatment Facility	9	All	0.352	0.545	1	89.06	89.06	0	0
0028509	Village of Reesville WWTP	40	All	0.1	0.155	2.46	62.24	25.30	60	1518
0029271	Village of Lowell WWTP	40	All	0.04	0.062	1	10.12	10.12	60	607
0029611	Wisconsin Academy	51	All	0.034	0.053	4.73	40.69	8.60	30	258
0030350	Janesville	76	All	13.1	20.279	1.3	4308.59	3314.30	30	99429
0030881	City of Waterloo WWTP	47	All	0.458	0.709	1	115.87	115.87	12	1390
0031020	Palmyra	59	All	0.23	0.356	6.6	384.05	58.19	60	3491
0031038	Ixonia Sanitary District No.1	21	All	0.18	0.279	3.18	144.82	45.54	20	911
0031054	Plymouth Town Sanitary District No. 1	78	All	0.03	0.046	1	7.59	7.59	60	455
0031160	Village of Randolph WWTP	33	All	0.3	0.464	4.18	317.26	75.90	20	1518
0031194	City of Lake Mills WWTP	53	All	0.98	1.517	1	247.94	247.94	10	2479
0031364	Lebanon Sanitary District	20	All	0.017	0.026	2.9	12.47	4.30	20	86
0031381	Ashippun Sanitary District	20	All	0.071	0.110	1	17.96	17.96	60	1078
0031461	Walworth County Metropolitan Sewerage District	80	All	5.75	8.901	1	1454.75	1454.75	10	14548
0031551	Burnett Sanitary District	4	All	0.0375	0.058	2.19	20.78	9.49	60	569
0031844	Sullivan Sanitary District No.1	56	All	0.1	0.155	4.44	112.33	25.30	30	759
0032026	Delafield-Hartland	55	All	3.114	4.820	1	787.84	787.84	10	7878
0035548	Village Kekoskee WWTP	17	All	0.058	0.090	1	14.67	14.67	60	880
0049379	Landmark Services Cooperative	83	All	0.002	0.003	0.95	0.48	0.48	0	0
0050016	Grande Cheese Company	12	All	0.37	0.573	2	187.22	93.61	20	1872
0058220	Nasco Division of Aristotle	60	All	0.0765	0.118	2.9	56.13	19.35	30	581
0060453	Milton WWTF	61	All	0.625	0.967	1.9	300.44	158.13	30	4744
0060607	Great Lakes Investors	56	All	0.035	0.054	1	8.86	8.86	20	177
0001961	Wisconsin Gas & Electric (001)	64	All	0.200	0.310	0.31	15.69	15.69	30	1518
0001961	Wisconsin Gas & Electric (008)	64	All	0.034	0.053	0.12	1.03	1.03	30	258
0021512	Arlington WWTP	64	All	0.116	0.180	1	30.00	30.00	20	592
0028541	City of Watertown WWTP	29	1	5.2	8.050	1	1316.00	1316.00	30	39468
0028541	City of Watertown WWTP	29	2	5.2	8.050	1	1316.00	1316.00	30	39468
0028541	City of Watertown WWTP	29	3	5.2	8.050	1	1316.00	1316.00	30	39468
0028541	City of Watertown WWTP	29	4	5.2	8.050	1	1316.00	1316.00	30	39468
0028541	City of Watertown WWTP	29	5	5.2	8.050	1	1316.00	1316.00	30	39468
0028541	City of Watertown WWTP	29	6	5.2	8.050	1	1316.00	1316.00	16	21050
0028541	City of Watertown WWTP	29	7	5.2	8.050	1	1316.00	1316.00	12	15787
0028541	City of Watertown WWTP	29	8	5.2	8.050	1	1316.00	1316.00	10	13156
0028541	City of Watertown WWTP	29	9	5.2	8.050	1	1316.00	1316.00	10	13156
0028541	City of Watertown WWTP	29	10	5.2	8.050	1	1316.00	1316.00	12	15787
0028541	City of Watertown WWTP	29	11	5.2	8.050	1	1316.00	1316.00	25	32890

Permit Number	Facility Name	Reach	Month	Flow (MGD)	Flow (CFS)	TP Conc (mg/L)	[1]TP Load (lbs)	[2]TP Load (lbs)	TSS Conc (mg/L)	TSS Load (lbs)
0028541	City of Watertown WWTP	29	12	5.2	8.050	1	1316.00	1316.00	29	38152
0049956	Middleton Tiedeman Pond	64	1	0.000	0.000	1	0.00	0.00	30	0
0049956	Middleton Tiedeman Pond	64	2	0.426	0.660	1	107.00	107.00	30	3219
0049956	Middleton Tiedeman Pond	64	3	0.678	1.050	1	172.00	172.00	30	5149
0049956	Middleton Tiedeman Pond	64	4	1.098	1.700	1	278.00	278.00	30	8330
0049956	Middleton Tiedeman Pond	64	5	0.530	0.820	1	134.00	134.00	30	4012
0049956	Middleton Tiedeman Pond	64	6	0.181	0.280	1	46.00	46.00	30	1389
0049956	Middleton Tiedeman Pond	64	7	0.510	0.790	1	130.00	130.00	30	3891
0049956	Middleton Tiedeman Pond	64	8	0.426	0.660	1	107.00	107.00	30	3223
0049956	Middleton Tiedeman Pond	64	9	0.465	0.720	1	117.00	117.00	30	3525
0049956	Middleton Tiedeman Pond	64	10	0.187	0.290	1	47.00	47.00	30	1417
0049956	Middleton Tiedeman Pond	64	11	0.000	0.000	1	0.00	0.00	30	0
0049956	Middleton Tiedeman Pond	64	12	0.065	0.100	1	17.00	17.00	30	497

Appendix X: Response to Public Comments on the Rock River Basin TMDL

A complete listing of the comments received during the public comment period is provided below as well as a response to the comment. Comments are grouped by similar category and have been numbered for reference.

Implementation/Reasonable Assurance/Legal Compliance/Best Management Practices

1. Based on our experience in trying to achieve 40% reductions through best management practices, we do not believe that communities will be able to reach a 70% reduction or more. **Kent, League of Wisconsin Municipalities**

Response: The TMDL sets the allocations so that receiving waters meet water quality targets. Allocations are based on contributions from different source areas. Once we move into the implementation phase evaluations on feasibility of achieving allocation can be made as well as evaluating water quality trading and other implementation options.

2. Appendix N lists the % TSS removal needed by Urban Permitted MS4s to achieve the target WLA. For Reach 64, with the exception of one year, 74%-98% TSS removal is required over and above the 40% TSS removal that is mandated in our stormwater permit. Appendix V lists for the portion of the Town draining to Token Creek (in reach 64) 62% TP removal and 65% TSS removal is required in addition to the 40% TSS removal already required under our stormwater permit. We know of no treatment practice that can achieve these high levels of treatment. The only possible method to achieve these levels is pollutant-trading with agriculture. We request a cost-benefit analysis for achieving these high levels of TSS/TP removal rates. We also request as stated above, that the TMDL be recalculated using the "minimum total compliance cost" method be used to account for the impact of watersheds upstream. **Derr, Town of Bristol**

It appears that allocations in the draft TMDL are based on proportional reductions from baseline. However, the lack of transparency as noted in comment #2 makes it difficult to confirm that this was in fact the case. More importantly, the allocation method does not appear to consider implementation costs. The District encourages DNR to consider an allocation strategy that reflects anticipated cost of control/compliance, with the goal of basing allocations on the least cost mix of alternatives that, if implemented, would achieve the water quality objective/desired resource condition. This was the position taken over a decade ago by the Rock River Watershed Partnership, which merged with the Rock River Coalition in 2001. **Taylor, Madison Metropolitan Sewerage District**

Response: The minimum total compliance cost is an option listed by EPA on their website; however, no example has been found where the minimum total compliance cost method has been successfully applied. The issue is that the minimum total compliance cost method shifts costs from sources that may have a higher relative cost of compliance to sources with lower relative costs of compliance without regard to the total cost for the individual source. Under such an approach sources are responsible for bearing disproportionate costs. The DNR chose to use an approach that distributed allocations based on contributions and will utilize implementation tools such as water quality trading to achieve lower cost options for individual sources.

3. Use of Minimum Total Compliance Cost method to determine Load Allocations and Waste Load Allocations- the WLA and LA were determined using the Monthly Proportional Method. The EPA allows the use of many differing methods to determine WLA and LAs.

We request that the "minimum total compliance cost" method be used to account for the impact of watersheds upstream and the economics of achieving the elevated pollutant removal rates specified in the TMDL. **Derr, Town of Bristol Hampton, Town of Cottage Grove**

Response: The minimum total compliance cost is an option listed by EPA on their website; however, no example has been found where the minimum total compliance cost method has been successfully applied. The issue is that the minimum total compliance cost method shifts costs from sources that may have a higher relative cost of compliance to sources with lower relative costs of compliance without regard to the total cost for the individual source. Under such an approach sources are responsible for bearing disproportionate costs. The DNR chose to use an approach that distributed allocations based on contributions and will utilize implementation tools such as water quality trading to achieve lower cost options for individual sources.

4. The WDNR should verify and then further explain the method of making load and waste load allocations and should consider a different approach based on the contributions from the entire watershed upstream of the subject reach. We are disappointed that the WDNR did not use the “minimum total compliance cost” method to develop load and waste load allocations as we requested on several occasions. Economics must be considered fully given the very high cost of this proposed program. We understand the load and waste load allocations were derived in proportion to each individual sub basin (reach’s) percentage of point and nonpoint source loadings. However, some of the sub basins are small and have predominately point or nonpoint sources. For example, Reach 76 is in one of the smallest sub basins and has almost exclusively municipal WWTP loadings. This results in a WWTP WLA that is essentially equal to the TMDL target for this reach.

This is unreasonable since roughly 75 percent of the loadings to the Rock River from the watershed upstream of Reach 76 are generated by agriculture. We would like to discuss an alternative method with you that may be more equitable. Additionally, we suspect the TMDL allocations were not actually made on the "equal percent reduction" basis stated at the public hearing. This should be reviewed and explained in more detail in the TMDL report itself, with a representative example provided. **Steinbach, RR TMDL Group**

<u>Response:</u> The following example calculations illustrate the process of determining load and wasteload allocations. The example is for TSS from the City of Beloit WWTF on reach 79 in September.

A. TP concentration target (mg/L)	0.1
B. Upstream TP load (lbs)[1]	18910
C. Reach discharge (cfs)	1192
D. TP loading capacity (lbs) (A*C/0.00605-B)	784
E. TSS loading capacity (tons) (10^(2.58+0.86*LOG(D))/2000)	58.80
F. TSS from background and general permits (tons)	10.87
G. Allocable TSS loading capacity (tons) (E-F)	47.93
H. WWTF proportion of baseline TSS	31.1%
I. WWTF TSS load allocation (tons) (G*H)	14.93
J. City of Beloit fraction of WWTF TSS discharge	94.4%
K. City of Beloit TSS monthly load allocation (tons) (I*J)	14.09
L. City of Beloit TSS daily load allocation (tons) (K/30*2.39)	1.12

[1]Calculated using the process shown here for all reaches upstream of reach 79.
[2]From TSS:TP regression equation in Section 5.1.3.

5. Currently, the TMDL simply states, "[o]nce a TMDL has been state and federally approved, the permit for a point source that has been allocated a WLA by the TMDL may not be reissued without a limit that is consistent with the WLA." (Draft TMDL Report, § 7.2.3). We understand there will be an implementation plan. However, we need to clarify what "consistent with" actually means and coordinate the implementation of the TMDL with other phosphorus management issues. **Kent, Municipal Environmental Group** and **League of Wisconsin Municipalities**

<u>Response:</u> The language in the TMDL is consistent with EPA requirements. The TMDL will be implemented through ch. NR 217, Wis. Adm. Code with the corresponding compliance periods. EPA requires that the WQBEL based on the TMDL be consistent with the wasteload allocation in the approved TMDL and assumptions used to develop the TMDL, such as critical periods.

6. First, the development of a TMDL implementation plan before enforceable limits are placed into permits is critical. There must be adequate time to evaluate possible

Response: The TMDL will be implemented through ch. NR 217, Wis. Adm. Code with the corresponding compliance periods. It is our intent to provide compliance schedules that extend beyond one permit term for those facilities that can qualify for an "extended" compliance period (e.g. needing filtration) to give adequate time to complete guidance documents, complete the trading framework, train staff, conduct outreach activities to permits, and allow time for the facilities to consider their options. For facilities with stringent limits, the compliance schedules will span more than one permit term. For those facilities that do not have stringent limits, the compliance schedule will likely be shorter.

7. The WDNR has stated that WWTPs will have a choice of expressing TMDL-based permit limits on a monthly, growing season, or annual basis. We would like to have this flexibility for the Janesville WWTP. We will need to evaluate our alternatives before selecting the method of TMDL-based permit limit expression. **Lynch, City of Janesville**

The WDNR has indicated it will allow WPDES permittees to select monthly, growing season, or annual WLAs. This should be stated in Section 7 of the TMDL report. **Koltz, WI Section – Central States WEA Government Affairs Committee**

Response: "Choice" represents a poor choice of words by the DNR and predates the passage of NR 217. NR 217 provides some flexibility for expressing concentrations and mass limits with greater flexibility for limits derived from TMDLs. Even with this flexibility there will need to be justification for the averaging periods (monthly, growing season, or annual) placed in permits. In discussions with DNR, EPA has strongly stated that averaging periods must be consistent with federal regulations implying that permit limits must be expressed as maximum daily and average monthly limits for industries, and as average weekly and average monthly limits for POTWs.

8. The City recognizes that the TMDL does not require a percent-reduction rate; rather it determines a daily pollutant mass load. However, current regulations are geared toward annual reduction rates. Will there be new requirements for daily, weekly, or monthly load generation rates for new developments or MS4 storm water plans? **Sonnentag, City of Middleton**

Response: The expression of the load allocation on a daily basis is an EPA requirement; however, EPA has acknowledged the episodic nature of runoff and acknowledges that the allocations for stormwater can be implemented on a seasonal, or average annual basis.

9. In fact, based on the following language in NR 217.16 there is no guarantee that the WQBEL limit might not be imposed in the future especially if cost-sharing programs have not been made available for non-point sources:

"If after two permit terms, the department determines the nonpoint source load allocation has not been substantially reduced, the department may impose the more stringent water quality based effluent limitation calculated under s. NR 217.13, or may include the TMDL based limitation for an additional permit term if the department determines there will be significant nonpoint source load reductions within the upcoming permit term."

This uncertainty with regard to the permanence of watershed based approaches which is the stated purpose of the Rock River TMDL may undermine the willingness of WWTFs to participate in any adaptive management approach or "trading". The Department as it implements this TMDL needs to provide adequate guidance to the regulated community so that they may adequately assess their potential to use adaptive management options to achieve compliance with TMDL limits. **Koltz, WI Section – Central States WEA Government Affairs Committee**

Response: Guidance on use of the watershed adaptive management option is being developed.

10. There needs to be an integration of TDML implementation with the implementation of the newly enacted Wis. Admin. Code ch. NR 217. At a minimum, the implementation procedures of that section should be incorporated as the starting point for a TMDL implementation process. **Kent, Municipal Environmental Group**

Response: TMDLs are not self implementing and rely on implementation through existing regulations such as ch. NR 217 and ch. NR 151, Wis. Admin. Codes.

11. Our primary concern is that DNR may begin placing limits in permits before other initiatives that could significantly impact an implementation strategy are fully developed. These initiatives include development of NR 217 guidance and the development of a statewide framework to support water quality trading. Placing limits in permits before these additional tools are in place may restrict implementation options resulting in potentially higher costs and/or less effective phosphorus and sediment control. To address this concern, the District recommends including language in the draft TMDL report consistent with or similar to the language shown in Attachment 1. *See MMSD Attachment 1 in the Suggested Language Revision of the comment summary.* **Taylor, Madison Metropolitan Sewerage District**

Response: See response to comment number 6.

12. The WDNR has stated that all of the options in Wisconsin Administrative Code Chapter NR 217 will be available when implementing this TMDL. These would include the special provisions for annual average and monthly average limits when the water quality based effluent limit is 0.3 mg/L or less, the watershed adaptive management option, water quality trading, and other provisions. We request that the TMDL implementation plan, state water quality trading guidance, TMDL permitting guidance, and NR 217 guidance efforts be completed with stakeholder involvement before this TMDL is implemented at WWTPs. **Lynch, City of Janesville**

Response: See response to comment number 6. All flexibility options under NR 217 subchapter III are available to the permit and others, such as variances, stated elsewhere in statute or administrative code.

13. The WDNR should revise report Section 7 to better describe how the TMDL will be implemented for point sources, including integration with NR 216 and 217. The WDNR has stated that the options in NR 217 will be available when implementing this TMDL, such as the adaptive management option. We believe this is one reasonable approach and may make the TMDL more feasible for the WWTPs. We also request that the TMDL implementation plan, water quality trading guidance, and NR 217 guidance efforts that are currently underway be completed before this TMDL is implemented. We will develop suggested draft report language for your consideration. *See RR TMDL Suggested Additional Report Language in the Suggested Language Revision of the comment summary.* **Steinbach, RR TMDL Group**

Response: EPA requires implementation of the TMDL, including issuance of permits with the expression of the wasteload allocation as they come up for renewal, once the TMDL is approved. The flexibility provisions of NR 217 subchapter III are available for any facility that meets whatever eligibility requirements that may apply, whether or not the WQBEL is based on a TMDL or not. There seems to be some thought that an implementation plan is going to create new things or say that certain things do not have to apply. Language in the implementation plan will not be able to supersede NR 217 or other applicable regulations.

14. Based on the final language included in NR 217, the USEPA appears to accept the adaptive management approach to TMDL implementation. Wisconsin Administrative Code NR 217 includes an option for adaptive management, as well. Section 7 should be revised to clearly state that a watershed-based adaptive management approach will be used to implement this TMDL, and point sources will only be required to make additional significant capital expenditures after other more cost-effective controls are implemented. **Koltz, WI Section – Central States WEA Government Affairs Committee**

Response: As stated above, the watershed adaptive management option, trading, variances, etc. are available to facilities that meet the eligibility requirements. A blanket statement that point sources will only be required to make additional significant expenditures after other more cost-effective controls are implemented is not consistent with the Clean Water Act, federal regulations pertaining to the Clean Water Act, state statute and state administrative rules. Each flexibility option has prescribed periods of time when the option may be used.

15. Since there is no specific discussion regarding how the proposed TMDL limits will be used in permits for either WWTFs or MS4s the Rock River TMDL needs to provide these discussions. TMDL limits should not and cannot be placed into WPDES permits without addressing implementation issues. Specifically, limits should not be placed in permits until the TMDL Implementation Plan, water quality trading guidance and necessary additional statutory or regulatory items necessary to allow for water quality trading in Wisconsin are in place, and NR 217 adaptive management and other guidance documents are in place. **Koltz, WI Section – Central States WEA Government Affairs Committee**

Response: See response to comment number 6.

16. NR 217 allows some relief from very stringent monthly TP effluent limits (below 0.3 mg/L). This should be provided for very stringent TMDL WLAs, too, for monthly, growing season, or annual WLAs as well as the daily WLAs. **Koltz, WI Section – Central States WEA Government Affairs Committee**

Response: Wasteload allocations in TMDL are implemented through NR 217.

17. Third, there needs to be an express recognition of trading and a process for how trading will work in the TMDL context. As you know from our on-going trading work group discussions, we need to develop a mechanism for defining the TMDL baseline in a manner that facilitates rather than restricts trading. **Kent, Municipal Environmental Group**

But POTWs should not be expected to bear disproportionate reductions at grossly disproportionate costs. **Kent, Municipal Environmental Group**

Response: POTWs are not given disproportionate reductions. At the time of the drafting of the response to comments a Water Quality Trading Framework was submitted to the Natural Resources Board with plans to meet with EPA to discuss issues regarding credit threshold for under both TMDLs and Non-TMDL tading scenarios.

18. Compliance with the potential effluent limits based on the draft Rock River TMDL will come at great cost to WWTFs (many millions of dollars) as described in the 2008 and 2010 MEG reports that have been provided to WDNR. In addition, in some cases, the proposed waste load allocations would result in an effluent limit that may not be attainable with the current limits of phosphorus removal technology.

Some of the MS4s and WWTFs appear to be penalized simply because of the specific land use in their sub basin. For example, Reach 76 (Janesville area) has predominately WWTP sources of TP and therefore the WWTP is required to make extremely high reductions, much higher than those required for the City of Beloit. Both of these WWTFs discharge to the main stem of the Rock River in fairly close proximity, so would be expected to have similar TMDL limits. If the sub basin associated with Reach 76 was larger or had been delineated differently, there would likely have been higher agricultural loadings and less dependence on the WWTFs for load reductions to meet the TMDL requirement. Consider making allocations on a larger sub basin or watershed basis (e.g. Yahara, Afton, Lower, Middle, and Upper Rock; Crawfish; Turtle; Bark) to be more equitable to the point and nonpoint sources in the Basin. We understand this may theoretically create a few areas of TP concentrations above the criterion, but this would happen even with the smaller scale sub basins and could be addressed using other mechanisms (e.g., NR 102 and NR 217). **Koltz, WI Section – Central States WEA Government Affairs Committee**

Response: Reach basins were delineated so that loading capacity could be calculated separately for each impaired segment, as required by EPA regulations. Impaired segments were split into separate reaches at confluences with other impaired segments. If, for example, reach 76 was grouped with reach 79, then Janesville's allocation would in part reflect the dilution provided by the lower TP target in Bass Creek (reach 78), which would make the Rock River between Janesville's outfall and Bass Creek exceed its TP concentration target

19. Furthermore, this draft TMDL does not require agriculture to reduce its loadings unless cost-sharing is available The WDNR appears to expect some of the cost-sharing funds will come from water quality trading paid for by the municipalities. It is unreasonable to place this much burden on the municipalities, particularly when they have already made so many reductions and they represent only a fraction of the phosphorus and TSS loadings to the Rock River Basin. A more equitable method of funding agricultural load reductions needs to be found. **Steinbach, RR TMDL Group**

Overall, this will be about a 98 percent reduction from 1990 discharge levels. According to the draft TMDL report, additional load reductions beyond those dictated by its current permit are also expected of the Janesville municipal separate storm sewer system (MS4). These additional WWTP and MS4 load reductions will cost the City of Janesville tens of millions of dollars. On the other hand, the draft TMDL does not require agriculture to reduce its loadings unless cost-sharing is available. It is unreasonable to place this much burden on municipalities, particularly when they have already made significant load reductions and they represent less than a quarter of the current phosphorus and TSS loadings to the Rock River Basin. Rock River water quality will not improve unless agricultural load reductions are made. **Lynch, City of Janesville**

Response: The requirement for cost sharing for agriculture is a statutory requirement. The statements that point sources represent only a fraction of the phosphorus loads is not factual once individual reaches are examined. The ratio between point and nonpoint phosphorus loads varies significantly between reaches with reductions typically needed from both point and nonpoint sources to meet water quality standards.

20. As total phosphorus (TP) is also a concern, these levels of reduction could be understood if urban areas were a large source of TP and TSS was being used as a surrogate means to reduce TP. However, the percentages for TP of MS4's are very similar to TSS at 3.2% of the total load to the Rock River. As for urban areas approximately 40% of TP is dissolved and cannot be materially impacted by any stormwater treatment system the percentage of TP that can be impacted is really only 1.9% of the loading.

Given the above, the only justification for allocation of such significant load reductions to source areas that are such a small portion of the problem can be because we are permitted and the Department can by law allocate us a reduction and/or to fund reductions on the source areas that are really the problem (agricultural). **Phillips, City of Madison**

Response: Load allocations and required percent reductions were calculated the same way for all source categories (allocation proportional to contribution to the baseline load). Therefore, MS4s are not being treated differently than any other source category. While it is correct that MS4s contribute a small percentage of TP and TSS loads at the scale of the entire Rock River basin, permitted urban areas contribute a relatively large fraction of the load to some reaches. For example, 69% of the TP and TSS in reach 65 is contributed by urban stormwater from Madison and Fitchburg.

21. In this time, of budget shortfalls at the Federal, State and local levels, lack of consideration of the least cost method of meeting the in stream goals due to the political inability of the State of Wisconsin to adequately regulate its agricultural producers is not acceptable to Wisconsin's municipalities. Further, the clear tactic of the Department to set unreachable goals for municipal reductions forcing trades with agriculture to allow municipal compliance lacks that transparency of regulations that should be expected by the residents of the State.

Forcing municipal residents to fund the cleanup of agriculture through stormwater utility fees that are then redirected to agricultural lands is not fair or reasonable. If agriculture is to be required to meet higher standards then let them meet them and the market charge more for those products that cause more environmental damage.

In the Pheasant Branch watershed the additional reductions required push Madison to a combined 86% reduction in TSS. Staff questions the physical viability of this requirement even in new development where lands are at least theoretically available

We question the legality of requiring a reduction level that cannot be met using existing technology and would appear to be "forcing" a municipality to trade with agriculture to reach the required reductions.

In the Lake Monona and Lake Mendota watersheds, which are already completely urbanized within the City of Madison, a combined reduction of 62% TSS is required. While it is true that this reduction is theoretically possible assuming land for ponds were available and that the storm sewer system were structured to direct water to one location where treatment was possible, neither of these assumptions is correct. Further, past Department decisions regarding the efficacy of street sweeping and catchbasins limit the ability of the City or any municipality to meet this requirement using retrofit of devices that will not require the condemnation of lands. It would appear that the Department is either planning to force municipalities to condemn private property to meet this standard or force municipalities to trade with agriculture to meet these standards. As no technology our staff is aware of will allow fully developed urban watersheds to meet the reductions required by this TMDL without one of those two actions. We are interested in the Department's opinion on how a reduction of this type could be met in an existing urban area. **Phillips, City of Madison**

Response: The allocations are proportional to the baseline contribution and do not represent any intention of forcing or requiring water quality trades from municipal sources to pay for nonpoint reductions. The requirement for cost-share for agricultural management practices is a statutory requirement. The TMDL sets allocation goals to meet water quality standards but does not specify implementation methods or timelines. Implementation methods will be evaluated as part of the development of an implementation plan.

22. Cost-effectiveness should be a key factor in implementing this TMDL, and is a key concept in adaptive management approaches. If we are to address the “low hanging fruit” first, or those sources that have the greatest impact on water quality and are least expensive to control, implementation of agricultural best management practices (BMPs) should be the first order of business. An assessment of the potential benefits including the costs from imposing additional costs on WWTFs or MS4s should also be addressed in the implementation phase of the TMDL. This assessment should include scenarios (or some other more apt word or phrase) with and without non-point source reductions since these are not guaranteed to occur unless cost-sharing dollars become available to non-point sources. **Koltz, WI Section – Central States WEA Government Affairs Committee**

Response: This analysis can be conducted as part of the implementation planning. Please note that your comment makes a couple assumptions that have historically proven to be false. First, agricultural best management practices are not always the low hanging fruit as proven by previous water quality trading efforts in the Rock River Basin in the late 1990s and early 2000s. The economic drivers and most cost-effective method vary by watershed. The TMDL sets the allocations needed to meet the water quality target. Once the allocations are set, dischargers can conduct studies of their facilities to determine the most cost effect approach for their facility including adaptive management as outlined in ch. NR 217, Wis. Adm. Code., water quality trading, or upgrades to their facility.

The 2011 budget included a provision for the DNR to conduct an economic impact analysis for Subchapter III of chapter 217, Wis. Adm. Code and section NR 102.06, Wis. Adm. Code.

23. Overall, efforts need to be made to ensure TMDL-based load reductions are cost-effective and produce actual water quality benefits. Watershed-based approaches that include nonpoint as well as point sources are required. Additional research into best management practices is warranted to assure there is no unintended increase in dissolved (bioavailability) phosphorus when total phosphorus reductions are made (see Are 'green' farming practices driving algal blooms? Water Environment and Technology, Volume 22, Number 12, December 2010). **Steinbach, RR TMDL Group**

Response: The TMDL will be implemented using watershed-based approaches as appropriate. Wisconsin has a statewide phosphorus index model named Snap-Plus (http://www.snapplus.net/) that allows for the evaluation of phosphorus reductions through implementation of different management practices. Snap-Plus also evaluates the impact to the ratio of dissolved to total phosphorus. Research has indicated an increase in dissolved phosphorus under some management practices such as no-till, however, an overall reduction in phosphorus loads is observed with a proper application of no-till systems.

24. The TMDL must allow for an implementation plan that provides flexibility in the timing and methods for meeting whatever standard is ultimately chosen. Communities will certainly not be able meet reductions of 70% in the course of the next 5-year MS4 permit. If an implementation plan is not included in the final TMDL, it must, at a minimum, acknowledge that the proposed allocations will not be enforceable in MS4 permits prior to the development of an implementation plan. **Kent, League of Wisconsin Municipalities**

While there is certainly no implementation plan for agriculture it is not true that there is no implementation plan for municipalities covered by MS4 permits. The City of Madison and all our partners already have language in our permit that requires compliance with a TMDL when it becomes available. No timeline is in place for that compliance but the language exists in our permit waiting for an environmental activist group to sue either the City or the Department for non-compliance or non-enforcement of our WPDES permit. What is the Department's plan or intention for enforcement of this TMDL in areas where existing permits already call for compliance when the TMDL is issued? **Phillips, City of Madison**

Response: TMDLs set the goals and generally do not set timelines. TMDLs rely on existing regulatory programs for implementation; in this case the MS4 permits and the requirements stipulated in chs. NR 216, NR217 and NR 151 Wis. Adm. Code.

25. Forgetting for a moment that there is a discrepancy in the loading rates between the TMDL and the City's WinSLAMM modeling, the TMDL as written would imply that the City will be required to implement practices to reduce the TSS loads beyond the 40% already factored into the baseline loads.

With regard to reach 62, even new development standards under NR l51 are insufficient to achieve this reduction rate. It is understood that the City has the ability to change its ordinance to require higher TSS reduction rates for new development within its limits. However, the watershed tributary to Pheasant Branch extends far beyond the City limits. Will the WDNR be requiring additional TSS reduction in new developments in non-MS4 areas?

To explain by example, the City has access to some WinSLAMM models for new developments. Using a small sample set it has been found that a typical commercial development generates between 0.150 and 0.160 tons/acre/year of TSS. Current regulations (City Ordinance, Dane County Ordinance, and NR 151) require an 80% reduction in TSS loads which would mean that upon permit approval and construction, new development could be expected to deliver between 0.030 and 0.032 tons/acre/year. These values are above the maximum annual loading rates for both reaches of Pheasant Branch. If development in the watershed, but outside the City's limits, is allowed to continue under current regulations, it would seem that Middleton, which is at the downstream end of the watershed, will be playing catch-up indefinitely. **Sonnentag, City of Middleton**

Response: The Department does not anticipate updating ch. NR 151; however, local government can promulgate more stringent requirements if needed. The non-MS4 areas have been assigned allocations in the TMDL; however, TMDLs rely on existing rules and permits for the enforcement of the allocations.

26. In addition, the TMDL TSS allocations must be integrated with DNR's recently-approved NR 151 rule package. There is no reference to NR 151 in the TMDL or how those provisions will be integrated into the NR 151 process. In the absence of an integrated plan, the TMDL must make clear that the proposed allocations will not be enforceable in MS4 permits until an implementation plan is developed. **Kent, League of Wisconsin Municipalities**

Response: The allocations in the TMDL are enforced through the MS4 permits and ch. NR 216, Wis. Adm. Code. The language in the permit requires that municipalities evaluate their stormwater manament plans for compliance with the TMDL allocations. As such, the development of the implementation plan is through the permit.

27. As I am sure you are aware the recently adopted changes to NR-151 provide for an extension to the timeline for municipalities to meet the NR-151 goal of 40%. It would seem counter intuitive for the same WDNR that just provided time extensions via one regulation to meet a 40% TSS reduction, to in another regulation, increase essentially the same reduction requirement by an additional 77% and 63% when it is clear that municipalities cannot meet the existing standard. **Phillips, City of Madison**

Response: This comment appears to be no longer applicable given the specific language in the 2011 state budget hat precludes the DNR from enforcing a date certain for the 40% TSS reductions.

28. Currently, the Department and the City are involved in three (3) parallel TSS reduction initiatives. These include the NR-151 municipal reductions, Rock River TMDL, and the YAHARA- CLEAN MOU. As all of these initiatives essentially do the same thing, regulate the post construction discharge of TSS to waters of the State, it is difficult to imagine or understand why the Department has chosen to use different, models, loading rates, rainfall series, municipal boundaries, and possibly soil distribution curves for each of these initiatives when they are all run by the Department to do essentially the same thing. We request that the Department determine and document how the TMDL may be compared to the NR-151 required calculations so that municipalities can determine in a reasonable manner where they are with regard to compliance with the TMDL by using the NR-151 calculations required by the Department.

If this cannot be completed we request the Department provide documentation on the land use files, the loading rates, the rainfall series and the municipal boundaries used in the TMDL so that the City can make its own determination with regard to our current state of compliance with the TMDL. **Phillips, City of Madison**

Response: The NR 151 reductions are technology based limits that can be supplanted by TMDL specific reductions needed to meet water quality standards. The DNR did not conduct the modeling for YAHARA-CLEAN and it is not clear how the reductions in the YAHARA-CLEAN study relate to the water quality criteria, however, the TMDL calculated allocations are tied to the MS4s through their permits. The TMDL allocation should be compared to loadings generated by the City of Madison modeling to determine and target needed reductions.

29. The use of a 40% reduction in TSS loading from MS4s should take into account the reality of NR 151 and the compliance schedule outline therein.

The Draft TMDL assumes that all MS4s will reduce their TSS load by 40% and incorporates this assumption into its baseline calculations.[72] This reduction is derived from NR 151, which includes a section outlining reductions in TSS loading from municipalities that are subject to storm water permits under NR 216.[73] However, the 40% reduction only comes into effect in one of three situations:

• The 40% reduction must exist by March 31, 2013 if the municipality was permitted under NR 216 on or before January 1, 2010.[74]

• The 40% reduction must exist within 7 years of permitting under NR 216 if the permit was issued after January I, 2010.[75]

• If the permitted municipality determines that it cannot reduce its TSS load by 40% by the date required by either the first or second condition, it is required to submit a report to the WDNR outlining the control measures implemented to date and a long-term storm management plan in accordance with NR 151.13(2)(b)3 at least six months before the compliance date under either the first or second requirements. [76]

This examination reveals that this reduction will not occur, in the best-case scenario, until2013 unless a permitted municipality voluntarily reduces before then. However, assuming voluntary reductions is not necessarily the best method for setting a baseline loading amount. Additionally, even if the municipality does not meet its 40% reduction by the time the regulation requires, there source may be authorized to avoid meeting the 40% reduction under the third bullet point above. In that scenario the municipality will comply with the regulation but will not have reduced its TSS load by 40%. Since 40% compliance is not set to take effect until2013 or later, using this blanket reduction for all MS4s in calculating the baseline load will result in nonattainment and the inability to maintain WQS because the baseline calculations in the Draft

TMDL do not reflect the reality of the schema outlined by the regulation. If the baseline calculations are assuming reductions that will not occur for at least another two years, then the WLAs MS4s will be permitted to load into Basin waterbodies will also be skewed. Therefore, proper baseline calculations taking into account the reality of NR 151 and MS4 TSS reductions are needed to ensure the TMDL will attain and maintain WQS.

Because MS4s are not currently attaining a 40% TSS reduction and NR 151 may not require all MS4s to reduce their TSS loading by 40%, the draft TMDL does not accurately describe the baseline loading from MS4s. Absent accurate baseline assumptions and calculations, the Margin of Safety must be amended to reflect this lack of knowledge regarding when many MS4s will actually attain this TSS reduction. **Lawton, Midwest Environmental Advocates** (p.11-12)

Response: The TMDL allocations must be set to reflect compliance with existing regulations. As such, MS4 allocations and baseline calculations reflect compliance with the 40% TSS reduction contained in NR 151 just as CAFOs are assigned a wasteload allocation of zero. After completion of the TMDL, but prior to approval of the TMDL by EPA, the 2011 Wisconsin Budget modified the TSS requirement contained in NR 151, through statute, such that enforcement of the 40% can not be required by a date certain. The 40% requirement still exists; however, permitted municipalities are not subject compliance by a required date. The TMDL sets reduction goals but is enforced through existing regulations such as NR 151, NR 216, and the permit. No modification to the MOS is required to account for the MS4s and their baseline loads or allocations.

30. The Draft TMDL does not provide reasonable assurances that non-point sources will, in fact, occur as required by U.S. EPA guidance. The primary reasonable assurance, NR 151, provides in itself that its standards and prohibitions may not be stringent enough to implement a TMDL. Furthermore, the mechanism outlined in NR 151 for ensuring that TMDLs will be implemented is costly and time consuming rule making, which may not occur. Additionally, there is no reasonable assurance the funding necessary for NR 151 to be enforceable is available. In order for the WLAs set in the Draft TMDL to be effective, more effective and extensive reasonable assurances should be provided. Otherwise, there are serious doubts the Draft TMDL will be effective in allowing the Basin waterbodies to attain and maintain applicable WQS. *See pages 20-22, Section E for supporting material*

The Draft TMDL does not provide for adequate and necessary reasonable assurances that non-point source load reductions will occur, which contravenes EPA guidelines for drafting TMDLs that involve loading from both point and non-point sources. **Lawton, Midwest Environmental Advocates** (p.4)

Response: Current Federal regulations do not require a timeline or identifiable milestones for achieving nonpoint load allocations (40 CFR 130). Wisconsin has a mechanism for implementing the nonpoint load allocations through NR 151 performance standards and the promulgation of site specific standards if needed. This latter requirement of site specific standards by rule was inserted into NR 151 at the request of MEA and other environmental groups when NR 151 promulgated. However, DNR acknowledges the importance of meeting nonpoint load allocations and intends to have issues such as timelines, schedules, and milestones for nonpoint implementation activities addressed in the implementation plan. If current nonpoint performance standards are not sufficient to meet the goals of the TMDL, site specific standards can be promulgated.

31. The Draft TMDL allows for some sometimes drastic increases in TSS loading from baseline calculations for some reaches affected by WWTF TSS loading.

As noted in Dr. Burkholder's comments, the Draft TMDL wasteload allocations in many instances are less stringent that current point source pollutant contributions. Serious questions are raised as to the ability of the TMDL to attain and maintain applicable WQS if only a few of these drastic increases are allowed. Dr. Burkholder has compiled a table by reach and WWTF where TSS Wasteload allocations are drastically higher than the baseline calculated. While there are some increases that are not so drastic (e.g., Reach 3, City of Waupun WWTP with an 8% increase allowed for 4 months[63]), there are some that are alarmingly drastic (e.g., Reach 61, Edgerton WWTP with a 1,589% increase allowed for 12 months[64]). While the second example is near the top of the range, most of those indicated by Dr. Burkholder allow for a percentage increase over 100%.[65]

MEA encourages WDNR to reexamine the TSS loads outlined by Dr. Burkholder since it is difficult to grasp how such drastic increases can allow the TMDL to succeed, and ensure pollutant loadings are decreased to a point where water quality standards are attained. However, if these increases are expected and allowable, then the WDNR should offer further explanation of how these increases will still allow for the attainment and maintenance of applicable WQS. As noted below, if point sources will be allowed to increase pollutant loading, then reasonable assurances will be required that necessary reductions will come from non-point sources. MEA assumes that if such drastic increases are allowed, then equally drastic regulations, prohibitions, and assurances will be instituted to ensure necessary reductions will come from non-point sources.

The Draft TMDL should reexamine the sometimes drastic allowances for TSS loading from WWTFs. MEA cannot comprehend how these drastic increases will allow for TMDL success. However, if these allowances are expected, WDNR should offer further explanation on how these increases will still allow for TMDL success since it would seem that further pollutant loading will cause further degradation. Additionally, since these are increases from point sources, equally drastic reasonable assurances should be provided such that the necessary reductions will come from non-point sources. **Lawton, Midwest Environmental Advocates** (p.9)

Response: Methods were modified so that the TSS allocation for WWTFs never exceeds the current permitted TSS load.

32. The 26 mg TSS/L target average for all reaches and months set by the TMDL will fail to ensure that applicable narrative water quality criteria and designated uses will be met because it will allow for further degradation, will threaten the public's ability to use the waterbodies, and will threaten the aquatic wildlife present in the waterbodies, particularly at periods critical for their reproduction cycles. **Lawton, Midwest Environmental Advocates** (p. 5, 6)

Response: Based on SWAT model output for the Rock River basin, 26 mg/L of TSS is associated with TP concentrations that meet water quality criteria. Because TP and TSS are delivered to streams by the same processes, it is reasonable to expect that this concentration will be as protective of designated uses as the numeric TP criteria. Using the same calculation method, the current flow-weighted average concentration in the basin is 68 mg/L.

33. Additionally, WDNR has indicated that it does not plan to measure TSS concentrations throughout the reach to ensure that even this un-protective target will be met. Instead readers are informed that compliance will be measured through evaluations of "habitat and biological communities to determine whether designated aquatic life uses are being met" and not through in-stream measurements. Even with the too high target of 26 mg/L, MEA and Dr. Burkholder encourage a revaluation of the methods of how attainment and maintenance of applicable WQS are being measured regarding TSS. **Lawton, Midwest Environmental Advocates** (p. 5-6)

Response: Evaluation of waters will be conducted based on habitat and biological communities because that is what prompted the listing of the waters as impaired. Wisconsin currently does not have numeric criteria for TSS and as such will rely on other biological indicators. As discussed in the response to comment 32, the TMDL target of 26 mg/L represents a substantial reduction in the current flow weighted concentration of 65 mg/L.

34. The annual average TSS target established in the Draft TMDL is insufficient to protect water quality and attain water quality standards.

As drafted, the TMDL violates Federal statutes and regulations because it will prevent the waterbodies from attaining and maintaining applicable WQS, and in some cases may allow water quality to degrade. WDNR must set a TSS target that will allow the waterbodies to attain and maintain the applicable WQS and provide the scientific basis for this new TSS target. **Lawton, Midwest Environmental Advocates** (p. 6)

Response: MEA does not have any data that can support the claims made in comment 34. Again, the target set for the TMDL of 26 mg/L represents a substantial reduction in the current flow weighted concentration of 65 mg/L.

Data/Data Manipulation/Data Display/Assumptions

35. The report refers to Appendices N & 0 as reporting MS4 baseline loads. However, the data in the table reports "TSS Load or Percent Reduction" on a water body basis with no mention of the contributing MS4 communities. The City requests clarification on this apparent discrepancy. **Sonnentag, City of Middleton**

Response: Appendices N and O report MS4 reductions by reach. Appendix V reports baseline loads and allocations by MS4 and reach.

36. According to Appendix V, the Annual Baseline TSS Load for Middleton is:

a. 106.59 tons/yr for reach 62 which is reported to have a tributary area (within the City of Middleton) of 1390.38 acres, for a unit discharge rate of0.077 tons/acre/yr

b. 66.32 tons/yr for reach 64 which is reported to have a tributary area (within the City of Middleton) of 865.15 acres, for a unit discharge rate of 0.077 tons/acre/yr

This bears out the statement in the report that a flat pollutant generation rate was applied to MS4 areas. However, pollutant loads vary by land use within sub-watersheds. In the case of the City of Middleton, there is a very distinctive change in land uses along the corridor of Pheasant Branch which makes this assumption very tenuous. Please explain whether the City will be allowed to use specific pollutant generation rates within their affected watersheds and how that may affect the allowable waste load allocations for those watersheds.

The City understands that this Baseline reflects an anticipated 40% TSS reduction rate representing full compliance with NR216/NR151. However, according to the City's detailed MS4 modeling using WinSLAMM, the total TSS load (not factoring in "Exempt/Excluded" areas) is 678.9 tons/yr generated by 5,189 acres. This is a unit load of 0.131 tons/acre/yr. Applying a 40% reduction to the annual load brings the unit load down only to 0.079 tons/acre/year. While this number is close to that reported in the TMDL study, it is still a larger amount. It has been shown that TSS reductions down to the levels proposed by the TMDL are extremely expensive. How will differences in these loads be reconciled? **Sonnentag, City of Middleton**

Response: The unit loads calculated for the TMDL were used to help define the baseline condition from which allocations were set proportional to the baseline load. The resulting wasteload allocation sets the required reductions needed to meet water quality standards. This load can be compared directly to the specific loads stemming from a more detailed analysis of the municipality accounting for site specific land uses and management practices to determine compliance. Additional factors such as areas included in the MS4 analysis, rainfall records, and other factors will need to be reconciled with the goal of using site specific municipal data for measuring compliance with the TMDL allocations.

37. The City's WinSLAMM modeling was completed using the modeling protocols identified by the WDNR's storm water group. Among other things, these protocols require modeling of a specific non-winter time frame using a one-year or a five-year rainfall record. The TMDL is based on a 1 0-year rainfall record. Please explain how the results from the TMDL and the City's WinSLAMM modeling can be reconciled. Is it likely that the City will be required to remodel their MS4 system? **Sonnentag, City of Middleton**

Response: As discussed in comment 36, multiple factors will need to be reconciled between the TMDL and the MS4 modeling conducted to comply with NR 151. During the implementation phase, the DNR intends to form a workgroup of consultants and municipal engineers to help address this issue such that the need to perform additional municipal wide modeling can be minimized.

38. One other thing that the MS4 storm water modeling protocols requires for compliance with NR151/216 is the exemption or exclusion of certain areas from the limits of the MS4 when completing the modeling. These include:

a. Areas developed and permitted by WDNR or Department of Commerce since October, 2004. Will it now be necessary for the City to remodel the storm water system to include these areas to better determine their actual loading?

b. Areas that are within the City limits but that do not drain to the MS4 system. In Middleton there are substantial areas surrounding waterways and water bodies that could represent substantial pollutant loads that are not within the City's control. With the high pollutant reduction requirements proposed in this study, it is conceivable that a 100% TSS reduction within the MS4 area will not achieve the waste load allocation allowed by the report. How will this issue be addressed?

c. Areas that are internally drained (landlocked). The watershed identified for Pheasant Branch includes a very large landlocked basin draining to

Graber Pond. If the base loads from this watershed are eliminated from the TDML equation, it will have a significant impact on the allowable waste load allocation for the remainder of the watershed. How can the City factor this into the load reduction requirements? **Sonnentag, City of Middleton**

<u>Response:</u> See response to comment 37. Areas that do not fall under the justification of the City will need to be converted to load allocation and will not be the responsibility of the City. In addition, areas that are landlocked or internally drained would not count in the wasteload allocation for the City and would represent a “zero” loading provided the water is not pumped or otherwise discharged to receiving waters. This analysis will need to be conducted as part of the implementation planning for the TMDL.

39. Additional correspondence between the WDNR and the City of Middleton has shown that there is a discrepancy in the city-limit areas used in the TMDL modeling vs. what is in existence today. For the two sub-watersheds in Middleton, the drainage areas are:

a. Reach 62: TMDL = 1390.38 acres; other source = 2,002 acres
b. Reach 64: TMDL = 865.15 acres; other source = 1,063 acres

How can the City use this information to better understand the ramifications of what their actual load allocations and waste load allocations are? For instance, if the City has grown significantly since the date of the data used in the TMDL study, it is reasonable to assume that agricultural or open space land uses have been replaced with developed land uses. Will the WDNR make data available regarding pollutant loading rates in non-urban areas so that a comparison can be made and a precise target for the City determined? **Sonnentag, City of Middleton**

<u>Response:</u> See response to comment 61.

40. The methodology and data used to determine TP and TSS targets established in the Draft TMDL result in TP and TSS targets that are insufficient to attain and maintain applicable WQS.

This TMDL uses methodologies and data that call into question the legitimacy (or at least the ability of the LAs and WLAs to meet applicable WQS) the LAs and WLAs that have been set in this Draft TMDL. Therefore, in order to comply with Federal and Wisconsin regulations, the WDNR must offer further explanation, updated data, or use different methodology in order to ensure that the LAs and WLAs set in the Draft TMDL will allow the waterbodies in the Rock River Basin to attain and maintain WQS. **Lawton, Midwest Environmental Advocates** (p.6)

Response: The targets for phosphorus are based on the promulgated nutrient criteria that have been approved by EPA. The TSS targets represent an interpretation of existing State narrative standards and represent a significant reduction in existing sediment concentrations; see comments 33 and 34. MEA has no basis for the statements contained in comment 40.

41. Furthermore, assumptions concerning the behavior of TSS loading are not supported by the scientific literature. **Lawton, Midwest Environmental Advocates** (p. 6)

Response: Any assumptions made on TSS loading are derived from the SWAT model and is based on the best available scientific information.

42. Updated data is needed to accurately assess TP and TSS loads that will attain and maintain WQS.

> Overall, the Draft TMDL is plagued with incomplete and out of date data. In some cases, the data sets used by the Draft TMDL are out of date and should be updated to reflect updated land use/land cover (LU/LC) that has occurred in the Rock River Basin over the past 20 years. In other cases, the information given in the Draft TMDL indicates a dearth of data for most of the water in the Basin. Communication with the WDNR would seem to indicate that this portion of Wisconsin offers some of the most data-rich water body measurements. If this is the case, more complete and more up to date information should be used.
>
> The most glaring example of where updated and more complete data should be provided is the land use/land cover (LU/LC) data used. The source of the LU/LC data used by the Draft TMDL is from WISCLAND, which is based on data primarily from 1992.[44] The use of this outdated data fails to account for significant changes in LU/LC since 1992.
>
> Furthermore, the Draft TMDL notes that urban areas are expected to grow over the next 30 years.47 Therefore, it is a safe assumption that these same urban areas have been growing over the previous two decades as well. Without updated LU/LC information, the urban growth is not taken into account and will further affect the estimates on future growth. It should also be noted that the Multi-Resolution Land Characteristics Consortium will release the 2006 National Land Cover Database on their website on Feb. 16, 2011,48 which would provide for a more complete and up to date LU/LC map from which to assess WQS. **Lawton, Midwest Environmental Advocates** (p.6-7)
>
> Furthermore, the out of date LU/LC data used along with sparse measurements from the early to mid-2000s does not allow for an accurate reflection of what is currently in the water bodies of the Rock River Basin. As noted above, the land

use has altered in many parts of the Basin since 1992. As Dr. Burkholder notes, "It seems unrealistic to expect that models to which this hodgepodge of mostly antiquated data is applied, with infrequent overlap of m or datasets, can reliably describe present water quality conditions or predict future conditions."[60] In order ensure that WQS will be attained and maintained, the data used in the models should at least be from approximately the same time period. **Lawton, Midwest Environmental Advocates** (p.8)

Response: The TMDL mass allocation is calculated based on stream flow and the target concentrations. These two variables set the maximum loading capacity. Allocations were than portioned out proportional to the baseline loadings. For agricultural loads, the WISCLAND land cover was updated to reflect cropping rotations and practices in place in 2000. The urban loads were updated to reflect current municipal boundaries and the change of agricultural land to urban land based on the most recent National Agricultural Statistics Survey data. A 10-year simulation period was used in the TMDL representing wet, dry, and average flow conditions. Contrary to Dr. Burkholder's opinion, the modeling sufficiently depicts the varying conditions under which water quality standards must be evaluated.

43. Another example of where more complete data is needed can be found in Figures 5 and 6.[49] These two figures display median growing-season TP concentrations and median annual TSS concentrations respectively. However, data from only 11 stations is displayed on these Figures. Viewing these figures, it is a reasonable assumption that many of the waterbodies have no historical TP and TSS concentration data for the outdated time periods listed let along current data. While the Draft TMDL does use the STELLA model, which claims to "represent the connected structure of the 83 reaches in the watershed and track P concentrations in each reach,"50 this is the only evidence mentioned that a full data-set, taking into account measurements for all impaired waters, has been used to set LAs and WLAs. Further explanation or disclosure of more adequate data sets is warranted such that proper assessments can be made to ensure the TMDL will attain and maintain WQS. **Lawton, Midwest Environmental Advocates** (p.7)

Response: Figures 5 and 6 present a sample of the water quality data available. The TMDL is not required to present or summarize all existing monitoring data. Such data is available from other sources such as the USGS and DNR websites. The water quality standard for phosphorus is set by the nutrient criterion that has already been promulgated.

44. Additionally, the TP measurements that are described in section 2.2.1. of the Draft TMDL are sparse or out of date. For 10 of 11 stations indicated in Figures 5, the data encompasses monthly measurements for only one year (2006, 2008, or 2009).[51] As indicated by Dr. Burkholder, inter-annual variability is generally known to be substantial for typical streams and reservoirs.[52] By not accounting for seasonal variability, the Draft TMDL fails to account for all necessary data at 10 of the 11 stations. For the eleventh station (the West Branch Rock River station), there is a larger data set available but the measurements are over a decade old (measurements taken every other week for three years 1998-2000).[53] As Dr. Burkholder notes, the measurements for the West Branch station are especially problematic given what would seem to be extreme degradation of the water body being measured (0.86 mg TP/L and 39 mg TSS/L).[54] **Lawton, Midwest Environmental Advocates** (p.7)

Response: The inter-annual variability is addressed in the TMDL by using monthly allocations instead of annual allocations. As such, the TMDL does account for seasonal variability. Dr. Burkholder seems to be confusing actual historical measured data used to illustrate the impairment of water bodies in the Rock River Basin with the resulting allocations from the TMDL study. The historical measurements of 0.86 mg/L total phosphorus for the West Branch of the Rock River validate the listing of the water as impaired and the allocations in the TMDL are targeted for the nutrient criteria value of 0.075 mg/L total phosphorus.

45. Furthermore, Figure 5 is labeled as only displaying "median *growing-season total* phosphorus concentrations."[55] This indicates that samples were only taken from May to October. This discrepancy becomes especially concerning because the data in Figure 5 was used to calculate compliance with numeric-criteria for TP.[56] If incomplete data is being used to calculate compliance with WQS, then the Draft TMDL has failed the primary and required goal of TMDLs; namely, it is not ensuring that WQS will be attained and maintained for the impaired waterbodies in the Rock River Basin because it is impossible to determine if the targets set in the TMDL will meet applicable WQS. Without taking into account *all* waterbodies and changes in urban and rural practices, there is no accurate way to determine whether the Draft TMDL's phosphorus and sediment targets will allow the waterbodies to meet applicable WQS. The results of the baseline calculations could be higher or lower than the results determined in this Draft TMDL. Absent accurate and complete data models it is impossible to determine whether the TMDL Load and Wasteload allocations are set to attain and maintain WQS. **Lawton, Midwest Environmental Advocates** (p.8)

The TMDL should provide all data used in modeling current sediment and phosphorus in the Basin. As currently drafted the TMDL only provides readers with data from 11 water bodies- this is insufficient data to support a TMDL, and insufficient data to allow for adequate public comment. In addition, the data supporting the TMDL is either out of date (from the 1990s) or very sparse (gathered for one year only) and the inconsistency in descriptions of models and data create confusion. Absent this critical data and consistency, commenter's cannot adequately or accurately assess whether the Load and Wasteload allocations are set to attain and maintain WQS. *Refers to comments p.6-9* **Lawton, Midwest Environmental Advocates** (p. 9)

Response: Again, Figure 5 is only to provide an illustration of the phosphorus concentrations from historical monitoring and is summarized as indicated by median growing season concentrations. The data in Figure 5 was NOT used to calculate or measure compliance with the TMDL allocations. Since the TMDL has not been implemented yet, no monitoring data is available to measure the allocations against to determine compliance other than the modeled condition used to set the allocations.

46. The same concerns are present with the presentation of TSS concentration measurements: 10 of the 11 stations have data from only one year and the West Branch Rock River station has decade old data.[57] Additionally, Figure 6 is described as displaying "median growing-season (May - October) TSS concentrations" in section 2.2.2.,[58] while Figure 6 describes itself as "median annual total concentrations."[59] Not only are the data sparse and out of date, it is described in two different ways in the Draft TMDL. **Lawton, Midwest Environmental Advocates** (p.8)

Response: The data is presented to illustrate and summarize some of the historical monitoring data. The TMDL allocations are not impacted by this data. See comments above.

47. Without providing more data, more up to date data, consistent descriptions of what the data shown is comprised of, and data that has at least an approximate overlap to ensure proper modeling, WDNR will have completed a TMDL with skewed baseline calculations and thus skewed LAs and WLAs. For example, in section 5.1.3., the WDNR indicates that regression equations were used to determine the TSS load that is typically associated with the TP loading capacity.[61] This section goes on further to claim that these regression equations are based on 10 years of data on 83 reaches.[62] This would seem to be at odds with the data outlined in sections 2.2.1. and 2.2.2. If there is no inconsistency between the data in 2.2. and the statement concerning the regression equations outlined in 5.1.3., then the data should be provided or a more complete explanation of where the data is coming from should be provided. Otherwise, there can be no way to ascertain whether or not the Draft TMDL will attain and maintain WQS. **Lawton, Midwest Environmental Advocates** (p.8-9)

Response: As stated in Section 5.1.3, the TSS:TP regression equations are based on SWAT model output for each of the 83 reaches in each month of 10 years. The 26 mg/L average TSS concentration calculated from these data represents the average for a month, and is not directly comparable with the instantaneous sediment concentrations displayed in the maps in Section 2.2.2. Time-integrated sediment loads measured at USGS gauging stations were used to calibrate the SWAT model, as shown in Table A-1. The SWAT validation is also described in Appendix A.

48. The calculations of baseline data concerning point source discharging are based on inaccurate data without explanation of this decision.

The data used in the Draft TMDL to calculate the baseline discharge from point sources does not reflect current point source loads or actual discharge data. For example, in Appendix W, the baseline load for Madison Metropolitan Sewerage District ("MMSD") is calculated based on an effluent concentration of 1.0 mg/L phosphorus and 50 MOD flow.[66] Yet MMSD is permitted under its current WPDES permit to discharge 1.5 mg/L phosphorus and is actually discharging below 0.5 mg/L on an annual average per their discharge monitoring reports.[67]

The Draft TMDL should be revised based on an actual current discharge loads from: 1) those point sources that are permitted to discharge over 1 mg/L and 2) those point sources that are discharging at something other than their permitted level, whether higher or lower. Absent accurate baseline data, the Draft TMDL provides little if any assurances that the load and wasteload allocations are set at a level that attain and maintain applicable WQS.

The Draft TMDL should use accurate TP discharge concentrations from point sources. By using an assumed and inaccurate 1 mg/L concentration, the Draft TMDL has a skewed baseline which in turn skews the LAs and WLAs. This results in a TMDL that cannot be assumed to attain and maintain applicable WQS. **Lawton, Midwest Environmental Advocates** (p.10)

Response: As explained in the report, the permitted concentrations and flows were used in the TMDL baseline analysis because point sources can discharge at those volumes. In cases were permittees have alternative limits above 1.0 mg/L, for example MMSD, the limits were reduced to 1 mg/L before imposing reductions on other point sources. Analysis was conducted to see how the use of actual data would skew the allocations in place of permitted values. This was done for two facilities that are significantly below 1 mg/L. The use of actual data in place of permitted data did not significantly impact the allocations. MEA's assertion that the use of 1 mg/L skews the results such that the TMDL cannot be assumed to attain and maintain applicable WQS is simply false and reflects a poor understanding of the TMDL process. For phosphorus, total loading capacity to meet WQS is set based on the nutrient criteria and stream flows; in this case monthly average flows for 10-years of records.

49. The assumption that general permit sources will load an amount of pollutant equal to 10% of non-permitted urban loads is not grounded on scientifically validated sources.

In assuming that from loads from general permits is 10% of non-permitted urban loads,[68] the Draft TMDL fails adequately asses this source when calculating the baseline, and thus the loading capacity of the reaches in the Basin. The basis of this assumption is cited as personal communication with the WDNR on

November 9, 2009.[69] However, Dr. Burkholder notes that sites covered under general permits, particularly construction sites, can be major contributors of sediment.[70] Setting the load from general permits to 10% of non-permitted urban loads does not adequately or scientifically address the contributions from the sources that can be major contributors of sediment. Additionally, Dr. Burkholder notes that basing a load contribution assumption on personal communication lacks scientific validity because the TMDL quotes itself rather than show the scientific source for this assumption.[71]

In order for the baseline to be accurate, which will cause the loading capacity to be more accurate, the TMDL should calculate the load contributions from general permit sources from either scientifically validated sources or measurements from these sources in the Basin. If the only basis for this is the communication with DNR, then, as noted below, DNR must factor this lack of knowledge by increasing the Margin of Safety.

The TMDL should provide the scientific rationale for setting the load contribution from general permit sources to 10% of the non-permitted urban load. Otherwise, it should set this amount to a higher percent due to the loading nature of general permit sources or factor the lack of knowledge into the Margin of Safety.
Lawton, Midwest Environmental Advocates (p.10-11)

<u>Response</u>: The total loading capacity of the receiving waters is based on stream flow and target concentrations and is not derived or based on baseline loads. Baseline loads were used to proportion the total loading capacity between different sources. General permits were assigned an allowable mass allocation based on a percent of the baseline load. This allowable mass was set at 10% of non-permitted urban loads and represents the best information available. In the future, adjustments to the allocations can be made as new information becomes available.

50. The TMDL should reflect the reality of runoff occurring from CAFO production areas instead of assuming perfect compliance.

Additionally, there are errors in the assumptions, concerning the effect CAFOs will have to the phosphorus and sediment loading in the Basin. The presumption that run-off from CAFO production areas will be zero represents an admirable goal, but one that is not necessarily grounded in reality.

Whether Dairy produced manure will be spread in one, two, or all three of the reaches listed, the Draft TMDL fails to account for this proposed CAFO and the impact it will have on nutrient loading in the Basin. Additionally, with regard to the zero loading assumptions, with the ability to store 80,175,861 gallons of manure,[84] even the most conservative assumptions cannot assume that no manure will escape from the production and storage areas of the CAFO. Yet the draft TMDL appears to lack any allowance or reserve capacity for this new loading of phosphorus. Absent an adequate reserve capacity the Rock Prairie Dairy cannot be permitted to spread any additional manure and meet the TMDL requirements.

Common sense would indicate that if the Draft TMDL is calling for reductions in phosphorus loading in the vicinity of the proposed Dairy, and the EA indicates that loading will be set to the status quo, that water quality standards will not be met in the area of the Rock River Basin that will be affected by the Rock Prairie Dairy. However, if WDNR believes that the assertions in the TMDL can occur while still meeting the reductions the TMDL claims are necessary, the WDNR should explain how it is accounting for this new loader in the TMDL. If WDNR wants to assert that compliance with the TMDL is possible, Federal regulations will require it, or the operators of the proposed dairy, to show how they have accounted for Rock Prairie Dairy's future discharge in the Rock River TMDL Load Allocations and they will be required show that the existing dischargers into the impaired waters are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards.[85] To do otherwise would be a violation of Federal Regulations.

The failure to account for the rise in the number of CAFOs, the number of violations that can occur, and the fact that phosphorus concentrations can be higher in livestock production areas than cropland demonstrates that this TMDL will fail to attain and maintain WQS.

Thus, in order for the TMDL to comply with Federal regulations, more information concerning CAFO pollutant contribution to Basin waterbodies is needed in this TMDL to ensure proper attainment conditions and maintenance of WQS.

The Draft TMDL should account for the rise in CAFO establishment in the Rock River Basin and the reality that not every CAFO will be in perfect compliance with its WPDES permit because this assumption results in an inaccurate baseline calculation. Since an inaccurate baseline calculation will result in inaccurate load distributions, the TMDL will not allow the waterbodies of the Basin to attain and maintain applicable WQS. Additionally, the Draft TMDL makes no mention of the proposed Rock Prairie Dairy. If the Draft TMDL is approved as currently drafted, Federal regulations will require it to show that loads from the Dairy are accounted for in Load Allocations. **Lawton, Midwest Environmental Advocates** (p12-14)

Response: The existing federal and state requirements for CAFOs set a zero discharge from the production area. In discussions with EPA, the TMDL must reflect these regulations and as such have a wasteload allocation of zero. The TMDL can not assign an allocation to the CAFO facilities nor can the TMDL assume a violation of the CAFO permit will occur resulting in a discharge of manure. The proposed Rock Prairie Dairy will need to meet its permit requirements and adhere to its nutrient management plan in the distribution of its manure. Per EPA regulations, the spreading of manure is a nonpoint source of pollution and is addressed in the load allocation of the TMDL.

51. The Draft TMDL should correct errors in assumptions concerning errors in stream flow in order to accurately assess appropriate TP and TSS loads.

The Draft TMDL claims the calculation of loading capacity assumes conservative transport of phosphorus and sediment through the basin's network of water bodies. The fraction of these pollutants that is permanently buried in the bottom sediments represents an implicit margin of safety. The size of this fraction is uncertain, but it is likely higher for sediment than phosphorus.[86]

However, this assumption does not consider all types of waterbodies in the Basin because the study cited by the Draft TMDL only accounts for 1st order streams as noted below. This assumption does not account for all types of waterbodies in the Basin, and thus the TMDL does not have an accurate baseline and therefore inaccurate LAs and WLAs.

As Dr. Burkholder notes, there are serious errors in logic about the retention of phosphorus in the Basin's streams and lakes. In the Draft TMDL, the WDNR assumes that most of the phosphorus retention in rivers is transient.[87] However, WDNR's cited source for this assumption, as Dr. Burkholder indicates, only addressed a headwater stream in Georgia.[88] As Dr. Burkholder notes, headwater streams (1st order) can behave very differently from 3rd-5th order streams. Where 1st order streams have very little sediment, 3rd-5th order streams, which largely categorize the waterbodies in the Rock River Basin, can have appreciable sediment that commonly remains in the stream causing retention of sediment and phosphorus.[89]

Therefore, this assumption will prevent the TMDL from attaining and maintaining applicable WQS because it does not take into account the pollution characteristics of all waterbodies in the Basin and so does not take into account potential phosphorus and sediment retention in the Basin. While the study cited by the TMDL may accurately reflect *some* of the waterbodies in the Basin, there are other waterbodies that will not exhibit the retention characteristics outlined in the Draft TMDL. Therefore, the loading capacity of the Basin will be skewed, and therefore more pollutant could be loaded into the Basin than can actually be taken in while still meeting applicable WQS.

Many of the waterbodies in the Basin do not exhibit the retention characteristics of 1st order streams and the TMDL assumes. Because there may be more retention than is assumed, the loading capacity will not be accurate.

> Therefore the TMDL levels set in the TMDL will not allow the waterbodies to attain and maintain WQS. Further examination of pollutant retention characteristics are needed to ensure loading capacities for the waters of the basin are accurate. **Lawton, Midwest Environmental Advocates** (p. 14)

Response: While phosphorus and sediment may be retained in river channels at some locations during some flow conditions, this retention is likely to be transient over the long term. Storm events scour accumulated sediments and transport them downstream. While sediment on the inside bends of rivers may be retained for long time periods, this retention is usually balanced by net erosion on the outside of the same bend. Biological uptake of phosphorus is always transient because organisms die and release phosphorus back into the environment through decomposition. All of these processes vary over space and time, but a detailed evaluation was beyond the scope of the TMDL.

In addition to the Georgia study mentioned in the comment, the TMDL also refers to a study on Koshkonong Creek, which is in the Rock River Basin in Wisconsin. This study found that phosphorus retention rates in this nutrient-rich system were much lower than those found in other streams with lower nutrient concentrations.

52. The TMDL should use more protective flow value for all reaches to ensure the reaches have accurately calculated loading capacities

> Without explanation, the Draft TMDL uses the fourth lowest stream flow in order to calculate the loading capacity for a particular reach.[90] This is particularly concerning given that, as Dr. Burkholder notes, using the third lowest flow value would more accurately assess loading capacity and more likely to assure that the TMDL is designed to bring waters in the Rock River basin into compliance with WQS.[91]
>
> In addition, the Draft TMDL establishes loading capacities calculated in order to ensure that monthly target concentrations are attained in a given reach 7 out of 10 years. This is based on the logic that loading capacities should not be based on "anomalously high or low flows" but are calculated such that "water quality targets are met under most flow conditions."[92]
>
> However, using the fourth lower value to ensure that targets will be met 7 out of 10 years defeats the purpose of the TMDL, which is to ensure the waterbodies of the Basin will attain and maintain applicable WQS at all times, and during critical conditions.[93] As drafted the TMDL assumes that even after full implementation of the TMDL, WQS will not be maintained in 3 out of

every 10 years, and therefore fails to meet applicable legal requirements.[94]

As currently drafted, the Draft TMDL allows for waterbodies in the Basin to have pollutant levels higher than applicable WQS for 3 out of 10 years. The TMDL should set pollutant-loading levels to meet WQS every year, and at all times. In order to meet Federal regulatory requirements, the Draft TMDL should use the third lowest instead of fourth lowest flow value to ensure the loading capacity of the reaches is set at a level that will allow the waterbodies to attain and maintain applicable WQS for all years in all reaches. **Lawton, Midwest Environmental Advocates** (p.15)

Response: To meet the target frequency of compliance with standards of 90%, the fourth lowest flow was used for the calculations; multiplying these flows times the concentration achieved a median summer monthly target 92% of the time. Other flows potentially used in the modeling process would have either exceeded standards too often or have been too stringent. The target frequency of compliance is 90% based on EPA guidance. “Early in the WQS program, EPA criteria guidance for ... turbidity… stated that these criteria should not be exceeded at any frequency. Later EPA guidance distinguished between conventional pollutants and toxic pollutants when providing recommendations about the number of exceedances that constitute nonattainment of WQS. For conventional pollutants, the 305(b) guidelines indicated that whenever more than 10% of the water quality samples collected exceed the criterion threshold, the WQS is not attained …..” http://water.epa.gov/type/watersheds/monitoring/upload/2003_07_02monitoring_calm_calm_ch4.pdf.)

This is also consistent with the Chesapeake Bay TMDL where both the annual and seasonal load was developed to the 95%-ile distribution to protect against outliers (flood and drought events) from dominating the process. The Chesapeake Bay TMDL further stated that loading achieving 100 percent of the flow regimes cannot be calculated. EPA concurs with the Wisconsin DNR that the Rock River methodology and allocations are compliant with standards for conventional pollutants being met at the target frequency of 90%, with summer median targets being met 92% of the time.

Further, in *Options for the Expression of Daily Loads in TMDLs* (USEPA 2007), it is stated: “Instead of selecting the maximum load value as the daily load, it is advisable to select a value that represents a high percentile (e.g., 95th or 99th), but not the maximum, of the distribution to protect against the presence of anomalous outliers. For example, selecting the 95th percentile implies a 5 percent probability that a daily load will exceed the specified value under the TMDL condition. Selecting higher percentile values as the maximum daily target is justified when there is high confidence in the accuracy of the dataset for extreme values. In cases where the analysis is based on a number of assumptions and there is a higher uncertainty in the analysis, it might be more appropriate to select a lower and, therefore, more conservative, maximum, providing an MOS. Whether the maximum daily load selected is based on the 75th or the 99th percentile load

or some value in between, the TMDL developer should determine this on the basis of the site-specific issues and characteristics."
http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2007_06_26_tmdl_draft_daily_loads_tech-2.pdf

EPA concurs with the Wisconsin DNR that the Rock River methodology, and allocations are compliant with the options allowable for site specific selection at the target frequency range of the 75th to 99th percentile load, with summer median targets being met 92% of the time.

To allow for seasonal variability, yet have the annual statistical highs and lows (noise) found in the data not drive the monthly values used in the model, an average monthly flow used three monthly values. For example, a June average monthly flow calculated May and July flow to create a three month moving average.

53. The implicit Margin of Safety used in the Draft TMDL fails to account for "lack of knowledge" in Violation of State and Federal requirements. The Draft TMDL does not have an appropriate MOS such that it accounts for all lack of knowledge violating Federal statutes and regulations. In order to attain and maintain applicable WQS, the Draft TMDL should set aside a greater load percentage to the MOS in order to adequately account for all lacks in knowledge. **Lawton, Midwest Environmental Advocates**

Response: The current MOS in the TMDL is sufficient for accounting for potential uncertainties in meeting the load reduction. The MOS can be reviewed in the future as new data become available.

54. Furthermore, while the Draft TMDL indicates that some land owners have voluntarily installed BMPs, there are no numbers given on the rate of voluntary adoption. [122] If voluntary adoption rate is high, this could provide a sound basis for a reasonable assurance that non-point source reductions will occur. However, if the rate is low, the concerns mentioned above become even more grounded and alarming. As currently drafted, there is no way for the reader to know what the rate of voluntary adoption is and so there is no way for the public to ascertain whether this is a reasonable assurance or not. MEA encourages WDNR to provide the data on voluntary rates of adoption in the Rock River Basin so that more effective and valid reasonable assurances can be assessed. **Lawton, Midwest Environmental Advocates** (p.21)

Response: Current Federal regulations do not require "technical feasibility" nor do they require a timeline or identifiable milestones for achieving load allocations (40 CFR 130). The DNR hopes to address your issues during the development of the implementation plan. While the wasteload allocations for point sources are implemented through permits, the DNR intends that the implementation plan will help prioritize and track nonpoint implementation for the TMDL.

55. Then we compared these calculated baselines to the annual baseline information presented in Appendices L, M, N, and O for 1989 – 1998 and they are very different. Appendix V baselines are different from the back-calculated values, too. I'm not sure which is incorrect, the "Required Average Percent Reduction" in Appendices H and I or the annual baselines presented elsewhere. I assume the "Required Average Percent Reductions in Appendices H and I are annual average percent reductions, right? Or if not, why not?

It might be best if WDNR would provide all of the baseline information for each reach in the appendices, so that we don't have to back-calculate at all. *Refers to Janesville/Reach 76* **Carlson, Strand Associates**

The WDNR should include an additional appendix with stream flows and all of the point and nonpoint sources' baselines and allocations listed by reach and by month to allow an independent review of the baselines, allocation method, load allocations, and WLAs. For example, we are unable to easily determine why the Janesville WWTP's minimum monthly phosphorus WLA would result in a required effluent concentration of 0.09 mg/L while the City of Beloit WWTP's effluent concentration would be 0.21 mg/L. It is very difficult and time-consuming to extract information from the draft report required to answer questions like these. Significant effort is required to back-calculate baselines for the point sources. Monthly stream reach flow rates should also be provided. Including example calculations with graphics in the report would also help. We will submit a suggested appendix format that might be helpful. *Could not find suggested appendix format.* **Steinbach, RR TMDL Group**

It is our understanding that the load allocations and the required reductions in load to meet the requirements of the TMDL were done on a proportional monthly basis. My staff has had multiple discussions with other professionals and the WDNR on this issue and it remains very unclear how those calculations were completed. In fact, professional staff from multiple agencies has different understanding of how this allocation was calculated. My staff understanding is as follows:

a) the calculations were done on a weekly basis
b) for any given week if a 80% reduction in the load was required to reduce the load delivered to the stream to the assimilative capacity than that 80% reduction was required uniformly over all sources regardless of the percentage that each source makes of the total load.
c) these reductions are then sunm1ed up to an annual load reduction and that load reduction is compared to the existing load and an average annual load reduction is calculated.

Further, as those calculations are not provided in the report the allocation method cannot be accurately checked or interpreted by professional staff or the public in general. Example calculations and sufficient information for staff to complete similar calculations for each watershed should be included in the report. This is necessary as understanding how the required reductions were generated is critical to both public and private acceptance of the TMDL. Not only should the explicit calculations be shown, examples should be provided so that user of modest technical knowledge could understand how they are being regulated. **Phillips, City of Madison**

We request a better explanation of the allocation method used. It does not appear to be an "equal percent reduction" method although this is stated in Section 6.2, Load Allocation Approach. For example, according to information presented in the TMDL, the Janesville WWTP represents 98.5 percent of the annual baseline loading to its stream reach, yet its annual WLA is 94.8 percent of the TMDL. If the equal percent reduction method was used, the Janesville WWTP WLA would be 98.5 percent of the TMDL. **Lynch, City of Janesville**

<u>Response</u>: All load allocations were made on a monthly basis. See response to comment 4 for a detailed example.

56. The Janesville WWTP's design average flow was updated a few years ago and we request the WDNR use the new design average flow of 16.1 mgd to determine the WWTP baseline and waste load allocation.

We are unable to determine why the Janesville WWTP's minimum monthly phosphorus WLA would result in a required effluent concentration of 0.09 mg/L (at the design average flow of 16.1 mgd) while the City of Beloit WWTP's effluent concentration would be 0.21 mg/L at their design average flow. Both WWTPs discharge into the same 303(d)-listed segment of the main stem of the Rock River (river mile 171.08 to 183.45), so it would be logical that they would have similar required effluent concentrations. It is difficult and time-consuming to extract the required information from the draft TMDL report to determine why these effluent concentrations are so different. The WDNR should provide all of the background information used to determine targets, baselines, and allocations for all of the individual reaches, point sources, and nonpoint sources so stakeholders can verify the information and understand the TMDL. Please specifically provide the monthly stream flows, sub basin area, and other information requested in our consultant's 1/21/11 e-mail. *See Carlson comments above for 'consultant's 1/21/11 email'* **Lynch, City of Janesville**

Reach 76 where the Janesville WWTP discharges is in one of the smallest sub basins in the TMDL and over 95 percent of the loadings to the reach are reported to be from the Janesville WWTP. This places essentially the entire burden for load reductions on the WWTP and results in a WWTP TMDL-based limit close to the water quality criterion during dry weather. The Janesville WWTP's small WLA is unfair since roughly 75 percent of the upstream loadings are from agriculture, and since other similar WWTPs that discharge into the same 303(d)-listed segment of the river have higher WLAs. We appreciate the WDNR's recent proposal to request an increase in the size of Reach 76 by combining some reaches. The WDNR should also explore other allocation methods that recognize cost-effectiveness and do not create a bias based on reach size or other unrelated factors. **Lynch, City of Janesville**

Response: See response to comment 18 for explanation of reach delineation approach. Pollutant loads were allocated to reaches starting at the headwaters of the basin and moving downstream. Dischargers in upstream reaches are not expected to go beyond what is required to meet criteria in their immediate receiving waters in order to reduce the burden on downstream dischargers whose location makes meeting criteria more difficult.

57. Have you thought about how UW-Madison's MS4 will be handled in the TMDL? They must be lumped in with City of Madison in the current (12/20/10) draft, but I wondered if they would be separated out when you (or the consultants) revise the MS4 areas. We can provide the SLAMM-modeled area for UW-Madison if you need it. We have the same question about UW-Whitewater. *These comments were addressed in an email dated Monday, February 21 from K. Kirsch to J. Strand.* **Carlson, Strand Associates**

Response: Both UW-Madison and UW-Whitewater are lumped in with their respective MS4 wasteload allocations. This was done because storm sewer mapping was not analyzed at the level of analysis the TMDL analyzed at. Wasteload allocations can be adjusted during the development of an implementation plan to properly account for the universities at which point your data will be very helpful.

58. The WDNR should verify and correct the regulated areas for permitted Municipal Separate Storm Sewer Systems (MS4s) and the design average flows for wastewater treatment plants (WWTPs). The permitted stormwater urban areas used by the WDNR are significantly different than the urban areas analyzed as part of the MS4 municipalities' NR 151 permit process. The design average flows for at least two of the municipal WWTPs are significantly different than the actual design flows. We appreciate that the WDNR intends to correct these areas and flows in the draft TMDL report. These corrections will change the baselines, load allocations, and waste load allocations (WLAs) in the TMDL and so will require additional review. **Steinbach, RR TMDL Group**

Response: Due to differences in the requirements, the MS4 areas under NR 151 and the TMDL will likely be different; however, based on comments the areas and flows used in the TMDL were checked and if needed corrected. The most substantial changes occurred with the MS4 areas. Allocations and wasteload allocations were adjusted accordingly.

59. As currently completed in the TMDL the City of Madison is modeled with 20284 acres of watershed area in the Rock River watershed. Reviewing this against our modeling as part of NR-151 we believe we have 35,924 acres of watershed in the Rock River based on 2004 MS4 limits. This is an error of 77%. As the municipal area in the watershed has certainly grown since 2004, the error will have grown as well. As Department staff is aware, as land use changes from Agriculture to Urban the loadings will decrease significantly. This will reduce both existing loads and the anticipated load reduction needed to meet assimilative capacity in the resource. Work by AECOM shows that we are not alone in experiencing this type of error.

Based on this, significant revisions will be required to correct errors in the calculations. It is important that the calculations be accurate and clearly understood. We are unclear as to how this will be resolved and where the associated benefits will be applied. Further, going forward as agriculture land converts to urban and loads are reduced does agriculture or the MS4 get credit for this "improvement". **Phillips, City of Madison**

The WISCLAND database used to determine MS4 areas is significantly different than the urbanized areas used for compliance with our MS4 Stormwater Permit.

We request the urbanized area used for the Town WLA be checked and be adjusted to the 2000 Census Bureau Urbanized Area map. We also request the review of the corrected land areas prior to final TMDL rule establishment.

Bristol **–** 203.3 ac in Appendix V versus 466 ac in Stormwater Permit
Cottage Grove –339.23 ac in Appendix V versus 554 acres in Stormwater Permit
(both Stormwater Permits were based on 2000 Census Urbanized Area for Madison Metropolitan area.) **Derr, Town of Bristol Hampton, Town of Cottage Grove**

<u>Response</u>: Using 2010 NASS/Wiscland composite land cover, the City of Madison has 29,602 acres in the basin. The areas of all MS4s were updated in this fashion and baseline NPS loading estimates from SWAT were reduced by the fraction of the reach basin that changed land cover from the original Wiscland layer. Non-urban land cover in the MS4 boundary was considered non-urban NPS. Pollutant loads from these areas are not part of the wasteload allocation for the MS4.

60. We are officially withdrawing our support for items 2 and 3 of the comments dated January 28, 2011 submitted by the Rock River TMDL group. The City of Beloit does not support combing reach 76 with reach 79. This would decrease the waste load allocation given to the City of Beloit's wastewater treatment plant. The TMDL reaches should not be changed to benefit one WWTP while negatively impact another.

There is an area within the City of Beloit which drains to the Rock River but is not shown to be included in the Rock River watershed in the TMDL. This area is within our MS4 and we are responsible for the runoff for this area. This area should be included in the TMDL and additional waste load allocation should be given to the City of Beloit MS4 for this area. **Botts, City of Beloit**

Response: The boundaries for the watersheds for impaired segments are based on surface topography and do not reflect alterations to drainage areas made by drain tile or storm sewer. In cases were, after additional analysis and verification, boundaries are altered by drain tile or storm sewer allocations will be adjusted accordingly during the implementation planning; however, may require an update to the TMDL. In the specific case of the City of Beloit, any new area identified draining into the Rock River from the MS4 will be assigned the same unit load wasteload allocation as the rest of the MS4 allocation for the watershed.

61. The "Urban Permitted MS4" load in the TMDL report for the Town of Bristol (Town) has %TSS and %TP removal rates that will be extremely expensive to achieve and not cause a corresponding improvement in water quality due to the miniscule portion of the entire load that comes from our urbanized areas.

This TMDL could result in wasting significant amounts of our funds to implement water quality improvements that will not appreciably improve water quality. At the same time, other more significant contributors (Agricultural and Non-permitted Urban) will not spend any money to implement water quality improvements since there is no permit requiring them to do so. **Derr, Town of Bristol**

We feel the TMDL requirements to remove significantly greater amounts of pollutants are inequitable due to our small urban loading contribution. **Derr, Town of Bristol Hampton, Town of Cottage Grove**

Response: The allocations are proportional to the baseline mass contribution from different sources. The TMDL outlines the reductions needed to meet water quality standards relying on existing regulatory mechanisms for implementation of the reductions.

62. We request that the TMDL Waste Load Allocation (WLA) for the Town be recalculated for Town loading into the Upper Koshkonong Creek and Door Creek/Lake Kegonsa watershed. We also request review of the corrected drainage areas prior to final TMDL establishment. **Hampton, Town of Cottage Grove**

<u>Response</u>: Drainage areas have been checked and any corrections made.

63. When the 2010 census is completed in 2012, many additional municipalities will enter the category of permitted urban MS4s. Will the TMDLs need to be recalculated at that time, to account for the increased number of Permitted Urban MS4s? We could not find anything in the TMDL that addresses this issue.

> We request that the WDNR group permitted and non-permitted MS4s in the same category based on the similar baseline loading rate and method of stormwater discharge. **Derr, Town of Bristol Hampton, Town of Cottage Grove**
>
> However, by grouping agricultural with non-permitted urban load allocations, the true loading from Non-permitted Urban MS4 is unknown but certainly much lower than Urban Permitted MS4. As stated in #5 above, the Pie Charts on Page 34 show a very insignificant loading for both urban permitted and non-urban permitted so the target allocations should be much higher for these land uses as compared to agricultural.
>
> As stated above, we request that the WDNR group permitted and non-permitted MS4s in the same category based on the similar baseline loading rate and method of stormwater discharge. **Derr, Town of Bristol Hampton, Town of Cottage Grove**

<u>Response</u>: If additional MS4s are permitted than allocations can be shifted between the load allocation and wasteload allocations to properly account for new permitted MS4s. This may require an update to the TMDL and the question has been posed to US EPA. The loadings used in the TMDL analysis for permitted MS4s and non-permitted municipalities did differ and EPA requires that MS4s be assigned wasteload allocations while non-permitted municipalities are assigned load allocations. As such, permitted MS4s and non-permitted municipalities can not be combined into the same category.

64. We request that the Town TMDL Urban Permitted MS4 Baseline and Waste Load Allocation (WLA) be recalculated using the TSS and TP unit loading rates from the stormwater modeling from our Stormwater Permit. We also request the review of the corrected unit loading rates prior to final TMDL rule establishment.

> Bristol – permit modeling = baseline loading rate of 96.2 lbs TSS/acre /year (224,216lbs/5 years/ 466 acres) versus Appendix V = 152.4 lbs TSS/acre/year (15.49 tons* 2000 lbs/ton/203.3 acres)
>
> Cottage Grove - permit modeling = baseline loading rate of 96.4 lbs TSS/acre /year (267,093 lbs/5 years/554 acres) while Appendix V = 153 lbs TSS/acre/year

(26.01 tons * 2000 lbs/ton/339 acres) **Derr, Town of Bristol Hampton, Town of Cottage Grove**

<u>Response</u>: The unit loads calculated for your Stormwater Permit do not correspond to the modeling period used in the TMDL (1989-1999) and they do not vary by month but rather represent an average annual condition for 1981 as required under NR151.12(1)(b) and therefore are not equivalent nor useable in the calculation of allocations for the TMDL.

65. In comparing the Load Allocation and Waste Load Allocations, the waste load allocations are less than the load allocation for nine of the twelve months and the actual totals are significantly less for WLA than LA. In other words, the targets for the urban permitted MS4 are more restrictive than Agricultural despite the fact that Agricultural contributes 20 times more TSS/TP loading.

We request that the target load allocations be representative of the actual loading from the differing land uses in the watershed. In other words, the TSS load allocation target should be significantly higher for Urban MS4 due to the relatively small contribution in the loading. **Derr, Town of Bristol Hampton, Town of Cottage Grove**

<u>Response</u>: The allocations are proportional to the baseline contribution by source area and therefore do represent the actual loading from differing land uses in the watershed. Agricultural sources have a larger allocation than MS4s; however, both sources have reductions to their existing loads to meet the allocations. Allocations vary based on month due to stream flows and runoff volumes. To assign a higher allocation to MS4s allowing them to increase loadings and a lower allocation to agricultural sources as you suggest would require percent reductions beyond 100% for agricultural areas.

66. While the amount of [construction loading] is not listed in the report, the loading calculated for the Yahara Lakes by the UW-Nelson Institutes suggest 25% of the TP/TSS load comes from construction sites (twice as much as urban permitted MS4 loads). However, the TMDL calculations attach much less of a pollutant load to construction sites.

We request that the construction loading be listed explicitly in the report so that it can be reviewed and commented on. **Derr, Town of Bristol Hampton, Town of Cottage Grove**

<u>Response</u>: DNR was unable to verify any studies by the UW-Nelson Institute of Environmental Studies that suggests 25% of TP/TSS load comes from construction sites. Dane County Land Conservation Department has provided data that shows that in the mid 1990s an estimated 19% of phosphorus loadings came from construction sites. This data predates implementation of Dane

County's erosion control ordinance. The implementation of the ordinance and the reduction of the number of acres under construction have substantially reduced the contribution of construction sites. The current allocation in the TMDL reflects compliance with Dane County's ordinance and compliance with NR 151.

67. The method of presentation of the load allocations presented in the draft Rock River TMDL do not allow the reader to determine the accuracy of the proposed allocations in the TMDL. We would request that a copy of the model be provided to allow for an independent review of the information presented in the TMDL. This would allow affected parties to review the accuracy of the predicted 1989 to 1998 growing seasons total phosphorus concentrations as summarized in Appendix G which appear to be the critical values used to determine the predicted number of exceedances during a growing season. One potential issue of concern with this data set is that many of the WWTFs in the Rock River Basin were not removing phosphorus during some or all of these years.

Several key pieces of information have not been provided with the draft TMDL such as stream flows by reach. A breakdown of baselines between agriculture and non-permitted urban areas is provided, but this breakdown is not provided for the load allocations.

There are several apparent errors in the draft TMDL report including the MS4 regulated areas, some of the WWTP design flows, and the MS4 and nonpoint source baselines. When nonpoint source and MS4 baselines are back-calculated from information in appendices H and I, they do not agree with baselines provided in appendices L, M, N, O, and V. These need to be corrected and a second draft TMDL report provided along with a 30 day minimum public review and comment period.

Table A-1 indicates fairly poor SWAT validation results for some of the watersheds in the Basin. It may not be reasonable to assume the USEPA and WDNR can create a more accurate model; however, it is unreasonable to require multimillion dollar investments on the part of dischargers when the model uncertainty is that high.

Wastewater treatment facilities are a negligible source of TSS in the Rock River Basin. Since WWTFs are a negligible source of TSS in the Basin they should have waste load allocations (WLAs) set equal to design flow times their current concentration limits for TSS. The daily factor of 2.39 should still be applied to any monthly WLAs determined in this manner. TSS WLAs in the draft TMDL vary greatly depending on the land use in the sub-basin; this creates high WWTF TSS WLAs in many cases which would, in theory, be available for trading. However, these trades would be "paper" trades since the WWTFs are not a significant source of TSS. It would be better to set WWTP WLAs as described above (permit limit x design flow x 8.34) and allow agriculture to have the resulting additional load allocations. **Koltz, WI Section – Central States WEA Government Affairs Committee**

<u>Response:</u> These comments have been addressed in the final TMDL through providing flow data, updated MS4 calculations, and re-allocation of TSS loads between point sources and agricultural sources. In addition, raw data has been made available in a large summary table that is available in an electronic format. The uncertainty in SWAT model predictions, which is highest in extreme events, was addressed through the allocation process by reducing the impact of extreme events on the allocations.

68. The District recommends that data in some of the appendices be reorganized and additional data be added to allow for easier tracking and crosschecking of load/wasteload allocations and required reductions. Specifically, we support comments made by the Rock River TMDL Group in this regard. **Taylor, Madison Metropolitan Sewerage District**

The District recommends adding two columns to appendices P and Q showing the growing season (e.g. May-October) and annual TP and TSS wasteload allocations for wastewater treatment facilities. While these values can be easily calculated from information currently presented in these appendices, explicitly showing the values may be helpful when decisions are being made regarding how wasteload allocations in a TMDL are potentially expressed in WPDES discharge permits. We also note that several other tables in the appendices include either growing season (e.g. Appendix G) or annual (e.g. Appendix J) expressions of wasteload allocations. **Taylor, Madison Metropolitan Sewerage District**

<u>Response:</u> Added suggested columns to appendices P and Q.

69. As stated earlier, the monthly loads and required reductions by watershed broken out by MS4, POINT, and Non-point should be made available as part of the report in a tabular form. **Phillips, City of Madison**

<u>Response</u>: This information has been made available in a large summary table that is available in an electronic form.

70. It is unclear from the documentation in the TMDL if the load reductions by watershed must be met on a pipe by pipe/discrete discharge point level or can be met on a municipal boundary basis for all areas discharge to a specific water body. If the requirement is to met on a discrete discharge point basis or by watershed as modeled in the TMDL the Department will need to provide GIS files showing the watersheds used in the TMDL calculations. This data would be useful regardless of the response **Phillips, City of Madison**

Response: The allocations are calculated for the watershed draining to an impaired water body. A GIS layer of municipal boundaries used in the TMDL will be made available.

Additional public comment period

71. We understand and appreciate that the WDNR intends to correct the permitted MS4 areas used in the draft TMDL report. These corrections will change the baselines, load allocations, and waste load allocations (WLAs) in the TMDL. Therefore, we request the opportunity to review and comment on an updated draft TMDL report before it is finalized and submitted to USEPA for approval. **Lynch, City of Janesville**

Response: The DNR believes an adequate comment period has been provided to comment on the development process for the TMDL. During the comment period, the MS4 areas were updated and compared to areas calculated for compliance of NR 151 requirements. This resulted in changes to the area and resulted in modification of allocations. The process used to calculate the allocations remained unchanged.

72. We believe that implementation is an important enough concept to warrant additional development and public comment before the TMDL is finalized. **Kent, Municipal Environmental Group League of Wisconsin Municipalities**

Response: The TMDL relies on existing regulations for implementation. Development of an implementation plan can not supersede existing regulations.

73. Additional comments will be needed on the proposed TMDL. It is however, difficult to formulate those questions as the information provided in the draft is insufficient and the time granted to provide comments limits the ability to obtain responses (in writing) from Department staff given the time of year the comment period was open. **Phillips, City of Madison**

Response: The comment period was extended to account for holidays falling within the comment period and to allow stakeholders time to respond to modifications made in the TMDL to address discrepancies between MS4 areas in the TMDL and NR 151 compliance calculations.

74. It appears this will be the first TMDL to affect point source dischargers in Wisconsin and may be used as an example for future TMDLs. These considerations support our request for a revised draft TMDL followed by ample additional time to review and comment on the revised draft to make sure the TMDL is scientifically sound and results in cost-effective water quality improvements. **Steinbach, RR TMDL Group**

Response: The TMDL was developed with input from stakeholders and an extended comment period has already been provided.

75. Additionally, by setting a target concentration for all months and reaches, the public cannot comment effectively because it is impossible to determine concentrations by reach and compare LAs/WLAs to the baseline load. **Lawton, Midwest Environmental Advocates**

Response: The target concentrations varied by reach based on the nutrient criteria; however, target concentrations did not vary by month. The modeling conducted as part of the TMDL development process checked allocations and the resulting concentrations against the nutrient criteria concentrations. As also noted in an earlier MEA comment, seasonal fluctuations are important, therefore the allocations were made on a monthly basis.

76. There are many instances where the Draft TMDL does not provide the data necessary for adequate public comment as required by Federal and Wisconsin regulation. In order to comply with Federal and Wisconsin regulation, adequate public comment must be provided. As currently drafted, there are many areas that cannot be properly evaluated due to a lack of data provided. WDNR should provide the information noted above and allow for further comment after the provisions of this data. **Lawton, Midwest Environmental Advocates**

Response: The TMDL was prepared using all available information and data for the calculation of the total loading capacity and resulting load allocations. Unpublished data and cited works in the TMDL are available upon request if not already included in the appendices. Raw data may be provided by entities referenced in the document. The sheer volume of all the available data makes printing all of this in the TMDL report unreasonable. The final TMDL includes tables in an electronic format that detail the allocation process